Pacific Coast Groundfish Fishery 2025-26 Harvest Specifications and Management Measures

The Preferred Alternative

and Complete Analysis of 2025-26 Harvest Specifications and Management Measures

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Acronyms and Abbreviations

ABC	Acceptable biological catch
ACL	Annual catch limit
ACT	Annual catch target
AM	Accountability measure
B_0	Biomass, unfished
BAC	Block Area Closure
BIOP	Biological opinion
BRA	Bycatch reduction area
BRD	Bycatch reduction device
CA/OR/WA	California, Oregon, and Washington
CCA	Cowcod Conservation Area
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CP	Catcher-processor
CPFV	Commercial passenger fishing vessel
CPUE	Catch per unit of effort
CRFS	California Recreational Fisheries Survey
DB-SRA	Depletion-based stock reduction analysis
DCAC	Depletion-corrected average catch
DEIS	Draft Environmental Impact Statement
DPS	Distinct population segment
DTL	Daily trip limit (fishery)
DTS	Dover sole, thornyheads, and sablefish
EA	Environmental Assessment
EC	Ecosystem component
EDC	Economic Data Collection (Program)
EEZ	Exclusive Economic Zone
EFH	Essential fish habitat
EFP	Exempted fishing permit
EIS	Environmental Impact Statement
ESA	Endangered Species Act
fm	fathom or fathoms
F	Fishing mortality
FEIS	Final Environmental Impact Statement
FEP	Fishery Ecosystem Plan
FMP	Fishery Management Plan
GAP	Groundfish Advisory Subpanel
GCA	Groundfish Conservation Area
GMT	Groundfish Management Team
HAPC	Habitat Areas of Particular Concern
HCR	Harvest control rule
HG	Harvest guideline
IBQ	Individual bycatch quota
IFQ	Individual fishing quota
IOA	Incidental Open Access

IOPAC	Input-output model for Pacific Coast fisheries
ITS	Incidental take statement
LE	Limited entry
LEFG	Limited entry fixed gear
M	Instantaneous rate of natural mortality
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSE	Management strategy evaluation
MSST	Minimum Stock Size Threshold
MSY	Maximum sustainable yield
mt	Metric ton
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NWFSC	Northwest Fisheries Science Center
OA	Open access
ODFW	Oregon Department of Fish and Wildlife
OFL	Overfishing limit
OFS	Overfished species
ORBS	Ocean Recreational Boat Survey
OY	Optimum yield
P*	Overfishing probability
PacFIN	Pacific Fisheries Information Network
PMFC	Pacific Fishery Management Council (used in references)
PR	Private/rental boats
QP	Quota pounds
QS	Quota share
Rec	Recreational
RecFIN	Recreational Fisheries Information Network
RCA	Rockfish Conservation Area
RCG	Rockfish, cabezon, and greenling
RES	Research
SAFE	Stock Assessment and Fishery Evaluation
SPR	Spawning potential ratio
SSC	Scientific and Statistical Committee
STAR	Stock Assessment Review
SWFSC	Southwest Fisheries Science Center
Tmin	Maximum time to rebuild
Tmax	Minimum time to rebuild
Ttarget	Target year for rebuild
VMS	Vessel monitoring system
WCBTS	West Coast Bottom Trawl Survey
WCGOP	West Coast Groundfish Observer Program
WCR	West Coast Region
WDFW	Washington Department of Fish and Wildlife
YRCA	Yelloweye Rockfish Conservation Area

Executive Summary of Action

Organization
This document presents the analysis of 2025-26 management measures to the Pacific Fishery Management Council (Council) and stakeholders. In the past, this document was divided by alternative (e.g., No Action, Alternative 1, etc.); however, it was brought to Council staff's attention that this organizational method did not allow for easy comparison of a sector across all alternatives. In an attempt to design a more efficient and effective presentation of the analytical document, staff have changed the organization to a recommended approach. This document presents the analysis for each alternative by sector, i.e., trawl, non-trawl, etc.

Purpose and Need
The purpose of this action is to prevent overfishing while achieving, on a continuing basis, the optimum yield from the fishery. (MSA § 301(a)(1)). The need is in response to new scientific data and information about the stocks and stock complexes and the needs of fishing communities, to provide additional tools to ensure catch limits are not exceeded, and to afford additional fishing opportunities where possible.

Action Area
The management area for this action is the EEZ, defined as 3 nautical miles to 200 nautical miles from shores along the coasts of Washington, Oregon, and California and the communities that engage in fishing in waters off these states. Figure 1 in the Groundfish FMP (PFMC 2020) depicts this management area

Alternatives.
The biennial process is different than most processes the Council undertakes. In the vast majority of actions, the Council is presented analyses with just the No Action and Action Alternatives. However, in past biennial processes (e.g. 2021-22, 2023-24, etc.), analysis was organized as Baseline, No Action, and the Action. In these past documents, Baseline analyzed the first year of the previous biennium, as final fishery data was available for that year. For example, the Baseline year for the 2021-22 document was 2019. Baseline was not a viable alternative but used as a tool to compare the differences between bienniums in such things as annual catch limits (ACL), allocations, etc. No Action analyzed the default harvest control rule (HCR) scenario, and the Alternative(s) analyzed the alternative HCR(s) under consideration by the Council. In past documents, only No Action and the Alternative(s) were viable for adoption by the Council. Unfortunately, this organization does not align well with the National Environmental Policy Act (NEPA) documents, e.g., Environmental Assessment (EA), Environmental Impact Statement (EIS), etc., noting that Baseline is not an alternative generally found or compared in NEPA analyses. The structure of these past documents led to confusion and inefficiency in providing information to Council members, advisory bodies, and stakeholders. This 2025-26 biennial process presented the opportunity to better align the Council analysis with the NEPA document. Council staff intends to organize the 2025-26 analysis in the following manner: No Action, Alternative 1, and Alternative 2.

No Action

Generally, the No Action alternative embodies how the fishery would continue to operate in the absence of Council action and without revisions to federal regulations. In most analyses, a comparison of action alternatives to the No Action alternative is a useful and meaningful comparison to gauge the magnitude and direction of various environmental effects, particularly in the context of the MSA and the NEPA.

Consistent with the Pacific Coast Groundfish Fishery Management Plan (FMP), each biennium default harvest control rules (HCRs) are applied to the best scientific information available (BSIA) to determine the numerical values of the harvest specifications for the 2025-26 biennial period. The process of applying default HCRs to BSIA is described in Chapter 5 of the FMP. Because of this framework, it makes the No Action alternative (which would include harvest specifications that are not updated based on BSIA) an untenable alternative for the upcoming biennium. Because No Action is untenable, it is not meaningful in the context of NEPA or MSA to make comparisons to No Action. Therefore, in the following comparative analysis, the action alternatives are largely compared amongst themselves and not to the No Action alternative.

However, analysts appreciate that the Council may find a comparison of harvest specifications from 2023-24 and the default and alternative 2025-26 harvest specifications meaningful. Since 2024 mortality data will not be available, this analysis uses 2023 harvest specifications and the corresponding mortality data as a proxy for 2023-24 harvest specifications under No Action. It is presented as a reference point for the Council and stakeholders to understand the differences between the 2023-24 biennial specifications and management measures and the default and alternative 2025-26 biennial specifications and management measures. The detailed analyses of No Action harvest specifications and management measures can be found in Informational Report 2, September 2022.

This Action considers No Action and four Action Alternatives

- **No Action:** 2023 harvest specifications and management measures used as proxy for 2024 impacts. Largely used as a comparison of the current fishery to the Alternatives. Does not apply BSIA to the stocks and therefore, these harvest specifications cannot be adopted.
- **Alternative 1:** Alternative 1 analyzes the default HCR condition for all stocks, where BSIA is used to update harvest specifications. In the past, this alternative was considered the No Action alternative.
- **Alternative 2:** Alternative 2 reflects the default HCR condition for all stocks/stock complexes except for Dover sole, rex sole, and shortspine thornyhead. It also analyzes the ABC Rule harvest specifications for California quillback rockfish
- **Alternative 3**: Alternative 3 reflects the default HCR condition for all stocks/stock complexes except for California quillback. Alternative 3 analyzes the California quillback rockfish harvest specification as specified by CDFW.
- **Alternative 4:** Alternative 4 reflects the default HCR condition for all stocks/stock complexes except for California quillback. Alternative 4 analyzes the F=0 rebuilding strategy for California quillback rockfish

Harvest Specifications

The Council adopted default harvest control rules (HCRs) to calculate harvest specifications for all the majority of managed stocks and stock complexes as Final Preferred Alternatives (FPA).

The Council adopted Alternative 2 for Dover sole, rex sole, and shortspine thornyhead as their FPA (TABLE ES 1).. The Council considered rebuilding strategies, noted as Alternatives 1 through 4, and rejected Alternative 1 and Alternative 3 from the range. The Council adopted Alternative 2, the ABC Rule, as their FPA.

TABLE ES 1. Alternative 2025-26 harvest control rules for rex sole, shortspine thornyhead, Dover sole, and California quillback rockfish considered by the Council.. The FPA is bolded and presented in the greyed out rows

Stock	Alternative	Harvest Control Rule
Rex Sole	Alternative 1	Default: ABC = ACL (P* = 0.40)
	Alternative 2 (FPA)	**ABC = ACL (P* = 0.45)**
Shortspine Thornyhead	Alternative 1	Default: Precautionary; ACL < ABC, 40-10 rule ACL split N (70.6%) and S (29.4%) of 34° 27' N. Lat. 5-yr rolling avg of biomass estimates from WCGBT survey (P* = 0.40)
	Alternative 2 (FPA)	**Precautionary; ACL < ABC, 40-10 rule**
Dover Sole	Alternative 1	Default ACL = 50,000 mt
	Alternative 2 (FPA)	**ABC <ACL (P* = 0.45)**
CA Quillback Rockfish (FPA)	Alternative 1	Default HCR: SPR = 0.55, ACL = ABC (P* = 0.45)
	Alternative 2 (FPA)	**ABC Rule**
	Alternative 3	CDFW proposed (November 2023)
	Alternative 4	F=0 (i.e., no fishing mortality)

Rex Sole

The Council adopted Alternative 2 for rex sole as FPA. Under Alternative 2 HCR for rex sole, ten-year depletion projections indicate the stock remains healthy and above the management target 25% B_{MSY} under Alternatives 2 and associated harvest levels. Alternative 2 does not appear as if it will negatively impact stock status in the projection period. Alternatives 2 demonstrate a similar trend in ABC specifications over the next ten years and the HCR (P*=0.45) allowing for slightly higher harvest. Alternative 2 was selected as the Council's PPA in November 2023.

Dover Sole

The Council adopted Alternative 2 as FPA for Dover sole, noting Alternative 1 results in an ACL greater than ABC, which is untenable. Under Alternative 2, decreasing trends for spawning biomass and the fraction unfished are noted; however, the stock is expected to remain above the 25% depletion management target during the ten-year period. Alternative 2 provides an option for allowable harvest to keep the stock status within the management target yet acknowledging that the biomass trend is decreasing over the projection period

Shortspine Thornyhead

The Council adopted Alternative 2 as FPA for shortspine thornyhead. Under Alternative 2, projections indicated that stock status would slowly decline before beginning a slow rebound over the next ten years. However, this alternative HCR would not rebound beyond the precautionary

zone within the ten years projected by the assessment. Alternative 2 presents a longer-term trade-off in higher harvest but would result in the stock status remaining precautionary for a longer period and thus the 40:10 harvest control rule would remain in effect as well. Under Alternative 2 the upward trajectory of the stock is lower than Alternative 1; however, the Council acknowledged this Alternative could reduce constraints to fishing by the fleet.

California Quillback Rockfish

The Council adopted Alternative 2 as the FPA rebuilding strategy. This strategy is expected to rebuild the stock two years faster than Alternative 1 and with a higher probability of achieving rebuild by 2062 than Alternative 1. Alternative 3 was removed from further consideration as it did not align with the rebuilding plan. Alternative 4 would rebuild the stock by 2045, but would require zero(0) fishing mortality.

The output from the HCRs when applied to the best scientific information available for each stock include overfishing limits OFL), acceptable biological catch (ABC), and annual catch limits (ACL) for all stocks and stock complexes actively managed under the Groundfish FMP (see Table 8 and Table 9 in the main document). These metrics are described in detail in the Stock Assessment and Fishery Evaluation document(PFMC,2024), which is incorporated by reference. Under Alternative 2 HCR, the rex sole, shortspine thornyhead, Dover sole, and California stock of quillback rockfish are shown in TABLE ES 2.

TABLE ES 2. Final preferred harvest specifications of stocks considered under alternative harvest control rules.

Stock	Area	2025			2026		
		OFL (mt)	ABC(mt)	ACL (mt)	OFL (mt)	ABC(mt)	ACL (mt)
Rex sole	Coastwide	5,205.59	4,549.68	4,549.68	4,299.66	3,719.21	3,719.21
Shortspine thornyhead	Coastwide	939.75	821.34	-	961.08	831.33	-
	North of 34°27' N. lat.	-	-	575.62	-	-	582.29
	South of 34°27' N. lat.	-	-	239.70	-	-	242.48
Dover sole	Coastwide	51,214	47,424	47,424	46,049	42,457	42,457
Quillback rockfish	California	1.52	1.30	1.30	1.77	1.50	1.50

Management Measures

Off-the-Top Deductions

Off-the-top deductions (i.e., set-asides) are made to the ACL to account for mortality in Pacific Coast treaty Indian tribal fisheries, research, exempted fishing permits (EFP), and incidental open access fisheries (IOA). The ACL minus the off-the-top set-asides results in the harvest guideline (HG). The Council adopted a rolling ten year maximum of estimated mortality method to calculate the off-the-top deductions for research and IOA. The Alternative 1 deductions were adopted as FPA, with the exceptions noted in TABLE ES 3. The Council did not adopt any EFP set-asides.

TABLE ES 3. Research and incidental (IOA) off-the-top deductions which depart from the rolling 10 year maximum methodology

Stock/Stock Complex	Research (mt)	IOA (mt)
Bocaccio South of 40 10 N. lat.	2.2	NA
Canary Rockfish	10.1	2.8
California Quillback Rockfish	0.1	NA
Darkblotched Rockfish	NA	10.7
Longspine Thornyhead north of 34 27 N. lat	NA	1.3
Petrale Sole	NA	4.4
Sablefish south of 36 N. lat. 25	NA	25.0
Nearshore Rockfish north of 40 10 N. lat.	NA	1.1
Slope Rockfish south of 40 10 N. lat.	NA	0.9
Yelloweye rockfish 3.9 mt	2.9	3.9

Tribal

The Council adopted Alternative 1 tribal set-asides, noting there was an increase to the yelloweye set-aside, a decrease in the petrale sole set-aside, and an addition of a set-aside for starry flounder.

Annual Catch Target

The Council established for recreational copper rockfish south of 34°27′ N. lat., removed the California quillback rockfish ACT. No changes were made to the yelloweye rockfish ACT.

Amendment 21 and Biennial Allocations

The Council reduced the widow rockfish non-trawl allocation to 300 mt and changed the shortspine thornyhead allocations as summarized in New Management Measures below. All other stocks/stock complex allocations were not modified under the FPA.

Rebuilding Species Allocations

The Council maintained the Alternative 1 yelloweye rockfish rebuilding allocation structure.

Harvest Guidelines and State Shares for Stocks in a Complex

Under the FPA, HGs and state shares for species in a complex remain unchanged.

Trawl: Individual Fishing Quota and Pacific Whiting At-Sea Fisheries

The Council adopted management measures for the trawl IFQ fishery and the at-seas whiting fishery as detailed in Agenda F.5.a, Supplemental GMT Report 4, April 2024 and the recommended by the GAP (Agenda F.5.a, Supplemental GMT Report 1, April 2024). No changes were made to the trawl IFQ program or non-IFQ species trip limits. Changes were made to at-sea sector set-asides as shown in TABLE ES 4.

TABLE ES 4 At-sea whiting set-asides which changed compared to status quo

Stock	Set-aside (mt)
Arrowtooth flounder	100
Canary rockfish	20
Darkblotched rockfish	100
Other Flatfish complex	100
Sablefish north of 36° N. lat.	429
Widow rockfish	300
Yellowtail north of 40°10′ N. lat.	360

Non-Trawl: Commercial

The Council adopted a suite of LEFG and OA trip limit modifications detailed in Appendix 2 and 3 of Agenda F.6.a, Supplemental GMT Report 1, June 2024 as their FPA.

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Recreational Fishery

Washington

The Council adopted the proposed Washington recreational fishery management measures as recommended in Agenda Item F.5.a, Supplemental WDFW Report 1, April 2024. The aggregate groundfish bag limit will be nine fish per day which includes sub-limits of seven rockfish, two lingcod, and one cabezon plus five additional flatfish species, not including Pacific halibut, which can be retained in addition to the nine groundfish daily limit. Canary rockfish subject to a five fish sub-bag limit as recommended in Agenda Item F.6.a, Supplemental WDFW Report 1, June 2024.

TABLE ES 5. FPA. Proposed 2025-26 Washington recreational season structure and bag limits

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	BF Closed		BF Open a/			BF Open <20 fm a/ b/ c		BF Open			BF Closed	
2 (S. Coast)	BF Closed		BF Open d/e/								BF Closed	
1 (Col. River)	BF Closed		BF Open f/ g/								BF Closed	

a/ Retention of copper, quillback, and vermilion rockfishes prohibited May 1 through July 31.

b/ Retention of lingcod, Pacific cod, sablefish, bocaccio, silvergray rockfish, canary rockfish, widow rockfish, and yellowtail rockfish allowed >20 fm on days when Pacific halibut is open June 1 through July 31.

c/ Retention of yellowtail and widow rockfishes is allowed >20 fm in July.

d/ From May 1 through May 31 lingcod retention prohibited >30 fathoms except on days that the primary Pacific halibut season is open.

e/ When lingcod is open, retention is prohibited seaward of a line drawn from Queets River (47°31.70' N. Lat. 124°45.00' W. Lon.) to Leadbetter Point (46° 38.17' N. Lat. 124°30.00' W. Lon.), except on days open to the primary Pacific halibut fishery and June 1 – 15 and September 1 - 30.

f/ Retention of sablefish, Pacific cod, flatfish (other than halibut), yellowtail, widow, canary, redstripe, greenstriped, silvergray, chilipepper, bocaccio, and blue/deacon rockfishes allowed during the all-depth Pacific halibut fishery. Lingcod retention is only allowed with halibut on board north of the WA-OR border.

g/ Retention of lingcod is prohibited seaward of a line drawn from Leadbetter Point (46° 38.17' N. Lat., 124°21.00' W. Lon.) to 46° 33.00' N. Lat., 124°21.00' W. Lon. year round except lingcod retention is allowed from June 1 - June 15 and Sept 1 - Sept 30.

Oregon

The Council adopted the proposed Oregon recreational fishery management measures (Table ES 6) as recommended in Agenda Item F.5. Supplemental ODFW Report 1, April 2024, which established of a 10 fish sablefish limit in addition to the general marine bag limit.

TABLE ES 6. PPA Oregon recreational groundfish season structure and bag limits under Alternative 1. Bold indicates changes from No Action.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bottomfish Season	Open all depths											
Marine Bag Limit [a/]	Ten (10)											
Longleader Bag Limit [b/]	**Twelve (12); sub-bag of five canary rockfish**											
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [c/]	Twenty-Five (25)											
Sablefish Bag Limit	**Ten (10)**											

a/ Marine bag limit is 10 fish per day and includes all groundfish species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna, and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt; of which no more than one may be cabezon.
b/ Longleader fishing must take place seaward of the 40-fathom regulatory line with the following rockfish allowed for retention: blue, bocaccio, canary, chilipepper, deacon, greenstriped, redstripe, silvergray, widow, and yellowtail rockfishes.
c/ Flounders, soles, sanddabs, turbots, and halibuts except Pacific halibut.

California.

The Council adopted the proposed California recreational fishery management measures and season structure (Table ES 7) as. as recommended in Agenda Item F.5.a, Supplemental CDFW Report 1, April 2024. Bag limits do not change from status quo (see Chapter 8) Size limits for cabezon, greenling, and CA scorpionfish were removed, though a filet skin requirement for these species is required, as described in Agenda Item F.5.a, Supplemental EC Report 1, April 2024.

TABLE ES 7. PPA. California 2025-26 recreational groundfish season and depth restrictions

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Mendocino	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
San Francisco	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Central – N 36°	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Central – S 36°	Closed			All Depth			<50fm a/			>50fm /b		
Southern	Closed			All Depth			<50fm a/			>50fm /b		

a/July 1 through September 30
b/ October 1 through December 31

New Management Measures

Open Access Registration/Permit Program

The Council adopted a measure to establish an open access registration program as FPA. The program is expected to improve the understanding of this fishery by managers.

Update to Discard and Retention Requirements in the Electronic Monitoring Program

The Council adopted a measure to update federal regulations pertaining to discard and retention requirements in the Electronic Monitoring (EM) program for non-IFQ species to include sablefish and rex sole, and exclude California halibut.

A Coastwide Rockfish Sorting Requirement for Processors

The Council considered this new management measure and removed it from consideration under this action. This measure will be added to the groundfish new management measure list for reconsideration at a later date.

Shortspine Thornyhead Management

The Council adopted modifications to shortspine thornyhead management and allocation structure as noted in Agenda Item F.5.a, Supplemental GAP Report 1, April 2024 and in Agenda Item F.5.a, Supplemental GMT Report 2, April 2024. The measure removed the management line at 34°27′ N. lat. and established management of the ACL at the coastwide scale. The trawl/non-trawl allocation percentages are different each year of the biennium, in 2025 of 64 percent trawl and 36 percent non-trawl and in 2026, the coastwide allocation structure is 71 percent trawl and 29 percent non-trawl. The stock was also converted from a formal allocation to a biennial allocation. This measure established a non-trawl ACT north of 34° 27′ N. lat. set equal to 25 percent of the coastwide non-trawl allocation. (i.e., 2025 ACT of 67 mt and a 2026 ACT of 55 mt).

Descending Device Requirement for Recreational Vessels in Federal Waters

The Council adopted a measure to create coastwide descending device requirement in the EEZ (i.e., 3-200 nm offshore). This measure creates regulatory consistency between state and federal waters across all three states

Modify Continuous Transit Limitations in California Recreational Vessels

The Council adopted a measure to modify federal continuous transit provisions at 50 CFR 660.360(c)(3)(i)(a) for California recreational vessels in Federal waters within Recreational RCA boundary line. This modification allows recreational vessels to anchor overnight and/or stop to fish for non-groundfish species inside the seasonal Recreational RCA, also known as the "offshore fishery"

Correction to the Pacific Sand Lance Scientific Name and the Common Name for Pacific Spiny Dogfish in Federal Regulation

The Council adopted a measure to update the common name of Pacifc sand lance and the common name of Pacific spiny dogfish in Federal regulation

2025-26 Harvest Specifications: The Preferred Alternative

1.1 Description of Harvest Specification Alternatives

This section describes the Council's Final Preferred Alternative (FPA) harvest specifications for the 2025-26 biennial period. The complete analysis used to inform the Council's decision for FPA is found in Agenda Item F.2, Supplemental Revised Attachment 2, April 2024, which is incorporated by reference, though key points are summarized below. For reference, No Action reflects the 2023 harvest specifications, Alternative 1 reflects the default harvest control rule (HCR), Alternative 2 considers alternative HCRs for Dover sole, rex sole, shortspine thornyhead, and the California stock of quillback rockfish. Alternatives 3 and 4 consider alternative harvest specifications for the California stock of quillback rockfish.

1.2 The Preferred Alternative

The Council's preferred harvest specification alternatives were adopted at the April 2024 meeting (Table 8 and Table 9). The Council adopted Alternative 1 default HCRs to calculate harvest specifications for all managed stocks and stock complexes except for those identified in Table 1 as FPA. The Council adopted Alternative 2 for Dover sole, rex sole, shortspine thornyhead, and the California stock of quillback rockfish as FPA. The FPA harvest specifications for all stocks and stock complexes, except California quillback rockfish, are show in Table 3 and Table 4

Table 1. FPA. alternative 2025-26 harvest specifications for rex sole, shortspine thornyhead, and Dover sole.

Stock	Alternative	Harvest Control Rule
Rex Sole	Alternative 2 (FPA)	ABC = ACL (P* = 0.45)
Shortspine Thornyhead	Alternative 2 (FPA)	Precautionary; ACL < ABC (P* = 0.45)
Dover Sole	Alternative 2 (FPA)	ABC = ACL (P* = 0.45)
California Quillback Rockfish	Alternative 2 (FPA)	ABC Rule

Table 2 compares 2023 ACLs to 2025 and 2026 ACLs to illustrate the change between No Action and Alternative 1 for stocks not considered under alternative HCRs (i.e., Dover and rex soles, shortspine thornyhead, and California stock of quillback rockfish). Most changes are the result of 2023 stock assessment outcomes. The largest percent difference in the ACL from 2023 to 2025 is for sablefish where the ACL under the default HRC in Alternative 1 is ~230% higher than in 2023 (based on the results of the 2023 limited update stock assessment; Appendix 1). The Other Flatfish complex increase in ACL relative to 2023 (52% higher) is a result of the stock assessment conducted for rex sole, which is a component species of this complex. In most cases, the ACLs are decreasing. Canary rockfish and shortspine thornyhead decreases are noted as decreased by more than 50% due to outcomes of stock assessments conducted in 2023. Time-varying sigmas increase with increased age of the assessment for category 1 and 2 stocks accounting for most of the decrease in stocks without a new assessment in 2023 (i.e., the older an assessment is or how long ago it was conducted increases our uncertainty about the stock and thus harvest specifications decrease to account for that uncertainty).

Table 2. Comparison of 2023 (No Action) and 2025-26 FPA groundfish annual catch limits (ACLs) in metric tons (mt) under default harvest control rules (Alternative 1) as a percent change (%) . Stocks and complexes with a greater than 50% change in the ACL from 2023 to 2025 in bold. CW = coastwide

Stock/Complex	Area	ACL (mt)			% Change 2023 to 2025
		2023 (mt) No Action	2025 (mt) Alt 1	2026 mt (Alt 1)	
YELLOWEYE ROCKFISH	CW	53.3	55.8	56.6	+4.7%
Arrowtooth Flounder	CW	18,632	11,193	9,227	-39.9%
Big Skate	CW	1,320	1,224	1,188	-7.3%
Black Rockfish	WA	290	245	241	-15.5%
Black Rockfish	CA	334	234	236	-29.9%
Bocaccio	S of 40°10′ N. lat.	1,842	1,681	1,668	-8.7%
Cabezon	CA	182	162	155	-11.0%
Cabezon/Kelp Greenling	WA	20	15	15	-25.0%
Cabezon/Kelp Greenling	OR	185	177	174	-4.3%
California Scorpionfish	CW	262	244	238	-6.9%
Canary Rockfish	**CW**	**1,284**	**571**	**573**	**-55.5%**
Chilipepper	S of 40°10′ N. lat.	2,183	2,815	2,643	28.9%
Cowcod	S of 40°10′ N. lat.	80	77	75	-3.8%
Darkblotched Rockfish	CW	785	754	732	-3.9%
English Sole	CW	9,018	8,884	8,819	-1.5%
Lingcod	N of 40°10′ N. lat.	4,378	3,631	3,534	-17.1%
Lingcod	S of 40°10′ N. lat.	726	748	773	3%
Longnose Skate	CW	1,708	1,616	1,579	-5.3%
Longspine Thornyhead	N of 34°27′ N. lat.	2,295	2,050	1,957	-10.7%
Longspine Thornyhead	S of 3427	725	648	618	-10.7%
Pacific Ocean Perch	N of 4010	3,573	3,328	3,220	-6.9%
Petrale Sole	CW	3,485	2,354	2,255	-32.5%
Sablefish	**N of 36° N. lat.**	**8,486**	**28,688**	**27,238**	**238.1%**
Sablefish	**S of 36° N. lat.**	**2,338**	**7,857**	**7,460**	**236.1%**
Shortspine Thornyhead c/	**N of 34°27′ N. lat.**	**1,359**	**502**	**504**	**-63.1%**
Shortspine Thornyhead c/	**S of 34°27′ N. lat.**	**719**	**209**	**210**	**-70.9%**
Pacific Cod	CW	1,600	1,600	1,600	0.0%
Pacific Spiny Dogfish	CW	1,456	1,361	1,318	-6.5%
Splitnose Rockfish	S of 40°10′ N. lat.	1,592	1,508	1,469	-5.3%
Starry Flounder	CW	392	392	392	0.0%
Widow Rockfish	CW	12,624	11,237	10,392	-11.0%
Yellowtail Rockfish	N of 40°10′ N. lat.	5,666	6,241	6,023	10.1%
Blue/Deacon/Black Rockfish	OR	597	423	428	-29.2%
Nearshore Rockfish North b/	N of 40°10′ N. lat.	93	88	86	-5.4%
Nearshore Rockfish South b/	S of 40°10′ N. lat.	887	932	932	5.1%

Stock/Complex	Area	ACL (mt)			% Change 2023 to 2025
		2023 (mt) No Action	2025 (mt) Alt 1	2026 mt (Alt 1)	
Other Fish	CW	223	223	223	0.0%
Other Flatfish	**CW**	**4,862**	**7,974**	**7,143**	**64.0%**
Shelf Rockfish North	N of 40°10′ N. lat.	1,283	1,392	1,378	8.5%
Shelf Rockfish South	S of 40°10′ N. lat.	1,469	1,465	1,462	-0.3%
Slope Rockfish North	N of 40°10′ N. lat.	1,540	1,488	1,460	-3.4%
Slope Rockfish South	S of 40°10′ N. lat.	701	693	690	-1.1%

a/ Relative to current biomass, the default ACL results in an ACL > ABC, which is untenable.
b/ California quillback rockfish were removed from the Nearshore Rockfish complexes in November 2023. Thus, the units of comparison are offset between the 2023 ACL and 2025-2026 values in this table.
c/ Shortspine thornyhead was managed in two areas before 2025-26, hence the division.

1.3 2025-26 Harvest Specification Alternatives

The four stocks with alternative harvest specifications considered for 2025 and beyond are rex sole, shortspine thornyhead, Dover sole, and the California stock of quillback rockfish (Table 3). The Council selected their PPA in November 2023 and their FPAs in April 2024 for all stocks except California quillback rockfish. The Council adopted FPA for California quillback rockfish in June 2024. See §1.5 for the comparison of stock-specific biological impacts related to the policy choice between Alternatives 1 and 2.

1.3.1 Alternative Harvest Specifications for Rex Sole

The 2023 rex sole assessment was a length-based data-moderate assessment (Min*, et al.* 2023). The current assessment estimates the stock is 76.1% of unfished spawning output in 2023, above the 25% management target level, indicating the stock is healthy. Rex sole is part of the Other Flatfish complex and thus the assessment results lead to increases in harvest specifications for this complex under both Alternatives for 2025-2026. However, though the trajectory starts off with a high estimated spawning biomass in the next management cycle for 2025 and 2026, it then progressively decreases (and ABCs/ACLs) over the next ten years.

The Council considered the default HCR informing Alternative 1 for rex sole, which is a P* of 0.40 and set the ACL equal to the ABC, and Alternative 2 with an HCR of ACL = ABC with a P* of 0.45. The Council adopted Alternative 2 as FPA.

1.3.2 Alternative Harvest Specifications for Shortspine Thornyhead

The 2023 assessment of shortspine thornyhead was a length-based data-moderate assessment (Zahner*, et al.*, 2023). The assessment estimates that the relative spawning output of the stock is in the precautionary zone, just below the management target of 40% of unfished levels, at 39.4% in 2023. Although recruitment has been relatively stable, spawning output declined considerably from the 1970s to the late 2010s.

Under Alternative 1, the Council considered the default HCR for shortspine thornyhead, apply a P* of 0.40, with the ACL set below the ABC due to application of the 40-10 rule. The coastwide ABC is split into two-area based ACLs north (70.6%) and south (29.4%) of 34° 27′ N. lat. using a 5-yr rolling average for biomass estimates from the Northwest Fisheries Science Center (NWFSC)

West Coast Bottom Trawl Survey (WCGBT) by area. Under Alternative 2, the Council considered an HCR of P* of 0.45, with the same ABC and ACL parameters. The Council adopted Alternative 2 as FPA.

1.3.3 Alternative Harvest Specifications for Dover Sole

The Council considered the default HCR for Dover sole informing Alternative 1, which is to apply a P* of 0.45, with the ACL equal to a constant catch of 50,000 mt. Alternative 2 was proposed with a P* of 0.45 and the ACL set equal to the ABC, resulting in ACLs in 2025-26 lower than 50,000 mt (47,424 and 42,457 mt, respectively). Updated projections of stock size, provided at the November 2023 Council meeting (Agenda Item E.2 Revised Attachment 4 Nov 2023) based on the 2021 stock assessment (Wetzel and Berger 2021), with revised removal assumptions, produced ACLs lower than the ABC. The Council adopted Alternative 2 as FPA as the Alternative 1 constant 50,000 mt ACL would exceed the ABC.

1.3.4 Alternative Harvest Specifications for Quillback Rockfish in California

The results of the 2021 length-based data moderate stock assessment for quillback rockfish off California indicated the stock is below the minimum stock size threshold (MSST) of 25% unfished (Langseth et al. 2021). On December 14, 2023, the U.S. Secretary of Commerce (Secretary) declared the status of quillback rockfish off the coast of California as overfished.

At the March 2024 Council meeting, the rebuilding analysis for quillback rockfish off California conducted in 2023 was adopted, with resulting scientific rebuilding parameters (Langseth 2023). The Council considered Alternative 1 – the default harvest control rule as used in 2023-24 harvest specifications (SPR = 0.55 with ACL=ABC and P*=0.45), Alternative 2 – the ABC Rule from Langseth 2023), and Alternative 3 – the CDFW specification from November 2023, and Alternative 4 – no fishing mortality (F=0). The Council adopted Alternative 2 as their FPA.

1.4 Alternatives Considered but not Analyzed Further

The Council considered alternatives for both canary rockfish and sablefish but did not opt to pursue them for further analyses (Agenda Item E.5 and E.7, November 2023).

The 2023 benchmark assessment for canary rockfish encompassed a single area along the U.S. West Coast (Langseth*, et al.* 2023). This was a modification from the 2015 stock assessment, which was spatially explicit with distinct areas for WA, OR, and CA. The 2023 assessment of canary rockfish estimated the stock to be in the precautionary zone at 35% of unfished biomass (below the 40% management target). The default HCR for canary rockfish is to apply a P* of 0.45 with the ACL less than the ABC, due to application of the 40-10 rule. During the 2023 canary rockfish STAR panel, a projection was conducted with a P* of 0.40, as a possible management option. Across the last three years the average estimated annual mortality was above either of the proposed ACLs for 2025-2026, which indicated canary rockfish could become constraining. The Council considered this alternative but did not analyze it further, as restrictions may need to be implemented in different fishery sectors for decreased ACLs resulting from either option.

The stock assessment for sablefish (Johnson*, et al.* 2023) was updated in 2023 due to observations of high recruitment in 2020 and 2021 and concerns that these large year classes could constrain targeted and non-targeted fisheries if unaccounted for. The assessment estimated the stock at 63% of unfished biomass in 2023, above the 40% management target. However, there is greater

uncertainty in the strength of these recent year-classes than for older year-classes. The default HCR for sablefish is to apply a P* of 0.45 with the ACL set equal to the ABC. The Council also explored a more precautionary harvest control rule with a P* of 0.40, given the limited information available to inform the magnitude of the year classes that are largely driving the projected increase in spawning biomass. Based on recent mortality estimates, actual removals were likely to remain well below the ACL under either P* value. Neither alternative demonstrated decline in the fraction of unfished spawning biomass until 2028, so the risk of overfishing was considered low under both P* values. Thus, the alternative precautionary harvest control rule was not analyzed further.

The Council considered rebuilding strategies, noted as Alternatives 1 through 4. The Council considered by rejected Alternative 1 and Alternative 3 from the range. Alternative 1 represented the default harvest control rule, as used in the 2023-24 management cycle, with a SPR of 0.55, P* = 0.45, and ABC<ACL. Alternative 1 would rebuild the stock by 2062, within the statutory maximum time to rebuild of 2071 (Tmax). Alternative 1 represents a 69.4% probability of rebuilding by 2071 (Tmax). Overall trends represented by Alternative 1 and Alternative 2 were so similar that they did not deviate well into the rebuilding period. Alternative 1 under default HCR would have a lower probability of rebuilding (69.4%) within the required timeline, compared to Alternative 2 (73.6%) with the ABC rule. Alternative 1 would also take two years longer (2062) for the stock to reach the target rebuilding level, compared to Alternative 2 (2060). Thus, in April 2024, the Council did not select Alternative 1 for further consideration.

Alternative 3 harvest specifications for California quillback rockfish were proposed by CDFW during the November 2023 Council meeting. The Alternative 3 ABC value was the result of a 2025 OFL of 8.41 with a category 3 buffer using a P*=0.40 to obtain to ABC = 5.06 mt [8.41*0.602=5.06]. The harvest specification values in Alternative 3 were beyond the scope of those found in the adopted 2023 rebuilding analysis, represented harvest levels beyond what would appear biologically reasonable for a rebuilding population, and did not meet the MSA rebuilding requirements. Alternative 3 would also have resulted in much greater uncertainty for impacts on the population of California quillback rockfish than harvest specifications under Alternatives 1 or 2 as determined by the rebuilding analysis. Thus, in April 2024, the Council did not select Alternative 3 for further consideration.

Table 3. FPA The final preferred alternative for 2025-26 harvest specifications (mt) for stocks with alternative harvest control rules considered; No Action is the 2023 harvest specification for comparison purposes, Alternative 1 is the default harvest control rule, and Alternative 2-4 are the alternative harvest control rules under consideration. Note: Only the Preliminary Preferred Alternative (PPA), California quillback rockfish has been adopted as of April 2024

Stock	Alternative	2023			2025			2026			Harvest Control Rule
		OFL	ABC	ACL	OFL	ABC	ACL	OFL	ABC	ACL	
Rex Sole	No Action	2,198	1,437	1,437							
	Alternative 1				5,205.59	3966.66	3,966.66	4,430.60	3,309.66	3,309.66	ABC = ACL (P* = 0.40)
	Alternative 2 FPA				**5,205.59**	**4549.68**	**4,549.68**	**4,299.66**	**3,719.21**	**3,719.21**	**ABC = ACL (P* = 0.45)**
Shortspine Thornyhead	No Action	3,177	2,078	2,078							
	Alternative 1				939.75	716.09	502 *N 34°27';* 209 *S 34°27'*	962.46	718.96	503 *N 34°27';* 210 *S 34°27'*	Precautionary; ACL < ABC, 40-10 rule ACL split N (70.6%) and S (29.4%) of 34° 27' N. Lat. 5-yr rolling avg of biomass estimates from WCGBT survey (P* = 0.40)
	Alternative 2 FPA a/				**939.75**	**821.34**	**815.32**	**961.08**	**831.33**	**824.77**	**Precautionary; ACL < ABC, 40-10 rule ACL is now coastwide**
Dover Sole	No Action	63,834	59,685	50,000							
	Alternative 1				51,214	47,424	50,000	46,049	42,457	50,000	Default ACL = 50,000 mt
	Alternative 2 FPA				**51,214**	**47,424**	**47,424**	**46,049**	**42,457**	**42,457**	**P* of 0.45 ACL = ABC**
Quillback rockfish CA	No Action a/	2.11	1.85	1.76							
	Alternative 1b/				1.52	1.26	1.26	1.77	1.47	1.47	Default HCR: SPR 0.55 (P* = 0.45)
	Alternative 2 FPA				**1.52**	**1.30**	**1.30**	**1.77**	**1.50**	**1.50**	**ABC Rule (P* = 0.45)**
	Alternative 3 b/				8.41	5.06	5.06				CDFW Proposed (Nov 2023) (ABC=Category 3 buffer w/ P*=0.40)
	Alternative 4				1.52	0	0	1.81	0	0	F=0 (no fishing mortality)

a/ The Council adopted the new management measure 9Das FPA, which results in a single coastwide ACL for shortspine thornyhead
b/ Considered but rejected by Council in April 2024

1.5 Direct and Indirect Effects of the Alternatives

1.5.1 Impacts of Harvest Specifications

This section evaluates how alternative harvest specifications affect the future status of actively managed groundfish stocks. Harvest specifications are by themselves management objectives with no direct effect on the environment. Harvest specifications indirectly affect managed groundfish stocks by setting limits on how much of each stock may be caught. It is important to note that the stock assessments and projections underlying this evaluation assume that ACLs are fully attained during the projection period as a default; that is, realized catch equals the ACL. For most stocks, however, catch has historically been less than the ACL. If roughly similar patterns persist in the 2025-2026 biennial period, the actual impact of fishing mortality on the future status of most stocks is likely to be less than is forecast in the assessment projections.

Higher ACLs can provide greater economic benefits and reduce bycatch constraints, but can also increase conservation risks, especially when a stock assessment's estimates of spawning biomass (or spawning output) and fraction of unfished biomass are more uncertain. Stock assessors provide projections under higher and lower harvest strategies (e.g., P*=0.45 vs. P*=0.40, respectively) to compare how they affect spawning biomass annually over the next ten years, taking into consideration any uncertainty around stock size and status.

1.5.2 Stocks with Alternative Harvest Control Rules under Consideration

Rex Sole

The default HCR informing Alternative 1 for rex sole is to apply a P* of 0.40 (sigma = 1) and set the ACL equal to the ABC. This has been the Council's adopted specification since it was last assessed. The Council also explored Alternative 2 with a less precautionary harvest control rule of ACL = ABC with a P* of 0.45 (sigma = 1), which could provide the trawl fleet greater flexibility in the event of future expansion (Agenda Item G.6.a, Supplemental GMT Report 1, September 2023). Harvest specifications for both Alternatives under the base model in the 2023 assessment are provided in Table 4.

The 2023 rex sole assessment was a length-based data-moderate assessment (Min*, et al.* 2023). The SSC endorsed the 2023 stock assessment and recommended a category 2 designation with a default sigma of 1.0. The 2023 assessment, while still data-moderate, was informed by additional data (catches, survey index of abundance, fishery and survey length compositions, and survey conditional age-at-length data) and estimated growth within the model, providing a more informed understanding of the stock. Under the FMP, B_{MSY} is the biomass level that produces maximum sustainable yield (MSY). The current assessment estimates the stock is 76.1% of unfished spawning output in 2023, above the management target B_{MSY} of 25% depletion for all assessed flatfish stocks (Figure 2-2), indicating the stock is healthy. The estimated model uncertainty was less than the category 2 groundfish assessment default value of sigma = 1. Thus, the use of the default category 2 sigma = 1 captures the range of scientific uncertainty expected from the assessment.

Uncertainty in the decision table from the 2023 assessment represents the uncertainty in female natural mortality (Table ix; Min, et al. 2023). Uncertainty in the forecasted 10-year projections is essentially based on uncertainty around the 2023 OFL and corresponds to the lower and upper quantiles of female natural mortality values. Thus, the uncertainty interval encompasses the potential low state of nature (i.e., if the stock forecast was incorrectly lower than assumed by the

base model), to the mid (base model used), to the potential high state of nature (i.e., if the stock forecast was incorrectly higher than assumed by the base model). Only in the last two years (2033-2034) of the low state of nature under Alternative 2 (P*=0.45), does the fraction unfished drop below the management target 25% B_{MSY}. Thus, only if the stock assessment forecasts were inaccurate and ended up at the lowest level, would there be a risk of the stock status dipping into the precautionary zone. With the base model adopted and utilized for projections, the stock remains healthy. Projections from the stock assessment base model for 2025 and beyond are based on a spawning potential ratio (SPR) of 30% and the 25:5 harvest control rule if applicable (Table 4).

Though the trajectory starts off with a high estimated spawning biomass in the next management cycle for 2025 and 2026, it then progressively decreases (and ABCs/ACLs) in the next ten years (Figure 1). However, ten-year depletion projections indicate the stock remains healthy and above the management target 25% B_{MSY} across both Alternatives 1 and 2 (Figure 2) and their associated harvest levels. Thus, the policy choice between selecting Alternative 1 or 2 will not impact the stock status in the projection period.

Both Alternatives 1 and 2 demonstrate a similar trend in ABC specifications over the next ten years (Figure 3), with Alternative 2 (P*=0.45) allowing for slightly higher harvest. Alternative 2 was selected as the Council's PPA in November 2023.

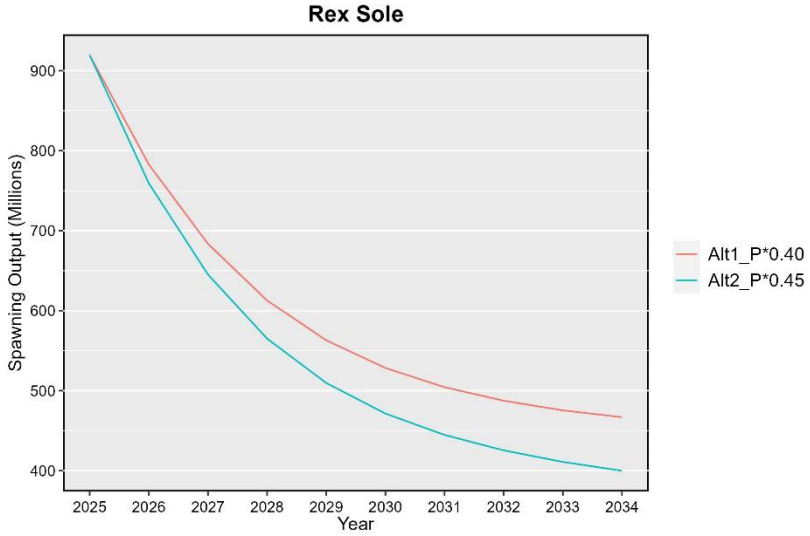

Figure 1. Projected spawning output (millions of eggs) of Rex Sole under two alternative harvest control rules, 2025-2034. Alternative 1 is the default harvest control rule (P*=0.40) and Alternative 2 is the preliminary preferred alternative (P*=0.45).

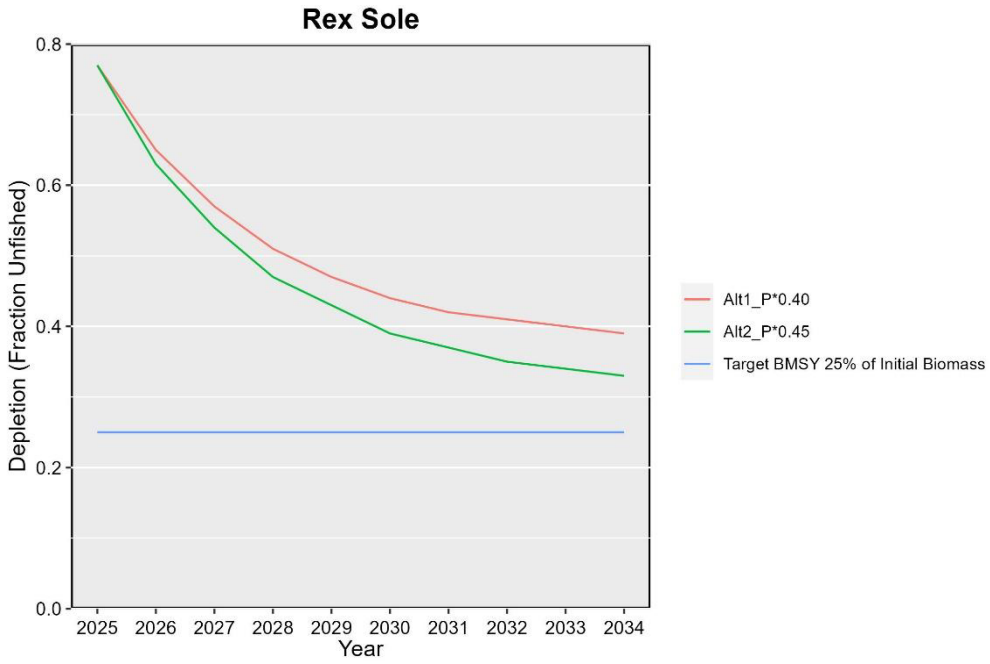

Figure 2. Projected depletion (fraction unfished) of Rex Sole under two alternative harvest control rules, 2025-2034. Alternative 1 is the default harvest control rule (P*=0.40) and Alternative 2 is the preliminary preferred alternative (P*=0.45).

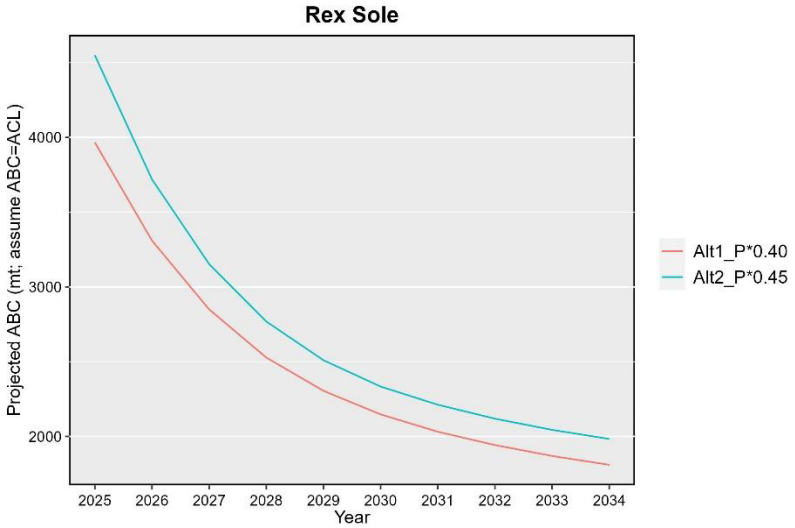

Figure 3. Projected acceptable biological catch (ABC; mt) of Rex Sole under two alternative harvest control rules, 2025-2034. Alternative 1 is the default harvest control rule (P*=0.40) and Alternative 2 is the preliminary preferred alternative (P*=0.45).

Table 4. Projected rex sole harvest specifications under the base model in the 2023 assessment under P* harvest control rules of 0.40 (Alternative 1) and 0.45 (Alternative 2).

Management decision	Year	OFL (mt)	ABC Catch (mt)	Spawning output (millions of eggs)	Fraction unfished
P*=0.4 (Alt 1)	2023	5,173.05	447.17	912.72	0.76
	2024	5,188.27	447.17	915.43	0.76
	2025	5,205.59	3,966.66	919.55	0.77
	2026	4,430.60	3,309.66	782.80	0.65
	2027	3,887.61	2,849.62	683.62	0.57
	2028	3,515.28	2,527.49	612.74	0.51
	2029	3,265.15	2,305.19	563.00	0.47
	2030	3,098.63	2,147.35	528.39	0.44
	2031	2,987.50	2,031.50	504.32	0.42
	2032	2,911.74	1,942.13	487.41	0.41
	2033	2,858.29	1,869.32	475.40	0.40
	2034	2,819.35	1,810.02	466.84	0.39
P*=0.45 (Alt 2, FPA)	2023	5,173.06	447.17	912.72	0.76
	2024	5,188.27	447.17	915.43	0.76
	2025	5,205.59	4,549.68	919.55	0.77
	2026	4,299.66	3,719.21	759.25	0.63
	2027	3,678.62	3,152.58	645.20	0.54
	2028	3,260.91	2,768.52	565.09	0.47
	2029	2,984.23	2,509.73	509.63	0.43
	2030	2,801.39	2,333.56	471.40	0.39
	2031	2,678.03	2,212.06	444.69	0.37
	2032	2,590.04	2,118.65	425.38	0.35
	2033	2,523.30	2,043.88	410.96	0.34
	2034	2,469.55	1,983.05	399.85	0.33

Shortspine Thornyhead

The default HCR informing Alternative 1 for shortspine thornyhead is to apply a P* of 0.40, with the ACL set below the ABC due to application of the 40-10 rule (i.e., because the stock is below the biomass target of 40% depletion). The coastwide ABC is split into two-area based ACLs north (70.6%) and south (29.4%) of 34° 27′ N. lat. using a 5-yr rolling average for biomass estimates from the NWFSC WCGBT survey by area. This method for apportionment was adopted by the Council in November 2023.

In Alternative 2, a P* of 0.45 was requested as a possible management option, as projected ABCs are comparable to the GMT predicted catch projections for 2023 and 2024. the GMT proposed the higher P* of 0.45 to analyze whether the Council can minimize impacts to the trawl and non-trawl

fisheries. Harvest specifications for both Alternatives under the base model in the 2023 assessment are provided in Table 5.

The 2023 shortspine thornyhead assessment was a length-based data-moderate assessment (Zahner*, et al.* 2023). The assessment estimates that the relative spawning output of the stock is in the precautionary zone, just below the management target B_{MSY} of 40% of unfished levels, at 39.4% in 2023 (Table 5, Figure 4). Although recruitment has been relatively stable, spawning output declined considerably from the 1970s to the late 2010s. The stock status is estimated to have only fallen below the management target starting in 2020. The SSC endorsed the 2023 stock assessment and recommended a category 2 designation with a default sigma of 1.0. The estimated model uncertainty was less than the category 2 groundfish assessment default value of sigma = 1. Thus, the use of the default category 2 sigma = 1 captures the range of scientific uncertainty expected from the assessment.

Uncertainty in the decision table from the 2023 assessment represents the uncertainty based on natural mortality (Table vii; Zahner*, et al.* 2023). Uncertainly in the forecasted 10-year projections is essentially based on uncertainty around the 2023 OFL, which was fairly broad, and states of nature were chosen based on the range of natural mortality values seen in the literature. The uncertainty interval encompasses the potential low state of nature (i.e., if the stock forecast was incorrectly lower than assumed by the base model), to the mid (base model used), to the potential high state of nature (i.e., if the stock forecast was incorrectly higher than assumed by the base model). In the base model and high state of nature, both demonstrate increasing status over the projection period. Only in the low state of nature scenario, if the stock assessment forecasts were inaccurate and ended up in the lower range, would the stock status continue to decline over the projection period and not begin to rebound. In that case, there would be a risk of the stock status continuing to decline into the precautionary zone. In both the base model adopted and the high state of nature, projections begin to rebound over the next ten years with less risk to the stock under either Alternative harvest level.

Projections from the stock assessment base model for 2025 and beyond are based on a spawning potential ratio (SPR) of 50% and the 40:10 harvest control rule if applicable (Table 5). The assessment indicated that stock status would slowly decline before beginning a slow rebound over the next ten years (Figure 5). Alternative 1 with the default HCR (P*=0.40) would return the stock status to healthy, above the management target of 40% depletion by 2034. Alternative 2 (P*=0.45) would follow a similar increasing trajectory but not rebound beyond the precautionary zone within the ten years projected by the assessment. Thus, Alternative 2 would present a longer-term trade-off in higher harvest but would result in the stock status remaining precautionary for a longer period and thus the 40:10 harvest control rule would remain in effect as well.

Alternatives 1 and 2 demonstrate different trends in ABC specifications over the next ten years (Figure 6), with Alternative 2 (P*=0.45) allowing for higher harvest specifications that slightly increase over time. Alternative 1 provides fairly consistent ABC specifications, though at lower levels than Alternative 2. Alternative 1 with the default harvest control rule would have an average projected ACL of 718 mt (2025-2034), which is near recent annual catch levels. Alternative 2 would have a higher average projected ACL of 853 mt over the ten-year period (2025-2034). Alternative 2 was selected as the Council's PPA in November 2023.

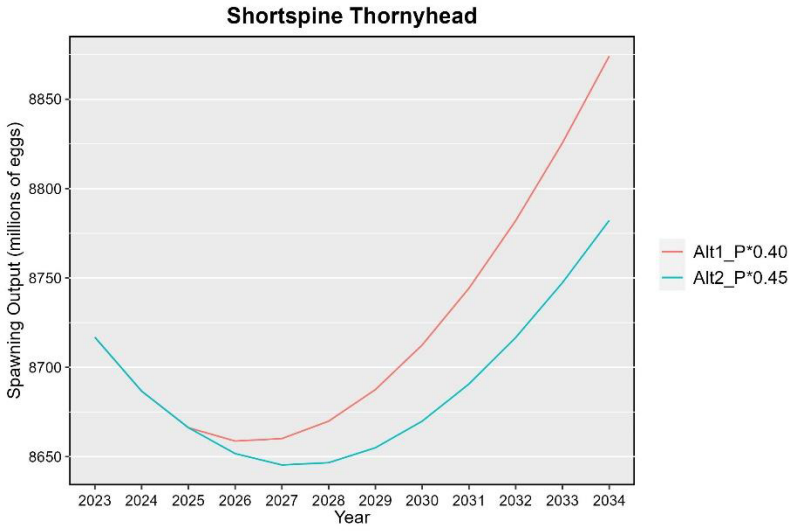

Figure 4. Projected spawning output (millions of eggs) of Shortspine Thornyhead under two alternative harvest control rules, 2025-2034. Alternative 1 is the default harvest control rule (P*=0.40) and Alternative 2 is the preliminary preferred alternative (P*=0.45).

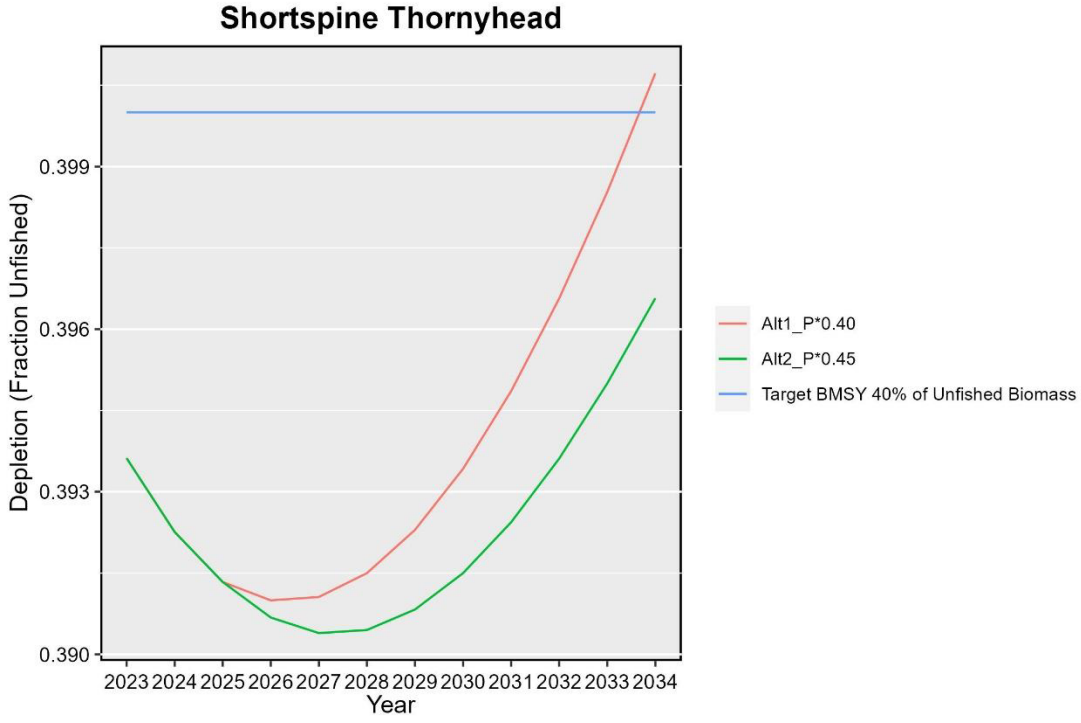

Figure 5. Projected depletion (fraction unfished) of Shortspine Thornyhead under two alternative harvest control rules, 2025-2034. Alternative 1 is the default harvest control rule (P*=0.40) and Alternative 2 is the preliminary preferred alternative (P*=0.45).

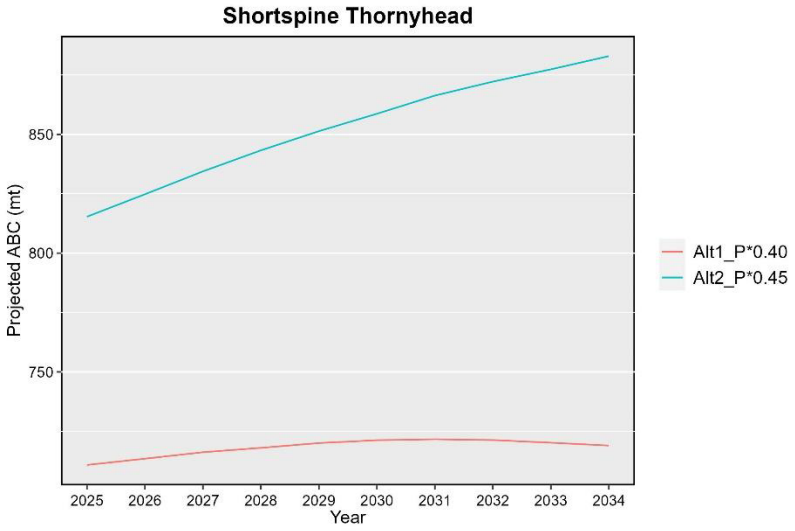

Figure 6. Projected acceptable biological catch (ABC; mt) of Shortspine Thornyhead under two alternative harvest control rules, 2025-2034. Alternative 1 is the default harvest control rule (P*=0.40) and Alternative 2 is the preliminary preferred alternative (P*=0.45).

Table 5. Projected Shortspine Thornyhead harvest specifications under the base model in the 2023 assessment under P* harvest control rules of 0.40 (Alternative 1) and 0.45 (Alternative 2).

Management decision	Year	OFL (mt)	ABC (mt)	ACL (mt)	Spawning output (millions of eggs	Fraction unfished
P*=0.4 (Alt 1)	2023	NA		NA	8,716.84	0.39
	2024	NA		NA	8,686.69	0.39
	2025	939.75	716.09	710.84	8,666.24	0.39
	2026	962.46	718.96	713.47	8,658.74	0.39
	2027	984.52	721.65	716.19	8,660.12	0.39
	2028	1,005.90	723.24	718.04	8,669.87	0.39
	2029	1,026.58	724.77	720.05	8,687.53	0.39
	2030	1,046.56	725.27	721.25	8,712.50	0.39
	2031	1,065.88	724.80	721.67	8,744.22	0.40
	2032	1,084.54	723.39	721.32	8,782.10	0.40
	2033	1,102.57	721.08	720.20	8,825.59	0.40
	2034	1,119.95	719.01	719.01	8,874.11	0.40
P*=0.45 (Alt 2, FPA)	2023	NA		NA	8,716.84	0.39
	2024	NA		NA	8,686.69	0.39
	2025	939.75	821.34	815.32	8,666.24	0.39
	2026	961.08	831.33	824.77	8,651.73	0.39
	2027	981.63	841.26	834.40	8,645.37	0.39
	2028	1,001.34	850.14	843.25	8,646.64	0.39
	2029	1,020.21	858.00	851.33	8,655.00	0.39
	2030	1,038.26	864.87	858.65	8,669.87	0.39
	2031	1,055.52	871.86	866.29	8,690.66	0.39
	2032	1,071.99	876.89	872.17	8,716.67	0.39

Management decision	Year	OFL (mt)	ABC (mt)	ACL (mt)	Spawning output (millions of eggs	Fraction unfished
	2033	1,087.70	881.04	877.35	8,747.37	0.40
	2034	1,102.67	885.44	882.91	8,782.19	0.40

Dover Sole

Since 2015, the default HCR for Dover sole has set the ACL equal to a constant catch of 50,000 mt (Alternative 1). However, projections of stock size in 2025-2026 indicate that a constant 50,000 mt ACL is untenable since the ACL would now exceed the ABC based on estimated biomass (Table 6). The ABC considers the scientific uncertainty in estimating the overfishing limit and the ACL cannot exceed the ABC. In the default scenario under Alternative 1, the ACL of 50,000 mt would result in a harvest limit above the allowable scientific uncertainty from the assessment. Thus, Alternative 2 was proposed with a P* of 0.45 and the ACL set equal to the ABC, resulting in ACLs lower than 50,000 mt (47,424 and 42,457 mt, respectively). Actual removals are likely to remain well below the ACL under Alternative 2, keeping the risk of overfishing low.

The projections provided to the Council in November 2023 (Agenda Item E.2 Revised Attachment 4 Nov 2023), were based on the 2021 stock assessment (Wetzel and Berger 2021), but set the assumed removals equal to the adopted ACL of 50,000 mt in 2023 and 2024 per Council request in September 2023. Projection values are represented in Table 6and Figure 8, Figure 9,and Figure 10below. Under Alternative 2, decreasing trends are similar for both spawning biomass and the fraction unfished, which still remain in healthy status above the 25% depletion management target during the ten-year period.

Alternative 1 with a default ACL of 50,00 mt constant catch is an untenable option based on scientific uncertainty (i.e., ACL>ABC) and Alternative 2 provides an option for allowable harvest to keep the stock status within the management target yet acknowledging that the biomass trend is decreasing over the projection period. Alternative 2 was selected as the Council's PPA in November 2023.

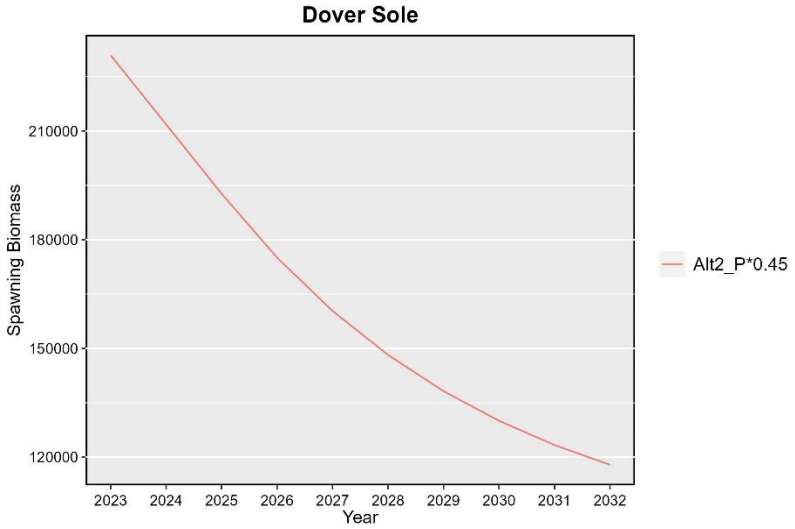

Figure 7. Projected spawning biomass (mt) of Dover Sole under Alternative 2 with ACL set to ABC and P*=0.45.

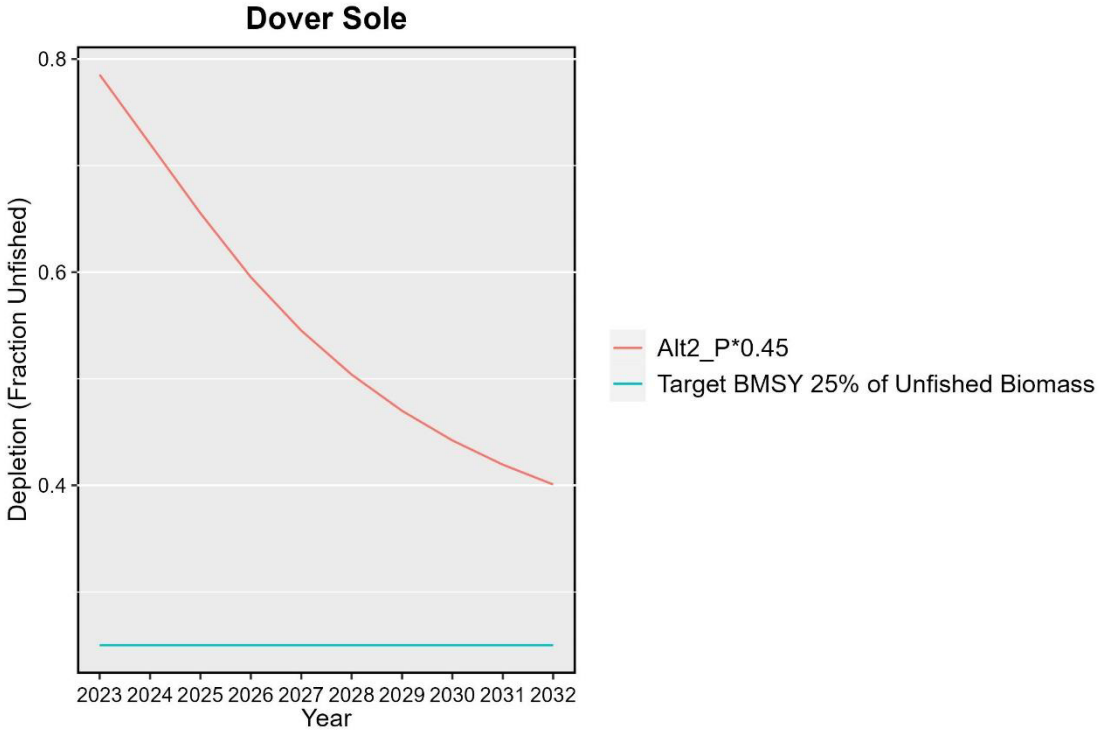

Figure 8. Projected depletion (fraction unfished) of Dover Sole under Alternative 2 with ACL set to ABC and P*=0.45.

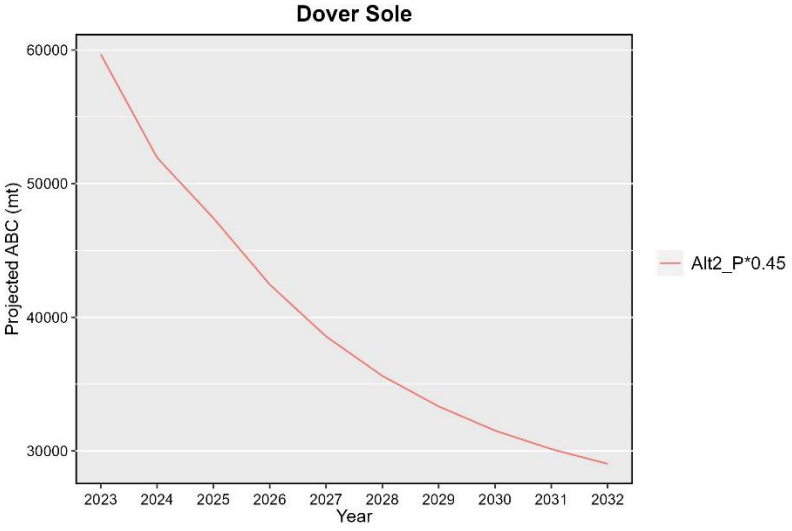

Figure 9. Projected acceptable biological catch (ABC; mt) of Dover Sole under Alternative 2 with ACL set to ABC and P*=0.45.

Table 6. Projected Dover sole harvest specification projections in metric tons (mt) under Alternative 2 (P* = 0.45), 2023-2032. Projections based on the 2021 assessment using the sigmas for 2020 and beyond, P*=0.45 with assumed removals equal to the adopted ACL of 50,000 mt in 2023-24 (per September 2023 Council request).

Management decision	Year	OFL (mt)	ABC (mt)	ACL (mt)	Spawning Biomass (mt)	Fraction unfished
P*=0.45 (Alt 2, FPA)	2023	63,834	59,685	50,000	230,918	0.785
	2024	55,859	51,949	50,000	211,824	0.720
	2025	51,214	47,424	47,424	192,697	0.655
	2026	46,049	42,457	42,457	175,053	0.595
	2027	42,064	38,573	38,573	160,340	0.545
	2028	39,010	35,616	35,616	148,190	0.504
	2029	36,670	33,333	33,333	138,201	0.470
	2030	34,873	31,526	31,526	130,018	0.442
	2031	33,490	30,141	30,141	123,340	0.419
	2032	32,407	29,037	29,037	117,869	0.401

Quillback Rockfish in California

A stock assessment was conducted for California quillback rockfish in 2021 (Langseth et al. 2021). The 2021 stock assessment of quillback rockfish in California waters estimated that the population was below the overfished threshold level. Thus, a draft rebuilding analysis was developed in 2023 (Langseth 2023) to examine a range of alternative rebuilding strategies and inform harvest specification decision-making. Both the 2021 stock assessment and subsequent 2023 rebuilding analysis were determined to be the best scientific information available (BSIA) by the Scientific and Statistical Committee. The 2023 rebuilding analysis was adopted at the March 2024 Council meeting, which specified resulting rebuilding parameters (T_{min} = 2045, T_{max} = 2071, mean generation time of 26 years). T_{min} represents the minimum amount of time a stock is expected to rebuild in the absence of fishing since the year of declaration (2025); expected means at least 50% probability of attaining B_{MSY} (Figure 11). Based on the rebuilding analysis, quillback rockfish in California were unable to rebuild within 10 years. Thus, T_{max} is the maximum time allowed for rebuilding, and is calculated as the T_{min} plus the mean generation time for stocks that require more than 10 years to rebuild. Mean generation time is the estimated time it takes a spawning female to be replaced by a spawning female in the next generation. For long-lived rockfish, the mean generation time plus T_{min} can provide an extended period to achieve rebuilding.

The Council also requested analysis of a range of rebuilding strategies for policy consideration. The requested rebuilding strategies are noted as Alternatives 1 thru 4 (Table 7), with Alternative 1 as the default HCR and Alternatives 2-4 as those being considered which deviate from the default scenario. Harvest specifications for Alternative 3 were proposed by the California Department of Fish and Wildlife (Agenda Item E.2.a, Supplemental CDFW Report 2 Nov 2023), and thus are not found in the adopted 2023 rebuilding analysis.

Table 7. Results of rebuilding strategies based on Langseth 2023, using GMT assumed removals for 2021-2024, and Alternative 3 harvest specifications proposed by CDFW (November 2023). T_{target} indicates the rebuilding target year associated with each rebuilding strategy.

Quillback Rockfish in CA	Harvest Control Rule			
	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
	Default HCR	**ABC Rule (PPA)**	CDFW Proposed	F=0
2021 assumed removals (mt)	*15.58*	*15.58*		*15.58*
2022 assumed removals (mt)	*18.11*	*18.11*		*18.11*
2023 assumed removals (mt)	*11.12*	*11.12*		*11.12*
2024 assumed removals (mt)	*10.62*	*10.62*		*10.62*
2025 OFL/ACL (mt)	1.52/1.26	1.52/1.3	8.41/5.06	1.52/0
2026 OFL/ACL (mt)	1.77/1.47	1.77/1.5		1.81/0
SPR	0.55	-		1
T_{target}	2062	2060		2045
T_{max}	2071	2071		2071
Probability of recovery by T_{max}	0.694	0.736		0.999

The rebuilding analysis assumes these HCRs persist through the course of rebuilding the California quillback rockfish population. However, long-term management strategies for quillback rockfish may be revisited during each biennial management cycle undertaken by the Council.

T_{target} indicates the rebuilding target year in which the stock would be rebuilt and is associated with each potential rebuilding strategy for consideration by the Council. The target year for rebuilding (T_{target}) must fall between T_{min} and T_{max}. Essentially, Alternative 4 with F=0 contains no fishing mortality and thus the stock would be rebuilt by 2045, which is the minimum time to rebuild. However, this Alternative is generally untenable since some fishing mortality would be expected to occur, even if it were non-directed mortality, as well as results in significant economic impacts to fisheries.

Alternative 1 represents the default harvest control rule, as used in the 2023-2024 management cycle, with a SPR of 0.55, P* = 0.45, and ABC<ACL. Alternative 1 would rebuild the stock by 2062, within the statutory maximum time to rebuild of 2071 (T_{max}). Alternative 1 represents a 69.4% probability of rebuilding by 2071 (T_{max}).

Alternative 2 is described as the "ABC rule" rebuilding strategy, which is where the ABC is set equal to management risk tolerance (P*) and the scientific uncertainty (sigma) reduction applied to the overfishing limit (OFL). This calculation applies the ABC harvest rate with time-varying sigma and a P* = 0.45. Alternative 2 under the ABC rule would rebuild the stock by 2060, well within the statutory maximum time to rebuild of 2071 (T_{max}). The ABC rule rebuilding strategy allows for some harvest and represents the strategy that is closest to the maximum time to rebuild. Alternative 2 represents a 73.6% probability of rebuilding by 2071 (T_{max}).

Alternative 1 under default HCR would have a lower probability of rebuilding (69.4%) within the required timeline, compared to Alternative 2 (73.6%) with the ABC rule. Alternative 1 would also

take two years longer (2062) for the stock to reach the target rebuilding level, compared to Alternative 2 (2060). Alternative 1 provides just slightly higher harvest specifications (~2%) over the ten-year period than Alternative 2 (Figure 11and Figure 12; data from Langseth 2023 Tables 4 and 5)..

Alternative 3 harvest specifications for California quillback rockfish were proposed by CDFW during the November 2023 Council meeting. Per the Agenda Item E.2.a. Supplemental CDFW Report 2, November 2023, The Alternative 3 ABC value is the result of a 2025 OFL of 8.41 with a category 3 buffer using a P*=0.40 to obtain to ABC = 5.06 mt [8.41*0.602=5.06]. The harvest specification values in Alternative 3 are beyond the scope of that found in the 2023 rebuilding analysis, represent harvest levels beyond what would appear biologically reasonable for a rebuilding population, and do not meet the MSA rebuilding requirements. Selecting Alternative 3 would provide much greater uncertainty for impacts on the population of California quillback rockfish than harvest specifications under Alternatives 1 or 2 as determined by the rebuilding analysis.

Alternative 4 is described as the "F=0" rebuilding strategy, which is where no fishing mortality is incurred on this stock. Under this strategy, the OFL is 1.52 mt and 1.81 mt for 2025-26, respectively. This calculation applies the ABC harvest rate with time-varying sigma and a P* = 0.45. The F=0 strategy would rebuild the stock by 2045, well within the statutory maximum time to rebuild of 2071 (T_{max}). Alternative 2 represents a 99.9% probability of rebuilding by 2071 (T_{max}).

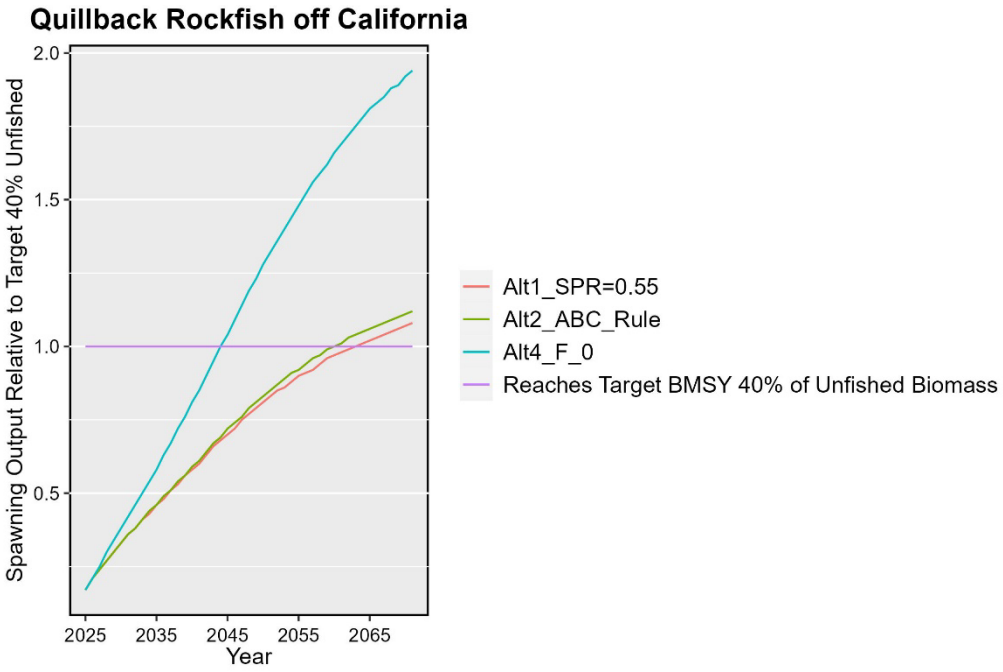

Figure 10. Projected spawning output relative to the target 40% unfished biomass (i.e., value 1 = reached target), of Quillback rockfish off California under various rebuilding strategies; Alternative 1 default harvest control rule (SPR=0.55), Alternative 2 ABC rule, and Alternative 4 with zero fishing mortality.

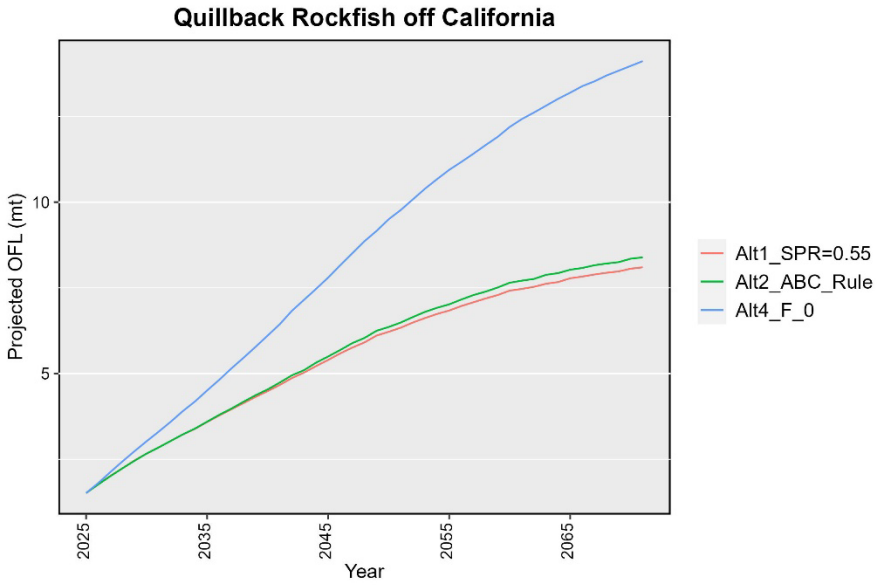

Figure 11. Projected overfishing limit (OFL) of quillback rockfish off California under various rebuilding strategies; Alternative 1 default harvest control rule (SPR=0.55), Alternative 2 ABC rule, and Alternative 4 with zero fishing mortality.

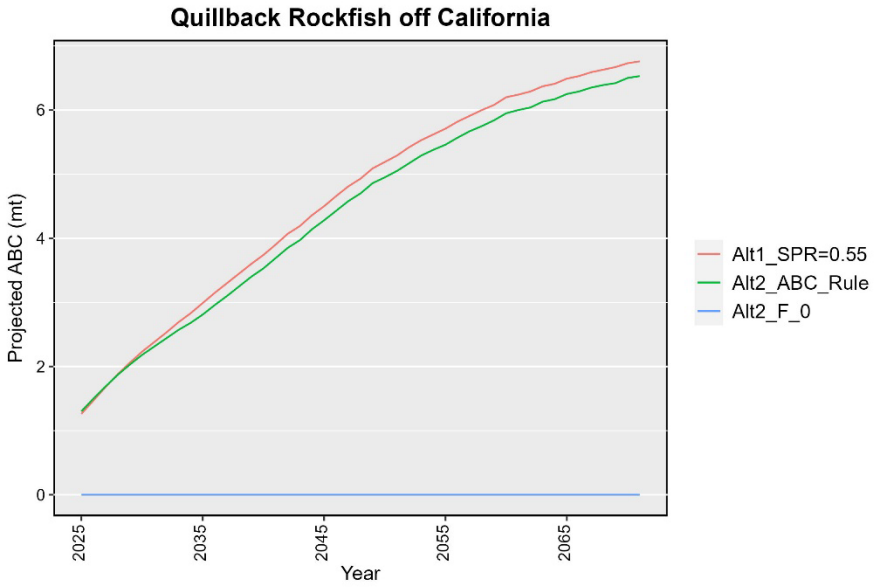

Figure 12. Projected acceptable biological catch (ABC; mt) of Quillback rockfish off California under various rebuilding strategies; Alternative 1 default harvest control rule (SPR=0.55), Alternative 2 ABC rule, and Alternative 4 with zero fishing mortality.

Table 8. FPA. 2025 harvest specifications (overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL); units in mt) , for U.S. West Coast groundfish stocks and stock complexes. Stocks with new 2023 assessments/catch projections in bold; stocks defined under Groundfish FMP Amendment 31 are in blue highlight with the adopted stock area (area) definition

. Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year
Yelloweye Rockfish	**CW**	**1**	**0.40**	**105.80**	**87.20**	**55.80**	**2017**
Quillback Rockfish (PPA)	**CA**	**2**	**0.45**	**1.52**	**1.3**	**1.3**	**2021**
Arrowtooth Flounder	CW	2	0.40	16,460.00	11,193.00	11,193.00	2017
Big Skate	CW	2	0.45	1,456.00	1,224.00	1,224.00	2019
Black Rockfish	**WA**	**1**	**0.45**	**261.56**	**244.56**	**244.56**	**2023**
Black Rockfish	**CA**	**1**	**0.45**	**250.10**	**233.80**	**223.60**	**2023**
Bocaccio	S. of 40°10′ N. lat.	1	0.45	1,849.00	1,681.00	1,681.00	2017
Cabezon	CA	1	0.45	176.40	161.76	161.76	2019
Cabezon	S. of 34°27′ N. lat.	1	0.45	20.50	18.80	18.80	2019
Cabezon	34°27 – 42′ N. lat.	1	0.45	155.90	142.96	142.96	2019
Cabezon/Kelp Greenling	WA	-		18.82	14.64	14.64	-
Cabezon	WA	3	0.45	11.72	9.12	9.12	2019
Kelp Greenling	WA	3	0.45	7.10	5.52	5.52	2015
Cabezon/Kelp Greenling	OR	-		195.6	176.93	176.93	-
Cabezon	OR	1	0.45	52.60	48.23	48.23	2019
Kelp Greenling	OR	1	0.45	143.00	128.70	128.70	2015
California Scorpionfish	CW	-	0.45	273.00	244.00	244.00	2017
Canary Rockfish	**CW**	**1**	**0.45**	**646.93**	**604.88**	**571.28**	**2023**
Chilipepper	**S. of 40°10′ N. lat.**	**1**	**0.45**	**3,128.06**	**2,815.25**	**2,815.25**	**2015**
Cowcod	S. of 40°10′ N. lat.	-		111.14	76.56	76.56	2019
Cowcod	S. of 34°27′ N. lat.	2	0.40	92.81	65.52	65.52	2019
Cowcod	40°10′ – 34°27′ N. lat.	3	0.40	18.33	11.04	11.04	2019
Darkblotched Rockfish	CW	1	0.45	830.00	754.00	754.00	2017

. Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year
Dover Sole	**CW**	**1**	**0.45**	**51,214.00**	**47,424.00**	**47,424.00**	**2021**
English Sole	CW	2	0.45	11,175.00	8,884.00	8,884.00	2013
Lingcod	N. of 40°10′ N. lat.	2	0.45	4,237.00	3,631.00	3,631.00	2021
Lingcod	S. of 40°10′ N. lat.	2	0.45	897.00	768.00	748.00	2021
Longnose Skate	CW	2	0.45	1,922.00	1,616.00	1,616.00	2019
Longspine Thornyhead	CW	2	0.40	4,284.00	2,697.92	2,697.92	2013
Longspine Thornyhead	S. of 34°27′ N. lat.	2	0.40	-	-	647.50	2013
Longspine Thornyhead	N. of 34°27′ N. lat.	2	0.40	-	-	2,050.42	2013
Pacific Ocean Perch	N. of 40°10′ N. lat.	2	0.45	4,029.00	3,328.00	3,328.00	2017
Petrale Sole	**CW**	**1**	**0.45**	**2,518.00**	**2,354.00**	**2,354.00**	**2023**
Sablefish	**CW**	**1**	**0.45**	**39,085.00**	**36,544.70**	**36,544.70**	**2023**
Sablefish	**S. of 36°**	**1**	**0.45**	-	-	**7,857.11**	**2023**
Sablefish	**N. of 36°**	**1**	**0.45**	-	-	**28,687.59**	**2023**
Shortspine Thornyhead	**CW**	**2**	**0.45**	**939.75**	**821.34**	**815.32**	**2023**
Spiny Dogfish	CW	2	0.40	1,857.00	1,361.00	1,361.00	2021
Splitnose	S. of 40°10′ N. lat.	1	0.45	1,724.00	1,508.00	1,508.00	2009
Widow Rockfish	**CW**	**1**	**0.45**	**12,254.00**	**11,237.00**	**11,237.0**	**2019**
Yellowtail Rockfish	**N. of 40°10′ N. lat.**	**1**	**0.45**	**6,865.96**	**6,241.16**	**6,241.16**	**2017**
Pacific Cod	CW	3	0.40	3,200.00	1,926.00	1,600.00	-
Starry Flounder	CW	3	0.40	652.00	392.00	392.00	2017
Blue/Deacon/Black Rockfish	OR	-	0.45	463.94	423.28	423.28	-
Black Rockfish	**OR**	**1**	**0.45**	**367.50**	**343.62**	**343.62**	**2023**
Blue	OR	2	0.45	96.44	79.66	79.66	2017
Nearshore Rockfish North	N. of 40°10′ N. lat.			105.89	87.89	87.77	-
Black and Yellow	N. of 40°10′ N. lat.	3	0.45	-	-	-	-

. Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year
Blue	42° – 40°10′ N. lat.	2	0.45	33.56	27.72	27.72	2017
Blue	WA	3	0.45	7.20	5.60	5.60	2017
Brown	N. of 40°10′ N. lat.	2	0.45	2.10	1.67	1.67	2013
Calico	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
China	WA	2	0.45	9.45	7.65	7.65	2015
China	40°10′ – 46°16′ N. lat.	2	0.45	19.89	16.11	16.11	2015
Copper	**N. of 42°**	**2**	**0.45**	**19.06**	**16.34**	**16.34**	**2021**
Copper	**42° – 40°10′ N. lat.**	**1**	**0.45**	**7.40**	**6.92**	**6.80**	**2023**
Gopher	N. of 40°10′ N. lat.	3	0.45	-	-	-	2011
Grass	N. of 40°10′ N. lat.	3	0.45	0.66	0.51	0.51	2011
Kelp	N. of 40°10′ N. lat.	3	0.45	0.01	0.01	0.01	2011
Olive	N of 40°10′ N. lat.	3	0.45	0.32	0.25	0.25	2011
Quillback	WA	3	0.45	2.86	2.23	2.23	2021
Quillback	OR	2	0.45	3.17	2.72	2.72	2021
Treefish	N, of 40°10′ N. lat.	3	0.45	0.22	0.17	0.17	2011
Nearshore Rockfish South	S, of 40°10′ N. lat.	-	-	1,137.10	933.90	931.76	-
Black and Yellow	S, of 40°10′ N. lat.	2	0.45	-	-	-	2019
Blue	40°10′ – 34°27′ N. lat.	2	0.45	302.05	249.49	249.49	2017
Blue	S. of 34°27′ N. lat.	3	0.45	21.80	16.96	16.96	2017
Brown	S. of 40°10′ N. lat.	2	0.45	179.80	142.94	142.94	2013
Calico	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
China	S. of 40°10′ N. lat.	2	0.45	17.23	13.96	13.96	2015
Copper	**S. of 40°10′ N. lat.**	**1**	**0.45**	**136.06**	**127.22**	**125.08**	**2023**
Gopher	S. of 40°10′ N. lat.	2	0.45	155.00	130.36	130.36	2019
Grass	S. of 40°10′ N. lat.	3	0.45	59.63	46.39	46.39	2011

. Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year
Kelp	S. of 40°10′ N. lat.	3	0.45	27.66	21.52	21.52	2011
Olive	S. of 40°10′ N. lat.	3	0.45	224.64	174.77	174.77	2011
Treefish	S. of 40°10′ N. lat.	3	0.45	13.23	10.29	10.29	2011
Other Fish	CW	-	-	286.00	223.00	223.00	-
Kelp Greenling	CA	3	0.45	118.90	92.50	92.50	2011
Leopard Shark	CW	3	0.45	167.10	130.00	130.00	2011
Other Flatfish	CW	-	-	10,894.36	7,974.32	7,974.32	-
Butter Sole	CW	3	0.40	4.63	2.79	2.79	-
Curlfin Sole	CW	3	0.40	8.24	4.96	4.96	-
Flathead Sole	CW	3	0.40	35.00	21.07	21.07	-
Pacific Sanddab	CW	3	0.40	4,801.00	2,890.20	2,890.20	2011
Rex Sole	**CW**	**2**	**0.45**	**5,205.59**	**4,549.68**	**4,549.68**	**2023**
Rock Sole	CW	3	0.40	66.70	40.15	40.15	2011
Sand Sole	CW	3	0.40	773.20	465.47	465.47	2011
Shelf Rockfish North	N of 40°10′ N. lat.	-	-	1,747.35	1,391.95	1,391.52	
Bocaccio	N. of 40°10′ N. lat.	3	0.45	284.00	220.95	220.95	2011
Bronzespotted	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Chameleon	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Chilipepper	**N. of 40°10′ N. lat.**	**1**	**0.45**	**235.45**	**211.90**	**211.90**	**2015**
Cowcod	N. of 40°10′ N. lat.	3	0.45	0.57	0.44	0.44	2019
Flag	N. of 40°10′ N. lat.	3	0.45	0.10	0.08	0.08	2011
Freckled	N. of 40°10′ N. lat′	3	0.45	-	-	-	-
Greenblotched	N. of 40°10′ N. lat.	3	0.45	1.30	1.01	1.01	2011
Greenspotted	**42° – 40°10′ N. lat.**	**2**	**0.45**	**88.44**	**69.70**	**69.27**	**2011**
Greenspotted	WA – OR	3	0.45	6.10	4.75	4.75	2011

. Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year
Greenstriped	N. of 40°10′ N. lat.	3	0.45	623.61	485.17	485.17	2009
Halfbanded	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Harlequin	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Honeycomb	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Mexican	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Pink	N. of 40°10′ N. lat.	3	0.45	0.004	0.003	0.003	2011
Pinkrose	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Puget Sound	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Pygmy	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Redstripe	N. of 40°10′ N. lat.	3	0.45	269.90	209.98	209.98	2011
Rosethorn	N. of 40°10′ N. lat.	3	0.45	12.90	10.04	10.04	2011
Rosy	N. of 40°10′ N. lat.	3	0.45	3.00	2.33	2.33	2011
Silvergray	N. of 40°10′ N. lat.	3	0.45	159.40	124.01	124.01	2011
Speckled	N. of 40°10′ N. lat.	3	0.45	0.20	0.16	0.16	2011
Squarespot	42° – 40°10′ N. lat.	2	0.45				2021
Starry	N. of 40°10′ N. lat.	3	0.45	0.004	0.003	0.003	2011
Stripetail	N. of 40°10′ N. lat.	3	0.45	40.40	31.43	31.43	2011
Swordspine	N. of 40°10′ N. lat.	3	0.45	0.0001	0.0001	0.0001	2011
Tiger	N. of 40°10′ N. lat.	3	0.45	1.00	0.78	0.78	2011
Vermilion	**N. of 42°**	**1 and 2**	**0.45**	**13.97**	**13.01**	**13.01**	**2021**
Vermilion	**42° – 40°10′ N. lat.**	**1 and 2**	**0.45**	**7.0**	**6.2**	**6.2**	**2021**
Shelf Rockfish South	S. of 40°10′ N. lat.			1,837.05	1,465.15	1,464.47	
Bronzespotted	S. of 40°10′ N. lat.	3	0.45	3.60	2.80	2.80	2011
Chameleon	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Flag	S. of 40°10′ N. lat.	3	0.45	23.40	18.21	18.21	2011

. Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year
Freckled	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Greenblotched	S. of 40°10′ N. lat.	3	0.45	23.10	17.97	17.97	2011
Greenspotted	**40°10 – 34°27′ N. lat.**	**2**	**0.45**	**42.58**	**33.55**	**33.12**	**2011**
Greenspotted	**S. of 34°27′ N. lat.**	**2**	**0.45**	**45.86**	**36.14**	**36.14**	**2011**
Greenstriped	S. of 40°10′ N. lat.	3	0.45	114.39	89.00	89.00	2009
Halfbanded	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Harlequin	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Honeycomb	S. of 40°10′ N. lat.	3	0.45	9.90	7.70	7.70	2011
Mexican	S. of 40°10′ N. lat.	3	0.45	5.10	3.97	3.97	2011
Pink	S. of 40°10′ N. lat.	3	0.45	2.50	1.95	1.95	2011
Pinkrose	S. of 40°10′ N. lat	3	0.45	-	-	-	-
Pygmy	S. of 40°10′ N. lat	3	0.45	-	-	-	-
Redstripe	S. of 40°10′ N. lat.	3	0.45	0.50	0.39	0.39	2011
Rosethorn	S. of 40°10′ N. lat.	3	0.45	2.10	1.63	1.63	2011
Rosy	S. of 4°010′ N. lat.	3	0.45	44.50	34.62	34.62	2011
Silvergray	S. of 40°10′ N. lat.	3	0.45	0.50	0.39	0.39	2011
Speckled	S. of 40°10′ N. lat.	3	0.45	39.40	30.65	30.65	2011
Squarespot	S .of 40°10′ N. lat.	2	0.45	6.58	5.64	5.39	2021
Starry	S. of 40°10′ N. lat.	3	0.45	62.60	48.70	48.70	2011
Stripetail	S. of 40°10′ N. lat.	3	0.45	23.60	18.36	18.36	2011
Swordspine	S. of 40°10′ N. lat.	3	0.45	14.20	11.05	11.05	2011
Tiger	S. of 40°10′ N. lat.	3	0.45	0.04	0.03	0.03	2011
Vermilion	**S. of 40°10′ N. lat.**	**1 and 2**	**0.45**	**308.2**	**274.3**	**274.3**	**2021**
Yellowtail Rockfish	S. of 40°10′ N. lat.	3	0.45	1,064.40	828.10	828.10	2011
Slope Rockfish North	N. of 40°10′ N. lat.	-	-	1,778.83	1,487.97	1,487.97	-

. Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year
Aurora	N. of 40°10′ N. lat.	1	0.45	17.29	15.42	15.42	2013
Bank	N. of 40°10′ N. lat.	3	0.45	17.20	13.38	13.38	2011
Blackgill Rockfish	N. of 40°10′ N. lat.	3	0.45	4.70	3.66	3.66	2011
Redbanded	N. of 40°10′ N. lat.	3	0.45	45.30	35.24	35.24	2011
Rougheye/Blackspotted	N. of 40°10′ N. lat.	2	0.45	233.24	185.43	185.43	2013
Sharpchin	N. of 40°10′ N. lat.	2	0.45	280.00	222.60	222.60	2013
Shortraker	N. of 40°10′ N. lat.	3	0.45	18.70	14.55	14.55	2011
Splitnose	N. of 40°10′ N. lat.	1	0.45	970.00	848.00	848.00	2009
Yellowmouth	N. of 40°10′ N. lat.	3	0.45	192.40	149.69	149.69	2011
Slope Rockfish South	S. of 40°10′ N. lat.	-	-	865.97	693.14	693.14	-
Aurora	S. of 40°10′ N. lat.	1	0.45	73.71	65.75	65.75	2013
Bank	S. of 40°10′ N. lat.	3	0.45	503.20	391.49	391.49	2011
Blackgill Rockfish	S. of 40°10′ N. lat.	2	0.45	203.00	167.68	167.68	2017
Pacific Ocean Perch	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Redbanded	S. of 4°010′ N. lat.	3	0.45	10.40	8.09	8.09	2011
Rougheye/Blackspotted	S. of 40°10′ N. lat.	2	0.45	4.76	3.78	3.78	2013
Sharpchin	S. of 40°10′ N. lat.	2	0.45	70.00	55.65	55.65	2013
Shortraker	S. of 40°10′ N. lat.	3	0.45	0.10	0.08	0.08	2011
Yellowmouth	S. of 40°10′ N. lat.	3	0.45	0.80	0.62	0.62	2011

Table 9 FPA: 2026 harvest specifications (overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL); units in mt) , for U.S. West Coast groundfish stocks and stock complexes. Stocks with new 2023 assessments/catch projections in bold; stocks defined under Groundfish FMP Amendment 31 are in blue highlight with the adopted stock area (area) definition

. Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year
Yelloweye Rockfish	**CW**	**1**	**0.40**	**108.30**	**88.50**	**56.60**	**2017**
Quillback Rockfish (PPA)	**CA**	**2**	**0.45**	**1.77**	**1.5**	**1.5**	**2021**
Arrowtooth Flounder	CW	2	0.40	13,833.00	9,227.00	9,227.00	2017
Big Skate	CW	2	0.45	1,426.00	1,188.00	1,188.00	2019
Black Rockfish	WA	**1**	**0.45**	**259.38**	**241.22**	**241.22**	**2023**
Black Rockfish	**CA**	**1**	**0.45**	**265.30**	**246.80**	**235.70**	**2023**
Bocaccio	S. of 40°10′ N. lat.	1	0.45	1,846.00	1,668.00	1,668.00	2017
Cabezon	CA	1	0.45	169.90	155.12	155.12	2019
Cabezon	S. of 34°27′ N. lat.	1	0.45	20.20	18.44	18.44	2019
Cabezon	34°27 – 42′ N. lat. .	1	0.45	149.70	136.68	136.68	2019
Cabezon/Kelp Greenling	WA		-	18.69	14.54	14.54	-
Cabezon	WA	*3*	*0.45*	11.59	9.02	9.02	*2019*
Kelp Greenling	WA	3	0.45	7.10	5.52	5.52	2015
Cabezon/Kelp Greenling	OR		-	193.63	174.38	174.38	-
Cabezon	OR	1	0.45	52.00	47.48	47.48	2019
Kelp Greenling	OR	1	0.45	141.63	126.90	126.90	2015
California Scorpionfish	CW		0.45	267.00	238.00	238.00	2017
Canary Rockfish	**CW**	**1**	**0.45**	**654.71**	**608.88**	**572.51**	**2023**
Chilipepper	**S. of 40°10′ N. lat.**	**1**	**0.45**	**2,949.22**	**2,642.50**	**2,642.50**	**2015**
Cowcod	S. of 40°10′ N. lat.			111.04	75.26	75.26	2019

. Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year
Cowcod	S. of 34°27′ N. lat.	2	0.40	92.42	64.05	64.05	2019
Cowcod	40°10′ – 34°27′ N. lat.	3	0.40	18.62	11.21	11.21	2019
Darkblotched Rockfish	CW	1	0.45	810.00	732.00	732.00	2017
Dover Sole	**CW**	**1**	**0.45**	**46,049**	**42,457**	**42,457**	**2021**
English Sole	CW	2	0.45	11,192.00	8,819.00	8,819.00	2013
Lingcod	N. of 40°10′ N. lat.	2	0.45	4,163.00	3,534.00	3,534.00	2021
Lingcod	S. of 40°10′ N. lat.	2	0.45	937.00	795.00	773.00	2021
Longnose Skate	CW	2	0.45	1,895.00	1,579.00	1,579.00	2019
Longspine Thornyhead	CW	2	0.40	4,166.00	2,575.00	2,575.00	2013
Longspine Thornyhead	S. of 34°27′ N. lat.	2	0.40	-	-	618.00	2013
Longspine Thornyhead	N. of 34°27′ N. lat.	2	0.40	-	-	1,957.00	2013
Pacific Ocean Perch	N. of 40°10′ N. lat.	2	0.45	3,937.00	3,220.00	3,220.00	2017
Petrale Sole	**CW**	**1**	**0.45**	**2,424.00**	**2,255.00**	**2,238.00**	**2023**
Sablefish	**CW**	**1**	**0.45**	**37,310.00**	**34,699.00**	**34,699.00**	**2023**
Sablefish	**S. of 36° N. lat.**	**1**	**0.45**	-	-	**7,460.20**	**2023**
Sablefish	**N. of 36° N. lat.**	**1**	**0.45**	-	-	**27,238.4**	**2023**
Shortspine Thornyhead	**CW**	**2**	**0.45**	**961.08**	**831.33**	**824.77**	**2023**
Spiny Dogfish	CW	2	0.40	1,833.00	1,318.00	1,318.00	2021
Splitnose	S. of 40°10′ N. lat.	1	0.45	1,686.00	1,469.00	1,469.00	2009
Widow Rockfish	**CW**	**1**	**0.45**	**11,382.00**	**10,392.00**	**10,392.00**	**2019**
Yellowtail Rockfish	**N. of 40°10′ N. lat.**	**1**	**0.45**	**6,662.14**	**6,022.57**	**6,022.57**	**2017**
Pacific Cod	CW	3	0.40	3,200.00	1,926.00	1,600.00	
Starry Flounder	CW	3	0.40	652.00	392.00	392.00	2017
Blue/Deacon/Black Rockfish	OR		0.45	471.95	428.07	428.07	

. Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year
Black Rockfish	**OR**	**1**	**0.45**	**377.12**	**350.50**	**350.50**	**2023**
Blue	OR	2	0.45	94.83	77.57	77.57	2017
Nearshore Rockfish North	N. of 40°10′ N. lat.			104.64	86.16	86.06	
Black and Yellow	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Blue	42° – 40°10′ N. lat.	2	0.45	33.51	27.41	27.41	2017
Blue	WA	3	0.45	7.00	5.45	5.45	2017
Brown	N. of 40°10′ N. lat.	2	0.45	2.11	1.66	1.66	2013
Calico	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
China	WA	2	0.45	9.19	7.38	7.38	2015
China	40°10′ – 46°16′ N. lat.	2	0.45	19.58	15.72	15.72	2015
Copper	**N. of 42° N. lat.**	**2**	**0.45**	**18.63**	**15.82**	**15.82**	**2021**
Copper	**42° – 40°10′ N. lat.**	**1**	**0.45**	**7.37**	**6.85**	**6.75**	**2023**
Gopher	N. of 40°10′ N. lat.	3	0.45	-	-	-	2011
Grass	N. of 40°10′ N. lat.	3	0.45	0.66	0.51	0.51	2011
Kelp	N. of 40°10′ N. lat.	3	0.45	0.01	0.01	0.01	2011
Olive	N. of 40°10′ N. lat.	3	0.45	0.32	0.25	0.25	2011
Quillback	WA	3	0.45	2.86	2.23	2.23	2021
Quillback	OR	2	0.45	3.18	2.70	2.70	2021
Treefish	N. of 40°10′ N. lat.	3	0.45	0.22	0.17	0.17	2011
Nearshore Rockfish South	S. of 40°10′ N. lat.	-	-	1,142.50	932.56	930.58	
Black and Yellow	S. of 40°10′ N. lat.	2	0.45	-	-	-	2019
Blue	40°10′ – 34°27′ N. lat.	2	0.45	301.57	246.69	246.69	2017
Blue	S. of 34°27′ N. lat.	3	0.45	21.80	16.96	16.96	2017
Brown	S. of 40°10′ N. lat.	2	0.45	180.39	142.15	142.15	2013
Calico	S. of 40°10′ N. lat.	3	0.45	-	-	-	-

. Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year
China	S. of 40°10′ N. lat.	2	0.45	17.61	14.14	14.14	2015
Copper	**S. of 40°10′ N. lat.**	**1**	**0.45**	**137.97**	**128.31**	**126.33**	**2023**
Gopher	S. of 40°10′ N. lat.	2	0.45	158.00	131.61	131.61	2019
Grass	S. of 40°10′ N. lat.	3	0.45	59.63	46.39	46.39	2011
Kelp	S. of 40°10′ N. lat.	3	0.45	27.66	21.52	21.52	2011
Olive	S. of 40°10′ N. lat.	3	0.45	224.64	174.77	174.77	2011
Treefish	S. of 40°10′ N. lat.	3	0.45	13.23	10.29	10.29	2011
Other Fish	CW	-	-	286.00	222.50	222.50	-
Kelp Greenling	CA	3	0.45	118.90	92.50	92.50	2011
Leopard Shark	CW	3	0.45	167.10	130.00	130.00	2011
Other Flatfish	CW			9,988.43	7,143.85	7,143.85	-
Butter Sole	CW	3	0.40	4.63	2.79	2.79	-
Curlfin Sole	CW	3	0.40	8.24	4.96	4.96	-
Flathead Sole	CW	3	0.40	35.00	21.07	21.07	-
Pacific Sanddab	CW	3	0.40	4,801.00	2,890.20	2,890.20	2011
Rex Sole	CW	**2**	**0.45**	**4,299.66**	**3,719.21**	**3,719.21**	**2023**
Rock Sole	**CW**	3	0.40	66.70	40.15	40.15	2011
Sand Sole	CW	3	0.40	773.20	465.47	465.47	2011
Shelf Rockfish North	N. of 40°10′ N. lat.			1,733.53	1,378.55	1,378.12	
Bocaccio	N. of 40°10′ N. lat.	3	0.45	284.01	220.96	220.96	2011
Bronzespotted	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Chameleon	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Chilipepper	**N. of 40°10′ N. lat.**	**1**	**0.45**	**221.98**	**198.9**	**198.9**	**2015**
Cowcod	N. of 40°10′ N. lat.	3	0.45	0.58	0.45	0.45	2019
Flag	N. of 40°10′ N. lat.	3	0.45	0.07	0.06	0.06	2011

. Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year
Freckled	N. of 40°10′ N. lat′	3	0.45				
Greenblotched	N. of 40°10′ N. lat.	3	0.45	1.28	0.99	0.99	2011
Greenspotted	**42° – 40°10′ N. lat.**	**2**	**0.45**	**88.44**	**69.70**	**69.27**	**2011**
Greenspotted	WA – OR	3	0.45	6.10	4.75	4.75	2011
Greenstriped	N. of 40°10′ N. lat.	3	0.45	623.61	485.17	485.17	2009
Halfbanded	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Harlequin	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Honeycomb	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Mexican	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Pink	N. of 40°10′ N. lat.	3	0.45	0.004	0.003	0.003	2011
Pinkrose	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Puget Sound	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Pygmy	N. of 40°10′ N. lat.	3	0.45	-	-	-	-
Redstripe	N. of 40°10′ N. lat.	3	0.45	269.91	209.99	209.99	2011
Rosethorn	N. of 40°10′ N. lat.	3	0.45	12.90	10.03	10.03	2011
Rosy	N. of 40°10′ N. lat.	3	0.45	3.03	2.36	2.36	2011
Silvergray	N. of 40°10′ N. lat.	3	0.45	159.42	124.03	124.03	2011
Speckled	N. of 40°10′ N. lat.	3	0.45	0.17	0.13	0.13	2011
Squarespot	42° – 40°10′ N. lat.	2	0.45	-	-	-	2021
Starry	N. of 40°10′ N. lat.	3	0.45	0.004	0.003	0.003	2011
Stripetail	N. of 40°10′ N. lat.	3	0.45	40.40	31.43	31.43	2011
Swordspine	N. of 40°10′ N. lat.	3	0.45	0.0001	0.0001	0.0001	2011
Tiger	N. of 40°10′ N. lat.	3	0.45	0.97	0.75	0.75	2011
Vermilion	**N. of 42°**	**1 and 2**	**0.45**	**13.65**	**12.64**	**12.64**	**2021**
Vermilion	**42° – 40°10′ N. lat.**	**1 and 2**	**0.45**	**7.0**	**6.2**	**6.2**	**2021**

. Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year
Shelf Rockfish South	S. of 40°10′ N. lat.			1,836.57	1,462.83	1,462.26	
Bronzespotted	S. of 40°10′ N. lat.	3	0.45	3.65	2.84	2.84	2011
Chameleon	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Flag	S. of 40°10′ N. lat.	3	0.45	23.42	18.22	18.22	2011
Freckled	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Greenblotched	S. of 40°10′ N. lat.	3	0.45	23.13	18.00	18.00	2011
Greenspotted	**40°10 – 34°27′ N. lat.**	**2**	**0.45**	**42.58**	**33.55**	**33.12**	**2011**
Greenspotted	**S. of 34°27′ N. lat.**	**2**	**0.45**	**45.86**	**36.14**	**36.14**	**2011**
Greenstriped	S. of 40°10′ N. lat.	3	0.45	114.39	89.00	89.00	2009
Halfbanded	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Harlequin	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Honeycomb	S. of 40°10′ N. lat.	3	0.45	9.87	7.68	7.68	2011
Mexican	S. of 40°10′ N. lat.	3	0.45	5.05	3.93	3.93	2011
Pink	S. of 40°10′ N. lat.	3	0.45	2.50	1.95	1.95	2011
Pinkrose	S. of 40°10′ N. lat	3	0.45	-	-	-	-
Pygmy	S. of 40°10′ N. lat	3	0.45	-	-	-	-
Redstripe	S. of 40°10′ N. lat.	3	0.45	0.49	0.38	0.38	2011
Rosethorn	S. of 40°10′ N. lat.	3	0.45	2.13	1.66	1.66	2011
Rosy	S. of 4°010′ N. lat.	3	0.45	44.51	34.63	34.63	2011
Silvergray	S. of 40°10′ N. lat.	3	0.45	0.54	0.42	0.42	2011
Speckled	S. of 40°10′ N. lat.	3	0.45	39.38	30.64	30.64	2011
Squarespot	S .of 40°10′ N. lat.	2	0.45	7.12	6.04	5.90	2021
Starry	S. of 40°10′ N. lat.	3	0.45	62.57	48.68	48.68	2011
Stripetail	S. of 40°10′ N. lat.	3	0.45	23.62	18.38	18.38	2011
Swordspine	S. of 40°10′ N. lat.	3	0.45	14.22	11.06	11.06	2011

. Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year
Tiger	S. of 40°10′ N. lat.	3	0.45	0.04	0.03	0.03	2011
Vermilion	**S. of 40°10′ N. lat.**	**1 and 2**	**0.45**	**307.1**	**271.5**	**271.5**	**2021**
Yellowtail Rockfish	S. of 40°10′ N. lat.	3	0.45	1,064.40	828.10	828.10	2011
Slope Rockfish North	N. of 40°10′ N. lat.	-	-	1,754.23	1,460.22	1,460.22	-
Aurora	N. of 40°10′ N. lat.	1	0.45	17.22	15.27	15.27	2013
Bank	N. of 40°10′ N. lat.	3	0.45	17.24	13.41	13.41	2011
Blackgill Rockfish	N. of 40°10′ N. lat.	3	0.45	4.70	3.66	3.66	2011
Redbanded	N. of 40°10′ N. lat.	3	0.45	45.26	35.21	35.21	2011
Rougheye/Blackspotted	N. of 40°10′ N. lat.	2	0.45	232.26	183.02	183.02	2013
Sharpchin	N. of 40°10′ N. lat.	2	0.45	278.40	219.38	219.38	2013
Shortraker	N. of 40°10′ N. lat.	3	0.45	18.70	14.55	14.55	2011
Splitnose	N. of 40°10′ N. lat.	1	0.45	948.00	826.00	826.00	2009
Yellowmouth	N. of 40°10′ N. lat.	3	0.45	192.45	149.72	149.72	2011
Slope Rockfish South	S. of 40°10′ N. lat.	-	-	865.32	690.08	690.08	-
Aurora	S. of 40°10′ N. lat.	1	0.45	73.40	65.11	65.11	2013
Bank	S. of 40°10′ N. lat.	3	0.45	503.22	391.50	391.50	2011
Blackgill Rockfish	S. of 40°10′ N. lat.	2	0.45	203.00	166.05	166.05	2017
Pacific Ocean Perch	S. of 40°10′ N. lat.	3	0.45	-	-	-	-
Redbanded	S. of 4°010′ N. lat.	3	0.45	10.41	8.10	8.10	2011
Rougheye/Blackspotted	S. of 40°10′ N. lat.	2	0.45	4.74	3.74	3.74	2013
Sharpchin	S. of 40°10′ N. lat.	2	0.45	69.60	54.84	54.84	2013
Shortraker	S. of 40°10′ N. lat.	3	0.45	0.10	0.08	0.08	2011
Yellowmouth	S. of 40°10′ N. lat.	3	0.45	0.85	0.66	0.66	2011

Management Measures: The Preferred Alternative

The following summarizes the routine and new management measures identified by the Council as FPA. Details are provided in Chapters 1-9.

Chapter 1: Dispersal of 2025-26 Annual Catch limits

1.1 Rockfish Conservation Area Updates

The Council adopted the corrections and modifications to waypoints as specified in Agenda Item F.6.a Supplemental CDFW Report 1 June 2024 (Table 2) as FPA. These way-point corrections will better align current 50-fathom Rockfish Conservation Areas boundary coordinates with chart-based depth contours .

Table 1. FPA. Proposed 50-fathom waypoint corrections to the current 50-fathom rockfish conservation area boundary line, near Bodega Bay, CA..

Waypoint Number	Action	Old Lat Deg	Old Lat Min	Old Long Deg	Old Long Min	New Lat Deg	New Lat Min	New Long Deg	New Long Min
95	Move	39	30.12	123	52.92	39	32.47	123	52.25
96	Move	39	24.53	123	55.16	39	21.86	123	54.13
97	Move	39	11.58	123	50.93	39	8.35	123	49.67
98	Move	38	57.50	123	51.10	38	57.50	123	49.42
99	Move	38	55.13	123	51.14	38	51.20	123	46.09
100	Move	38	28.58	123	22.84	38	29.47	123	20.19

1.2 Off-the-Top Deductions (Set-Asides)

The Council adopted set-asides for the 2025-26 groundfish management biennium as shown in Table 5 and Table 6 to accommodate mortality in tribal, research, incidental open access(IOA), and exempted fishing permits (EFP). for additional detail regarding set-asides. The following summarizes those set-asides.

Research:
The Council adopted research set-asides based on a rolling 10 year maximum methodology as described in See Chapter 1, Alternative 1 to calculate these amounts for all species as their FPA, except for those shown in Table 2, to accommodate expected mortality in research fisheries

Table 2. FPA Research set-asides for 2025-26 biennium which depart from the rolling 10 year maximum in metric tons (mt)

Stock	2025-2026 Research Set-Aside (in mt)
Canary rockfish	10.1
Cowcod	10.0
CALIFORNIA QUILLBACK ROCKFISH	0.1
YELLOWEYE ROCKFISH	2.9

Incidental Open Access (IOA): The Council adopted Alternative 1 IOA deductions based on a rolling 10 year maximum methodology as described in See Chapter 1, Alternative 1, except for

those shown in Table 3, to calculate these amounts for all species to accommodate expected mortality in IOA fisheries.

Table 3. FPA. IOA set-asides for 2025-26 biennium which depart from the rolling 10 year maximum in metric tons (mt)

Stock or Management Unit	2025-26 IOA Set-Aside (in mt)
Bocaccio South of 40° 10' N lat.	2.2
Canary rockfish	2.8
Darkblotched rockfish	10.7
Longspine thornyhead north of 34° 27' N lat.	1.3
Petrale sole	4.4
Sablefish south of 36° N lat.	25.0
Widow rockfish	1.0
Nearshore rockfish north of 40° 10' N lat.	1.1
Slope rockfish south of 40° 10' N lat.	0.9
YELLOWEYE ROCKFISH	3.9

Exempted Fishing Permit (EFP)

The Council recommended the West Coast Seafood Processors and Oregon Trawl Commission and the CDFW EFPs for implementation by NMFS. These EFPs do not require set-asides.

Recreational

The Council adopted a 30 mt recreational set-aside for sablefish north of 36° N. lat. to accommodate predicted needs of the developing recreational fishery for this management area. The analysis is presented below in Chapter 1, §2.2.

Table 4. FPA. 2025-26 tribal, research, recreational (Rec), EFP set-asides, and the commercial non-tribal harvest guideline for sablefish north of 36° N. lat. in metric tons (mt).

Year	ACL (mt)	Tribal (mt)	Research (mt)	Rec. (mt)	EFP (mt)	Sum (mt)	Non-Tribal Commercial HG (mt)
2025	28,688	2,869	59.3	30.0	1.0	2,958	25,729
2026	27,238	2,724	59.3	30.0	1.0	2,813	24,425

Tribal Fishery:

The Council adopted the amounts as specified in Agenda Item F.5.a Supplemental Tribal Report 1 and Supplemental Tribal Report 2, April 2024 as FPA. The set-asides for petrale sole was decreased from 350 mt to 290 mt, a starry flounder set-aside of 2 mt was added, and the yelloweye rockfish set aside was increased from 5 mt to 8 mt compared to the 2023-24 biennium. Tribal set-asides are detailed below in Chapter 2, Alternative 1, (Table 20).

Table 5. FPA. 2025 Annual catch limits under default harvest control rules for each managed stock/stock complex and off-the-top deductions in metric tons (mt) for tribal, exempted fishing permits (EFP), research, incidental open access (IOA) and the resulting fishery harvest guideline (HG).

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
QUILLBACK ROCKFISH a/	California	1.3	0.0	0.0	0.1	0.0	0.1	1.2
YELLOWEYE ROCKFISH	Coastwide	55.8	8.0	0.0	2.9	3.9	14.8	41.0
Arrowtooth flounder	Coastwide	11,193.0	2,041.0	0.0	13.0	41.0	2,095.0	9,098.0
Big skate	Coastwide	1,224.0	15.0	0.0	5.5	38.9	59.4	1,164.6
Black rockfish	Washington	244.6	18.0	0.0	0.6	0.0	18.6	226.0
Black rockfish	California	223.6	0.0	0.0	0.1	1.2	1.3	222.3
Bocaccio	S of 40º10′ N. lat.	1,681.0	0.0	0.0	5.6	2.2	7.8	1,673.2
Cabezon	S of 42º N. lat.	161.8	0.0	0.0	0.0	0.6	0.6	161.2
California scorpionfish	S of 34°27' N. lat.	244.0	0.0	0.0	0.8	1.2	2.0	242.0
Canary rockfish	Coastwide	571.3	50.0	0.0	10.1	2.8	62.9	508.4
Chilipepper	S of 40º10′ N. lat.	2,815.3	0.0	0.0	14.1	13.2	27.3	2,788.0
Cowcod	S of 40º10′ N. lat.	76.6	0.0	0.0	10.0	0.1	10.1	66.5
Darkblotched rockfish	Coastwide	754.0	5.0	0.0	8.5	10.7	24.2	729.8
Dover sole	Coastwide	47,424	1,497.0	0.0	61.9	25.2	1,584.1	45,840
English sole	Coastwide	8,884.0	200.0	0.0	8.0	6.6	214.6	8,669.4
Lingcod	N of 40º10′ N. lat.	3,631.0	250.0	0.0	17.7	13.4	281.1	3,349.9
Lingcod	S of 40º10′ N. lat.	748.3	0.0	0.0	3.2	8.7	11.9	736.4
Longnose skate	Coastwide	1,616.0	220.0	0.0	14.7	15.9	250.6	1,365.4
Longspine thornyhead	N of 34º27' N. lat.	2,050.4	30.0	0.0	18.4	1.3	49.7	2,000.7
Longspine thornyhead	S of 34º27' N. lat.	647.5	0.0	0.0	1.3	0.2	1.5	646.0
Pacific cod	Coastwide	1,600.0	500.0	0.0	0.8	0.6	501.4	1,098.6
Pacific Ocean perch	N of 40º10′ N. lat.	3,328.0	130.0	0.0	5.4	10.1	145.5	3,182.5
Pacific spiny dogfish	Coastwide	1,361.2	275.0	0.0	41.9	6.7	323.6	1,037.6
Pacific whiting b/	Coastwide	*b/*	TBD	0.0	750.0	1,500.0	2,250.0	
Petrale sole	Coastwide	2,354.0	290.0	0.0	24.1	4.4	318.5	2,035.5
Sablefish	N of 36º N. lat.	28,687.6	See Table 4					
Sablefish	S of 36º N. lat.	7,857.1	0.0	0.0	2.3	25	27.3	7,829.8

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
Shortspine thornyhead	N of 34º27' N. lat.	815.3	50.0	0.0	16.3	5.7	72	743.3
Splitnose rockfish	S of 40º10′ N. lat.	1,508.0	0.0	0.0	11.2	2.9	14.1	1,493.9
Starry flounder	Coastwide	392.0	2.0	0.0	0.6	14.1	16.7	375.3
Widow rockfish	Coastwide	11,237.0	200.0	0.0	17.3	1.0	218.3	11,018.7
Yellowtail rockfish	N of 40º10′ N. lat.	6,241.2	1,000.0	0.0	20.6	4.5	1,025.1	5,216.1
Stock Complexes								
Nearshore rockfish north	N of 40º10′ N. lat.	87.8	1.5	0.0	0.5	1.1	3.1	84.8
Copper rockfish c/	42° - 40º10′ N. lat.	6.8	-	-	-	-	-	6.8
Nearshore rockfish south	S of 40º10′ N. lat.	931.8	0.0	0.0	0.7	1.8	2.5	929.3
Copper rockfish c	S of 40º10′ N. lat.	125.1	-	-	-	-	-	125.1
Shelf rockfish north	N of 40º10′ N. lat.	1,391.5	30.0	0.0	15.3	20.5	65.8	1,325.7
Shelf rockfish south	S of 40º10′ N. lat.	1,464.5	0.0	0.0	15.1	11.5	26.6	1,437.9
Slope rockfish north	N of 40º10′ N. lat.	1,488.0	36.0	0.0	10.5	11.5	58.0	1,430.0
Slope rockfish south	S of 40º10′ N. lat.	693.1	0.0	0.0	18.2	0.9	19.1	674.0
Other fish	Coastwide	223.0	0.0	0.0	0.1	9.7	9.8	213.2
Other flatfish	Coastwide	7,974.3	60.0	0.0	23.6	87.7	171.3	7,803.0
Rex sole d/	Coastwide	4,549.7	-	-	-	-	-	4,549.7
Oregon black/blue/deacon rockfish	Oregon	423.3	0.0	0.0	0.1	1.5	1.6	421.7
Black rockfish e/	Oregon	343.6	-	-	-	-	-	343.6
Oregon cabezon/kelp greenling	Oregon	176.9	0.0	0.0	0.1	0.7	0.8	176.1
Washington cabezon/kelp greenling	Washington	14.6	2.0	0.0	0.4	0.0	2.4	12.2

a/ Quillback rockfish was declared overfished by NMFS in December 2023

b/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

c/ Copper rockfish is shown as it was assessed off California this cycle and it has stock definitions different than in past biennial cycles, i.e., Stocks north of and south of 42°. Neither stock ACLs are reduced by off-the-top set-asides.

d/ Rex sole is shown as it was assessed this cycle. It is managed as part of the other flatfish complex and is not directly reduced by off-the-top set-asides.

e/ Black rockfish is shown as it was assessed this cycle. It is managed as part of the other flatfish complex and its ACL contribution is not directly reduced by off-the-top set-asides.

Table 6. FPA: 2026 Annual catch limits under default harvest control rules for each managed stock/stock complex and off-the-top deductions in metric tons (mt) for tribal, exempted fishing permits (EFP), research, incidental open access (IOA) and the resulting fishery harvest guideline (HG).

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
QUILLBACK ROCKFISH a/	California	1.5	0.0	0.0	0.1	0.0	0.1	1.4
YELLOWEYE ROCKFISH	Coastwide	56.6	8.0	0.0	2.9	3.9	14.8	41.8
Arrowtooth flounder	Coastwide	9,227.0	2,041.0	0.0	13.0	41.0	2,095.0	7,132.0
Big skate	Coastwide	1,188.0	15.0	0.0	5.5	38.9	59.4	1,128.6
Black rockfish	Washington	241.2	18.0	0.0	0.0	0.6	18.6	222.6
Black rockfish	California	235.7	0.0	0.0	0.1	1.2	1.3	234.4
Bocaccio	S of 40º10′ N. lat.	1,668.0	0.0	0.0	5.6	2.2	7.8	1,660.2
Cabezon	S of 42º N. lat.	155.1	0.0	0.0	0.6	0.0	0.6	154.5
California scorpionfish	S of 34°27’ N. lat.	238.0	0.0	0.0	0.8	1.2	2.0	236.0
Canary rockfish	Coastwide	572.5	50.0	0.0	10.1	2.8	62.9	509.6
Chilipepper	S of 40º10′ N. lat.	2,642.5	0.0	0.0	14.1	13.2	27.3	2,615.2
Cowcod	S of 40º10′ N. lat.	75.3	0.0	0.0	10.0	0.1	10.1	65.2
Darkblotched rockfish	Coastwide	732.00	5.0	0.0	8.5	10.7	24.2	707.8
Dover sole	Coastwide	42,457	1,497.0	0.0	61.9	25.2	1,584.1	40,873
English sole	Coastwide	8,819.0	200.0	0.0	8.0	6.6	214.6	8,604.4
Lingcod	N of 40º10′ N. lat.	3,534.0	250.0	0.0	17.7	13.4	281.1	3,252.9
Lingcod	S of 40º10′ N. lat.	773.4	0.0	0.0	3.2	8.7	11.9	761.5
Longnose skate	Coastwide	1,579.0	220	0.0	14.7	15.9	250.6	1,328.4
Longspine thornyhead	N of 34º27’ N. lat.	1957.0	30.0	0.0	18.4	1.3	49.7	1907.3
Longspine thornyhead	S of 34º27’ N. lat.	618.0	0.0	0.0	1.3	0.2	1.5	616.5
Pacific cod	Coastwide	1,600.0	500.0	0.0	0.8	0.6	501.4	1,098.6
Pacific Ocean perch	N of 40º10′ N. lat.	3,220.0	130.0	0.0	5.4	10.1	145.5	3,074.5
Pacific spiny dogfish	Coastwide	1,317.8	275.0	0.0	41.9	6.7	323.6	994.2
Pacific whiting b/	Coastwide		TBD	0.0	750.0	1,500.0	2,250.0	
Petrale sole	Coastwide	2,238	290	0.0	24.1	4.4	318.5	1,919.5
Sablefish	N of 36º N. lat.	27,238.4	See Table 4					

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
Sablefish	S of 36º N. lat.	7,460.2	0.0	0.0	2.3	25	27.3	7,432.9
Shortspine thornyhead	N of 34º27' N. lat.	824.8	50.0	0.0	16.3	5.7	72	752.8
Splitnose rockfish	S of 40º10′ N. lat.	1,469.0	0.0	0.0	11.2	2.9	14.1	1,454.9
Starry flounder	Coastwide	392.0	2.0	0.0	0.6	14.1	16.7	375.3
Widow rockfish	Coastwide	10,392.0	200.0	0.0	17.3	1.0	218.3	10,173.7
Yellowtail rockfish	N of 40º10′ N. lat.	6,022.6	1,000.0	0.0	20.6	4.5	1,025.1	4,997.5
Stock Complexes								
Nearshore rockfish north	N of 40º10′ N. lat.	86.1	1.5	0.0	0.5	1.1	3.1	83
Copper rockfish c/	42°- 40º10′ N. lat.	6.8	-	-	-	-	-	6.8
Nearshore rockfish south	S of 40º10′ N. lat.	930.6	0.0	0.0	0.7	1.8	2.5	928.1
Copper rockfish c/	South of 42° N. lat	126.3	-	-	-	-	-	126.3
Shelf rockfish north	N of 40º10′ N. lat.	1,378.1	30.0	0.0	15.3	20.5	65.8	1,312.3
Shelf rockfish south	S of 40º10′ N. lat.	1,462.3	0.0	0.0	15.1	11.5	26.6	1,435.7
Slope rockfish north	N of 40º10′ N. lat.	1,460.2	36.0	0.0	10.5	11.5	58.0	1,402.2
Slope rockfish south	S of 40º10′ N. lat.	690.1	0.0	0.0	18.2	0.9	19.1	671.0
Other fish	Coastwide	222.5	0.0	0.0	0.1	9.7	9.8	212.7
Other flatfish	Coastwide	7,143.9	60.0	0.0	23.6	87.7	171.3	6,972.6
Rex sole d/	Coastwide	3,719.2	-	-	-	-	-	3,719.2
Oregon black/blue/deacon rockfish	Oregon	428.1	0.0	0.0	0.1	1.5	1.6	426.5
Black rockfish e/	Oregon	350.5	-	-	-	-	-	350.5
Oregon cabezon/kelp greenling	Oregon	174.4	0	0.0	0.1	0.7	0.8	173.6
Washington cabezon/kelp greenling	Washington	14.5	2.0	0.0	0.4	0.0	2.4	12.1

a/ Quillback rockfish was declared overfished by NMFS in December 2023

b/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

c/ Copper rockfish is shown as it was assessed off California this cycle and it has stock definitions different than in past biennial cycles, i.e., Stocks north of and south of 42°. Neither stock ACLs are reduced by off-the-top set-asides.

d/ Rex sole is shown as it was assessed this cycle. It is managed as part of the other flatfish complex and is not directly reduced by off-the-top set-asides.

e/ OR Black rockfish is shown as it was assessed this cycle. It is managed as part of the OR black/blue/deacon complex and it's ACL contribution is not directly reduced by off-the-top set-asides.

1.3 Annual Catch Target

1.3.1 Yelloweye Rockfish Non-trawl ACT

The Council adopted the Alternative 1 yelloweye rockfish ACT structure as FPA (Table 7). The GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024) and GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024) recommended removing the ACTs; however, the Council opted for a more conservative approach to ensure HGs are note exceeded.

Table 7. FPA. 2025-26 non-trawl yelloweye rockfish harvest guidelines (HG) and annual catch target (ACT) for the sector and sub-sectors.

	2025		2026	
	HG (mt)	**ACT (mt)**	**HG (mt)**	**ACT (mt)**
Non-Trawl Sector	37.7	29.6	38.5	30.2
Non-nearshore / Nearshore (20.9%)	7.9	6.2	8.0	6.3
WA Rec (25.6%)	9.7	7.6	9.9	7.7
OR Rec (23.3%)	8.8	6.9	9.0	7.0
CA Rec (30.2%)	11.4	8.9	11.6	9.1

1.3.2 California Quillback Rockfish ACT

The Council removed the California quillback ACT as FPA. The Council noted given the low ACL, an ACT would not be an effective management measure.

1.3.3 California Copper Rockfish ACT

The Council recommended removing the statewide all sector copper rockfish ACT and establishing a recreational copper rockfish south of 34° 27' N lat.. The recreational ACT is equal to the proportion of California copper rockfish stock's estimated biomass south of 34° 27' N lat., i.e., 2025 = 15.8 mt, 2026 = 18.0 mt.

1.4 Allocations

1.4.1 Amendment 21 and Biennial Allocations

The Council adopted the Alternative 1 Amendment 21 (A21) and biennial allocations for allocated stocks and stock complexes except for widow rockfish (Table 9 and Table 10) as FPA. The Council reduced the non-trawl allocation of widow rockfish from 400 mt to 300 mt, shifting the100 mt to the trawl sector These values were recommended by the GMT (Table 2 in Agenda Item F.5.a, Supplemental GMT Report 4) and GAP (Agenda Item F.5.a, Supplemental GAP Report 1).

As noted above, the Council modified the management structure of shortspine thornyhead from two management units to a single coastwide unit. The Council changed the allocation from formal (Amendment 21) to biennial. The coastwide allocation structure for 2025-26 is 64 percent trawl to 36 percent non-trawl allocation in 2025 and a 71 percent trawl to 29 percent non-trawl allocation in 2026. The Additional details are provided below in the New Management Measures section and detailed Chapter 9D.

Table 8. FPA: 2025 Amendment 21 and biennial trawl/non-trawl allocation percentages (%) and allocation amounts in metric tons (mt) based on Alternative 1 fishery harvest guidelines (HG).

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
YELLOWEYE ROCKFISH	Coastwide	41.0	Biennial	8	3.3	92	37.7
Arrowtooth flounder	Coastwide	9,098.0	A-21	95	8,643.1	5	454.9
Big skate	Coastwide	1,164.6	Biennial	95	1,106.4	5	58.2
Bocaccio	south of 40°10′ N. lat.	1,673.2	Biennial	39	652.5	61	1,020.6
Canary rockfish	Coastwide	508.4	Biennial	72.3	367.6	27.7	140.8
Chilipepper	south of 40°10′ N. lat.	2,788.0	A-21	75	2,091.0	25	697.0
Cowcod	south of 40°10′ N. lat.	66.5	Biennial	36	23.9	64	42.6
Darkblotched rockfish	Coastwide	729.8	A-21	95	693.3	5	36.5
Dover sole	Coastwide	45,840	A-21	95	43,459.8	5	2,290.2
English sole	Coastwide	8,669.4	A-21	95	8,235.9	5	433.5
Lingcod	north of 40°10′ N. lat.	3,349.9	A-21	45	1,507.5	55	1,842.4
Lingcod	south of 40°10′ N. lat.	736.4	Biennial	40	294.6	60	441.8
Longnose skate	Coastwide	1,365.4	Biennial	90	1,228.9	10	136.5
Longspine thornyhead	north of 34°27' N. lat.	2,000.7	A-21	95	1,900.7	5	100.0
Pacific cod	Coastwide	1,098.6	A-21	95	1,043.7	5	54.9
Pacific Ocean perch	north of 40°10′ N. lat.	3,182.5	A-21	95	3,023.4	5	159.1
Pacific whiting b/	Coastwide	-	A-21	100	-	0	0
Petrale sole	Coastwide	2,035.5	Biennial	-	2,006	-	30
Sablefish	north of 36° N. lat.		**See Table 11**				
Sablefish	south of 36° N. lat.	7,829.8	A-21	42	3,288.5	58	4,541.3
Shortspine thornyhead	Coastwide	743	Biennial	64	475.5	36	267.5
Splitnose rockfish	south of 40°10′ N. lat.	1,493.9	A-21	95	1,419.2	5	74.7
Starry flounder	Coastwide	375.3	A-21	50	187.7	50	187.7

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
Widow rockfish	Coastwide	11,018.7	Biennial	-	10,718.7	-	300.0
Yellowtail rockfish	north of 40°10′ N. lat.	5,216.1	A-21	88	4,590.2	12	625.9
Species Complexes							
Shelf rockfish north	north of 40º10′ N. lat.	1,325.7	Biennial	60.2	798.1	39.8	527.6
Shelf rockfish south	south of 40º10′ N. lat.	1,437.9	Biennial	12.2	175.4	87.8	1,262.5
Slope rockfish north	north of 40º10′ N. lat.	1,430.0	A-21	81	1,158.3	19	271.7
Slope rockfish south	south of 40º10′ N. lat.	674.0	Biennial	63	424.6	37	249.4
Other flatfish	Coastwide	7,803	A-21	90	7,022.7	10	780.3

b/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

Table 9. FPA: 2026 Amendment 21 and biennial trawl/non-trawl allocation percentages (%) and allocation amounts in metric tons (mt) based on Alternative 1 fishery harvest guidelines (HG).

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
YELLOWEYE ROCKFISH	Coastwide	41.8	Biennial	8	3.3	92	38.5
Arrowtooth flounder	Coastwide	7,132.00	A-21	95	6,775.4	5	356.6
Big skate	Coastwide	1,128.60	Biennial	95	1,072.2	5	56.4
Bocaccio	south of 40°10′ N. lat.	1,660.2	Biennial	39	647.5	61	1012.7
Canary rockfish	Coastwide	509.6	Biennial	72.3	368.4	27.7	141.2
Chilipepper	south of 40°10′ N. lat.	2,615.20	A-21	75	1,961.4	25	653.8
Cowcod	south of 40°10′ N. lat.	65.2	Biennial	36	23.5	64	41.7
Darkblotched rockfish	Coastwide	707.8	A-21	95	672.4	5	35.4
Dover sole	Coastwide	40,873	A-21	95	38,829.4	5	2043.7
English sole	Coastwide	8,604.40	A-21	95	8,174.2	5	430.2
Lingcod	north of 40°10′ N. lat.	3,252.90	A-21	45	1,463.8	55	1,789.1
Lingcod	south of 40°10′ N. lat.	761.5	Biennial	40	304.6	60	456.9

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
Longnose skate	Coastwide	1,328.40	Biennial	90	1,195.6	10	132.8
Longspine thornyhead	N of 34°27' N. lat.	1,907.3	A-21	95	1,811.9	5	95.4
Pacific cod	Coastwide	1,098.6	A-21	95	1,043.7	5	54.9
Pacific Ocean perch	north of 40°10′ N. lat.	3,074.50	A-21	95	2,920.8	5	153.7
Pacific whiting b/	Coastwide	-	A-21	100	0.0	-	0
Petrale sole	Coastwide	1,915.5	Biennial	-	1,885.5	-	30.0
Sablefish	north of 36° N. lat.		**See Table 11**				
Sablefish	south of 36° N. lat.	7,432.90	A-21	42	3,121.8	58	4,311.1
Shortspine thornyhead	Coastwide	752.8	Biennial	71	534.5	29	218.3
Splitnose rockfish	south of 40°10′ N. lat.	1,454.90	A-21	95	1,382.2	5	72.7
Starry flounder	Coastwide	375.3	A-21	50	187.7	50	187.7
Widow rockfish	Coastwide	10,173.70	Biennial	-	9,873.7	-	300.0
Yellowtail rockfish	north of 40°10′ N. lat.	4,997.50	A-21	88	4,397.8	12	599.7
Species Complexes							
Shelf rockfish north	north of 40°10′ N. lat.	1,312.30	Biennial	60.2	790.0	39.8	522.3
Shelf rockfish south	south of 40°10′ N. lat.	1,435.7	Biennial	12.2	175.2	87.8	1,260.1
Slope rockfish north	north of 40°10′ N. lat.	1,402.20	A-21	81	1,135.8	19	266.4
Slope rockfish south	south of 40°10′ N. lat.	671	Biennial	63	422.7	37	248.3
Other flatfish	Coastwide	6,972.6	A-21	90	6,275.3	10	697.3

a/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

Sablefish north of 36° N. lat.: The Council adopted the Alternative 1 sablefish north of 36° N. lat. allocation structure as their FPA. These values translate into the estimated sablefish tier limits shown in Table 11.

Table 10. FPA: 2025-26 non-tribal sablefish north of 36° N. lat. commercial harvest shares guidelines (HG) and limited entry (LE) trawl and fixed gear (LEFG) and open access (OA) fishery allocations as percentages (%) and metric tons (mt) assuming an at-sea set aside of 100 mt.

Year	Non-tribal Commercial HG	LE Share		LE Trawl Share		LEFG Share		OA Share	
		%	mt	%	mt	%	mt	%	mt
2025	25,729.3	90.6	23,310.7	58	13,520.2	42	9,791.9	9.4	2,418.6
2026	24,425.1	90.6	22,129.1	58	12,834.9	42	9,294.0	9.4	2,296.0

Table 11. FPA: 2025-26 non-tribal sablefish north of 36° N. lat tiers associated poundage (lbs)

Year	Primary Season	Estimated Tier Limits (lbs) a/		
		Tier 1	Tier 2	Tier 3
2025	8,323.1	246,824	112,193	64,110
2026	7,899.9	234,312	106,506	60,860

1.4.2 Rebuilding Species Allocation

Yelloweye rockfish

The Council adopted the Alternative 1 yelloweye rockfish rebuilding allocations for the 2025-26 biennium (Table 13) as their FPA.

Table 12. FPA: Yelloweye rockfish allocations, harvest guideline (HG), and annual catch target (ACT) for 2025 and 2026 under status quo allocation in metric tons (mt).

Year	2025 (mt)		2026 (mt)	
ABC	87.2		88.5	
ACL	55.8		56.6	
Off-the-Top Deduction	14.8		14.8	
Fishery HG	41.0		41.8	
Trawl (8%)	3.3		3.4	
At-Sea	0		0	
IFQ	3.3		3.4	
Non-trawl (92%)	**HG (mt)**	**ACT (mt)**	**HG (mt)**	**ACT (mt)**
	37.7	29.6	38.5	30.2
Non-nearshore / Nearshore (20.9%)	7.9	6.2	8.0	6.3
WA Rec (25.6%)	9.7	7.6	9.9	7.7
OR Rec (23.3%)	8.8	6.9	9.0	7.0
CA Rec (30.2%)	11.4	8.9	11.6	9.1

1.5 Harvest Guidelines and State Shares for Stocks in a Complex

1.5.1 Cowcod

As noted above in Table 9 and Table 10, the Council adopted Alternative 1 trawl/non-trawl cowcod south of 40°10′ N. lat. biennial allocation for of 36 percent to 64 percent, respectively. The Council adopted the Alternative 1 50:50 commercial/recreational sharing agreement (Table 14)

Table 13. FPA. 2025 and 2026 cowcod south of 40°10′ N. lat. annual catch limit (ACL), harvest guideline (HG), trawl/non-trawl allocations, and the 50:50 commercial non-trawl/recreational sharing agreement in metric tons (mt). .

Specification	2025 (mt)	2026 (mt)
ACL	77.6	75.3
Harvest Guideline	66.5	65.2
Trawl (36%)	23.9	23.5
Non-Trawl (64%)	42.6	41.7
Commercial (50%)	21.3	20.85
Recreational (50%)	21.3	20.85

1.5.2 Slope rockfish south of 40° 10′ N. lat. and blackgill rockfish

The Council adopted Alternative 1 blackgill rockfish within the slope rockfish complex south of 40° 10′ N. lat. HGs as FPA (Table 15). This Alternative was recommended by the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024) and GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024).

Table 14. FPA. Council recommended two-year blackgill rockfish within the slope rockfish south of 40° 10′ N. lat. harvest guidelines (HG) in metric tons (mt) for the 2025-26 biennium

Category	2025		2026	
	Trawl	Non-trawl	Trawl	Non-trawl
Blackgill rockfish share [mt] (41% trawl; 59% non-trawl)	68.75	98.93	68.08	97.97
Other rockfish slope share a/ [mt] (91% trawl; 9% non-trawl)	478.17	47.29	476.86	47.16
Subtotal share (mt)	546.92	146.22	544.94	145.13
Total (mt)	693.1		690.1	
% of total share	78.9%	21.1%	79%	21%
Total combined off-top (mt)	19.1		19.1	
Apportioned off-top (mt)	15.07	4.03	15.08	4.02
Final two-year allocation (mt)	531.81	142.19	529.88	144.92

a/ slope south of 40°10 N. ACL lat. minus blackgill south of 40°10 N. ACL contribution

1.5.3 Washington Cabezon/Kelp Greenling Complex

The Council adopted Alternative 1 component species HGs for the Washington cabezon and kelp greenling complex for the 2025-26 biennium as their FPA. This Alternative was recommended by the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024) and GAP (Agenda Item

F.6.a, Supplemental GAP Report 1, June 2024). For reference, Alternative 1 does not specify HGs for these component species.

1.5.4 Oregon Black/Blue/Deacon and Cabezon/Kelp Greenling Complexes

The Council adopted Alternative 1 HGs for Oregon black/blue/deacon rockfish complex and the Oregon cabezon/kelp greenling complexes off of Oregon for the 2025-26 biennium as FPA. This Alternative was recommended by the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024) and GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024). For reference, Alternative 1 does not specify HGs for these component species.

1.5.5 Non-trawl Sharing Agreement for Canary Rockfish

The Council adopted Alternative 1 canary rockfish commercial non-trawl and state-specific recreational percentage-based sharing arrangement (Table 16) as FPA. This Alternative was recommended by the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024) and GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024).

Table 15. FPA: Canary rockfish commercial non-trawl and recreational shares for 2025-26 based on status quo sharing agreement percentages (%) non-trawl rounded to the nearest tenth of a metric ton (mt).

Sector	2025 (mt)	2026 (mt)
Non-Trawl	140.8	141.2
Nearshore & Non-Nearshore (36%)	50.7	50.8
WA Recreational (12.3%)	17.3	17.4
OR Recreational (18.5%)	26.1	26.1
CA Recreational (33.2%)	46.7	46.9

1.5.6 Non-trawl Sharing Agreement for Bocaccio South of 40° 10′ N. lat.

The Council adopted the Alternative 1 bocaccio south of 40° 10′ N. lat. sharing agreement of 30.9 percent to the commercial non-trawl fishery and 69.1 percent to the California recreational fishery (Table 17) as FPA

Table 16. FPA: Bocaccio south of 40° 10′ N. commercial non-trawl and recreational shares for 2025-26 based on status quo sharing agreement percentages (%) non-trawl in metric tons (mt).

Sector	2025 (mt)	2026 (mt)
Non-trawl	1,020.6	1,012.7
Non-nearshore & Nearshore (30.9%)	315.4	312.9
CA Recreational (69.1%)	705.2	699.8

1.5.7 Sablefish South of 36° N. lat.

The Council adopted Alternative 1 sablefish south of 36° N. lat. 70/30 percent sharing of the non-trawl allocation (Table 18). between the limited entry fixed gear (LEFG) and open access (OA)

sectors, respectively as recommended by the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024) and GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024).

Table 17. FPA. Informal sablefish south of 36° N. lat. limited entry fixed gear and open access sharing agreement

Sector	Non Trawl Allocation (mt)	Rec. Set-Aside (mt)	Non-Trawl HG (mt)	LEFG share (mt) 70%	OA share (mt) 30%
2025	4,541.3	10	4,531.3	3,171.9	1,359.4
2026	4,311.1	10	4,301.1	3,010.8	1,290.3

1.5.8 Nearshore Rockfish Complex North of 40°10′ N. lat.

The Council adopted Alternative 1 informal nearshore rockfish north of 40°10′ N. lat. sharing agreement for the 2025-26 biennium. Table 19 displays the values for these stocks under status quo informal allocations. The nearshore rockfish complex N. of 40°10′ N. lat. is subject to 3.3 mt. off-the-top deduction. State specific off-the-top deductions are proportional to their HGs.

Table 18. FPA. Nearshore Rockfish Complex North of 40° 10′ N. lat. sharing arrangement percentages (%) and ACL contributions (contr.) to complex in metric tons (mt) with values rounded to nearest tenths.

Rockfish	Sharing Agreement %			2025 specifications (mt)				2026 specifications (mt)			
	WA	OR	CA	ACL contr	WA	OR	CA	ACL contr	WA	OR	CA
Black and Yellow /Gopher	12.9%	58.4%	28.7%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blue/deacon (CA)	0.0%	0.0%	100%	27.7	0.0	0.0	27.7	27.4	0.0	0.0	27.4
Blue/deacon (WA)	100%	0.0%	0.0%	5.6	5.6	0.0	0.0	5.5	5.5	0.0	0.0
Brown	0.0%	8.0%	92.0%	1.7	0.0	0.1	1.6	1.7	0.0	0.1	1.6
Calico a/	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China (WA)	100%	0.0%	0.0%	7.7	7.7	0.0	0.0	7.4	7.4	0.0	0.0
China (OR/CA)	0.0%	80.9%	19.1%	16.1	0.0	13.8	3.3	15.7	0.0	12.7	3.0
Copper (OR/WA) b/	-	-	-	16.3	1.9	13.9	0.0	16.3	1.9	13.9	0.0
Copper (WA)	*100%*	*0.0%*	*0.0%*	*1.9*	*1.9*	*0.0*	*0.0*	*1.9*	*1.9*	*0.0*	*0.0*
Copper (OR)	*0.0%*	*100%*	*0.0%*	*14.4*	*0.0*	*13.9*	*0.0*	*13.9*	*0.0*	*13.9*	*0.0*
Copper (42°- 40° 10′)	0.0%	0.0%	100%	6.8	0.0	0.0	6.9	6.8	0.0	0.0	6.8
Grass	12.9%	58.4%	28.7%	0.5	0.1	0.3	0.1	0.5	0.1	0.3	0.1
Kelp a/	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Olive	12.9%	58.4%	28.7%	0.3	.04	0.2	0.1	0.3	.04	0.2	0.1
Quillback (WA)	100%	0.0%	0.0%	2.2	2.2	0.0	0.0	2.2	2.2	0.0	0.0
Quillback (OR)	0.0%	100%	0.0%	2.7	0.0	2.7	0.0	2.7	0.0	2.7	0.0

Rockfish	Sharing Agreement %			2025 specifications (mt)				2026 specifications (mt)			
	WA	OR	CA	ACL contr	WA	OR	CA	ACL contr	WA	OR	CA
Treefish	12.9%	58.4%	28.7%	0.2	0.03	0.1	0.1	0.2	0.03	0.1	0.1
Total (mt)				**87.8**	17.5	30.8	39.4	**86.2**	17.1	30.0	39.0
off-the-top (mt)				**3.3**	0.7	1.2	1.5	**3.3**	0.7	1.1	1.5
off-the-top %					19.9%	35.1%	44.9%		19.9%	34.8%	45.3%
HG (mt)				84.5	16.9	29.7	37.9	82.9	16.5	28.9	37.6

a/ species part of complex but do not have specifications north of 40°10′ N. lat.
b/ the copper rockfish north of 42° N. lat. apportions are the sum of estimated ACL from Oregon and Washington stock assessments
c/ Quillback rockfish off CA harvest specifications have not been adopted by the Council

1.6 Tribal Fishery

The Council adopted the amounts as specified in Agenda Item F.5.a Supplemental Tribal Report 1 and Supplemental Tribal Report 2, April 2024 as FPA (Table 20). The amounts for petrale sole decreased from 350 mt to 290 mt, a starry flounder set-aside of 2 mt was added, and the yelloweye rockfish set aside increased from 5 mt to 8 mt compared to the 2023-24 biennium. Additionally, the Tribal sablefish amount increased relative to the ACLs for 2025-26 per A6 allocation directives. The tribal set-asides for all other stocks and stock complexes remained the same as in the last biennium (see Chapter 2, Alternative 1).

Table 19. FPA. Requested Treaty harvest guidelines and set-asides for 2025-26.

Species	Requested Treaty harvest guidelines and set-asides (mt)
Arrowtooth flounder	2,041
Black rockfish (WA) a/	18.14
Big skate	15
WA Cabezon/Greenling	2
Canary rockfish	50
Darkblotched rockfish	5
Dover sole	1,497
English sole	200
Lingcod	250
Longnose skate	220
Longspine thornyheads	30
Other flatfish	60
Pacific cod	500
Pacific ocean perch	130
Pacific whiting	17.5% of TAC
Petrale sole	290

Species	Requested Treaty harvest guidelines and set-asides (mt)
Sablefish north of 36° N. lat.	10% of TAC (See Table 4)
Shortspine thornyheads	50
Pacific spiny dogfish	275
Starry flounder	2
Widow rockfish	200
Yellowtail rockfish	1,000
Yelloweye rockfish	8
Nearshore rockfish	1.5
Slope rockfish	36
Shelf rockfish	30

a/ The treaty harvest guideline of black rockfish is set at 30,000 lbs. north of Cape Alava and 10,000 lbs. between Destruction Island and Leadbetter Point (50 CFR 660.50(f)(1))

1.7 At Sea Whiting Fishery

The Council adopted the 2025-26 at-sea Pacific whiting sectors as FPA (Table 21). The values were recommended by the GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024 and the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024)

Briefly, the at-sea set-asides for Dover sole, lingcod north of 40°10′ N. lat., longnose skate, Pacific halibut, Pacific ocean perch, petrale sole, shelf rockfish complex north of 40°10′ N. lat, slope rockfish complex north of 40°10′ N. lat. and shortspine thornyhead north of 34°27′ N. lat. did not change from Alternative 1. The set-asides for arrowtooth flounder increased from 70 mt to 100 mt; canary rockfish decreased from 36 mt to 20 mt; darkblotched rockfish increased from 76.4 mt to 100 mt; other flatfish increased from 35 mt to 100 mt; sablefish north of 36° N. lat. increased from 100 mt to 429 mt; widow rockfish decreased from 476 mt to 300 mt; and yellowtail rockfish north of 40°10′ N. lat. increased from 320 mt to 360 mt.

Table 20. FPA. 2025-26 At-sea set-aside values in metric tons(mt)

Stocks / Stock Complexes	Area	2025-26 Set-Asides (mt)
Arrowtooth flounder	Coastwide	100
Canary rockfish	Coastwide	20
Darkblotched rockfish	Coastwide	100
Dover sole	Coastwide	10
Lingcod	north of 40°10' N. lat.	15
Longnose skate	Coastwide	5
Other flatfish complex	Coastwide	100
Pacific halibut	Coastwide	10
Pacific ocean perch	north of 40°10' N. lat.	300
Petrale sole	Coastwide	5
Sablefish	north of 36° N. lat.	429
Shelf rockfish complex	north of 40°10' N. lat.	35
Slope rockfish complex	north of 40°10' N. lat.	300
Shortspine thornyhead	north of 34° 27′ N. lat.	70
Widow rockfish	Coastwide	300
Yellowtail rockfish	north of 40°10′ N. lat.	360

1.8 Trawl: Shore Based Individual Fishing Quota

1.8.1 Management Measures

The principle management measures for the shorebased IFQ fishery under the FPA are the same as those detailed under Chapter 4, Alternative 1.The Council adopted status quo shorebased IFQ trip limits for non-IFQ stocks (Table 22).

Table 21. FPA. 2025-26 non-IFQ stocks trip limits.

Stock	Trip Limit
Big skate	Unlimited
Blackgill rockfish	Unlimited
California cabezon	50 lb./month
California scorpionfish	Unlimited
Longnose skate	Unlimited
Longspine thornyhead south of 34° 27′ N. lat.	24,000 lb./2 months
Minor nearshore rockfish, Washington black rockfish & Oregon black/blue/deacon rockfish b/	300 lb./month
Oregon cabezon/kelp greenling complex	50 lb./month
Other Fish	Unlimited
Pacific spiny dogfish	60,000 lb./month

1.8.2 IFQ Allocations and Projected Attainments

Impacts under the Council's FPA trawl allocation, minus any at-sea set-asides, are shown in Table 22. Detailed model information for this portion of the document, including additionally specificity on the parameters used to populate the model are available in Appendix C

Table 22. FPA. 2025-26 IFQ allocations and projected catch in metric tons (mt) with estimated percent (%) attainment under the high attainment scenario.

Species	2025			2026		
	Allocation (mt)	Projected Catch(mt)	% Attain.	Allocation (mt)	Projected Catch (mt)	% Attain.
Arrowtooth flounder	8,573	777	9%	6,705	763	11%
Bocaccio south of 40°10' N.	653	254	39%	648	254	39%
Canary rockfish	348	291	84%	347	291	84%
Chilipepper rockfish south of 40°10' N.	2,091	1,268	61%	1,961	1,191	61%
Cowcod south of 40°10' N.	24	1.7	7%	23	1.7	7%
Darkblotched rockfish	593	a/	a/	572	a/	a/
Dover sole	43,538	3,830	9%	38,819	3,818	10%
English sole	8,236	232	3%	8,174	232	3%
Lingcod north of 40°10' N.	1,503	382	25%	1,449	378	26%
Lingcod south of 40°10' N.	295	52	18%	305	54	18%
Longspine thornyhead north of 34°27' N.	1,901	22	1%	1,812	22	1%
Minor shelf rockfish north of 40°10' N.	763	295.1	39%	755	292.2	39%
Minor shelf rockfish south of 40°10' N.	175	38.3	22%	175	38.2	22%
Minor slope rockfish north of 40°10' N.	858	192.8	22%	836	191.8	23%
Minor slope rockfish south of 40°10' N.	425	28.1	7%	423	28.0	7%
Other flatfish	6,922	340	5%	6,175	338	6%
Pacific cod	1,044	37	4%	1,044	37	4%
Pacific ocean perch north of 40°10' N.	2,723	221	8%	2,621	221	8%
Petrale sole	2,001	1,852	93%	1,885	1,745	93%
Pacific whiting	b/	101,966	57%	b/	101,966	57%
Sablefish north of 36° N.	13,091	8,076	62%	13,091	8,076	62%
Sablefish south of 36° N.	3,289	294	9%	3,288	294	9%
Shortspine thornyhead	406	c/	c/	464	c/	c/
Splitnose rockfish south of 40°10' N.	1,419	20	1%	1,382	20	1%
Starry flounder	188	0.2	0.1%	188	0.2	0.1%
Widow rockfish	10,243	d/	d/	9,398	d/	d/
YELLOWEYE ROCKFISH	3.3	0.4	11%	3.4	0.4	10%
Yellowtail rockfish north of 40°10' N.	4,230	e/	e/	4,038	e/	e/

a/ The Council's PPA for this species was not directly modeled. The lowest and highest possible IFQ allocations of 543 mt and 617 mt, respectively, were modeled as bookends in 2025 and 522 mt and 596 mt, respectively, in 2026. The IFQ fishery is projected to catch 157 mt in 2025 and 152 mt in 2026 under the lowest allocation, or up to 176 mt in 2025 and 171 mt in 2026 under the highest allocation. Attainment is projected at 29 percent under all allocations and years. The Council's PPA falls within this range.
b/ Pacific whiting allocations are set prior to each season through the international treaty process. 2025-26 catch and attainment projections are based on the 2023 shorebased whiting allocation (178,581 mt) as a proxy.
c/ The Council's PPA for this species was not directly modeled. The lowest and highest possible IFQ allocations of 376 mt and 431 mt, respectively, were modeled as bookends in 2025 and 381 mt and 484 mt, respectively, in 2026. The IFQ fishery is projected to catch 184 mt in 2025 (49 percent) and 186 mt in 2026 (49 percent) under the lowest allocation, or up to 197 mt in 2025 (46 percent) and 207 mt in 2026 (43 percent) under the highest allocation. The Council's PPA falls within this range.
d/ The Council's PPA for this species was not directly modeled. The lowest and highest possible IFQ allocations of 10,143 mt and 10,519 mt, respectively, were modeled as bookends in 2025 and 9,298 mt and 9,674 mt, respectively, in 2026. The IFQ fishery is projected to catch 9,664 mt in 2025 (95 percent) and 8,901 mt in 2026 (96 percent) under the lowest allocation, or up to 10,004 mt in 2025 (95 percent) and 9,240 mt in 2026 (96 percent) under the highest allocation. The Council's PPA falls within this range.
e/ The Council's PPA for this species was not directly modeled. The lowest and highest possible IFQ allocations of 4,140 and 4,270 mt, respectively, were modeled as bookends in 2025 and 3,948 mt and 4,078 mt, respectively, in 2026. The IFQ fishery is projected to catch 3,048 mt in 2025 (74 percent) and 2,954 mt in 2026 (75 percent) under the lowest allocation, or up to 3,112 mt in 2025 (73 percent) and 3,018 mt in 2026 (74 percent) under the highest allocation. The Council's PPA falls within this range.

Non Trawl Commercial Fixed Gear

The Council adopted Alternative 1 management measures as FPA as detailed in Chapter 6, , except for California quillback rockfish and shortspine thornyhead, as recommended by the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024) and GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024,. The Council adopted Alternative 2 management measures for California quillback rockfish and New Management Measure 9D for shortspine thornyhead.

1.8.3 Trip Limit Modifications

The Council modified open access north and south (OAN, OAS) and limited entry fixed gear north and south (LEN, LES) trip limits. The OAN and OAS trip limits are shown in Table 23 and Table 24. The LEN and LES trip limits are shown in Table 25 and Table 26. all other stocks and stock complexes, the Council adopted status quo trip limits as their FPA. For lingcod, other flatfish, and the shelf rockfish complex only legal non-bottom contact hook-and-line gear are allowed in the non-trawl RCA (50 CFR 660.330(b)(3).

Table 23. FPA. Proposed open access north of 40°10′ N. lat. commercial non-trawl trip limits for the 2025-26 biennium except for closed or unlimited trip limits.

Species	Trip Limit
Big skate	Unlimited
Black rockfish (42° 00' N. lat. - 40° 10' N. lat.)	CLOSED
Cabezon (California)	CLOSED
Cabezon/kelp greenling complex (Oregon)	Unlimited
Canary rockfish	1,000 lbs. / 2 months

Species	Trip Limit
Flatfish (includes Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder)	10,000 lbs. / 2 months
Lingcod (north of 42° 00' N. lat.)	9,000 lbs. / 2 months
Lingcod (42° 00' N. lat. - 40° 10' N. lat.)	2,000 lb / 2 months seaward of the Non-Trawl RCA; CLOSED inside the Non-Trawl RCA
Longnose skate	Unlimited
Longspine thornyheads	100 lbs. / 2 months
Nearshore rockfish complex, Oregon black/blue/deacon rockfish, & Washington black rockfish (north of 42° 00' N. lat.)	5,000 lbs. / 2 months no more than 1,200 lbs. of which may be species other than black rockfish or blue/deacon rockfish See § 660.330(e) for additional trip limits for Washington black rockfish.
Nearshore rockfish complex (42°00' N. lat. - 40°10' N. lat.)	CLOSED
Other fish	Unlimited
Other flatfish complex (north of 42°00' N. lat.)	10,000 lb / 2 months
Other flatfish complex (42°00' N. lat. - 40°10' N. lat.)	10,000 lb / 2 months seaward of the Non-Trawl RCA; 0 lb / 2 months inside the Non-Trawl RCA
Pacific cod	1,000 lb / 2 months
Pacific ocean perch	200 lb / 2 months
Pacific Spiny Dogfish	• Periods 1-2: 200,000 lb / 2 months • Period 3: 150,000 lb / 2 months • Periods 4-6: 100,000 lb / 2 months
Pacific whiting	600 lb / 2 months
Quillback rockfish (42°00' N lat. - 40°10' N lat.)	CLOSED
Sablefish	3,250 lb / week not to exceed 6,500 lb / 2 months
Shelf rockfish complex (north of 42°00' N. lat.)	1,600 lb / 2 months
Shelf rockfish complex (42°00' N lat. - 40°10' N lat.)	1,200 lb / 2 months
Shortspine thornyhead	100 lb / 2 months
Slope rockfish complex & darkblotched rockfish	4,000 lb / 2 months
Widow rockfish	2,000 lb / 2 months
Yelloweye rockfish	CLOSED
Yellowtail rockfish	3,000 lb / 2 months

Table 24. FPA. Proposed open access south of 40°10′ N. lat. commercial non-trawl trip limits for the 2025-26 biennium except for closed or unlimited trip limits.

Species	Trip Limit
Big skate	Unlimited
Bocaccio	6,000 lb / 2 months
Bronzespotted rockfish	CLOSED
Cabezon (40°10' N lat. - 36° N lat.)	CLOSED
Cabezon (south of 36° N lat.)	Unlimited
California scorpionfish	3,500 lb / 2 months
Canary rockfish	1,500 lb / 2 months
Chilipepper rockfish (40°10' N lat. - 34° 27’ N lat.)	6,000 lb / 2 months
Chilipepper rockfish (south of 34° 27’ N lat.)	4,000 lb / 2 months
Cowcod	CLOSED
Flatfish (includes Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder)	10,000 lb / 2 months
Lingcod (40°10' N lat. - 37° 07’ N lat.)	1,400 lb / 2 months seaward of the Non-Trawl RCA; CLOSED inside of the Non-Trawl RCA
Lingcod (south of 37° 07’ N lat.)	1,400 lb / 2 months
Longnose skate	Unlimited
Longspine thornyhead (40° 10′ to 34° 27′ N lat.)	100 lb / 2 months
Nearshore rockfish complexes	
Shallow nearshore rockfish (40°10' N lat. - 36° N lat.)	CLOSED
Shallow nearshore rockfish (south of 36° N lat.)	2,000 lb / 2 months
Deeper nearshore rockfish (40°10' N lat. - 36° N lat.)	CLOSED
Deeper nearshore rockfish (south of 36° N lat.)	2,000 lb / 2 months, of which no more than 75 lb may be copper rockfish
Other fish (defined at § 660.11)	Unlimited
Other flatfish complex (defined at § 660.11)	40°10' N lat. - 37° 07’ N lat.: 10,000 lb / 2 months seaward of the Non-Trawl RCA; CLOSED inside of the Non-Trawl RCA South of 37° 07’ N lat.: 10,000 lb / 2 months

Species	Trip Limit
Pacific cod	1,000 lb / 2 months
Pacific Spiny Dogfish	• Periods 1-2: 200,000 lb / 2 months • Period 3: 150,000 lb / 2 months • Periods 4-6: 100,000 lb / 2 months
Pacific whiting	600 lb / 2 months
Quillback rockfish	CLOSED
Sablefish (40°10' N lat. - 36° N lat.)	3,000 lb / week not to exceed 9,000 lb / 2 months
Sablefish (south of 36° N lat.)	2,000 lb / week not to exceed 6,000 lb / 2 months
Shelf rockfish complex (40°10' N lat. - 37° 07' N lat.); excludes bronzespotted rockfish	3,000 lb per 2 months, of which no more than 300 lb may be vermilion/sunset rockfish
Shelf rockfish complex (37° 07' N lat. - 34° 27' N lat.); excludes bronzespotted rockfish	4,000 lb per 2 months, of which no more than 300 lb may be vermilion/sunset rockfish
Shelf rockfish complex (south of 34° 27' N lat.); excludes bronzespotted rockfish	3,000 lb per 2 months, of which no more than 900 lb may be vermilion/sunset rockfish
Shortspine thornyhead (40° 10′ N. lat. - 34° 27′ N. lat.)	100 lb / 2 months
Shortspine thornyhead and longspine thornyhead (south of 34° 27′ N. lat.)	100 lb / day, no more than 1,000 lb/ 2 months for all periods
Slope rockfish complex & darkblotched rockfish	10,000 lb / 2 months, of which no more than 2,500 lb may be blackgill rockfish
Splitnose rockfish	400 lb / 2 months
Widow rockfish (40°10' N lat. - 34° 27' N lat.)	6,000 lb / 2 months
Widow rockfish (south of 34° 27' N lat.)	4,000 lb / 2 months
Yelloweye rockfish	CLOSED

Table 25. FPA. Proposed LEFG north of 40°10′ N. lat. commercial non-trawl trip limits for the 2025-26 biennium except for closed or unlimited trip limits.

Species	Trip Limit
Big skate	Unlimited
Black rockfish (42°00' N. lat. - 40°10' N. lat.)	CLOSED
Cabezon (California)	CLOSED
Cabezon/kelp greenling complex (Oregon)	Unlimited
Canary rockfish	3,000 lb / 2 months

Species	Trip Limit
Flatfish (includes dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder)	20,000 lb / 2 months
Lingcod (north of 42°00' N lat.)	11,000 lb / 2 months
Lingcod (42°00' N lat. - 40°10' N. lat.)	2,000 lb / 2 months seaward of the Non-Trawl RCA; CLOSED inside the Non-Trawl RCA
Longnose skate	Unlimited
Longspine thornyheads	10,000 lb / 2 months
Nearshore rockfish complex, Oregon black/blue/deacon rockfish, & Washington black rockfish (north of 42°00' N. lat.)	5,000 lb / 2 months, no more than 1,200 lb of which may be species other than black rockfish or blue/deacon rockfish See § 660.230(e) for additional trip limits for Washington black rockfish.
Nearshore rockfish complex (42°00' N lat. - 40°10' N lat.)	CLOSED
Other fish	Unlimited
Other flatfish complex (north of 42°00' N. lat.)	20,000 lb / 2 months
Other flatfish complex (42°00' N. lat. - 40°10' N. lat.)	20,000 lb / 2 months seaward of the Non-Trawl RCA; CLOSED inside the Non-Trawl RCA
Pacific cod	1,000 lb / 2 months
Pacific ocean perch	3,600 lb / 2 months
Pacific Spiny Dogfish	• Periods 1-2: 200,000 lb / 2 months • Period 3: 150,000 lb / 2 months • Periods 4-6: 100,000 lb / 2 months
Pacific whiting	10,000 lb per trip
Quillback rockfish (42°00' N lat. - 40°10' N lat.)	CLOSED
Sablefish	4,500 lb / week not to exceed 9,000 lb / 2 months
Shelf rockfish complex	1,600 lb / 2 months
Shortspine thornyhead	3,000 lb / 2 months
Slope rockfish complex & darkblotched rockfish	8,000 lb / 2 months
Widow rockfish	4,000 lb / 2 months
Yelloweye rockfish	CLOSED
Yellowtail rockfish	6,000 lb / 2 months

Table 26. FPA. Proposed LEFG north of 40°10′ N. lat. commercial non-trawl trip limits for the 2025-26 biennium, except for closed or unlimited trip limits.

Species	Trip Limit
Big skate	Unlimited
Bocaccio	8,000 lb / 2 months
Bronzespotted rockfish	CLOSED
Cabezon (40°10' N lat. - 36° N lat.)	CLOSED
Cabezon (south of 36° N lat.)	Unlimited
California scorpionfish	3,500 lb / 2 months
Canary rockfish	3,500 lb / 2 months
Chilipepper rockfish (40°10' N lat. - 34° 27’ N lat.)	10,000 lb / 2 months
Chilipepper rockfish (south of 34° 27’ N lat.)	8,000 lb / 2 months
Cowcod	CLOSED
Flatfish (includes dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder)	20,000 lb / 2 months
Lingcod (40°10' N lat. - 37° 07’ N lat.)	1,600 lb / 2 months seaward of the Non-Trawl RCA; 0 lb / 2 months inside of the Non-Trawl RCA
Lingcod (south of 37° 07’ N lat.)	1,600 lb / 2 months
Longnose skate	Unlimited
Longspine thornyhead (south of 34° 27′ N lat.)	10,000 lb / 2 months
Nearshore rockfish complexes	
Shallow nearshore rockfish complex (40°10' N lat. - 36° N lat.)	CLOSED
Shallow nearshore rockfish complex (south of 36° N lat.)	2,000 lb / 2 months
Deeper nearshore rockfish complex (40°10' N lat. - 36° N lat.)	CLOSED
Deeper nearshore rockfish complex (south of 36° N lat.)	2,000 lb / 2 months, of which no more than 75 lb may be copper rockfish
Other fish	Unlimited
Other flatfish complex (40°10' N lat. - 37° 07’ N lat.)	20,000 lb / 2 months seaward of the Non-Trawl RCA; CLOSED inside of the Non-Trawl RCA
Other flatfish complex (south of 37° 07’ N lat.)	20,000 lb / 2 months
Pacific cod	1,000 lb / 2 months
Pacific Spiny Dogfish	• Periods 1-2: 200,000 lb / 2 months • Period 3: 150,000 lb / 2 months • Periods 4-6: 100,000 lb / 2 months
Pacific whiting	10,000 lb per trip

Species	Trip Limit
Quillback rockfish	CLOSED
Sablefish (40°10' N lat. - 36° N lat.)	4,500 lb / week not to exceed 9,000 lb / 2 months
Sablefish (south of 36° N lat.)	2,500 lb / 2 months
Shelf rockfish complex (40°10' N lat. - 37° 07' N lat.); excludes bronzespotted rockfish	6,000 lb per 2 months, of which no more than 500 lb may be vermilion/sunset rockfish
Shelf rockfish complex (37° 07' N lat. - 34° 27' N lat.); excludes bronzespotted rockfish	8,000 lb per 2 months, of which no more than 500 lb may be vermilion/sunset rockfish
Shelf rockfish complex (south of 34° 27' N lat.); excludes bronzespotted rockfish	5,000 lb per 2 months, of which no more than 3,000 lb may be vermilion/sunset rockfish
Shortspine thornyhead (40° 10′ N. lat. - 34° 27′ N. lat.)	3,000 lb / 2 months
Slope rockfish complex & darkblotched rockfish	40,000 lb / 2 months, of which no more than 6,000 lb may be blackgill rockfish
Splitnose rockfish	40,000 lb / 2 months
Widow rockfish (40°10' N lat. - 34° 27' N lat.)	10,000 lb / 2 months
Widow rockfish (south of 34° 27' N lat.)	8,000 lb / 2 months
Yelloweye rockfish	CLOSED

1.8.4 Sablefish South of 36° N. lat. Recreational Set-aside

The Council adopted a 10 mt recreational fishery set-aside for sablefish south of 36° N. lat., i.e. Option 2 (Table 27) as FPA. Option 2 was recommended by the GMT in Agenda Item F.5.a, Supplemental GMT Report 4, April 2024 and is deducted from the overall sablefish south of 36° N. lat. non-trawl allocation before dispersal to the fishery. This amount is approximately 0.2 percent of the non-trawl HG for this area. The recreational fishery in this area has expressed interest in targeting sablefish and the 10 mt is not expected constrain the commercial non-trawl sector targeting sablefish south of 36° N. lat.

Table 27. FPA. Sablefish south of 36° N. lat set-aside options considered by the Council considering the 2025-26 non-trawl harvest guideline (HG) and the resulting percentage deduction based on the options.

Options	Proposed Amount (mt)	Percent (%) of non-trawl HG	Non-trawl HG (mt) 2025	Non-trawl HG (mt) 2026
1	0	0	4,541	4,431
2 FPA:	10	0.2%	4,531	4,421

1.8.5 California Quillback Rockfish

California quillback rockfish is overfished and requires a rebuilding plan. The Council adopted the Alternative 2 "ABC Rule" harvest specifications as FPA. California quillback is a no retention stock; however, as this stock co-occurs with other nearshore stocks, further management measures

are needed to reduce impact. Then Council adopted the trip limits in Federal waters (Table 28) to minimize impact on this stock. These trip limits were adopted in conjunction with the FPA trip limits for lingcod, other flatfish, the shelf rockfish complex shown in Tables 24-28 above.

Table 28. FPA: 2025-26 proposed limited entry (LE) and open access (OA) trip limits for California quillback rockfish, nearshore rockfish, and cabezon in federal waters between 42°N. lat. to 36 N. lat.:

Stock/Stock Complex	Sector	Management Measure
California Quillback Rockfish	LE and OA	0 lbs. per two months.
Nearshore Rockfish Complex	LE and OA	0 lbs per two months
Cabezon	LE and OA	0 lbs per two months

1.9 Washington Recreational Fishery

The Council adopted the Alternative 1 (Agenda Item F.6, Attachment 2, June 2024) Washington recreational management measures as FPA, see Chapter 7 for detail. As, discussed in Agenda Item F.6.a, Supplemental WDFW Report 1, June 2024, the primary driver of management of Washington recreational fisheries for the 2025-26 will be the state specific HGs for canary rockfish. As such, the Council adopted a five fish canary rockfish sub-bag limit. Table 29 shows the HGs Washington will manage to under the FPA.

Table 29. FPA. Washington Recreational. Harvest guidelines (HG) in metric tons (mt) for select stocks in Washington recreational fisheries.

Species	HG (mt)	
	2025	**2026**
Canary Rockfish	17.3	17.4
Black Rockfish	226.0	222.6
YELLOWEYE ROCKFISH	10.4 (ACT = 8.2)	10.6 (ACT = 8.3)
Nearshore Rockfish North of 40° 10′ N. lat.	17.0	16.5
WA Cabezon/Kelp Greenling	17.4	14.7
WA Vermilion Rockfish North of 40° 10′ N. lat.	0.60	0.58

Groundfish Seasons and Area Restrictions

Season Structure

Washington Department of Fish and Wildlife (WDFW) manages the Washington recreational fishery by four areas. To achieve management objectives, each area may be managed under different seasons and depth restrictions. Under the FPA, the Washington recreational season will be open from the second Saturday in March through the third Saturday in October. [1] Table 30 summarizes key features of the 205-26 Washington recreational regulations

North Coast (Marine Areas 3 and 4)

The retention of groundfish is prohibited seaward of a line approximating 20 fathoms from June 1 through July 31, except lingcod, Pacific cod, sablefish, bocaccio rockfish, silvergray rockfish, canary rockfish, widow rockfish, and yellowtail rockfish, may be retained seaward of 20 fathoms on days that Pacific halibut fishing is open. In addition, yellowtail rockfish and widow rockfish retention are allowed seaward of 20 fathoms in July.

South Coast (Marine Area 2)

The retention of lingcod is prohibited seaward of 30 fathoms from May 1 through May 31, except lingcod retention is allowed on days open to the all-depth Pacific halibut fishery. Fishing for, retention, or possession of lingcod is prohibited in deepwater areas seaward of a line extending from 47° 31.70' N. latitude, 124° 45.00' W. longitude to 46° 38.17' N. latitude, 124° 30.00' W.

[1] March 8, through October 18, 2025 and March 14 through October 17, 2026.

longitude except on days open to the Pacific halibut fishery and from June 1 through 15 and September 1 through 30.

Columbia River (Marine Area 1)
Retention of sablefish, flatfish other than Pacific halibut, Pacific cod, yellowtail rockfish, widow rockfish, canary rockfish, redstripe rockfish, greenstriped rockfish, silvergray rockfish, chilipepper rockfish, boccaccio, blue/deacon rockfish, and lingcod north of the Washington – Oregon border is allowed with Pacific halibut onboard during the Pacific halibut fishery. Additionally, fishing for, retention, or possession of lingcod in deepwater areas seaward of a line extending from 46° 38.17' N. latitude, 124° 21.00' W. longitude to 46° 33.00' N. latitude, 124° 21.00' W. longitude is prohibited except from June 1 through June 15 and September 1 through September 30.

Table 30. FPA. Washington Recreational seasons and groundfish retention restrictions.

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	BF Closed		BF Open a/			BF Open < 20 fm a/ b/c/		BF Open			BF Closed	
2 (S. Coast)	BF Closed		BF Open d/e/								BF Closed	
1 (Col. River)	BF Closed		BF Open f/ g/								BF Closed	

a/ Retention of copper, quillback, and vermilion rockfishes prohibited May 1 through July 31.
b/ Retention of lingcod, Pacific cod, sablefish, bocaccio, silvergray rockfish, canary rockfish, widow rockfish, and yellowtail rockfish allowed >20 fm on days when Pacific halibut is open June 1 through July 31.
c/ Retention of yellowtail and widow rockfishes is allowed >20 fm in July.
d/ From May 1 through May 31 lingcod retention prohibited >30 fathoms except on days that the primary Pacific halibut season is open.
e/ When lingcod is open, retention is prohibited seaward of a line drawn from Queets River (47°31.70' N. Lat. 124°45.00' W. Lon.) to Leadbetter Point (46° 38.17' N. Lat. 124°30.00' W. Lon.), except on days open to the primary Pacific halibut fishery and June 1 – 15 and September 1 - 30.
f/ Retention of sablefish, Pacific cod, flatfish (other than halibut), yellowtail, widow, canary, redstripe, greenstriped, silvergray, chilipepper, bocaccio, and blue/deacon rockfishes allowed during the all-depth Pacific halibut fishery. Lingcod retention is only allowed with halibut on board north of the WA-OR border.
g/ Retention of lingcod is prohibited seaward of a line drawn from Leadbetter Point (46° 38.17' N. Lat., 124°21.00' W. Lon.) to 46° 33.00' N. Lat., 124°21.00' W. Lon. year round except lingcod retention is allowed from June 1 - June 15 and Sept 1 - Sept 30.

Area Restrictions

Details of lingcod restrictions in the South Coast and Columbia River marine areas are described above and in Chapter 6 Fishing for, retention, or possession of groundfish and Pacific halibut is prohibited in the C-shaped YRCA to protect yelloweye rockfish.

Groundfish Daily Limits

Under the FPA, the recreational groundfish bag limit is nine groundfish per day. In any combination, not to exceed nine fish in total, anglers can land up to seven rockfish, two lingcod, and one cabezon apply in Marine Areas 1-4. A sub-bag limit of five canary rockfish applies to the total rockfish bag limit. Five additional flatfish , not including Pacific halibut, can be retained in addition to the nine groundfish daily limit. Retention of yelloweye rockfish is prohibited. Retention of copper, quillback and vermilion rockfishes is prohibited May 1 through July 31.

1.10 Oregon Recreational Fishery

The Council adopted Alternative 1 as their FPA for the Oregon recreational fishery, as detailed in Chapter 8 and recommended by the ODFW in Agenda Item F.5. Supplemental ODFW Report 1, April 2024. The recreational fishery HGs are detailed in Table 31. Oregon black/blue/deacon rockfish and nearshore rockfish will be the constraining species that drive the Oregon recreational fishery in terms of the season structure and bag limits. These measures were recommended by the GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024 and the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024)

Table 31. FPA. Oregon recreational Federal harvest guidelines (HG) in metric tons (mt), or state quotas under the PPA (mt).

Stock	2023 HG (mt)	2025 HG (Percent of 2023)	2026 HG (Percent of 2023)
Oregon Black/Blue/Deacon Rockfish Complex a/	457.9	325.9 (71%)	329.5 (72%)
Canary Rockfish b/	65.1	26.0 (40%)	26.1 (40%)
Oregon Cabezon/Greenling Complex c/	51.4	49.2 (96%)	48.6 (95%)
Nearshore Rockfish Complex North of 40°10' N. lat. d/	15.8	14.6 (92%)	14.3 (91%)
YELLOWEYE ROCKFISH	7.0	7.4 (106%)	7.6 (109%)

a/ The state process in Oregon establishes the commercial and recreational quotas for black, blue, and deacon rockfishes. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations.

b/ Federal HGs are established for canary and yelloweye rockfish and should be included in Federal regulation

c/ Includes kelp and other greenlings. Kelp greenling accounts for over 99 percent of the landings. The state process in Oregon establishes the commercial and recreational shares for the cabezon/greenling OR Complex. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations

d/ Blue and deacon rockfish are not part of the nearshore rockfish north complex in Oregon, they are part of a complex with black rockfish. The state process in Oregon establishes commercial and recreational quotas for nearshore rockfish complex species. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations.

Groundfish Season Structure and Depth Restrictions

The 2025-26 season structure, bag limits, and depth restrictions are show in **Error! Reference source not found.**

Table 32. FPA. Oregon recreational groundfish season structure and bag limits.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bottomfish Season	Open all depths											
Marine Bag Limit [a/]	Ten (10)											
Longleader Bag Limit [b/]	Twelve (12); sub-bag of five canary rockfish											
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [c/]	Twenty-Five (25)											
Sablefish Bag Limit	Ten (10)											

a/ Marine bag limit is 10 fish per day and includes all groundfish species other than lingcod, sablefish, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna, and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt; of which no more than one may be cabezon.

b/ Longleader fishing must take place seaward of the 40-fathom regulatory line with the following rockfish allowed for retention: blue, bocaccio, canary, chilipepper, deacon, greenstriped, redstripe, silvergray, widow, and yellowtail rockfishes.

c/ Flounders, soles, sanddabs, turbots, and halibuts except Pacific halibut.

Groundfish Bag Limits

Under the FPA, the Council adopted these bag limits for Oregon.

- 10 for marine fish;
- 25 for flatfish (other than Pacific halibut);
- 12 for longleader gear species, with a five canary rockfish sub-bag limit;
- 3 for lingcod and
- 10 sablefish
- Retention of quillback rockfish has been prohibited.
- Cabezon retention is prohibited from January through June, with a sub-bag limit of 1-fish daily beginning July

Size Limits

Under the FPA, lingcod have a minimum size limit of 22 inches and cabezon have a minimum size of 16 inches.

Pacific Halibut Seasons

Pacific halibut is expected to be 184 days

1.11 California Recreational Fishery

The Council adopted the CDFW recommendations (Agenda Item F.6.a, Supplemental CDFW Report 1, June 2024) for the California recreational management measures described in Chapter 8 Alternative 1, Option 4 as FPA. The Council also recommended removing size limits for cabezon, greenling, and California scorpionfish, and the minimum filet length and skin patch requirement for California scorpionfish as recommended in Agenda Item F.6.a, Supplemental CDFW Report 1, April 2024 as PPA. These recommendations were supported by the GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024, the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024), and the EC in Agenda Item F.5.a, Supplemental EC Report 1, April 2024.

Groundfish Season Structure and Depth Restrictions

The Council's FPA for the California recreational fishery season structure and depth restrictions are shown in Table 33

Table 33. FPA. California 2025-26 recreational groundfish season and depth restrictions

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Mendocino	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
San Francisco	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Central – N 36°	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Central – S 36°	Closed			All Depth			<50fm			>50fm		
Southern	Closed			All Depth			<50fm			>50fm		

Groundfish Bag Limits

The Council's PPA for California recreational bag limits are shown below (see Chapter 8, Alternative 1, Option 4 for detail):

- 10 fish aggregate RCG bag limit
  - 2 vermilion rockfish south of 40°10 N. lat. sub bag limit
  - 1 fish copper rockfish bag limit,
  - 0 fish quillback rockfish sub-bag limit
- 2 lingcod
- 5 California scorpionfish
- 3 Leopard shark
- 1 Soupfin shark .

Unless otherwise specified, there is a general bag limit of 20 finfish, of which no more than 10 fish can be of any one species. Pacific sanddab, petrale sole, and starry flounder are exempt from the general finfish bag limit; retention of these species is unlimited.

Size Limits

The Council's FPA for size limits are limited to two species, lingcod (22 inches) and leopard shark (36 inches – California state regulations only). The Council adopted the measure to remove the size limits for cabezon, greenling, and California scorpionfish (see Agenda Item F.5.a, Supplemental GMT Report 5, April 2024 and Agenda Item F.5.a, Supplemental CDFW Report 1, June 2024 for additional detail). The removal of the size limits for each of these species is expected to increase recreational fisheries impacts but the magnitude of those impacts is uncertain. It is unlikely recreational anglers will target juvenile cabezon, greenling, and California scorpionfish, as smaller fish have less meat and larger fish are considered more desirable. However, additional retention of immature fish that would have been released due to size limits will likely occur, and the magnitude of that potential increase in retention is unknown.

In addition to removing the size limits for the aforementioned stocks, the Council agreed with the EC (Agenda Item F.5.a, Supplemental EC Report 1, April 2024) regarding filet skin requirements for cabezon, greenlings, California scorpionfish, and lingcod. For these stocks, the Council adopted the requirement that the skin is to left on the filet as FPA to ensure the ability for enforcement officers to distinguish between filets of species that closely resemble one another, such as California scorpionfish, lingcod, cabezon, and greenling.

1.12 New Management Measures

The following new management measures were adopted by the Council as recommended by the GAP (Agenda Item F.6.a, Supplemental GAP Report 1, June 2024, the GMT (Agenda Item F.6.a, Supplemental GMT Report 1, June 2024).

9a Open Access Registration/Permit Program

The Council adopted Option 2 of new management measure 9A to establish a Federal OA Registration/Permit for the OA groundfish fleet as their FPA. The purpose of this new management measure is to better track and account for participation in the directed OA sector, thus enabling fishery managers to better account for impacts to the fishery, as described in Agenda Item F.6.a, NMFS Report 1, June 2024. At present, the only way to identify participants is via landing receipts and declarations. The lack of an OA registry has created ongoing challenges with: 1) developing management measures for the OA fishery; 2) communicating new regulations with the OA sector, and; 3) WCGOP's ability to accurately estimate mortality and fishing effort.

Option 2 requires vessels that fish in the directed OA sector to register for and obtain a federal permit from NMFS. The number of allowable permits would not be capped (*i.e.*, this would not be a limited entry program). NMFS is currently exploring possibilities for rolling permit applications and issuance versus standard application/renewal timeframes and expect to report back on that exploration at a future meeting. The registration process would likely require vessels to indicate their gear type, *e.g.*, bins such as pot, longline, stationary vertical jig gear, groundfish troll gear, other hook-and-line gear, etc., aligning with declarations and the groundfish non-trawl logbook. Based on declarations in 2023, this would capture approximately 246 vessels (based on declaration data obtained from OLE on 1/23/2024).

9b Update to Discard and Retention Requirements in the Electronic Monitoring Program

The Council adopted Option 2 of new management measure 9B to update EM discard and retention requirements in regulation to include sablefish and rex sole, and remove California halibut, as detailed in Chapter 9, as their FPA. The purpose of this new measure is to update federal regulations pertaining to discard and retention requirements in the Electronic Monitoring (EM) program for non-IFQ species to include sablefish and rex sole, and exclude California halibut. The need of this new measure is to provide consistency across all media to ensure participants in the trawl IFQ fishery possess the correct information.

At present, the discard species list at 50 CFR 660.604(p)(4)(i) does not include sablefish and rex sole; whereas, the Vessel Monitoring Plan (VMP) does list these stocks. Additionally, as currently written, the regulations are in conflict in regard to California halibut catch handling. The regulations require vessels to *discard* the non-IFQ species California halibut "except as allowed by state regulations" at 50 CFR 660.604(p)(4)(ii), but under 50 CFR 660.604(p)(4)(i), the vessel must *retain* this species.

9C A Coastwide Rockfish Sorting Requirement for Processors

New management measure 9C was removed from consideration under this action and will be added to the groundfish new management measure list for reconsideration at a later date.

9D Shortspine Thornyhead Management Measure Change

The Council adopted modifications to shortspine thornyhead management and allocation structure as noted in Agenda Item F.5.a, Supplemental GAP Report 1, April 2024 and in Agenda Item F.5.a, Supplemental GMT Report 2, April 2024. Several process steps were needed to modify the management of this stock. Briefly, the Council removed the management line at 34°27′ N. lat. and converted shortspine thornyhead to a stock managed coastwide, modified the allocations from formal to biennial, established coastwide trawl/non-trawl allocations for the stock, established an non-trawl ACT north of 34° 27′ N. lat., and adopted trip limit changes. A summarized description of these steps are shown below. Details are provided in Chapter 9, new management measure 9D.

Removal of the Management Line at 34° 27′ N. lat.

The Council adopted the measure to remove the shortspine thornyhead management line at 34° 27′ N. lat. management line, thus establishing coastwide ACLs and allocations.

2025-26 Allocation Proportions:

The Council adopted a measure to establish a 2025 coastwide allocation structure of 64 percent trawl and 36 percent non-trawl. In 2026, the coastwide allocation structure would be 71 percent trawl and 29 percent non-trawl The coastwide allocation structure is not consistent for both years of the biennium (see Agenda Item F.5.a, Supplemental GMT Report 2, April 2024 for detail) In 2025, Federal regulations require using a process for re-combining management areas for the trawl sector which proportionally adjusts quota share holdings if a coastwide trawl allocation is created.

Non-trawl ACT:

The Council adopted a measure to establish a non-trawl ACT north of 34° 27′ N. lat. set equal to 25 percent of the coastwide non-trawl allocation. This would provide a mechanism to slow the concentration of effort in the northern non-trawl fishery (i.e., 2025 ACT of 67 mt and a 2026 ACT of 55 mt)

Non-trawl Trip Limits:

Under the FPA, the LEFG and OA trip limits are as described in Table 34 and Table 35. The LEFG trip limits were converted from monthly to bimonthly.

Table 34. FPA. Shortspine thornyhead trip limits for open access (OA) and limited entry fixed gear (LEFG) north of 40°10′ N. lat. and south of 40°10′ to 34° 27′ N. lat.

Option	Sector	Trip Limit
Option 2 FPA	OAN	100 lbs./2 months for all periods
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	100 lbs./2 months for all periods
	LEN	3,000 lbs./ 2 months for all periods
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	3,000 lbs./ 2 months for all periods

Table 35. FPA. Shortspine thornyhead trip limit options for limited entry fixed gear south of 34° 27′ N. lat. (LES)

Option	Sector	Trip Limit
Option 2: FPA	LES: South of 34° 27′ N. lat.	4,000 lbs./2 months for all periods

Open access trip limits south of 34° 27′ N. lat. are a combined shortspine and longspine thornyhead trip limit. There is only one option available for this area, which is status quo (Table 36).

Table 36. FPA. Open access shortspine thornyhead and longspine thornyhead trip limit options south of 34° 27′ N. lat. (OAS)

Option	Sector	Trip Limit
Option 1. Status Quo FPA	OAS: South of 34° 27′ N. lat.	100 lbs. per day, no more than 1,000 lbs per 2 months for all periods

9E Descending Device Requirement for Recreational Vessels in Federal Waters

The Council adopted Option 2 of new management measure 9E to require all recreational vessels in the EEZ to have one functional descending device on board the vessel while fishing for groundfish. of as FPA. This measure creates a coastwide descending device requirement in the EEZ (*i.e.*, 3-200 nm offshore), thus creating regulatory consistency between state and federal waters across all three states. The need of this measure is to reduce mortality of rockfish species in the Pacific Coast groundfish recreational fisheries by returning discarded fish to depth. The purpose of this measure is to require the possession of a descending device on vessels targeting groundfish.

9E requires the recreational fishing vessels to have a functional descending device on board the vessel while fishing for groundfish and be required to present it at the request of an enforcement officer. The requirement would be one functional descending device per vessel, regardless of the number of anglers onboard. Recreational vessels would include any vessel fishing for groundfish under recreational catch limits in federal waters, including CPFVs and charter boats. This measure only pertains to recreational groundfish fisheries in Federal waters. States could require additional descending device regulations within state waters.

9F Modify Continuous Transit Limitations in California Recreational Vessels

The Council adopted Option 2 from new management measure 9F as FPA. This management measure modifies federal continuous transit provisions at 50 CFR 660.360(c)(3)(i)(a) for California recreational vessels in Federal waters within Recreational RCA boundary line. This modification allows recreational vessels to anchor overnight and/or stop to fish for non-groundfish species inside the seasonal Recreational RCA, also known as the "offshore fishery"

The purpose of this measure is to improve the flexibility of recreational fishing vessels off California in allowing them to anchor overnight during multi-day trips as well as allow for non-groundfish fishing when anchored or transiting back to port. The need of this measure is relative to National Standard 10, safety at sea. Vessels on multi-day trips may encounter hazardous seas

and anchoring in the lee of weather while at sea area improves the safety of the vessel and the fishermen aboard it.

This new management measure allows recreational vessels in California to stop and/or anchor in federal waters shoreward of the Recreational RCA boundary line. Vessels that stop or anchor inside the Recreational RCA would not be allowed to have any type of hook-and-line gear deployed in the water to ensure that groundfish fishing would not be occurring inside the Recreational RCA boundary line (*e.g.,*, shoreward of 50 fm). Hook-and-line gear is the primary gear type used by recreational vessels to target groundfish; therefore, prohibiting its deployment while shoreward of Recreational RCA boundary line would help federal and state enforcement officers enforce the modified transit provisions while still allowing vessels to use other gear types for non-groundfish fishing (*e.g.*, traps for lobster and crab or dip nets for squid).

9G Correction to the Pacific Sand Lance Scientific Name and the Common Name for Pacific Spiny Dogfish in Federal Regulation.

The Council adopted the changes to the Pacific sand lance scientific name and the Pacific spiny dogfish common name as FPA in Federal regulation. The corrections would apply to Federal regulations as described under new management measure 9G.

Pacific Sand Lance

The correct scientific name for this species is *Ammodytes personatus*. The scientific name was changed per the findings of Orr et al. 2015.

Pacific Spiny Dogfish

The common name for spiny dogfish *(Squalus suckleyi)* has changed to include “Pacific” and correct common name is Pacific Spiny Dogfish (Ebert et al, 2010; Page et al. 2013).

Chapter 1. Dispersal of 2025-26 Annual Catch Limits to the Groundfish Fishery Analysis

Executive Summary

Chapter 1 includes considerations for management measures that are not sector-specific (i.e., waypoints of depth-based management lines or off-the-top deductions) or have allocative effects among sectors (e.g., allocations, harvest guidelines, etc.). Chapter 1 includes the numerical values associated with applying No Action and Alternative allocative management measures for all managed groundfish species. For most species, allocative management measures under Alternatives 1, 2, and 3 are the same as No Action. Considerations for changes from No Action are summarized below.

A handful of waypoint revisions to the 50 fm line are considered in Alternative 1 and will have further impact analysis by CDFW in a separate report.

Deductions from the ACLs for research, and incidental open access are generally unchanged in methodology compared to No Action with two notable exceptions. First, a new research set-aside for California quillback rockfish of 0.10 mt is warranted for 2025-26. Second, the method for estimating incidental open access mortality in the next biennial cycle will be to use a ten-year rolling maximum metric tonnage, with some exceptions, as noted in the text. This method has been determined by the GMT to be more indicative of current mortality trends than the No Action methodology. Set-aside metric tonnage would remain the same or decrease for most species compared to No Action; set-asides would increase for some species, especially those that are highly attained like lingcod, widow rockfish, yelloweye rockfish and darkblotched rockfish.

Annual Catch Targets (ACTs) are considered for the same species/stocks that had them in 2023-24. For yelloweye rockfish and California quillback rockfish, Alternative 1 ACTs would be calculated using the same methods as in 2023-24. The California copper rockfish ACT would be a recreational ACT for just the portion of the stock south of 34° 27′ N. lat. rather than a state-wide all-sector ACT (as in 2023-24). This is the sector with the most mortality and in the area of greatest conservation need to address localized depletion of copper rockfish. Two alternatives (Alternatives 1 and 2) are considered for calculating the 2025-26 ACT for copper rockfish in southern California.

Unless otherwise noted, Alternative 1 and Alternative 2 allocations among sectors and within sectors are calculated based on No Action formulas (e.g., Amendment 21, 2023-24 biennial allocations, etc.). Generally, the metric tonnage of allocations vary between No Action, Alternative 1 and Alternative 2 due to differences in the harvest specifications or off-the-top deductions (not due to differences in allocation formulas or sharing agreements) with the following exceptions: changes to allocation formulas are considered for canary rockfish, widow rockfish, and shortspine thornyhead under Alternative 1.

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1. No Action

The No Action scenario considers harvest specifications and management measures implemented for the 2023-24 biennium. No Action harvest specifications are largely untenable choice for the Council as they do not integrate BSIA, per A24. No Action harvest specifications would only go into effect if the Council were to not adopt the 2025-26 harvest specifications. However, No Action is useful as a comparative tool for the 2025-26 biennium. No Action uses 2023 harvest specifications and the corresponding mortality data as a proxy for 2023-24 harvest specifications as 2024 mortality data is not yet available. These data and management measures are presented as a reference point for the Council and stakeholders to understand the differences between the 2023-24 biennium and the proposed 2025-26 biennial specifications and management measures. The detailed analyses of No Action harvest specifications and management measures can be found in Informational Report 2, September 2022.

1.1 Rockfish Conservation Area Updates

Rockfish conservation area (RCA) coordinates and related groundfish area fishing restrictions are found in federal regulation at §660.70 - § 660.79. Under No Action, the Council adopted the corrections and modifications to waypoints proposed by California Department of Fish and Wildlife (CDFW), as described in E.5.a, Supplemental CDFW Report 1, November 2021 and F.4.a, Supplemental CDFW Report 5, April 2022.

Additionally, though not adopted as part of the 2023-24 biennial process, the Council adopted Amendment 32 (A32), incorporated by reference, for implementation in 2024. This amendment is germane to No Action as it will reflect the status quo when the Council adopts this biennial package. Briefly, A32 specified the following changes.

1) Moved the seaward boundary of the non-trawl rockfish conservation area (Non-Trawl RCA) to 75 fathoms (fm) between the 46°16′ N. lat - 34° 27′ N. lat. for groundfish;
2) Designated essential fish habitat conservation areas (EFHCA) at Nehalem Bank East, Bandon High Spot East, Garibaldi Reef North, Garibaldi Reef South, and Arago Reef to would prohibit non-trawl groundfish bottom contact gear (e.g., bottom longline):
3) Created three new yelloweye rockfish conservation areas (YRCA) off Oregon and also activated a YRCA west of Heceta Bank that would prohibit non-trawl groundfish bottom contact gear.
4) Modified five coordinates of the 75 fm line off of California.

Additionally, A32 removed non-trawl restrictions in the Cowcod Conservation Area (CCA) for non-trawl commercial and recreational fisheries and developed Non-Trawl RCA lines around the Channel Islands and banks within the current CCA boundaries.

1.2 Annual Catch Limit Deductions

Annual catch limit (ACL) Deductions, called "off-the-top" deductions are made to account for groundfish mortality in the Pacific Coast treaty Indian tribal fisheries, scientific research, non-groundfish target fisheries (hereinafter, incidental open access fisheries), and, as necessary, exempted fishing permits. The ACL minus the off-the-top amount results in the harvest guideline (HG) for the species or complex. Sufficient yield must be available to accommodate the anticipated groundfish mortality from the aforementioned fisheries to increase the probability that catches will

remain at or below the ACLs. The Council can transfer any unused portion of these deductions, with the exception of the tribal set-aside, to directed groundfish fisheries using inseason action. The 2023 off-the-top deductions are described in Table 2. The summaries below describe the aforementioned fishery's groundfish mortality.

Tribal Fishery: Tribal fishery values are established under Treaty provisions (Agenda Item E.7.a, Supplemental Tribal Report 1, November 2023) as well as specific requests (Agenda Item E.7.a, Supplemental Tribal Report 2, November 2023). Under No Action, Tribal set-asides did not change from the previous biennium except for increases to Pacific ocean perch (9.3 mt to 130 mt) and darkblotched rockfish (0.2 mt to 5.0 mt) relative.

Research: Research set-asides are adopted to account for anticipated groundfish mortality in research fisheries, which include the National Marine Fisheries Service (NMFS) trawl survey, International Pacific Halibut Commission (IPHC) longline survey, and other Federal and state research. Under No Action, research set-asides were set equal to the maximum historical scientific research mortality from 2005 to 2020 for all species except cowcod (10 mt) and yelloweye rockfish (2.92 mt) as shown in Table 2. Research maximum mortality were obtained from the NWFSC's Fisheries Observation Science Program (FOS) Groundfish Estimated Multi-year Mortality Report (GEMM) as provided in Agenda Item C.1.b, NMFS Report 2, September 2021.

Incidental Open Access (IOA): IOA set-asides are for commercial fisheries[1] that do not target, but catch groundfish incidentally. Under No Action, IOA set-asides were set equal to the maximum historical IOA mortality from 2005 to 2020 for all species[2] except for: darkblotched rockfish (9.8 mt), petrale sole (11.1 mt), sablefish south of 36° N. lat. (25 mt), yelloweye rockfish (2.66 mt), and nearshore rockfish complex north of 40°10′ N. lat. (1.3 mt) in WCGOP GMR (Agenda Item C.1.b, NMFS Report 2, September 2021).

Exempted Fishing Permits (EFP): EFP set-asides are estimated and requested by the EFP permit holder to cover anticipated EFP-specific groundfish mortality. Under No Action, the Council adopted EFP set-asides as detailed Table 2.

Recreational (sablefish north of 36° N. lat. only): The Amendment 6 (A6) allocation framework for sablefish north of 36° N. lat. specifies that anticipated recreational catches based on the maximum historical value (i.e., 6 mt) of sablefish caught in recreational fisheries be deducted from the ACL prior to the commercial (Table 1). Of note, an estimated 24 mt was landed in the California (north of 36° N. lat.) and Oregon recreational fisheries, with an uncalculated amount in Washington[3] recreational fisheries. This amount translates to +400% of the recreational set-aside.

Table 1. No Action 2023 tribal, research, recreational (Rec), EFP set-asides, the commercial harvest guideline for sablefish[4] north of 36° N. lat., and estimated attainment (PacFIN 2/12/24) in metric tons (mt).

Year	ACL (mt)	Tribal (mt)	Research (mt)	Rec. (mt)	EFP (mt)	Sum (mt)	Commercial HG (mt)	Attainment %
2023	8,433	843.3	30.7	6.0	1.0	881	7,552	69%

[1] IOA fisheries on the west coast include California state managed species (e.g., California halibut), coastal pelagic species, highly migratory species, salmon troll, Pacific halibut, Dungeness crab, pink shrimp, ridgeback prawn.
[2] Longnose and big skate were managed within complexes until 2009 and 2015, respectively, and therefore, the maximums are from only those years where sorting was required.
[3] In 2023, WDFW did not break out sablefish in their recreational fishery sampling as a separate estimate
[4] Sablefish ACLs were incorrectly calculated in 2023-24. The amounts shown here are the corrected values as shown in G.8, Supplemental Revised Attachment 1, September 2023

Table 2. No Action. 2023 off-the-top deductions in metric tons (mt) for tribal, EFP, research, IOA and the resulting fishery harvest guideline (HG) a/

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Total (mt)	Fishery HG (mt)
YELLOWEYE ROCKFISH a/	Coastwide	66	5.00	0.12	2.92	2.66	10.70	55.3
Arrowtooth flounder	Coastwide	18,632	2,041.00	0.0	12.98	41.00	2,094.98	16,537
Big skate	Coastwide	1,320	15.00	0.0	5.49	39.31	59.80	1,260.2
Black rockfish	Washington	290	18.00	0.0	0.10	0.0	18.10	271.8
Black rockfish	California	334	0.0	1.00	0.08	1.18	2.26	332.1
Bocaccio	S of 40º10′ N. lat.	1,842	0.0	40.00	5.60	2.52	48.12	1,793.9
Cabezon	S of 42º N. lat.	182	0.0	1.00	0.02	0.61	1.63	180.4
California scorpionfish	S of 34°27' N. lat.	262	0.0	0.0	0.18	3.71	3.89	258.4
Canary rockfish a/	Coastwide	1,284	50.00	6.00	10.08	2.83	68.91	1,215.1
Chilipepper	S of 40º10′ N. lat.	2,183	0.0	70.00	14.04	13.66	97.70	2,085
Cowcod	S of 40º10′ N. lat.	80	0.0	1.00	10.00	0.17	11.17	68.8
Darkblotched rockfish a/	Coastwide	785	5.00	0.50	8.46	9.80	23.76	761.2
Dover sole	Coastwide	50,000	1,497.00	0.0	50.84	49.27	1,597.11	48,402.9
English sole	Coastwide	9,018	200.00	0.0	17.00	42.52	259.52	8,758.5
Lingcod	N of 40º10′ N. lat.	4,378	250.00	0.0	17.71	11.92	279.63	4,098.4
Lingcod	S of 40º10′ N. lat.	726	0.0	4.00	3.19	8.31	15.50	710.5
Longnose skate	Coastwide	1,708	220.00	0.0	12.46	18.84	251.30	1,456.7
Longspine thornyhead	N of 34º27' N. lat.	2,295	30.00	0.0	17.49	6.22	53.71	2,241.3
Longspine thornyhead	S of 34º27' N. lat.	725	0.0	0.0	1.41	0.83	2.24	722.8
Pacific cod	Coastwide	1,600	500.00	0.0	5.47	0.53	506.00	1,094
Pacific Ocean perch	N of 40º10′ N. lat.	3,573	130.00	0.0	5.39	10.09	145.48	3,427.5
Pacific spiny dogfish	Coastwide	1,456	275.00	1.00	41.85	33.63	351.48	1,104.5
Pacific whiting	Coastwide	394,400	64,645.00	0.0	750.00	1,500.00	66,895.00	302,505
Petrale sole	Coastwide	3,485	350.00	1.00	24.14	11.10	386.24	3,098.8
Sablefish a/	N of 36º N. lat.	8,433	Table 6					

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Total (mt)	Fishery HG (mt)
Sablefish a/	S of 36º N. lat.	2,338	-	-	2.40	25.00	27.40	2,310.6
Shortspine thornyhead	N of 34º27' N. lat.	1,359	50.00	-	10.48	17.82	78.30	1,280.7
Shortspine thornyhead	S of 34º27' N. lat.	719	-	-	0.71	6.00	6.71	712.3
Splitnose rockfish	S of 40º10′ N. lat.	1,592	-	1.50	11.17	5.75	18.42	1,573.4
Starry flounder	Coastwide	392	2.00	-	0.57	45.71	48.28	343.7
Widow rockfish	Coastwide	12,624	200.00	18.00	17.27	3.05	238.32	12,385.7
Yellowtail rockfish	N of 40º10′ N. lat.	5,666	1,000.00	0.00	20.55	7.00	1,027.55	4,638.5
Complexes								
Nearshore rockfish north	N of 40º10′ N. lat.	93	1.50	0.0	0.47	1.30	3.27	89.7
Nearshore rockfish south	S of 40º10′ N. lat.	887	0.0	0.0	2.68	1.86	4.54	882.5
Shelf rockfish north	N of 40º10′ N. lat.	1,283	30.00	0.0	15.32	25.62	70.94	1,212.1
Shelf rockfish south a/	S of 40º10′ N. lat.	1,469	0.0	50.00	15.10	67.67	132.77	1,336.2
Slope rockfish north	N of 40º10′ N. lat.	1,540	36.00	0.0	10.51	18.88	65.39	1,474.6
Slope rockfish south	S of 40º10′ N. lat.	701	0.0	1.00	18.21	19.73	38.94	662.1
Other fish	Coastwide	223	0.0	0.0	6.29	14.95	21.24	201.8
Other flatfish	Coastwide	4,862	60.00	0.0	23.63	137.16	220.79	4,641.2
Oregon black/blue/deacon rockfish	Oregon	597	0.0	0.0	0.08	1.74	1.82	595.2
Oregon cabezon/kelp greenling	Oregon	185	0.0	0.0	0.05	0.74	0.79	184.2
Washington cabezon/kelp greenling	Washington	20	2.00	0.0	0.0	0.0	2.00	18

a/ the 2023 harvest specifications for these stocks were in error. These are the values approved by the Council. Due to timing, the corrected 2023 amounts could not be updated in regulation; whereas the 2024 amounts were. See Agenda Item G.8, Supplemental REVISED Attachment 1, September 2023 for detail

Table 3 details the estimated mortality (as of 1/12/2024) for managed stocks and stock complexes. ACLs and HGs for all stocks and stock complexes were not exceeded.

Table 3. No Action. 2023 Harvest specifications for managed stocks/stock complexes, annual catch limits (ACL), harvest guidelines (HG), estimated total mortality, and resulting percentage (%) of ACL and HGs (PacFIN, 1/12/2024)

Species	Area	ACL (mt)	HG (mt)	Est. Mortality (mt)	% ACL	% HG
YELLOWEYE ROCKFISH a/	Coastwide	66	55.3	24.9	47.7%	59.9%
Arrowtooth flounder	Coastwide	18,632	16,537	710.5	3.8%	4.3%
Big skate	Coastwide	1,320	1,260.2	128.5	9.7%	10.2%
Black rockfish	Washington	290	271.8	148.9	44.6%	44.9%
Black rockfish	California	334	332.1	158.6	54.7%	54.8%
Bocaccio	S of 40º10′ N. lat.	1,842	1,793.9	596.9	32.4%	33.3%
Cabezon	S of 42º N. lat.	182	180.4	33.2	18.3%	18.4%
California scorpionfish	S of 34°27’ N. lat.	262	258.4	121.6	46.4%	47.1%
Canary rockfish a/	Coastwide	1,284	1,215.1	717.5	53.6%	59.0%
Chilipepper	S of 40º10′ N. lat.	2,183	2,085	1,179.1	54.0%	56.5%
Cowcod	S of 40º10′ N. lat.	80	68.8	8.7	10.9%	12.6%
Darkblotched rockfish a/	Coastwide	785	761.2	304.7	37.2%	40.0%
Dover sole	Coastwide	50,000	48,402.9	3,861.7	7.7%	8.0%
English sole	Coastwide	9,018	8,758.5	209.9	2.3%	2.4%
Lingcod	N of 40º10′ N. lat.	4,378	4,098.4	1,011.8	23.1%	24.7%
Lingcod	S of 40º10′ N. lat.	726	710.5	248.4	34.2%	35.0%
Longnose skate	Coastwide	1,708	1,456.7	578.2	33.9%	39.7%
Longspine thornyhead	N of 34º27’ N. lat.	2,295	2,241.3	36.7	1.6%	1.7%
Longspine thornyhead	S of 34º27’ N. lat.	725	722.8	5.2	0.7%	0.7%
Pacific cod	Coastwide	1,600	1,094	68.8	4.3%	6.3%
Pacific Ocean perch	N of 40º10′ N. lat.	3,573	3,427.5	316.9	8.9%	9.2%
Pacific spiny dogfish	Coastwide	1,456	1,104.5	473.0	32.5%	42.8%
Pacific whiting	Coastwide	394,400	302,505	241,034.7	65.3%	79.7%

Species	Area	ACL (mt)	HG (mt)	Est. Mortality (mt)	% ACL	% HG
Petrale sole	Coastwide	3,485	3,098.8	2,968.0	85.2%	95.8%
Sablefish a/	N of 36º N. lat.	8,433	NA	5,819.4	69.0%	NA
Sablefish b/	S of 36º N. lat.	2,338	2,310.6	283.4	11.8%	12.3%
Shortspine thornyhead	N of 34º27' N. lat.	1,359	1,280.7	422.6	4.1%	33.0%
Shortspine thornyhead	S of 34º27' N. lat.	719	712.3	29.1	1.5%	4.1%
Splitnose rockfish	S of 40º10′ N. lat.	1,592	1,573.4	23.8	2.7%	1.5%
Starry flounder	Coastwide	392	343.7	10.4	87.7%	89.4%
Widow rockfish	Coastwide	12,624	12,385.7	11,067.9	47.7%	89.4%
Yellowtail rockfish	N of 40º10′ N. lat.	5,666	4,638.5	3,293.7	58.1%	71.0%
Stock Complexes						
Nearshore rockfish north	N of 40º10′ N. lat.	93	89.7	49.6	53.3%	55.3%
Nearshore rockfish south	S of 40º10′ N. lat.	887	882.5	280.6	31.6%	31.8%
Shelf rockfish north	N of 40º10′ N. lat.	1,283	1,212.1	358.3	27.9%	29.6%
Shelf rockfish south a/	S of 40º10′ N. lat.	1,469	1,336.2	902.9	61.7%	67.6%
Slope rockfish north	N of 40º10′ N. lat.	1,540	1,474.6	345.1	22.4%	23.4%
Slope rockfish south	S of 40º10′ N. lat.	701	662.1	80.7	11.5%	12.2%
Other flatfish	Coastwide	4,862	4,641.2	477.4	9.8%	10.3%
Other fish	Coastwide	223	201.8	59.0	26.5%	29.3%
Oregon black/blue/deacon rockfish	Oregon	597	595.2	448.1	75.1%	75.3%
Oregon cabezon/kelp greenling	Oregon	185	184.2	50.7	27.4%	27.5%
Washington cabezon/kelp greenling	Washington	20	18	9.9	49.9%	55.5%

a/ the 2023 harvest specifications for these stocks were in error. These are the values approved by the Council. Due to timing, the corrected 2023 amounts could not be updated in regulation; whereas the 2024 amounts were. See Agenda Item G.8, Supplemental REVISED Attachment 1, September 2023 for detail

1.3 Annual Catch Target (ACT)

ACTs[1] are an accountability measure (AM) that can be used to set a harvest target set below the ACL (see §4.7 of PFMC, 2023). An ACT is a useful management tool for cases where there is high uncertainty in inseason catch monitoring, if there is concern regarding exceeding an ACL, and other conservation concerns. Since the ACT is a target and not a limit, it can be used in lieu of harvest guidelines or strategically to accomplish other management objectives.

Under No Action, yelloweye, California quillback, and California copper rockfishes are subject to an ACT.

1.3.1 Yelloweye Rockfish ACT

Under No Action, yelloweye rockfish has an established non-trawl sector ACT of 78.4% applied to the non-trawl sector HG. In 2023, the non-trawl HG was 38.3 mt, resulting in a non-trawl ACT of 30.0 mt. The non-trawl HG and ACTs are further applied to the non-trawl sub-sectors (i.e., commercial and state recreational). The sub-sector HGs are calculated as – 20.9 percent commercial, 25.6 percent Washington recreational, 23.3 percent Oregon recreational, and 30.2 percent California Recreational. A 78.4 percent ACT is applied to the sector-specific HGs. The 2023 yelloweye rockfish non-trawl ACT and sector specific ACTs are detailed in Table 8 under the rebuilding species section (Section 1.4.1).

1.3.2 California Copper Rockfish ACT

Under No Action, California copper rockfish is managed under the nearshore rockfish complexes north and south of 40°10′ N. lat.. The ACT California copper rockfish ACT et equal to the California ACL contributions to the nearshore rockfish complex north of 40°10′ N. lat. and the entire copper rockfish contribution to the nearshore rockfish complex south of 40°10′ N. lat (Table 4). The ACTs were not exceeded in 2023.

Table 4. No Action. 2023 area-specific California copper rockfish ACL contributions (ACL contribution < ABC, SPR 0.55) and ACTs (ACT = ACL contribution) to nearshore rockfish complexes north and south of 40°10′ N. lat.

Specification	2023		% mortality	
	42° - 40° 10′ N. lat. (mt)	South of 40° 10′ N. lat. (mt)	42° - 40° 10′ N. lat. (mt)	South of 40° 10′ N. lat. (mt)
OFL	8.03	108.77	54.2%	35.0%
ABC	6.99	94.78	62.2%	40.2%
ACL Contribution	6.93	84.61	62.8%	45.0%
ACT	6.93	84.61		

1.3.3 California Quillback Rockfish ACT

Under No Action, the ACT for California quillback rockfish was set the statewide ACT equal to the combined statewide ACL contributions to the nearshore rockfish complexes (Table 5). The ACT was exceeded as were the ACL contributions for both complexes (Agenda Item F.8, Supplemental CDFW Report 1, March 2024) .

[1] 50 CFR 660.11 and 50 CFR 600.310(g)(4)

Table 5. No Action. The 2023 combined California quillback rockfish contributions (ACL contribution < ABC, SPR 0.55) and ACTs (ACT = ACL contribution) to the nearshore rockfish complexes north and south of 40°10′ N. lat. and preliminary mortality percentages (%). (Sources PacFIN/RecFIN, 2/6/24)

	2023 (mt)	% mortality
OFL	2.11	99%
ABC	1.85	115%
ACL Contribution	1.76	121%
ACT	1.76	121%

1.4 Allocations: Amendment 21 and Biennial

The fishery HGs for most species and several stock complexes are allocated between the trawl and non-trawl fisheries under Amendment-21 (A21) to the Pacific Groundfish Fishery Management Plan (FMP) or under biennial, i.e., two year, allocations. Under No Action, no allocations were adjusted. The No Action 2023 allocations are shown in Table 7.

Sablefish north of 36° N. lat.: Sablefish north of 36° N. lat. is allocated under the A6 framework, which allocates the non-tribal commercial HG between the limited entry (trawl and fixed gear) and open access sectors. Table 6 shows the No Action non-tribal LEFG, limited entry trawl, and OA allocations within the limited entry HG for sablefish north of 36° N. lat. for 2023 as adopted by the Council. Mortality for sablefish north of 36° N. lat. is further detailed in the fixed gear section (Chapter 5. Non-Trawl: Commercial Fixed Gear:). The non-tribal commercial harvest guideline is divided into the LE and OA shares (90.6 percent and 9.4 percent, respectively). The LE Share is then split into the LE Trawl Share (58 percent) and the LEFG Share (42 percent).

Table 6. No Action. 2023 sablefish north of 36° N. lat. commercial harvest guideline (HG) and allocations to the limited entry and open access fisheries as percentages (%) and metric tons (mt). a/

Year	Non-Tribal Commercial HG	Limited Entry Shares		Limited Entry Trawl		Limited Entry FG		Open Access Share	
		%	mt	%	Mt	%	mt	%	mt
2023	7,552	90.6	6,842	58	3,968	42	2,874	9.4	710
Percent (%) Attained		70.8%		66.8%		73.3%		69.8%	

a/ The 2023 harvest apportionment specifications for sablefish were in error. This table reflects the corrected values. Due to timing, the corrected 2023 amounts could not be updated in regulation; whereas the 2024 amounts were. See Agenda Item G.8, Supplemental REVISED Attachment 1, September 2023 for detail

Table 7. No Action: 2023 fishery harvest guidelines (HG), trawl/non-trawl allocation percentages (%), allocation amounts, and preliminary percentage (%) attained. Values in metric tons (mt) (PacFIN, 1/16/2024). a/

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl			Non-Trawl		
				%	mt	% Attain	%	mt	% Attain
YELLOWEYE ROCKFISH b/	Coastwide	55.3	Biennial	8	4.4	10.3%	92	50.9	31.1%
Arrowtooth flounder	Coastwide	16,537	A-21	95	15,710.2	4.4%	5	826.9	0.4%
Big skate	Coastwide	1,260.2	Biennial	95	1,197.2	8.3%	5	63	12.3%
Bocaccio	south of 40°10′ N. lat.	1,793.9	Biennial	39.04	700.3	34.8%	60.96	1,093.5	25.5%
Canary rockfish b/	Coastwide	1,215.1	Biennial	72.3	878.5	60.3%	27.7	336.6	50.8%
Chilipepper	south of 40°10′ N. lat.	2,085	A-21	75	1,563.8	58.7%	25	521.3	35.6%
Cowcod	south of 40°10′ N. lat.	68.8	Biennial	36	24.8	6.8%	64	44.1	9.2%
Darkblotched rockfish b/	Coastwide	761.2	A-21	95	723.2	38.7%	5	38.1	7.1%
Dover sole	Coastwide	48,402.9	A-21	95	45,982.7	8.3%	5	2,420.1	0.1%
English sole	Coastwide	8,758.5	A-21	95	8,320.6	2.4%	5	437.9	0.0%
Lingcod	north of 40°10′ N. lat.	4,098.4	A-21	45	1,844.3	21.8%	55	2,254.1	26.5%
Lingcod	south of 40°10′ N. lat.	710.5	Biennial	40	284.2	17.7%	60	426.3	43.5%
Longnose skate	Coastwide	1,456.7	Biennial	90	1,311	2.5%	10	145.7	1.9%
Longspine thornyhead	north of 34°27’ N. lat.	2,241.3	A-21	95	2,129.2	0.0%	5	112.1	4.5%
Pacific cod	Coastwide	1,094	A-21	95	1,039.3	3.8%	5	54.7	9.8%
Pacific Ocean perch	north of 40°10′ N. lat.	3,427.5	A-21	95	3,256.1	9.6%	5	171.4	0.1%
Pacific whiting	Coastwide	302,505	A-21	100	302,505	79.6%	0	0	-
Petrale sole	Coastwide	3,098.8	Biennial	-	3,068.8	92.1%	-	30	99.4%
Sablefish b/	north of 36° N. lat.	7,552	**See Table 6**						
Sablefish b/	south of 36° N. lat.	2,310.6	A-21	42	970.5	9.4%	58	1,340.1	13.9%
Shortspine thornyhead	north of 34°27’ N. lat.	1,280.7	A-21	95	1,216.7	30.5%	5	64	48.8%

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl			Non-Trawl		
				%	mt	% Attain	%	mt	% Attain
Shortspine thornyhead	south of 34°27' N. lat.	712.3	A-21	-	50	0.0%	-	662.3	4.3%
Splitnose rockfish	south of 40°10′ N. lat.	1,573.4	A-21	95	1,494.7	1.6%	5	78.7	0.0%
Starry flounder	Coastwide	343.7	A-21	50	171.9	0.1%	50	171.9	0.1%
Widow rockfish	Coastwide	12,385.7	Biennial	-	11,985.7	92.1%	-	400	5.5%
Yellowtail rockfish	north of 40°10′ N. lat.	4,638.5	A-21	88	4,081.8	76.0%	12	556.6	34.7%
Species Complexes									
Shelf rockfish north	north of 40°10′ N. lat.	1,212.1	Biennial	60.2	729.7	42.3%	39.8	482.4	6.2%
Shelf rockfish south b/	south of 40°10′ N. lat.	1,336.2	Biennial	12.2	163.0	15.9%	87.8	1,173.2	53.9%
Slope rockfish north	north of 40°10′ N. lat.	1,474.6	A-21	81	1,194.4	25.2%	19	280.2	10.4%
Slope rockfish south	south of 40°10′ N. lat.	662.1	Biennial	63	417.1	6.8%	37	245.0	18.8%
Other flatfish	Coastwide	4,641.2	A-21	90	4,177.1	9.2%	10	464.1	9.3%

a/ a '-' indicates no allocation.

b/ The 2023 harvest specifications for these stocks were in error. The values in this table are the allocations approved by the Council. Due to timing, the corrected 2023 amounts could not be updated in regulation; whereas the 2024 amounts were. See Agenda Item G.8, Supplemental REVISED Attachment 1, September 2023

1.4.1 Rebuilding Species Allocation

Yelloweye rockfish is the only groundfish remaining in a rebuilding plan, as of 2023-24. For any stock that has been declared overfished, the formal trawl/non-trawl and open access/limited entry allocation established under provisions of the FMP and regulations (50 CFR §660.50) may be temporarily revised for the duration of the rebuilding period. The 2023 yelloweye rockfish allocation structure, specifications and preliminary mortality estimates by sector and entire fishery are shown in Table 8. The non-trawl sector HGs and ACTs were not exceeded; however, the California yelloweye rockfish recreational ACT was exceeded by 6.7 percent.

Table 8. No Action. 2023 yelloweye rockfish allocations, harvest guideline (HG), annual catch target (ACT) in metric tons (mt) and preliminary percent (%) attained. (PacFIN 2/15/2024)

Year	Specifications (mt) a/		% attained	
ABC	89.6		27.8%	
ACL	52.3		47.7%	
Off-the-Top Deduction	10.7		98.9%	
Fishery HG	41.6		59.9%	
Trawl (8%)	3.33		13.2%	
At-Sea	-		- b/	
IFQ	3.33		13.2%	
Non-trawl (92%)	**HG**	**ACT**	**HG**	**ACT**
	38.3	30.0	47.0%	59.9%
Non-nearshore / Nearshore (20.9%)	8.0	6.27	0.29%	0.37%
WA Rec (25.6%)	9.8	7.68	44.0%	56.1%
OR Rec (23.3%)	8.92	6.99	44.6%	56.9%
CA Rec (30.2%)	11.56	9.06	83.7%	106.7%

a/ The 2023 harvest specifications for these stocks were in error. The values in this table are the allocations approved by the Council. Due to timing, the corrected 2023 amounts could not be updated in regulation; whereas the 2024 amounts were. See Agenda Item G.8, Supplemental REVISED Attachment 1, September 2023
b/at-sea yelloweye rockfish mortality was 0.014

1.5 Harvest Guidelines for Stocks in a Complex and Sharing Agreements

HGs can be developed for specific sectors for single stocks and/or for stocks within a complex. The Council has developed HGs for stocks within complexes and state sharing agreements. HGs are a discretionary AM that do not require action if exceeded (FMP §2.2). Sharing agreements are generally an informal method of apportioning an HG to sub-sectors, e.g., commercial and recreational fisheries within the non-trawl sector. They are helpful in understanding sector, or state, specific impacts on a stock and/or a stock complex.

1.5.1 Cowcod

Under No Action, cowcod south of 40°10′ N. lat. is allocated to the trawl/non-trawl fishery at 36 percent to 64 percent, respectively, which is the same as under No Action. The non-trawl sector is managed under a 50:50 commercial/recreational sharing agreement (Table 9)

Table 9. No Action: 2023 cowcod south of 40°10′ N. lat. annual catch limit (ACL), harvest guideline (HG), and allocations in metric tons (mt), showing percent attained. .

Specification	2023 (mt)	Percent (%) Attained
ACL	80	12.8%
Harvest Guideline	68.8	14.9%
Trawl (36%)	24.8	6.7%
Non-Trawl (64%)	44.1	19.5%
Commercial (50%)	22	0%
Recreational (50%)	22	39.1%

1.5.2 Slope Rockfish South of 40° 10′ N. lat. and Blackgill Rockfish

Under No Action, the allocation structure of blackgill rockfish within the slope rockfish complex south of 40° 10′ N. lat. is shown in Table 10. The Blackgill rockfish is managed within the slope rockfish complex south of 40° 10′ N. lat. The allocation structure is described in detail in under action item # 5 of Agenda Item H.8.a Supplemental GMT Report 2, November 2019. Briefly, the blackgill rockfish HG is allocated 41 percent to the trawl sector and 59 percent to the non-trawl sector[1]. The trawl (91 percent) and non-trawl (9 percent) allocations are applied to the combined ACL contributions of remaining species in the complex. These amounts are totaled and a respective trawl/non-trawl percentage of total calculated. The off-the-top deduction is apportioned based on this percentage, which then generates the final two-year allocation of the slope rockfish complex south of 40° 10′ N. lat.

Table 10. No Action. 2023 two-year slope rockfish south of 40° 10′ N. lat. allocations as a complex and as shares of blackgill rockfish and remaining slope complex component rockfish in metric tons (mt).

Category	2023	
	Trawl (mt)	Non-trawl (mt)
Blackgill rockfish share (41% trawl; 59% non-trawl) a/	70.7	101.7
Other rockfish slope share (91% trawl; 9% non-trawl) b/	330.5	194.1
Subtotal share	401.2	295.8
Total	697.0	
% of total share	57.56%	42.44%
Total combined off-top	39	
Apportioned off-top	22.4	16.6
Final two-year allocation HG	378.7	279.3
Slope Rockfish Complex S of 40° 10′ N. lat. Catch c/	28.5	50.5
% Attainment	7.5%	18.1%

a/ Blackgill rockfish component ACL
b/Total non-blackgill rockfish slope component ACLs minus blackgill rockfish component ACL
c/ PacFIN 2/15/2024. Estimate is for all non-trawl sources of mortality (commercial + recreational)

[1] these percentages were selected as part of the original Amendment 26, which was not adopted by the Council.

1.5.3 Washington Cabezon/Kelp Greenling Complex

Under No Action, the Council did not recommend a federally-specified component stock HGs for the Washington cabezon and kelp greenling complex.

1.5.4 Oregon Black/Blue/Deacon and Cabezon/Kelp Greenling Complexes

Under No Action, the Council did not recommend a federally-specified component stock HGs for Oregon black/blue/deacon rockfish complex and the cabezon/kelp greenling complexes in Oregon.

1.5.5 Non-trawl Sharing Agreement for Canary Rockfish

Under No Action, the Council did not modify the status quo commercial non-trawl and state specific recreational sharing arrangement of canary rockfish (Table 11) for the 2023-24 biennium. The sharing arrangement is 36 percent commercial, 12.3 percent Washington recreational, 18.5 percent Oregon recreational, and 33.2 percent California recreational.

Table 11. No Action: Canary rockfish commercial non-trawl and recreational shares for 2023 based on status quo sharing agreement percentages (%) non-trawl in metric tons (mt) and estimated mortality and percent (%) attainment (PacFIN, 1/12/2024)

	Sharing Agreement (mt)	Mortality (mt)	% Attainment
Non-Trawl	336.6	168.2	50%
Nearshore & Non-Nearshore (36%)	121.2	25.0	20.6%
WA Recreational (12.3%)	41.4	25.4	61.4%
OR Recreational (18.5%)	62.2	55.7	89.6%
CA Recreational (33.2%)	111.75	62.2	55.7%

1.5.6 Non-trawl Sharing Agreement for Bocaccio South of 40° 10′ N. lat.

Under No Action, the Council did not modify the percentage-based sharing arrangement for bocaccio south of 40°10′ N. lat. for the commercial non-trawl and California recreational from the non-trawl allocation (Table 12) for the 2023-24 biennium. The sharing agreement is 69.1 percent to California recreational fisheries and 30.9 percent to commercial fixed gear fisheries off California.

Table 12. No Action – 2023 bocaccio south of 40° 10' N. commercial non-trawl and recreational shares based on status quo sharing agreement percentages (%) non-trawl in metric tons (mt) and estimated mortality and percent (%) attainment (PacFIN, 1/12/2024)

Sector	Sharing Agreement (mt)	Mortality (mt)	% Attainment
Non-trawl (mt)	1,093.5	279.2	25.6%
CA Recreational (69.1%) (mt)	755.6	232.6	30.8%
Non-nearshore & Nearshore (30.9%) (mt)	337.8	46.6	13.8%

1.5.7 Nearshore Rockfish

Under No Action The West Coast states have an informal nearshore rockfish complex N. of 40°10′ N. lat. sharing agreement which is used to set state-specific HGs (Table 13). The HGs for Washington and Oregon are state HGs and not established in Federal regulations; whereas, off California, the HGs are specified in Federal regulation and applies only in the area between 42° N. lat. to 40°10′ N. lat. In addition to state HGs specified in Federal regulation, there are state-specified quotas for nearshore species that further limit harvest in the commercial nearshore and recreational fisheries. The sharing agreement uses biologically-based proportion based on the outcomes of stock assessments. In instances where state-specific assessments are conducted, the state retains 100 percent of state-specific assessment ACL contributions.

Table 13. No Action. Nearshore Rockfish Complex North of 40° 10′ N. lat. 2023 sharing arrangement percentages (%) and ACL contributions (contr.) to complex in metric tons (mt). (after Table 13, Agenda Item F.6.a Supplemental GMT Report 3, June 2022)

Stock	Sharing arrangement			2023 (mt)			
	WA%	OR%	CA%	ACL contr.	WA	OR	CA
Black and Yellow	12.9%	58.4%	28.7%	0.0	0.0	0.0	0.0
Blue/deacon (CA)	0.0%	0.0%	100.0%	28.3	0.0	0.0	28.3
Blue/deacon (WA)	100.0%	0.0%	0.0%	5.9	5.9	0.0	0.0
Brown	0.0%	8.0%	92.0%	1.7	0.0	0.1	1.6
Calico	NA	NA	NA	NA	0.0	0.0	0.0
China (WA)	100.0%	0.0%	0.0%	8.3	8.3	0.0	0.0
China (OR & CA)	0.0%	80.9%	19.1%	17.0	0.0	13.8	3.3
Copper (WA)	100.0%	0.0%	0.0%	1.9	1.9	0.0	0.0
Copper (OR)	0.0%	100.0%	0.0%	15.7	0.0	15.7	0.0
Copper (42°- 40°10′ N. lat.)	0.0%	0.0%	100.0%	6.9	0.0	0.0	6.9
Gopher	12.9%	58.4%	28.7%	0.0	0.0	0.0	0.0
Grass	12.9%	58.4%	28.7%	0.5	0.1	0.3	0.1
Kelp	NA	NA	NA	0.0	0.0	0.0	0.0
Olive	12.9%	58.4%	28.7%	0.2	0.0	0.1	0.1
Quillback (WA)	100.0%	0.0%	0.0%	2.2	2.2	0.0	0.0
Quillback (OR)	0.0%	100.0%	0.0%	2.7	0.0	2.7	0.0
Quillback (42° - 40° 10′ N. lat.)	0.0%	0.0%	100.0%	0.87	0.0	0.0	0.87
Treefish	12.9%	58.4%	28.7%	0.2	0.0	0.1	0.0
Total				**93**	**18.5**	**32.9**	**41.2**
Percent of total				-	19.9%	35.4%	44.3%
Pro rata off-the-top				3.3	0.66	1.17	1.46
HG				89.7	**17.8**	**31.7**	**39.7**
% Attainment				53%			

2. Alternative 1

Alternative 1 represents the default condition for harvest specifications, whereby the harvest control rules (HCR) from 2023-24 biennium are applied to the best scientific information available (e.g., stock assessments) to calculate harvest specifications for the 2025-26 biennium. The default HCRs process is detailed in Amendment 24, at §5.1 of the FMP, and §2.3 of the 2015 Environmental Impact Statement (PFMC, 2015). The following list is of the species for which alternative harvest control rules were considered for the 2025-26 biennial cycle and are analyzed under Alternative 1 default HCRs.

- California Quillback Rockfish: ACL<ABC, SPR 0.55 & P* 0.45
- Dover Sole: ACL = 50,000 mt
- Rex Sole: ACL = ABC P* 0.40
- Shortspine Thornyhead: ACL < ABC P* 0.40, 40 10 HCR applied
- Canary Rockfish: Default HCR ACL<ABC P* of 0.45, 40 10 HCR applied
- Sablefish: Default HCR ACL=ABC with P* of 0.45

Additionally, California quillback rockfish did not undergo a stock assessment for this biennial cycle; however, the Council recommended analysis of three harvest specifications (including the default HCR. To facilitate analysis of these specifications and for Council consideration, analysts have labeled them as Alternative 1 default HCR, Alternative 2 ABC Rule (Agenda Item F.2, Attachment 1 March 2023), and Alternative 3 CDFW specification.

2.1 Rockfish Conservation Area Updates

The Council recommended further analysis for RCA waypoints around CDFW-proposed minor RCA waypoint modifications to the 50 fm RCA boundary line used for both recreational and commercial fisheries (In G.6.a, Supplemental CDFW Report 1, September 2023). Approximately 3-4 waypoint modifications between Pt. Arena and Bodega Bay have been identified that would result in better alignment of the 50 fm (300 feet [ft]) RCA line with bathymetry data. The analysis of these modifications is expected in a separate CDFW analysis.

2.2 ACL Deductions (Set-Asides)

ACL deductions, or set-asides, for the 2025-26 biennium under Alternative 1 to calculate the fishery HG were derived from the harvest specifications described in Agenda Item E.5, Attachment 1, November 2023. The 2025 and 2026 values are shown Table 20 and Table 21, respectively. The sablefish north of 36° N. lat. set-asides are shown in Table 19.

Tribal Fishery: Under Alternative 1, the Tribal set-aside amounts are the same as in the 2023-24 biennium as described in Agenda Item E.7.a, Supplemental Tribal Report 1, November 2023.[1]

Research: Under Alternative 1, the Council is considering a new process for setting the research set-aside. In past biennial cycles, the Council set research set-asides as the long-term maximum or average historical (beginning in 2003) mortality values for most stocks. Upon review of the

[1] The tribal set-aside amount for starry flounder was updated to 2 mt as it was initially left off the tribal request. See Agenda Item G.5.a, Supplemental Tribal Report 1, April 2024

mortality data, a ten-year rolling maximum was determined to be more indicative of current mortality trends (Agenda Item E.7.a, Supplemental GMT Report 2, November 2023). The Council recommended this process to calculate research set-asides. For most stocks, the research set-asides did not appreciably change from No Action, except for the stocks show in Table 14.

Table 14. Alternative 1: 2025-26 research set-asides which changed as compared to 2023 set-asides, due maximum research mortality, 2013-2022. Source: GEMM, 2022

Stock or Management Unit	Max Research Mortality 2013-22 (mt)	2023 Set-aside (mt)	Recommendation for 2025-2026 (mt)	Difference between cycles (mt)
Black rockfish (Washington)	0.60	0.10	0.60	+0.5
California scorpionfish S of 34° 27′ N. lat.	0.80	0.18	0.80	+0.62
Dover sole	61.91	50.84	61.91	+11.07
English sole	8.01	17	8.01	-8.99
Longnose skate	14.68	12.46	14.68	+2.22
Longspine thornyhead N of 34° 27′ N. lat.	18.40	17.49	18.40	+0.92
Pacific cod	0.75	5.47	0.75	-4.72
Sablefish north of 36° N. lat.	59.28	30.68	59.28	+28.6
Shortspine thornyhead N of 34° 27′ N. lat.	15.80	10.48	15.80	+5.32
Shortspine thornyhead S of 34° 27′ N. lat.	0.49	0.71	0.49	-0.22
Nearshore rockfish complex S of 40°10′ N. lat.	.74	2.68	0.74	-1.94
Other fish complex	.14	6.29	0.14	-6.15
Oregon cabezon/kelp greenling complex	.07	0.05	0.07	+0.02
Washington cabezon/kelp greenling complex a/	0.36	0	0.36	+0.36

a/ There was no research set-aside for the Washington cabezon/kelp greenling complex in 2023-24.

The Council departed from the 10 yr. research rolling maximum for canary rockfish, cowcod, quillback rockfish, and yelloweye rockfish (Table 15). As described in Agenda Item E.7.a, Supplemental GMT Report 2, November 2023, the GMT determined the maximum research mortality for canary rockfish of 19.06 was anomalous and recommended the 2023 set-aside of 10.08 mt. was caught cowcod was set at 10 mt to account for the needs of current and additional research, such as the Northwest Fishery Science Center (NWFSC) Hook and Line survey, California's Scientific Collection Permit program, etc. CDFW requested a 0.1mt set-aside for quillback rockfish (Agenda Item E.7.a Supplemental CDFW Report 1 November 2023.) The Council adopted 2.92 mt for 2025-26 research set-aside for yelloweye rockfish, based on anticipated research needs of the IPHC (1.1 mt); Washington Department of Fish and Wildlife (WDFW; 1 mt); Oregon Department of Fish and Wildlife (ODFW; 0.4 mt); CDFW; 0.22 mt); and other projects (0.2 mt).

Table 15. Alternative 1: 2025-26 research set-asides which depart from the new 10-year rolling maximum methodology, compared to 2023 set-asides and maximum research mortality, 2013-2022. Source: GEMM, 2022

Stock or Management Unit	Max Research Mortality 2013-22 (mt)	2023-24 Set-aside (mt)	Recommendation for 2025-26 (mt)	Difference between cycles (mt)
Canary rockfish a/	19.06	10.08	10.08	0
Cowcod	0.63	10.00	10.00	0
Quillback rockfish (California) b/	0.0	0.0	0.10	+0.10

a/ 2022 is likely an anomalous year, as per communications with research permit holders.
b/ Quillback rockfish off of California has not had a research set-aside in the past and this indicates an addition to our set aside table.

IOA: Under Alternative 1, a new process is considered for developing IOA set-asides. In past biennial cycles, the Council set IOA set-asides as the long-term maximum or average historical (beginning in 2003) mortality values for most stocks. Upon review of the mortality data, a ten-year rolling maximum was determined to be more indicative of current mortality trends (Agenda Item E.7.a, Supplemental GMT Report 2, November 2023). The Council recommended this methodology be used to calculate IOA set-asides. IOAs set-asides for most stocks did not change from No Action, except for the stocks shown in Table 16.

Table 16. Alternative 1: 2025-26 IOA set-asides which changed as compared to 2023 set-asides due to updated maximum IOA mortality, 2013-2022 (Source GEMM, 2022).

Stock or Management Unit	Max IOA Mortality 2013-22 (mt)	2023-24 Set-aside (mt) a/	Recommendation for 2025-26 (mt)	Difference between cycles (mt)
Big skate	38.86	39.31	38.86	-0.45
California scorpionfish S of 34°27′ N. lat.	1.22	3.71	1.22	-2.49
Chilipepper S of 40° 10′ N. lat.	13.21	13.66	13.21	-0.45
Cowcod	0.10	0.17	0.10	-0.07
Dover sole	25.23	49.27	25.23	-24.04
English sole	6.56	42.52	6.56	-35.96
Lingcod N of 40°10′ N. lat.	13.40	11.92	13.40	+1.48
Lingcod S of 40°10′ N. lat.	8.70	8.31	8.70	+0.39
Longnose skate	15.88	18.84	15.88	-2.96
Longspine thornyhead S of 34°27′ N. lat.	0.24	0.83	0.24	-0.59
Pacific cod	0.64	0.53	0.64	+0.11
Pacific spiny dogfish	6.71	33.63	6.71	-26.92
Shortspine thornyhead N of 34°27′ N. lat.	4.38	17.82	4.38	-13.44
Shortspine thornyhead S of 34°27′ N. lat.	1.29	6	1.29	-4.71
Splitnose rockfish	2.93	5.75	2.93	-2.82
Starry flounder	14.13	45.71	14.13	-31.58

Stock or Management Unit	Max IOA Mortality 2013-22 (mt)	2023-24 Set-aside (mt) a/	Recommendation for 2025-26 (mt)	Difference between cycles (mt)
Yellowtail rockfish	4.49	7	4.49	-2.51
Nearshore rockfish complex S of 40°10′ N. lat.	1.82	1.86	1.82	-0.04
Shelf rockfish complex N of 40°10′ N. lat.	20.50	25.62	20.50	-5.12
Shelf rockfish complex S of 40°10′ N. lat.	11.46	67.67	11.46	-56.21
Slope rockfish complex N of 40°10′ N. lat.	11.48	18.88	11.48	-7.4
Other flatfish complex	87.70	137.16	87.70	-49.46
Oregon black/blue/deacon rockfish complex	1.50	1.74	1.50	-0.24
Oregon cabezon/kelp greenling complex	0.66	0.74	0.66	-0.08

a/ 2023 set-aside based on historic maximum mortality since 2003.

The Council recommended departing from the 10 yr. rolling IOA maximum for bocaccio S of 40°10′ N. lat., canary rockfish, darkblotched rockfish, longspine thornyhead S of 34°27′ N. lat., petrale sole, widow rockfish, nearshore rockfish complex N of 40°10′ N. lat., slope rockfish complex S of 40°10′ N. lat., and yelloweye rockfish(Table 17). The rationale for these departures is detailed in Agenda Item E.7.a, Supplemental GMT Report 2, November 2023, which is incorporated by reference and summarized below.

Bocaccio S of 40° 10′ N. lat.: Under Alternative 1, the IOA set-aside is the second highest value in the last ten years, 2.18 mt. The IOA set-aside for bocaccio south of 40° 10′ N. lat. in the 2023-24 biennial period was 2.52 mt (NMFS, 2023); however, in 2022, the IOA mortality was 5.47 mt, representing a new high. Upon review of the data available, the GMT concluded that the high in 2022 was likely anomalous.

Canary Rockfish: Under Alternative 1, the IOA set-aside is the same as No Action, 2.83 mt**.** The 2023-24 IOA set-aside for canary rockfish was 2.83 mt (NMFS, 2023). In 2022, the IOA mortality was 19.29 mt, representing a new high; however, upon review this amount was due to several research fish tickets erroneously coded as commercial. The accurate 2022 value was estimated to be approximately 2.6 mt, similar to the maximum used for the previous biennium.

Darkblotched Rockfish: Under Alternative 1, the darkblotched rockfish IOA set-aside is 10.71 mt. In the 2023-2024 biennium, the Council adopted an IOA set-aside for darkblotched rockfish as calculated by the long-term average mortality rather than the historical maximum. (Informational Report 2, September 2022) as it better reflected the IOA fishery mortality. The maximum value was noted in 2022 as 30.99 mt (NMFS, 2023); however, this amount did not follow the mortality trend and is considered it anomalous by the GMT.

Longspine Thornyhead N of 40°10′ N. lat.: Under Alternative 1, the longspine thornyhead north of 40°10′ N. lat. is 1.26 mt. The No Action set-aside for longspine thornyhead north of 40°10′ N. lat. is 6.22 mt, which was the historic maximum between 2005 and 2020. In 2017, the IOA sector exceeded this set-aside by 6.12 mt – total of 12.34 mt. However, the GMT considered both of these amounts appear to reflect high bycatch events rather than what has been the dominant levels of incidental mortality. The 10-year rolling average is 1.62 mt, which was inclusive of 2017. Thus,

as the 2017 mortality was considered not accurate, the rolling average was excluded by the GMT from further consideration. Apart from 2017, less than 1 mt of longspine thornyhead N of 40°10′ N. lat. was caught annually.

Petrale sole: Under Alternative 1, the petrale sole IOA set-aside is 4.38 mt. The rolling 10-year maximum IOA petrale mortality is 12.31 mt; however, 9.48 mt of commercial catch was erroneously coded as IOA in 2022. Accounting for the miscode, the next highest value since 2013 is 10.73 mt; however, GMT considered that value an anomalous when compared to all other years since 2013 (1.61-6.33 mt) and therefore determined that a 10-year rolling average would be more appropriate for setting the 2025-26 IOA set aside. Accounting for only 2.83 mt of IOA petrale mortality in 2022, the GMT calculated the 10-year rolling average to be 4.38 mt.

Sablefish south of 36º N. lat.: Under Alternative 1, the IOA set-aside for sablefish south of 36° N . lat. is 25 mt. The council adopted a set-aside of 25 mt in the 2021-22 biennial process in anticipation of the strong 2016 and 2018 year classes recruiting into the fishery and increasing IOA mortality as a result. (Agenda Item H.8.a, Supplemental GMT Presentation 1, November 2019). While the IOA set-aside was not exceeded in 2022, the GMT anticipates that mortality under the IOA set-aside may continue to increase with the strong 2020-21 year classes recruiting into the fishery. However, the risk of the ACL being exceeded without a set-aside increase in 2025-26 is low; therefore, the GMT recommended continuing to set the 2025-26 IOA set-aside at 25 mt.

Widow rockfish: Under Alternative 1, the widow rockfish IOA set-aside is 1 mt. The rolling 10-year maximum for widow rockfish is 0.67 mt. As this is a highly attained stock and is infrequently noted in IOA catch, the GMT recommended a 1 mt IOA widow rockfish set-aside for 2025-26 to minimize the risk of exceeding the ACL for this highly attained stock.

Nearshore rockfish north of 40º 10′ N. lat.: Under Alternative 1, the nearshore rockfish complex north of 40°10′ N. lat. is 1.10 mt. The Council adopted a set-aside of 1.3 mt for nearshore rockfish north of 40º 10′ N. lat. in the 2023-24 biennial process. After reviewing the data, the GMT noted that the majority of the mortality for this complex comes from directed Pacific halibut fishery. Since the directed Pacific halibut fishery has only been observed since 2017, the GMT concluded that taking the average of the IOA mortality in the observed years (2017-2022) in this fishery is likely to accommodate IOA mortality for this stock. The GMT recommend adopting an IOA set-aside of 1.10 mt for nearshore rockfish north of 40º 10′ N. lat**.**

Slope rockfish south of 40º 10′ N. lat.: The Council adopted a set-aside of 19.73 mt in the 2023-24 biennial process, which is reflective of a historic high mortality prior to 2013. Utilizing the rolling 10-year maximum methodology would result in a set-aside of 8.26 mt; however, the GMT noted that this maximum is not reflective of recent IOA fishery trends in the fishery. With this consideration, the GMT recommended adopting an IOA set-aside of 0.93 mt for slope rockfish south of 40º 10′ N. lat., which represents the maximum mortality since 2018. The GMT considered 0.93 mt more indicative of expected 2025-26 mortality.

Yelloweye rockfish: IOA yelloweye rockfish mortality primarily comes from the directed Pacific halibut fishery. The highest mortality was 7.37 mt in 2019; however, the GMT considered this amount not to be representative of the directed Pacific halibut fishery as mortality has been much lower than the 7.37 mt prior to and after 2019 (NMFS, 2023). Upon review of the data, the second highest IOA mortality was 3.86 mt, which is 1.2 mt higher than the IOA set aside for 2023-24 (i.e., 2.66 mt) The GMT recommended adopting 3.86 mt as the IOA set-aside.

Table 17. Alternative 1: 2025-26 IOA set-asides which depart from the new 10-year rolling maximum methodology, compared to 2023 set-asides and maximum IOA mortality, 2013-2022. Source: GEMM, 2022

Stock or Management Unit	Max IOA Mortality 2013-22 (mt)	2023-24 Set-aside (mt)	Recommendation for 2025-26 (mt)	Difference (mt)
Bocaccio S of 40° 10′ N. lat.	5.47	2.52	2.18	-0.34
Canary rockfish	19.29 b/	2.83	2.83	0
Darkblotched rockfish	30.99	9.8	10.71	+0.91
Longspine thornyhead N of 34º27' N. lat.	12.34	6.22	1.26	-4.96
Petrale sole	12.31	11.1	4.38	-6.72
Sablefish S of 36º N. lat.	18.26	25	25.00	0
Widow rockfish	0.67	3.05	1.00	-2.05
Nearshore rockfish complex N of 40º 10′ N. lat.	4.15	1.3	1.10	-0.2
Slope rockfish complex S of 40º 10′ N. lat.	8.26	19.73	0.93	-18.8
Yelloweye rockfish	7.37	2.66	3.86	+1.2

EFPs. The Council approved two EFPs for public review. The first is a CDFW proposal for collecting fishery-dependent biological data for cowcod caught in the recreational fishery. The second EFP is a West Coast Seafood Processors and Oregon Trawl Commission proposal that would collect information on the nature and extent of bycatch of salmon and other species of concern while conducting a midwater trawl fishery targeting widow, yellowtail, chilipepper, and other rockfish species without existing gear/time/area restrictions. Neither EFP requested set-asides; therefore, the Council recommended 0 mt for all EFP set-asides.

Recreational:

Sablefish north of 36° N. lat.

The Council is considering revising the sablefish north of 36° N. lat. recreational off-the-top set aside. The allocation framework in A6 for sablefish north of 36° N. lat. specifies that anticipated recreational catches based on the maximum historical value of sablefish caught in recreational fisheries be deducted from the ACL prior to the commercial limited entry and open access allocations. The sablefish north of 36° N. lat. ACL allocation framework (see Section 2.2.2.1, A6) deducts set-asides from the ACL to account for anticipated mortality in tribal fisheries, research, recreational fisheries, and EFPs.

The current recreational set-aside is 6 mt; however, historical recreational mortality of sablefish north of 36° N. lat. has not exceeded 3.98 mt from 2005-22. However, 2023 the California and Oregon recreational catch estimates for 2023 are 23.9 mt.[2] Given the estimated size of the sablefish year classes currently being encountered in all fisheries, it remains unclear how much of the 2023 sablefish recreational harvest is due to bycatch or how much is from recreational anglers targeting sablefish. Table 18 shows sablefish set-asides considerations investigated in Agenda Item E.7.a, Supplemental GMT Report 2, November 2023.

[2] Washington does not separately estimate sablefish mortality in the recreational fishery.

Table 18. Alternative 1. Recreational set-aside options for sablefish north of 36° N. lat.

Set-asides	Recreational set-aside (mt)	Difference from Status Quo (mt)	Non-tribal commercial sablefish HG (mt) 2025/2026 a/
Status Quo	6	0	25,753/24,449
2005-22 maximum mortality	3.98	-2.02	25,755/24,451
2005-22 median mortality	1.66	-4.34	25,757/24,453
2005-22 average mortality	1.72	-4.28	25,757/24,453
GMT recommended	30	+24.0	25,729/24,425

a/ not shown, calculation includes the tribal, research, and IOA deductions. Values rounded to nearest whole number.

At the November 2023 meeting, the Council adopted the GMT recommendation (Agenda Item E.7.a, Supplemental GMT Report 2, November 2023) of a 30 mt recreational set-aside for sablefish north of 36° N. lat. for overwinter analysis. This change would be a 24 mt increase over previous biennial cycles. This amount is expected to accommodate the recreational fishery and is not expected to constrain the commercial fishery in the 2025-26 biennium. The 30 mt recreational set-aide is used to calculate the commercial HG in all following analyses, which is a 24 mt increase from the previous cycle, or approximately 0.12 percent of the non-tribal commercial HG. The resulting commercial HG is show in Table 19 for 2025 and 2026.

Table 19. Alternative 1: 2025 and 2026 tribal, research, recreational (Rec), EFP set-asides, and the non-tribal commercial harvest guideline for sablefish north of 36° N. lat. in metric tons (mt).

Year	ACL	Tribal	Research	Rec.	EFP	Sum	Non-Tribal Commercial HG
2025	28,688	2,869	59.3	30	1.0	2,958.3	25,729.3
2026	27,238	2,724	59.3	30	1.0	2,813.3	24,425.1

Sablefish South of 36° N. lat.

The Council expressed interest in establishing a recreational fishery set-aside for sablefish south of 36° N. lat. as an ACL deduction. However, in reviewing the FMP and Amendment 21-2 (A21-2), it appears that a recreational set-aside cannot be established at that level of harvest specifications. The FMP states:

> "Formal allocations of stocks and stock complexes covered under Amendments 21 and 29 support Amendment 20 trawl rationalization measures. Annual OYs/ACLs are established for these stocks and stock complexes the same as for other groundfish stocks and stock complexes. The OYs/ACLs are then reduced by deducting the estimated total mortality of these stocks and stock complexes in research, tribal, and non-groundfish fisheries, and the estimated exempted fishing permits set-asides. The remainder of the OYs/ACLs are then allocated according to the percentages in Table 6-1. The trawl percentage is for the non-treaty LE trawl fishery. The non-treaty, non-trawl percentage is for the LE fixed gear fishery, the open access fishery, and the recreational fishery." *FMP §6.3.2.3*

The above is further elaborated in A21-2:

> "Deductions from most groundfish ACLs are made to account for groundfish mortality in the Pacific Coast treaty Indian tribal fisheries, scientific research, nongroundfish target fisheries

(hereinafter incidental open access fisheries), and as necessary, EFPs. The Council and NMFS do not have direct management control over these activities..” *A21-2, §2.2.1, page 82*

Based on these findings, a recreational set-aside for sablefish south of 36° N. lat. as an ACL deduction cannot be established as an off-the-top deduction. However, noting the language in the FMP, a recreational set-aside could be established withing the non-trawl sector allocation, much the same as is performed for the at-sea whiting set-asides is for the trawl sector. Therefore, noting the Council’s recommendation to establish a recreational set-aside for sablefish south of 36° N. lat., it is considered under the non-trawl section (Chapter 5. Non-Trawl: Commercial Fixed Gear:).

2.2.1 California Quillback Rockfish

Under Alternative 1, California quillback rockfish is removed from the portions of the nearshore rockfish complexes north and south of 40°10′ N. lat. off of California, i.e., all area south of 42° N. lat. Quillback rockfish will be managed as a separate stock off of California. On December 14, 2023, the Council was notified the California quillback rockfish stock is overfished as it is below the minimum size threshold (Agenda Item F.2, Attachment 2, March 2024).

Under Alternative 1, the default HCR for California quillback is ACL<ABC, SPR 0.55 & P* 0.45. The 2025 OFL is 1.52 mt, the ABC is 1.3 mt, and the ACL of 1.3 mt. The 2026 OFL is 1.77 mt, the ABC 1.5 mt, and the ACL is 1.47 mt (see Agenda Item E.2, Attachment 1, November 2023) The ACL is reduced by 0.10 mt to account for research mortality.

Table 20. Alternative 1: 2025 Annual catch limits under default harvest control rules for each managed stock/stock complex and off-the-top deductions in metric tons (mt) for tribal, exempted fishing permits (EFP), research, incidental open access (IOA) and the resulting fishery harvest guideline (HG).

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
QUILLBACK ROCKFISH a/	California	1.26	0.0	0.0	0.1	0.0	0.1	1.16
YELLOWEYE ROCKFISH	Coastwide	55.8	5.0	0.0	2.9	3.9	11.8	44.0
Arrowtooth flounder	Coastwide	11,193.0	2,041.0	0.0	13.0	41.0	2,095.0	9,098.0
Big skate	Coastwide	1,224.0	15.0	0.0	5.5	38.9	59.4	1,164.6
Black rockfish	Washington	244.6	18.0	0.0	0.6	0.0	18.6	226.0
Black rockfish	California	223.6	0.0	0.0	0.1	1.2	1.3	222.3
Bocaccio	S of 40º10′ N. lat.	1,681.0	0.0	0.0	5.6	2.2	7.8	1,673.2
Cabezon	S of 42º N. lat.	161.8	0.0	0.0	0.0	0.6	0.6	161.2
California scorpionfish	S of 34°27' N. lat.	244.0	0.0	0.0	0.8	1.2	2.0	242.0
Canary rockfish	Coastwide	571.3	50.0	0.0	10.1	2.8	62.9	508.4
Chilipepper	S of 40º10′ N. lat.	2,815.3	0.0	0.0	14.1	13.2	27.3	2,788.0
Cowcod	S of 40º10′ N. lat.	76.6	0.0	0.0	10.0	0.1	10.1	66.5
Darkblotched rockfish	Coastwide	754.0	5.0	0.0	8.5	10.7	24.2	729.8
Dover sole	Coastwide	50,000.0	1,497.0	0.0	61.9	25.2	1,584.1	48,415.9
English sole	Coastwide	8,884.0	200.0	0.0	8.0	6.6	214.6	8,669.4
Lingcod	N of 40º10′ N. lat.	3,631.0	250.0	0.0	17.7	13.4	281.1	3,349.9
Lingcod	S of 40º10′ N. lat.	748.3	0.0	0.0	3.2	8.7	11.9	736.4
Longnose skate	Coastwide	1,616.0	220.0	0.0	14.7	15.9	250.6	1,365.4
Longspine thornyhead	N of 34º27' N. lat.	2,050.4	30.0	0.0	18.4	1.3	49.7	2,000.7
Longspine thornyhead	S of 34º27' N. lat.	647.5	0.0	0.0	1.3	0.2	1.5	646.0
Pacific cod	Coastwide	1,600.0	500.0	0.0	0.8	0.6	501.4	1,098.6
Pacific Ocean perch	N of 40º10′ N. lat.	3,328.0	130.0	0.0	5.4	10.1	145.5	3,182.5
Pacific spiny dogfish	Coastwide	1,361.2	275.0	0.0	41.9	6.7	323.6	1,037.6
Pacific whiting b/	Coastwide	*b/*	TBD	0.0	750.0	1,500.0	2,250.0	
Petrale sole	Coastwide	2,354.0	350.0	0.0	24.1	4.4	378.5	1,975.5
Sablefish	N of 36º N. lat.	28,687.6	See Table 19					

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
Sablefish	S of 36º N. lat.	7,857.1	0.0	0.0	2.3	25	27.3	7,829.8
Shortspine thornyhead	N of 34º27' N. lat.	501.9	50.0	0.0	15.8	4.4	70.2	431.7
Shortspine thornyhead	S of 34º27' N. lat.	208.99	0.0	0.0	0.5	1.3	1.8	207.19
Splitnose rockfish	S of 40º10′ N. lat.	1,508.0	0.0	0.0	11.2	2.9	14.1	1,493.9
Starry flounder	Coastwide	392.0	2.0	0.0	0.6	14.1	16.7	375.3
Widow rockfish	Coastwide	11,237.0	200.0	0.0	17.3	1.0	218.3	11,018.7
Yellowtail rockfish	N of 40º10′ N. lat.	6,241.2	1,000.0	0.0	20.6	4.5	1,025.1	5,216.1
Stock Complexes								
Nearshore rockfish north	N of 40º10′ N. lat.	87.8	1.5	0.0	0.5	1.1	3.1	84.8
Copper rockfish c/	42° - 40º10′ N. lat.	6.8	-	-	-	-	-	6.8
Nearshore rockfish south	S of 40º10′ N. lat.	933.9	0.0	0.0	0.7	1.8	2.5	931.4
Copper rockfish c	S of 40º10′ N. lat.	125.1	-	-	-	-	-	125.1
Shelf rockfish north	N of 40º10′ N. lat.	1,391.5	30.0	0.0	15.3	20.5	65.8	1,325.7
Shelf rockfish south	S of 40º10′ N. lat.	1,465.2	0.0	0.0	15.1	11.5	26.6	1,438.6
Slope rockfish north	N of 40º10′ N. lat.	1,488.0	36.0	0.0	10.5	11.5	58.0	1,430.0
Slope rockfish south	S of 40º10′ N. lat.	693.1	0.0	0.0	18.2	0.9	19.1	674.0
Other fish	Coastwide	223.0	0.0	0.0	0.1	9.7	9.8	213.2
Other flatfish	Coastwide	7,391.3	60.0	0.0	23.6	87.7	171.3	7,220.0
Rex sole d/	Coastwide	3,966.7	-	-	-	-	-	3,966.7
Oregon black/blue/deacon rockfish	Oregon	423.3	0.0	0.0	0.1	1.5	1.6	421.7
Black rockfish e/	Oregon	343.6	-	-	-	-	-	343.6
Oregon cabezon/kelp greenling	Oregon	176.9	0.0	0.0	0.1	0.7	0.8	176.1
Washington cabezon/kelp greenling	Washington	19.8	2.0	0.0	0.4	0.0	2.4	17.4

a/ Quillback rockfish was declared overfished by NMFS in December 2023

b/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

c/ Copper rockfish is shown as it was assessed off California this cycle and it has stock definitions different than in past biennial cycles, i.e., Stocks north of and south of 42°. Neither stock ACLs are reduced by off-the-top set-asides.

d/ Rex sole is shown as it was assessed this cycle. It is managed as part of the other flatfish complex and is not directly reduced by off-the-top set-asides.

e/ Black rockfish is shown as it was assessed this cycle. It is managed as part of the other flatfish complex and it's ACL contribution is not directly reduced by off-the-top set-asides.

Table 21. Alternative 1: 2026 Annual catch limits under default harvest control rules for each managed stock/stock complex and off-the-top deductions in metric tons (mt) for tribal, exempted fishing permits (EFP), research, incidental open access (IOA) and the resulting fishery harvest guideline (HG).

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
QUILLBACK ROCKFISH a/	California	1.47	0.0	0.0	0.1	0.0	0.1	1.37
YELLOWEYE ROCKFISH	Coastwide	56.6	5.0	0.0	2.9	3.9	11.8	44.8
Arrowtooth flounder	Coastwide	9,227.0	2,041.0	0.0	13.0	41.0	2,095.0	7,132.0
Big skate	Coastwide	1,188.0	15.0	0.0	5.5	38.9	59.4	1,128.6
Black rockfish	Washington	241.2	18.0	0.0	0.6	0.0	18.6	222.6
Black rockfish	California	235.7	0.0	0.0	0.1	1.2	1.3	234.4
Bocaccio	S of 40º10′ N. lat.	1,668.0	0.0	0.0	5.6	2.2	7.8	1,660.2
Cabezon	S of 42º N. lat.	155.1	0.0	0.0	0.0	0.6	0.6	154.5
California scorpionfish	S of 34°27’ N. lat.	238.0	0.0	0.0	0.8	1.2	2.0	236.0
Canary rockfish	Coastwide	572.5	50.0	0.0	10.1	2.8	62.9	509.6
Chilipepper	S of 40º10′ N. lat.	2,642.5	0.0	0.0	14.1	13.2	27.3	2,615.2
Cowcod	S of 40º10′ N. lat.	75.3	0.0	0.0	10.0	0.1	10.1	65.2
Darkblotched rockfish	Coastwide	732.00	5.0	0.0	8.5	10.7	24.2	707.8
Dover sole	Coastwide	50,000	1,497.0	0.0	61.9	25.2	1,584.1	48,415.9
English sole	Coastwide	8,819.0	200.0	0.0	8.0	6.6	214.6	8,604.4
Lingcod	N of 40º10′ N. lat.	3,534.0	250.0	0.0	17.7	13.4	281.1	3,252.9
Lingcod	S of 40º10′ N. lat.	773.4	0.0	0.0	3.2	8.7	11.9	761.5
Longnose skate	Coastwide	1,579.0	220	0.0	14.7	15.9	250.6	1,328.4
Longspine thornyhead	N of 34º27’ N. lat.	1957.0	30.0	0.0	18.4	1.3	49.7	1907.3
Longspine thornyhead	S of 34º27’ N. lat.	618.0	0.0	0.0	1.3	0.2	1.5	616.5
Pacific cod	Coastwide	1,600.0	500.0	0.0	0.8	0.6	501.4	1,098.6
Pacific Ocean perch	N of 40º10′ N. lat.	3,220.0	130.0	0.0	5.4	10.1	145.5	3,074.5
Pacific spiny dogfish	Coastwide	1,317.8	275.0	0.0	41.9	6.7	323.6	994.2
Pacific whiting b/	Coastwide		TBD	0.0	750.0	1,500.0	2,250.0	
Petrale sole	Coastwide	2,238	350.0	0.0	24.1	4.4	378.5	1,859.5
Sablefish	N of 36º N. lat.	27,238.4	See Table 19					

Species	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
Sablefish	S of 36º N. lat.	7,460.2	0.0	0.0	2.3	25	27.3	7,432.9
Shortspine thornyhead	N of 34º27' N. lat.	503.7	50.0	0.0	15.8	4.4	70.2	433.5
Shortspine thornyhead	S of 34º27' N. lat.	209.8	0.0	0.0	0.5	1.3	1.8	207.96
Splitnose rockfish	S of 40º10′ N. lat.	1,469.0	0.0	0.0	11.2	2.9	14.1	1,454.9
Starry flounder	Coastwide	392.0	2.0	0.0	0.6	14.1	16.7	375.3
Widow rockfish	Coastwide	10,392.0	200.0	0.0	17.3	1.0	218.3	10,173.7
Yellowtail rockfish	N of 40º10′ N. lat.	6,022.6	1,000.0	0.0	20.6	4.5	1,025.1	4,997.5
Stock Complexes								
Nearshore rockfish north	N of 40º10′ N. lat.	86.1	1.5	0.0	0.5	1.1	3.1	83
Copper rockfish c/	42°- 40º10′ N. lat.	15.8	-	-	-	-	-	15.8
Nearshore rockfish south	S of 40º10′ N. lat.	932.8	0.0	0.0	0.7	1.8	2.5	930.3
Copper rockfish c/	South of 42° N. lat	126.3	-	-	-	-	-	126.3
Shelf rockfish north	N of 40º10′ N. lat.	1,378.1	30.0	0.0	15.3	20.5	65.8	1,312.3
Shelf rockfish south	S of 40º10′ N. lat.	1,462.8	0.0	0.0	15.1	11.5	26.6	1,436.2
Slope rockfish north	N of 40º10′ N. lat.	1,460.2	36.0	0.0	10.5	11.5	58.0	1,402.2
Slope rockfish south	S of 40º10′ N. lat.	690.1	0.0	0.0	18.2	0.9	19.1	671.0
Other fish	Coastwide	222.5	0.0	0.0	0.1	9.7	9.8	212.7
Other flatfish	Coastwide	6,734.3	60.0	0.0	23.6	87.7	171.3	6,563.0
Rex sole d/	Coastwide	3,309.7	-	-	-	-	-	3,309.7
Oregon black/blue/deacon rockfish	Oregon	428.1	0.0	0.0	0.1	1.5	1.6	426.5
Black rockfish e/	Oregon	350.5	-	-	-	-	-	350.5
Oregon cabezon/kelp greenling	Oregon	174.4	0	0.0	0.1	0.7	0.8	173.6
Washington cabezon/kelp greenling	Washington	17.1	2.0	0.0	0.4	0.0	2.4	14.7

a/ Quillback rockfish was declared overfished by NMFS in December 2023

b/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

c/ Copper rockfish is shown as it was assessed off California this cycle and it has stock definitions different than in past biennial cycles, i.e., Stocks north of and south of 42°. Neither stock ACLs are reduced by off-the-top set-asides.

d/ Rex sole is shown as it was assessed this cycle. It is managed as part of the other flatfish complex and is not directly reduced by off-the-top set-asides.

e/ OR Black rockfish is shown as it was assessed this cycle. It is managed as part of the OR black/blue/deacon complex and it's ACL contribution is not directly reduced by off-the-top set-asides.

2.3 Annual Catch Target

Under Alternative 1, ACTs are considered for yelloweye, California quillback, and California copper rockfishes.

2.3.1 Yelloweye Rockfish Non-trawl ACT

Under Alternative 1, the yelloweye rockfish ACT is developed under the same process as is described under No Action. Table 22 details the Alternative 1 yelloweye rockfish ACTs by sector and sub-sector. Yelloweye rockfish fishery specifications are further discussed below under the Rebuilding Species Allocations, Section 2.4.2

Table 22. Alternative 1. 2025-26 non-trawl yelloweye rockfish harvest guidelines (HG) and annual catch target (ACT) for the sector and sub-sectors.

	2025		2026	
	HG (mt)	**ACT (mt)**	**HG (mt)**	**ACT (mt)**
Non-Trawl Sector	40.46	31.72	41.2	32.3
Non-nearshore / Nearshore (20.9%)	8.46	6.63	8.61	6.75
WA Rec (25.6%)	10.36	8.12	10.55	8.27
OR Rec (23.3%)	9.43	7.39	9.6	7.53
CA Rec (30.2%)	12.22	9.58	12.44	9.75

2.3.2 California Quillback Rockfish ACT

Under Alternative 1, the California quillback rockfish stock will be subject to an ACT. The No Action ACT is set equal to the combined (statewide) quillback rockfish ACL contribution to the nearshore rockfish complexes (See Section 1.3.3); however, under Alternative 1, the Council indicated the California quillback rockfish stock will be removed from the nearshore rockfish complexes off of California and be managed as a separate stock ACT, though the ACT method under Alternative 1 is the same as under No Action. Additionally, the Council established a research set-aside for the California quillback rockfish stock of 0.1mt. In the past, quillback rockfish was not subject to a species-specific set-aside. Therefore, to facilitate this analysis, it is assumed that the California quillback rockfish stock HG (the ACL minus the research set-aside) will be set as the ACT, i.e., HG=ACT. The ACT, where HG=ACT for 2025-26 are shown in Table 23.

Table 23. Alternative 1. Rebuilding analysis default harvest control rule for 2025-26 where the annual catch target for the California quillback rockfish stock is set equal to the HG.

	OFL (mt)	**ACL (mt)**	**Set-Aside (mt)**	**HG (mt)**	**ACT (mt)**
2025	1.52	1.26	0.1	1.16	1.16
2026	1.77	1.47	0.1	1.37	1.37

2.3.3 California Copper Rockfish ACT

Under Alternative 1, the Council recommended establishing a within non-trawl recreational ACT for copper rockfish south of 34° 27' N lat.. This recommendation was made in response to the 2023 copper rockfish stock assessment, which was conducted as a two-area model, north and south of 34° 27' N lat. for the California copper rockfish stock (Monk et al., 2023; Wetzel et al., 2023)., as established through Amendment 31. The 2023 assessment estimated depletion of copper rockfish at 46 and 16 percent north and south of 34° 27' N lat., respectively. Currently, copper rockfish is managed as part of the minor nearshore rockfish complexes north and south of 40° 10' N. lat.. and the 2023-24 (i.e., No Action) California copper rockfish stock ACTs are set equal to the area-specific ACL contributions to each nearshore rockfish complex off California. The ACTs are for the commercial and recreational sectors combined. With the implementation of Amendment 31, California copper rockfish was defined as a California stock (Table 24)

Table 24. Copper rockfish recreational and commercial fixed gear estimated mortality south of 34°27' N. lat.

	2018 (mt)	2019 (mt)	2020 (mt)	2021 (mt)	2022 (mt)	2023[a/] (mt)	2025 HG (mt) b/
Commercial Fixed Gear	5.0	5.7	6.6	4.6	1.5	1.2	15.8
Recreational	96.2	74.9	32.7	19.5	18.6	18.1	

a/ discard mortality from 2022 was used as a proxy for 2023.
b/ south of 34°27' N. lat.

ACT Considerations

While allowable harvest of copper rockfish off California is shared by the fixed gear commercial and recreational sectors, recreational mortality has accounted for the majority of impacts in recent years. This is particularly evident in the area south of 34° 27' N lat.. Over the last six years, the recreational fishery, on average, has been responsible for approximately 90 percent of total mortality in the area south of 34°27' N lat. As noted in Agenda Item E.7.a, Supplemental GMT Report 3, November 2023, establishing a within non-trawl recreational ACT for copper rockfish south of 34° 27' N lat. may provide a mechanism for management specifically addressing the proportion of the copper rockfish stock that may be more susceptible to localized depletion in a similar manner as has been done previously for stocks of concern (e.g., yelloweye rockfish).

Similar to yelloweye rockfish where a within non-trawl ACT is set for the California recreational fishery, the CDFW tracks recreational mortality of copper rockfish inseason on a weekly basis, with regulations specifying commercial landings be reported electronically within three business days. California's near real time monitoring of copper rockfish mortality allows for comprehensive evaluation of fishery performance in relation to allowable harvest limits, including ACTs. Should the need arise to mitigate further copper rockfish mortality from accruing, the full suite of routine inseason management tools would be available to the Council, including solely or a combination of season dates, depth limits and/or bag limits adjustments. No additional automatic or pre-determined Council action is proposed if this ACT is projected to be reached or exceeded as the current scope of inseason management tools are sufficient.

As noted above, the stock assessment for the California stock of copper rockfish was calculated by two model areas (i.e., model areas were from U.S/Mexico border to 34°27' N. lat. and 34°27'

N. lat.to the California/Oregon border). South of 34°27' N. lat., the 2025-26 estimated proportion of the statewide ACL is 15.8 mt and 18.0 mt, respectively.

Proposed Options

The Council did not recommend a range of ACTs for analysis; therefore, discussions with CDFW staff indicated the range for a copper rockfish south of 34°27′ N. lat. ACTs for initial consideration: The (Table 25).

Table 25. California copper rockfish harvest specifications in 2025 and 2026, including proportion of the stock's biomass south of 34° 27' N lat..

Specification	2025 (mt)	2026 (mt)
OFL	143.5	145.3
ABC	134.1	135.2
ACL	131.9	133.1
Proportion of biomass south of 34° 27' N lat.	15.8	18

Option 1: Status Quo. A copper rockfish south of 34° 27′ N. lat. ACT would not be established for the recreational sector. The statewide California, all sector, copper rockfish ACTs that are set equal to the area-specific ACL contributions to each nearshore rockfish complex off of California would remain in effect.

Option 2: A within non-trawl copper rockfish ACT would be established for the recreational sector south of 34° 27' N lat. The recreational ACT would be set at 80% of the proportion of California copper rockfish stock's ACL south of 34° 27' N lat., as determined by the assessment (i.e., 2025 = 12.64 mt, 2026 = 14.4 mt). The statewide, all sector, ACT would be removed from regulation. The 80% is approximately the historic commercial/ recreational mortality percentage and would reflect an equitable sharing option between sectors

Option 3: A within non-trawl copper rockfish ACT would be established for the recreational sector south of 34° 27' N lat. The recreational ACT would be equal to the proportion of California copper rockfish stock's ACL south of 34° 27' N lat., as determined by the assessment (i.e., 2025 = 15.8 mt, 2026 = 18.0 mt). The statewide, all sector, ACT would be removed from regulation..

Table 26 shows the calculated ACTs based on the proposed percentages.

Table 26. Proposed ACT Options for copper rockfish south of 34° 27′ N. lat. for the 2025-26 biennial period based on the proposed copper rockfish south of 34°27′ N. lat. HG.

Options	**Year**	**ACT (mt)**
Option 1: Status Quo:	2025	NA
	2026	NA
Option 2:	2025	12.64
	2026	14.4
Option 3:	2025	15.8
	2026	18.0

Option 1 is the No Action ACT methodology. The Council would be notified if the ACL contribution to the nearshore rockfish complex south of 40°10′ N. lat. was exceeded or projected to be exceeded. Option 2 may allow for potentially faster management response in relation to noted conservation concerns for the proportion of California copper rockfish stock south of 34° 27′ N. lat. as managers would be notified before it was exceeded. The difference between Options 2 and 3 is the timeliness of notification to managers. Under Option 3, managers would be notified when the proportion of California copper rockfish stock south of 34° 27′ N. lat would have been exceeded, which may result in overages to this amount. he 80% is approximately the historic commercial/ recreational mortality percentage and would reflect an equitable sharing option between sectors

It is important to note that based on past mortality trends, even if ACTs and informal HGs were exceeded, the recreational mortality would like still be under the nearshore rockfish complex south of 40°10′ N. lat. ACL and the copper rockfish ACL contribution to this complex. The total copper rockfish ACL contributions to this complex are approximately ten times higher than the estimated copper rockfish south of 34° 27′ N. lat. HG.

Proposed Additional Accountability Measure Options
The Council has noted concerns about accountability measures for ACTs, HGs, and set-asides at multiple meetings. Therefore, in response to these concerns, staff offers these two sub-options for the Council consideration in specifying a management response if the copper rockfish south of 34°27′ N. lat. ACT is exceeded or projected to be exceeded. Noting that, at present, none of the ACTs (or HGs, set-asides, etc.) the Council has set for this stock or any other stock, has such a requirement.

- **Sub-Option 1.** If the copper rockfish south of 34°27′ N. lat. ACT is exceeded, or projected to be exceeded, the Council will consider management measures to mitigate impacts on copper rockfish south of 34°27′ N. lat. and determine if inseason adjustments are necessary.
- **Sub-Option 2.** If the copper rockfish south of 34°27′ N. lat. ACT is exceeded, or projected to be exceeded, the Council will adopt inseason actions (e.g., depth limits, bag limits, etc.) best suited to mitigate impact on the sub-area population of copper rockfish.

Sub-Option 1 requires the Council to consider management measures to reduce impacts; however, it does not specify that it must take action. This sub-option is similar to the process for shortbelly rockfish as specified under Amendment 30, where:

> "The Council shall review fishery-incurred mortality of shortbelly rockfish during the routinely scheduled groundfish inseason agenda item. If the mortality exceeds, or is projected to exceed, 2,000 mt in a calendar year, the Council shall review and investigate all relevant information, including but not limited to, survey abundance trends and other stock status information, changes in fishing behavior, and changes in the market interest for shortbelly rockfish." FMP §4.4.4

Sub-Option 2 is similar to Option 1 except it requires the Council to adopt inseason adjustment(s) for copper rockfish to mitigate fishery impacts on the subarea population; however, this option does not specify what the management measure would be. While both sub-options provide the

opportunity for the Council to consider additional accountability measures to reduce fishery impact on copper rockfish south of 34° 27′ N. lat., only sub-option 2 requires the Council take action.

2.4 Allocations

2.4.1 Amendment 21 and Biennial Allocations

Under Alternative 1, Amendment 21 (A21) and biennial allocations for 2025 and 2026 are the same as No Action for all stocks and stock complexes (Table 27 and Table 28). Under Alternative 1, the Council is considering revisions to canary rockfish, petrale sole, shortspine thornyhead, and widow rockfish allocations as detailed in Section 2.5.

Table 27. Alternative 1: 2025 Amendment 21 and biennial trawl/non-trawl allocation percentages (%) and allocation amounts in metric tons (mt) based on Alternative 1 fishery harvest guidelines (HG).

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
YELLOWEYE ROCKFISH	Coastwide	44.0	Biennial	8	3.5	92	40.5
Arrowtooth flounder	Coastwide	9,098.0	A-21	95	8,643.1	5	454.9
Big skate	Coastwide	1,164.6	Biennial	95	1,106.4	5	58.2
Bocaccio	south of 40°10′ N. lat.	1,673.2	Biennial	39	652.5	61	1,020.6
Canary rockfish	Coastwide	508.4	Biennial	72.3	367.6	27.7	140.8
Chilipepper	south of 40°10′ N. lat.	2,788.0	A-21	75	2,091.0	25	697.0
Cowcod	south of 40°10′ N. lat.	66.5	Biennial	36	23.9	64	42.6
Darkblotched rockfish	Coastwide	729.8	A-21	95	693.3	5	36.5
Dover sole	Coastwide	48,415.9	A-21	95	45,995.1	5	2,420.8
English sole	Coastwide	8,669.4	A-21	95	8,235.9	5	433.5
Lingcod	north of 40°10′ N. lat.	3,349.9	A-21	45	1,507.5	55	1,842.4
Lingcod	south of 40°10′ N. lat.	736.4	Biennial	40	294.6	60	441.8
Longnose skate	Coastwide	1,365.4	Biennial	90	1,228.9	10	136.5
Longspine thornyhead	north of 34°27' N. lat.	2,000.7	A-21	95	1,900.7	5	100.0
Pacific cod	Coastwide	1,098.6	A-21	95	1,043.7	5	54.9
Pacific Ocean perch	north of 40°10′ N. lat.	3,182.5	A-21	95	3,023.4	5	159.1
Pacific whiting b/	Coastwide	-	A-21	100	-	0	0
Petrale sole	Coastwide	1,975.5	Biennial	-	1,945.5	-	30
Sablefish	north of 36° N. lat.		**See Table 29.**				
Sablefish	south of 36° N. lat.	7,829.8	A-21	42	3,288.5	58	4,541.3
Shortspine thornyhead	north of 34°27' N. lat.	431.7	A-21	95	410.1	5	21.6
Shortspine thornyhead	south of 34°27' N. lat.	207.2	A-21	-	50	-	157.2
Splitnose rockfish	south of 40°10′ N. lat.	1,493.9	A-21	95	1,419.2	5	74.7

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
Starry flounder	Coastwide	375.3	A-21	50	187.7	50	187.7
Widow rockfish	Coastwide	11,018.7	Biennial	-	10,618.7	-	400.0
Yellowtail rockfish	north of 40°10′ N. lat.	5,216.1	A-21	88	4,590.2	12	625.9
Species Complexes							
Shelf rockfish north	north of 40º10′ N. lat.	1,325.7	Biennial	60.2	798.1	39.8	527.6
Shelf rockfish south	south of 40º10′ N. lat.	1,438.6	Biennial	12.2	175.4	87.8	1,263.1
Slope rockfish north	north of 40º10′ N. lat.	1,430.0	A-21	81	1,158.3	19	271.7
Slope rockfish south	south of 40º10′ N. lat.	674.0	Biennial	63	424.6	37	249.4
Other flatfish	Coastwide	7,220	A-21	90	6,498	10	722

b/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

Table 28. Alternative 1: 2026 Amendment 21 and biennial trawl/non-trawl allocation percentages (%) and allocation amounts in metric tons (mt) based on Alternative 1 fishery harvest guidelines (HG).

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
YELLOWEYE ROCKFISH	Coastwide	44.8	Biennial	8	3.6	92	41.2
Arrowtooth flounder	Coastwide	7,132.00	A-21	95	6,775.4	5	356.6
Big skate	Coastwide	1,128.60	Biennial	95	1,072.2	5	56.4
Bocaccio	south of 40°10′ N. lat.	1,680.5	Biennial	39	655.4	60	1,025.1
Canary rockfish	Coastwide	509.6	Biennial	72.3	368.4	27.7	141.2
Chilipepper	south of 40°10′ N. lat.	2,615.20	A-21	75	1,961.4	25	653.8
Cowcod	south of 40°10′ N. lat.	65.2	Biennial	36	23.5	64	41.7
Darkblotched rockfish	Coastwide	707.8	A-21	95	672.4	5	35.4
Dover sole	Coastwide	48,415.90	A-21	95	45,995.1	5	2,420.8
English sole	Coastwide	8,604.40	A-21	95	8,174.2	5	430.2
Lingcod	north of 40°10′ N. lat.	3,252.90	A-21	45	1,463.8	55	1,789.1

Species	Management Area	Fishery HG (mt)	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
Lingcod	south of 40°10′ N. lat.	783.1761.5	Biennial	40	304.6	60	456.9
Longnose skate	Coastwide	1,328.40	Biennial	90	1,195.6	10	132.8
Longspine thornyhead	N of 34°27' N. lat.	1,907.3	A-21	95	1,811.9	5	95.4
Pacific cod	Coastwide	1,098.6	A-21	95	1,043.7	5	54.9
Pacific Ocean perch	north of 40°10′ N. lat.	3,074.50	A-21	95	2,920.8	5	153.7
Pacific whiting b/	Coastwide	-	A-21	100	0.0	-	0
Petrale sole	Coastwide	1,859.50	Biennial	-	1,829.5	-	30.0
Sablefish	north of 36° N. lat.		**See Table 29.**				
Sablefish	south of 36° N. lat.	7,432.90	A-21	42	3,121.8	58	4,311.1
Shortspine thornyhead	north of 34°27' N. lat.	433.5	A-21	95	411.8	5	21.7
Shortspine thornyhead	south of 34°27' N. lat.	207.96	A-21	-	50.0	-	157.96
Splitnose rockfish	south of 40°10′ N. lat.	1,454.90	A-21	95	1,382.2	5	72.7
Starry flounder	Coastwide	375.3	A-21	50	187.7	50	187.7
Widow rockfish	Coastwide	10,173.70	Biennial	-	9,773.7	-	400.0
Yellowtail rockfish	north of 40°10′ N. lat.	4,997.50	A-21	88	4,397.8	12	599.7
Species Complexes							
Shelf rockfish north	north of 40º10′ N. lat.	1,312.30	Biennial	60.2	790.0	39.8	522.3
Shelf rockfish south	south of 40º10′ N. lat.	1,436.2	Biennial	12.2	172.2	87.8	1261.
Slope rockfish north	north of 40º10′ N. lat.	1,402.20	A-21	81	1,135.8	19	266.4
Slope rockfish south	south of 40º10′ N. lat.	671	Biennial	63	422.7	37	248.3
Other flatfish	Coastwide	6,563.00	A-21	90	5,906.7	10	656.3

a/ Pacific whiting harvest limits are set through an annual bilateral treaty process external to the Council.

Sablefish north of 36° N. lat.: Under Alternative 1, the sablefish north of 36° N. lat. allocation structure is the same as No Action. Table 29 shows the non-tribal commercial share of sablefish north of 36° N. lat. under Alternative 1 allocations for the limited entry and open access fisheries, assuming the status quo at-sea set aside of 100 mt.

Table 29. Alternative 1: 2025-2026 non-tribal sablefish north of 36° N. lat. commercial harvest shares guidelines (HG) and limited entry (LE) trawl and fixed gear (LEFG) and open access (OA) fishery allocations as percentages (%) and metric tons (mt).

Year	Non-tribal Commercial HG	LE Share		LE Trawl Share		LEFG Share		OA Share	
		%	mt	%	mt	%	mt	%	mt
2025	25,729.3	90.6	23,310.7	58	13,520.2	42	9,791.9	9.4	2,418.6
2026	24,425.1	90.6	22,129.1	58	12,834.9	42	9,294.0	9.4	2,296.0

2.4.2 Rebuilding Species Allocation

Yelloweye rockfish

Yelloweye rockfish is a rebuilding species in 2025-26 biennium. Under Alternative 1, the allocation structure is the same as No Action and shown in Table 30

Table 30. Alternative 1: Yelloweye rockfish allocations, harvest guideline (HG), and annual catch target (ACT) for 2025 and 2026 under status quo allocation in metric tons (mt).

Year	2025 (mt)		2026 (mt)	
ABC	87.2		88.5	
ACL	55.8		56.6	
Off-the-Top Deduction	11.8		11.8	
Fishery HG	43.98		44.8	
Trawl (8%)	3.52		3.58	
At-Sea	0		0	
IFQ	3.52		3.58	
Non-trawl (92%)	**HG**	**ACT**	**HG**	**ACT**
	40.46	31.72	41.20	32.30
Non-nearshore / Nearshore (20.9%)	8.46	6.63	8.61	6.75
WA Rec (25.6%)	10.36	8.12	10.55	8.27
OR Rec (23.3%)	9.43	7.39	9.60	7.53
CA Rec (30.2%)	12.22	9.58	12.44	9.75

California Quillback Rockfish

Under Alternative 1, California Quillback rockfish is not subject to allocation between sectors.

2.5 Allocations Under Reconsideration for 2025-26 Biennium

The Council is considering modifying the biennial allocations of canary rockfish, petrale sole, and shortspine thornyhead, widow rockfish. The following details proposed changes to each of these allocations.

2.6 Canary Rockfish

2.6.1 Background

Canary rockfish is a valuable target stock for both commercial and recreational fisheries off the U.S. West Coast. Canary rockfish are caught in both trawl and non-trawl fisheries. The population off the U.S. West Coast was declared overfished in 2000 and a rebuilding plan was implemented in 2002 as part of Amendment 16-2 (69 FR 19347). The stock was declared rebuilt in 2015 (Thorson and Wetzel 2015).

Canary rockfish are allocated on a biennial basis for all directed groundfish fisheries and sectors. Sector-specific allocations or shares (e.g., trawl/non-trawl/commercial/recreational) are developed or adjusted each biennial cycle to meet the unique needs of each fishery. The allocations to each sector have evolved over time since it was declared rebuilt. Canary rockfish was considered to be rebuilding during the development of the 2015-16 harvest specifications and management measures process (PFMC and NMFS, 2014), though retention remained prohibited in all fisheries. The two-year trawl/non-trawl allocation in that biennium was 53.3 percent to 46.7 percent, respectively; however, it is important to note these allocations were set to account for bycatch only. However, after the 2015 stock assessment the Council adopted inseason action that allowed retention at low levels for the 2015-16 biennium.

During the 2017-18 biennium, the Council recommended modest harvest opportunities to allow retention of canary rockfish due to its rebuilt status (82 FR 9634). Revising the two-year allocations for the trawl/non-trawl sectors was a main focus of the 2017-18 biennium due to the increased ACL. The revisions were able to facilitate the re-emergence of the mid-water non-whiting trawl fishery and provide additional target opportunity for non-trawl fisheries. The non-trawl and at-sea sector allocations were set by tonnage. The remaining yield was allocated to IFQ to reduce bycatch constraints and support re-emergence of the mid-water trawl rockfish fishery (which mainly targets widow and yellowtail rockfishes, which co-occur with canary rockfish). These changes provided for a year-round opportunity to turn regulatory discards into retained catch, while still maintaining precautionary limits to keep target effort low.

In the 2019-20 biennium, the Council recommended a two-year trawl/non-trawl allocation of 72 percent to 28 percent, respectively; these percentage values were based on the tonnage proportions from the 2017-18 biennium (82 FR 9634, February 7, 2017). The purpose of converting both sector allocations by percentages was to ensure that increases or decreases in available yield applied to both sectors, rather than just the IFQ sector. The two-year trawl/non-trawl allocation for canary rockfish has remained at the 72/28 percentage ratio since the 2019-20 biennium (83 FR 63970, December 12, 2018).

The 2023 stock assessment of canary rockfish estimated that the stock is in the precautionary zone, i.e., between 25 to 40 percent of unfished spawning output (Langseth et al., 2023). The 2025-26 ACLs are reduced 57 percent compared to 2023. Thus, under the 2025-26 ACLs, the status quo allocation percentages result in reductions in the trawl/non-trawl allocations, which carry through to the allocations for the commercial non-trawl, recreational, and IFQ fisheries, relative to 2023-24 amounts (Table 31). Given these concerns, potential adjustments to canary rockfish allocation schemes to minimize impacts to the directed 2025-26 groundfish fisheries are considered below.

Table 31. Trawl/non-trawl allocations, mortality, and attainments for canary rockfish from 2011-2026. 2025 and 2026 allocations are based on status quo management measures. Source: GEMM total mortality for 2017-2022 years, PacFIN for 2023 landings data and 3 year-average of discard mortality from the GEMM.

Category		2017	2018	2019	2020	2021	2022	2023[a/]	2025	2026
ACL		1,714	1,526	1,450	1,368	1,338	1,307	1,338	571	573
Off-the-top		247	59	67	67	69	69	69	63	63
Fishery HG		1,467	1,467	1,383	1,301	1,269	1,238	1,269	508	510
(trawl %)		72.3%	72.3%	72.3%	72.3%	72.3%	72.3%	72.3%	72.3%	72.3%
Trawl Allocation		1,060	1,060	1,000	941	917	895	918	367	369
Trawl Mortality		249	449	427	340	374	498	530	-	-
Trawl Attainment		23%	42%	43%	36%	41%	56%	58%	-	-
At-sea Set-aside b/	CP	2.1	0.9	1.7	0.4	6	6	20	-	-
	MS	4.5	4.7	3.3	0.5					
--IFQ Allocation		242	443	422	339	368	492	510	-	-
(non-trawl %)		27.7%	27.7%	27.7%	27.7%	27.7%	27.7%	27.7%	27.7%	27.7%
Non-Trawl Allocation		406	406	383	360	351	343	352	141	141
Non-Trawl Total Mortality		130	122	139	151	178	186	184	-	-
--Non-nearshore + Nearshore Mortality		5	4	5	13					
		8	8	11	13					
--WA Rec. Mortality		5	5	14	8	39	37	22		
--OR Rec. Mortality		28	44	39	61	40	56	57		
--CA Rec. Mortality		83	62	71	56 [c/]	70	63	74		
Non-Trawl Attainment		32%	30%	36%	42%	51%	54%	52%		

a/ Mortality estimates for all commercial sectors are estimated using 2023 landings data from PacFIN plus the recent three-year average discard mortality estimate from the GEMM.
b/ Prior to 2021, canary rockfish was managed with separate sector-specific allocations for the Mothership and Catcher-Processor sectors in the at-sea fishery. In the 2021-22 biennium, combined into a single at-sea set-aside.
c/Data from 2020 pulled from GEMM will be incomplete due to CRFS not producing estimates from April-June of that year. When CDFW has provided comprehensive mortality for that year they typically include the average proxy values for the April-June time period. 46 mt shown in the GEMM and an average proxy value of 10 mt was added to the GEMM value for a more accurate value.

2.6.2 Importance to Groundfish Fisheries

When developing or adjusting allocation schemes, the needs of each fishery sector should be considered to minimize negative impacts to communities and existing groundfish fishery participants to the extent practicable, including investments, economic dependence, and intrinsic value. Any allocative decision the Council makes should be considered through the lens of Magnuson-Stevens Conservation and Management Act (MSA) guidelines for National Standard

(NS) 4 regarding fair and equitable allocations and NS 8 regarding the importance of fishery resources to fishing communities

Canary rockfish is important to both groundfish trawl and non-trawl fisheries for different reasons. The trawl fishery largely relies on canary rockfish quota to cover incidental catch while harvesting their target species (e.g., sablefish, Dover sole, Pacific whiting), while many non-trawl fisheries, including recreational, directly target canary rockfish or rely on it as an important component of overall revenue and economic value. At one time, both sectors targeted this stock. The following sections highlight the relative importance and utilization of canary rockfish to each West Coast groundfish fishery.

2.6.3 Commercial Trawl Fishery

The U.S. West Coast trawl fishery comprises the at-sea Pacific whiting sectors (Mothership [MS] and Catcher Processor [CP]) and the Shorebased IFQ sector (hereafter "IFQ"). The allocation to the trawl sector is reduced by a set-aside for the at-sea sectors, which is used to track canary rockfish bycatch mortality in the at-sea sectors. Prior to 2021, canary rockfish was managed with formal sector-specific allocations for the CP and MS at-sea sectors, but the Council chose to modify the allocations into a single combined at-sea set-aside as part of the 2021-22 biennial management measures package[1]. The remainder of the trawl allocation is distributed to the IFQ sector. Each IFQ participant receives canary rockfish quota pounds based on each account's quota share (percentage) of the entire IFQ allocation.

Canary rockfish are not considered a target species in the trawl fishery but are often caught incidentally across all target strategies, so canary rockfish quota pounds are valuable to the fishery in that they allow vessels to utilize their target species by covering any incidental catch. Since 2015, roughly one-third to one-half of total IFQ canary rockfish landings is landed by bottom trawl vessels, whereas roughly one-third is landed by the shoreside Pacific whiting sector. An increasing proportion of IFQ vessels targeting midwater rockfish (predominantly widow and yellowtail rockfishes) are landing canary rockfish, reaching up to 43 percent of all IFQ landings in 2022.

2.6.4 Commercial Non-Trawl Fishery

The U.S. West Coast non-trawl fishery comprises the nearshore and non-nearshore sectors which are further categorized as limited entry fixed gear (LEFG) and open access (OA). LEFG and OA operate in different depths and under different federal and state regulations. Fishing in federal waters is managed with LEFG trip limits and OA trip limits. Since canary rockfish was declared rebuilt, there has been development of a non-trawl mid-water shelf fishery that has been targeting yellowtail rockfish, widow rockfish, and canary rockfish. The Council increased the opportunity for that fishery via the 2023-2024 biennial process by allowing vessels to use non-bottom contact gear to fish to OA trip limits within the non-trawl rockfish conservation area (RCA). Starting January 1, 2024, via Amendment 32 (A32), LEFG is allowed to harvest to LEFG trip limits. A32 also allowed the OA and LEFG sectors to fish an additional 4,600 square miles in the previously closed Non-Trawl RCA. Additionally, A32 reopened the Cowcod Conservation Areas (CCAs), which is an area where commercial canary rockfish occurred pre-CCAs. The increases in non-

[1] See Chapter 3 At-sea Whiting Set-Asides for more detail on how at-sea set-asides are managed.

nearshore opportunity since 2017 has led to a shift in proportion of canary rockfish caught in the non-nearshore versus nearshore as well as an overall increase in canary mortality in both sectors.

It is anticipated that canary rockfish catch will be higher in 2024 than previous years from the nearshore and non-nearshore sectors combined. There are at least two factors that indicate high catch levels. The first is that non-nearshore effort is expected to remain at or exceed 2023 levels due to recent management changes at the coastwide level (A32). The second is the recent restrictions implemented on the nearshore fishery off of California to mitigate quillback rockfish impacts. The restrictions will likely expand the already growing commercial non-nearshore non-trawl targeting shelf rockfish.

2.6.5 Recreational Fisheries

Washington

Historically, black rockfish has been the central target species in the Washington recreational groundfish fishery. While this remains true, black rockfish harvest guidelines (HG) decreased 35 percent from 2011 through 2024. To ease pressure on black rockfish and other nearshore rockfish N of 40° 10' N. lat. component species, management measures were modified in recent biennia to support a shift in recreational groundfish effort to other "healthy" species including lingcod, yellowtail rockfish, and canary rockfish.

Although canary rockfish was declared rebuilt in 2015, Washington Department of Fish and Wildlife (WDFW) took gradual steps to expand recreational fishery access through 2021. In 2017 a one-canary rockfish bag-limit was implemented for Marine Areas 1 and 2 (Columbia River and south coast, respectively), followed by a coastwide two-canary rockfish bag-limit in 2018. Beginning in 2019 the sub-limits were removed, and canary rockfish catch was subject only to the seven rockfish daily limit. Similarly, depth restrictions and area closures originally put in place to reduce impacts on yelloweye rockfish and canary rockfish were relaxed incrementally by marine area beginning 2018 through 2021. Maximum opportunity for canary rockfish – in that further measures to increase access were not anticipated – was achieved in 2021. However, depth restrictions and area closures that remain to protect yelloweye rockfish continue to reduce encounters with canary rockfish. As a result of this gradual increase in canary rockfish opportunity, mortality in the Washington recreational fishery has increased from roughly 2-5 mt prior to 2019, up to 23-40 mt since 2021 (Table 32).

Table 32. Washington recreationally caught canary rockfish total mortality in metric tons from 2015 - 2023. (Source: RecFIN, December 2023)

Year	Mortality (mt)
2015	2.2
2016	2.9
2017	5.3
2018	4.9
2019	14.1
2020	8.7
2021	40.2

Year	Mortality (mt)
2022	37.7
2023	22.1

Oregon

The Oregon recreational fishery slowly eased canary rockfish fishing restrictions in response to canary rockfish being declared rebuilt following the 2015 stock assessment. In 2015 a sub-bag limit of one canary rockfish was incorporated into the marine fish daily bag limit. As part of the 2017-18 biennium, the Oregon canary rockfish sub-bag limit was removed and a 10 fish limit was implemented. The marine bag limit has remained at 10 fish per angler in federal regulation; however, Oregon has been more precautionary with marine bag limits, which have ranged from four to seven fish per angler since 2015.

In 2018, in response to an increase of recreational anglers on the nearshore reefs, the recreational longleader gear fishery was approved by the Council. This fishery allows anglers to harvest mid-water rockfish offshore with a higher bag limit. This bag limit was 10-fish from October of 2017 through 2022 before increasing to 15-fish in 2023. The longleader bag limit for 2024 is 12-fish per angler in both state and federal regulations. For this higher bag limit (12-fish) to apply, canary rockfish, as well as a list of nine other semi-pelagic rockfish, are the only species allowed for retention when using this gear type outside of the 40-fathom regulatory line. The goal of this fishery is to relieve angling pressure from the nearshore reefs by enticing anglers to fish offshore on prolific mid-water rockfish species (i.e., widow and yellowtail rockfishes). Table 33 shows the increased pressure put on the primary three species of rockfish encountered in the longleader fishery since 2017.

Table 33. Total mortality (including discarded dead) of Oregon recreationally caught canary rockfish, widow rockfish, and yellowtail rockfish in metric tons. Source: RecFIN

Year	Canary Rockfish (mt)	Widow Rockfish (mt)	Yellowtail Rockfish (mt)
2014	3.0	2.0	11.4
2015	14.3	2.3	22.1
2016	9.7	0.5	7.7
2017	28.2	1.7	14.0
2018	43.6	7.4	35.6
2019	38.7	5.3	30.4
2020	60.6	5.8	38.4
2021	39.9	3.5	27.9
2022	55.7	4.2	51.7
2023	56.9	8.2	83.2

California

The California recreational fishery took a conservative approach with canary rockfish, slowly relaxing restrictions in response to canary rockfish being declared rebuilt following the 2015 stock

assessment. Canary rockfish remained prohibited until 2017 when a sub-bag limit of one canary rockfish was incorporated into the Rockfish, Cabezon, and Greenling (RCG) daily bag limit. The canary rockfish sub-bag limit increased to two fish in 2018 and increased to three fish in 2019. As part of the 2021-22 biennium, the California canary rockfish sub-bag limit was removed. Table 34 shows the general trend of canary rockfish in the California recreational fishery since 2015. Retention increased substantially following limited retention of canary rockfish in 2017. As the recreational bag limit was fully liberalized, canary rockfish mortality was higher than under prohibition but somewhat variable between recent years with an average of 68.4 mt between 2017-2023.

Table 34. Canary rockfish mortality in California recreational fisheries from 2015 through 2023 Source: RecFIN 2/12/2024.

Year	Mortality (mt)
2015	26.9
2016	23.7
2017	83.4
2018	61.8
2019	71.4
2020	56.4 a/
2021	69.6
2022	62.6
2023	73.7 b/

a/ Data from 2020 pulled from RecFIN will be incomplete due to CRFS not producing estimates from April-June of that year. When CDFW has provided comprehensive mortality for that year they typically include the average proxy values for the April-June time period. 46.3 mt is shown in RecFIN and an average proxy value of 10.1 mt was added to the RecFIN value for a more accurate value.
b/ RecFIN does not include December 2023 CRFS estimates as of 2/12/2024. Dec 2023 CRFS estimate was added to 67.2 mt currently in RecFIN.

2.6.6 Options

Figure below shows the status quo allocation structure of canary rockfish. The fishery HG is divided into the trawl and non-trawl allocations, which are then divided into the respective sectors within trawl and non-trawl. A fixed amount is established for the at-sea set-aside with the remainder allocated to the IFQ fishery. Within the non-trawl allocation, sector-specific shares are divided amongst the commercial non-trawl and state recreational fisheries, and action is not necessary when one or more of these shares is exceeded. However, the states work together to keep catches within the respective shares and coordinate to respond in the event a share is exceeded in order to avoid exceeding the non-trawl allocation. To understand impacts of modifications to the canary allocations, alternative allocation schemes were considered at every level of Figure 1: the trawl/non-trawl allocation proportions, the at-sea set-aside, and the within non-trawl sharing arrangement.

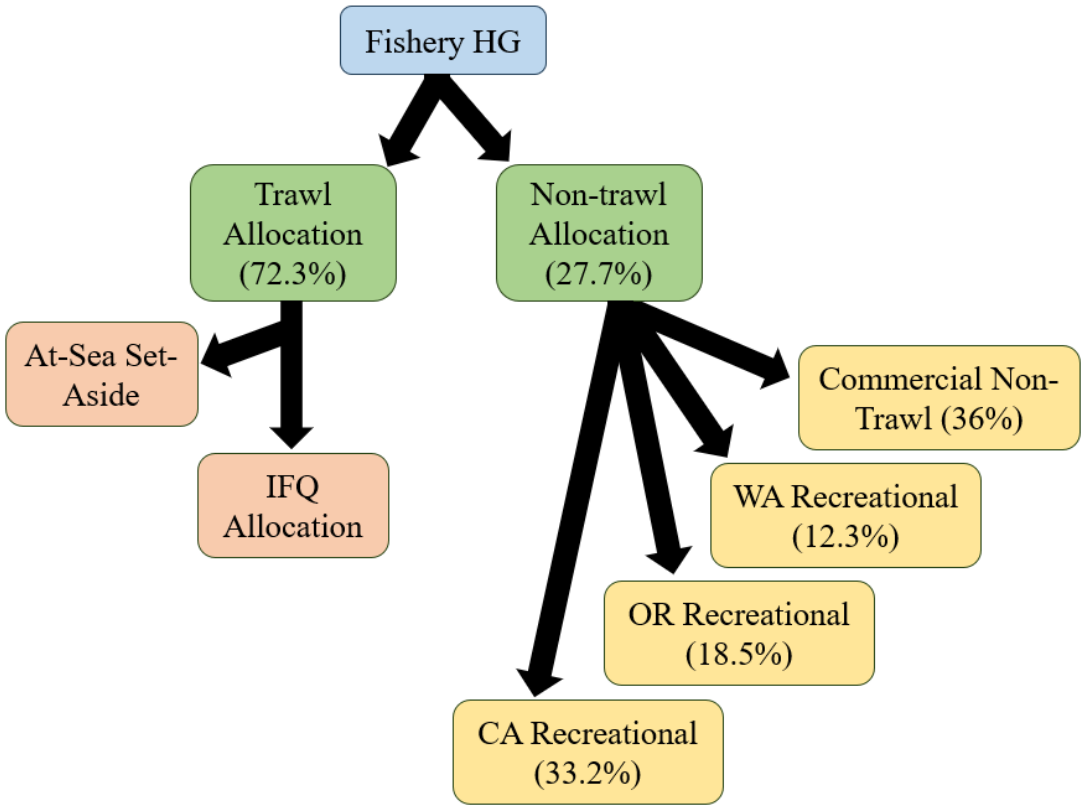

Figure 1. . Status Quo allocation scheme for canary rockfish, under the Fishery Harvest Guideline (HG).

The following range of options was developed for the Council to consider, based on four different decision points that can be made independent of each other. However, they will all affect the outcome of how individual sectors are managed.

Council Decision Points:

1. The trawl/non-trawl allocation proportions,
2. At-sea set-aside options,
3. Commercial non-trawl and recreational non-trawl sharing arrangement, and
4. Individual states' recreational sharing arrangement in relation to each other.

Trawl/Non-trawl Allocation

- **Option 1 Status Quo:** maintain status quo trawl and non-trawl allocation percentages (72.3 percent trawl, 27.7 percent non-trawl)
- **Option 2:** 67.3 percent of the fishery HG is allocated to trawl and 32.7 percent to non-trawl (i.e., 5 percentage points are transferred from trawl to non-trawl)
- **Option 3:** 59.8 percent of the fishery HG is allocated to trawl and 40.2 percent to non-trawl (i.e., 12.5 percentage points are transferred from trawl to non-trawl)

The analysis examines a range of options that would transfer some percentage of the trawl proportion to the non-trawl proportion. Beyond Status Quo, two additional options were analyzed: Option 2 that would transfer 5 percentage points and Option 3 that would transfer 12.5 percentage points of the trawl allocation percentage to non-trawl. A fourth option was explored that would

transfer 20 percentage points from trawl to non-trawl; however, this option was removed from the range because the IFQ fishery was projected to exceed the IFQ allocation under this option (103-104 percent). In addition, the IFQ fishery is expected to experience cumulative impacts from allocation reductions of multiple high value species in 2025-26, which could shift targeting effort to an unknown degree. The 20 percent Option would have severely restricted this fishery's ability to shift flexibly amidst target species reductions and further constrain IFQ target species attainment by further reducing canary rockfish quota availability. Thus, 12.5 percentage points was originally developed as Option 3, because it was considered a middle ground option between the original two bookends of 5 percent and 20 percent (excluding Status Quo). The over-winter analysis does not include any options that would transfer some of the non-trawl proportion to trawl. However, GAP members provided feedback in March that such options should have been analyzed due to expected constraints in the trawl fishery. The Council gave guidance to the GMT in March that the over-winter range was sufficient and to discontinue any further analysis of canary allocations. Therefore, the GMT did not further develop options even though the team thought there was merit in considering options that would transfer from non-trawl to trawl in addition to the existing options that would transfer from trawl to non-trawl..

At-sea Set-aside

- **Option 1 Status Quo:** 36 mt
- **Option 2:** 30 mt
- **Option 3:** 20 mt

From 2002 to 2022, canary rockfish mortality in the at-sea Pacific whiting sectors has been 6 mt or less annually; however, mortality increased to 20 mt in 2023. With canary rockfish ACL reductions in 2025-26 and the expectation that the IFQ allocations in 2025 and 2026 would be lower than recent mortality under status quo management, the Council tasked the GMT with analyzing two options that would lower the at-sea set-aside by 6 mt (Option 2) or 16 mt (Option 3). Option 3, at 20 mt, reflects the amount that the sectors caught in 2023 and therefore also reflects the long-term maximum mortality of the sectors, combined (Chapter 3: Alternative 1) Option 2 was included in the range, because canary rockfish bycatch may continue to increase if recent fishing practices progress through 2026 in response to Pacific whiting aggregation patterns and salmon bycatch; furthermore, the at-sea set-aside for canary rockfish was recently lowered in the 2021-22 biennium.

Commercial Non-Trawl Share

- **Option 1 Status Quo:** The commercial non-trawl sector receives 36 percent of the non-trawl allocation.
- **Option 2:** The commercial non-trawl sector receives 31 percent of the non-trawl allocation, and the additional 5 percentage points are redistributed to the state recreational sectors.

The Council's motion in November 2023 specifically recommended "analyz[ing] all allocation and management schemes for canary rockfish including alternatives for the commercial non-nearshore and nearshore shares" (November 2023 Motions in Writing). The Status Quo allocation scheme for sectors within the non-trawl allocation is set up such that the commercial non-trawl (nearshore and non-nearshore, combined), Washington recreational, Oregon recreational, and

California recreational sectors are given informal shares (i.e., percentages) of the non-trawl allocation.

Under Option 1, the commercial non-trawl sector receives 36 percent of the non-trawl allocation. Option 2 differs from Option 1 in that it would transfer 5 percentage points from the commercial non-trawl sector to the three state-specific recreational sectors. Thus, the commercial non-trawl sector would receive 31 percent of the non-trawl allocation under Option 2. Option 2 was developed as there is significant uncertainty in future mortality from the commercial non-trawl fishery, and Option 2 is expected to provide that sector with enough allocation to cover the average of the last few years. However, this uncertainty stems from concentrating effort in the non-nearshore fishery due to recent management changes at the coastwide level (Amendment 32) and action taken by California to mitigate quillback rockfish impacts that concentrates commercial non-trawl effort into the Non-Trawl RCA (with gear that targets midwater rockfish). These factors make it difficult to project the magnitude of difference between current and future mortality. Simultaneous to those actions, trip limits were reduced in November 2023 through inseason action. Recreational HGs for each state share are expected to be lower than those sectors' respective recent average mortality without any canary rockfish restrictions.

Recreational Shares

- **Option 1 Status Quo:** The state-specific sectors receive the following proportions of the collective recreational share[2] of the non-trawl allocation, which are based on the status quo proportions of the collective recreational share:
    - 19.2% WA recreational
    - 28.9% OR recreational
    - 51.9% CA recreational
- **Option 2:** The state-specific sectors receive the following proportions of the collective recreational share[3] of the non-trawl allocation, which are calculated based on each state's highest three years of catch since 2017. The three highest years for each state was chosen to reflect the highest potential fishing capacity of each state's recreational fishery as a whole when unrestricted, as each state eased up fishing restrictions in response to a higher canary HG on different timelines:
    - 20.2% WA recreational
    - 34.4% OR recreational
    - 45.4% CA recreational

Within the non-trawl allocation, each of the states' recreational sectors are allocated shares of the non-trawl allocation. The recreational share options were structured based on the proportion of each state to the collective recreational share, not accounting for commercial non-trawl. In other words, the proportions shown under Option 1 Status Quo and Option 2 above sum to 100 percent for each option. Those proportions would be applied to the collective recreational share of the non-trawl allocation, either 64 percent or 69 percent, depending on the option chosen under the commercial non-trawl decision. Therefore, each state's resulting share of the total non-trawl

[2] 64 percent or 69 percent of the non-trawl allocation, based on the commercial non-trawl share decision

[3] 64 percent or 69 percent of the non-trawl allocation, based on the commercial non-trawl share decision

allocation will vary depending on the Council's decision for both the commercial non-trawl share and the recreational shares. Analysis of those resulting shares and the projected 2025-26 HGs for each sector is provided in Chapter 1:§2.6. Action is not required if a sector-specific share is expected to be or is exceeded, but the states manage themselves to the sector-specific shares and coordinate to collectively keep total non-trawl mortality within the non-trawl allocation.

2.6.7 Impacts

The resulting 2025 allocations and shares under each of the trawl/non-trawl allocation scheme options are shown in Table 35. The 2026 canary rockfish ACL (573 mt) would be 0.35 percent higher than the 2025 ACL (571 mt), so impacts are expected to be very similar in both 2025 and 2026. Trawl/non-trawl allocation Option 2 would transfer 5 percentage points from the trawl allocation to the non-trawl allocation, lowering the 2025 trawl allocation by 25 mt, and Option 3 would transfer 12.5 percentage points, lowering the trawl allocation by 64 mt. The non-trawl allocation would increase by those exact amounts for the respective Options. The status quo canary rockfish at-sea set-aside of 36 mt is assumed in Table 35, but as discussed in detail in Chapter 3. At-Sea Whiting Set-Asides there are alternative options that would lower the at-sea set-aside to 30 mt or 20 mt. Under either of those alternative at-sea set-aside options, the resulting IFQ allocation would be higher than those shown in Table 35 under all trawl/non-trawl allocation options, and therefore IFQ impacts would be lower.

Table 35. 2025 canary rockfish allocations and non-trawl shares under each of the trawl/non-trawl allocation options. a/ compared to status quo

ACL (mt)	571		
Off-the-top (mt)	63		
Fishery HG (mt)	**508**		
2025-26 Allocation Option	**Option 1 SQ**	**Option 2**	**Option 3**
Canary Transferred from Trawl to Non-Trawl (mt) a/	**0.0**	**25.4**	**63.5**
Trawl %	72.3%	67.3%	59.8%
Trawl Allocation (mt)	367.3	341.9	303.8
--At-sea (SQ; mt)	36.0	36.0	36.0
--IFQ (mt)	331.3	305.9	267.8
Non-Trawl %	27.7%	32.7%	40.2%
Non-Trawl Allocation (mt)	140.7	166.1	204.2
--Non-nearshore + Nearshore (36%)	50.7	59.8	73.5
--WA Rec (12.3%)	17.3	20.4	25.1
--OR Rec (18.5%)	26.0	30.7	37.8
--CA Rec (33.2%)	46.7	55.2	67.8

Trawl Fishery

Trawl/non-trawl allocation Options 2 and 3 would lower the 2025 trawl allocation by 25 mt and 64 mt, respectively, assuming the status quo at-sea set-aside of 36 mt. As noted previously, there are also options to lower the at-sea set-aside for canary rockfish, which is deducted from the trawl

allocation before allocating the remainder to the Shorebased IFQ fishery (hereafter "IFQ"). The at-sea fishery would not be impacted by the trawl/non-trawl allocation options, because the at-sea set-aside is a fixed amount. Across all variations of trawl/non-trawl allocation options and at-sea set-aside options, the 2025 IFQ allocation would range from 268 mt under allocation Option 3 and at-sea set-aside Option 1 Status Quo to 348 mt under the Option 1 Status Quo allocation proportions and at-sea set-aside Option 3 (Table 36). Those allocations would be 575 mt and 495 mt lower, respectively, than the No Action 2023 IFQ allocation of canary rockfish. The IFQ fishery is projected to attain 84 percent of the canary rockfish allocation under trawl/non-trawl allocation Option 3 and at-sea set-aside Option 1 (SQ), the lowest possible allocation. Under the highest possible allocation, trawl/non-trawl allocation Option 1 (SQ) and at-sea set-aside Option 3, the IFQ fishery is projected to attain 95-96 percent of the canary rockfish allocation (Chapter 4: §2.2.1)

Table 36. The 2025 canary rockfish IFQ allocation under all combinations of the trawl/non-trawl allocation options and at-sea set-aside options.

At-sea Set-aside Option	Trawl/Non-trawl Allocation Options		
	Option 1 Status Quo (72.3% / 27.7%)	**Option 2 (67.3% / 32.7%)**	**Option 3 (59.8% / 40.2%)**
	2025 IFQ Allocation		
Option 1 Status Quo (36 mt)	331.6	305.9	267.8
Option 2 (30 mt)	337.3	311.9	273.8
Option 3 (20 mt)	347.3	321.9	283.8

Canary rockfish mortality in the IFQ fishery was less than 50 mt each year prior to 2017, because the IFQ allocation was also less than 50 mt each year during that time (Figure 2) From 2016 to 2017, the IFQ allocation increased from 44.5 mt to 1,014.1 mt, a 22-fold increase (Table 38). IFQ mortality in 2017 was also 12 times larger than in 2016. As a result of several shelf stocks being declared rebuilt and increased opportunity, a midwater rockfish fishery that primarily targets yellowtail and widow rockfishes emerged. That fishery has steadily grown over the years, increasing catch of yellowtail rockfish north of 40° 10′ N. lat. by an average of 26 percent per year since 2016. Canary rockfish is often caught incidentally to target species catch in the midwater rockfish fishery, as well as the shoreside whiting and bottom trawl fisheries, the latter of which mainly targets petrale sole as well as Dover sole, thornyheads, and sablefish (DTS).

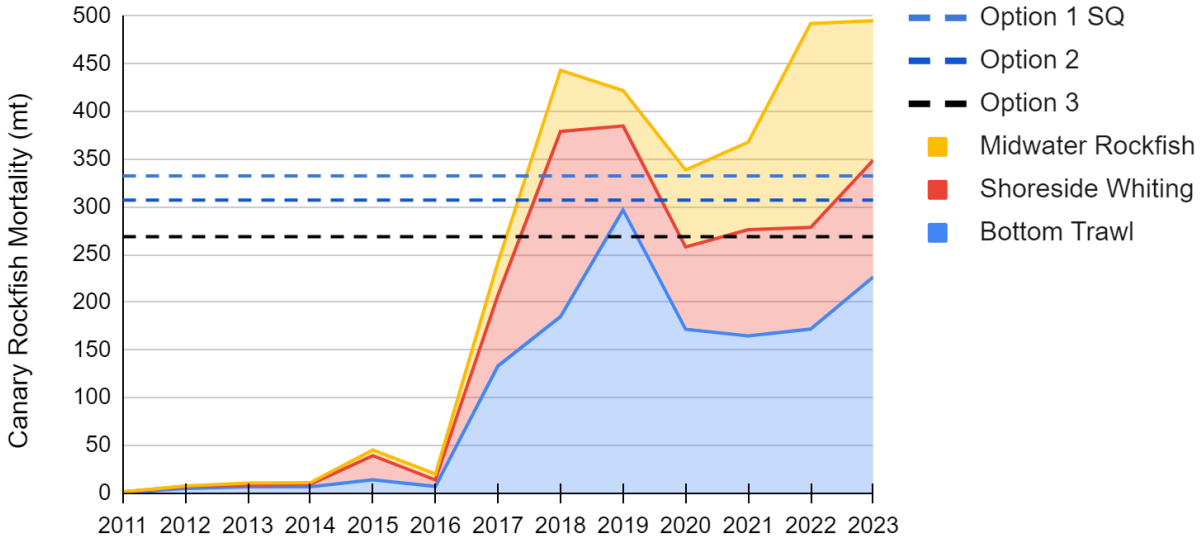

Figure 2. Canary rockfish mortality in the IFQ fishery by sector, 2011-2023. Dashed lines reflect the 2025 IFQ allocations under each of the trawl/non-trawl allocation options, assuming the status quo at-sea set-aside of 36 mt. Source: 2011-2022 mortality data are derived from the GEMM, and 2023 mortality estimates are pulled from PacFIN based on landings in 2023 combined with average discard mortality from 2020-2022

In 2023, 72 percent of all IFQ quota share accounts (QSA) received a percentage (quota share; QS) of the canary rockfish IFQ allocation in the form of quota pounds (QP), which are used to cover any incidental catch of canary rockfish. With canary rockfish IFQ allocation reductions in 2025-26 under all possible management measures, the ten individual QSAs with the largest share of canary rockfish are expected to receive an average of 60 percent less quota in 2025 under Option 1 Status Quo and 68 percent less under Option 3 (the most restrictive option), compared to 2023 (Table 37). Compared to the status quo allocation scheme, those same ten accounts would receive, on average, 1,512 lbs. less under Option 2 and 3,792 lbs. less under Option 3. With such substantial QP allocation reductions, demand for QPs could increase, thereby increasing the price of QPs as well as the amount of trading of QPs in order to cover incidental catch events.

Table 37. Canary rockfish quota pounds (QP) that would be allocated in 2025 to the single quota share (QS) accounts with the largest and smallest 2023 QS percentage, as well as 2025 QP allocations based on the averages of the largest 10 and smallest 10 QSA percentages. QP Allocations are shown across each of the trawl/non-trawl allocation options, and the status quo at-sea set-aside of 36 mt is assumed in all cases. Source: NOAA IFQ Quota Share Account Balance Data

	Account with Single Largest 2023 QS Percentage	Avg. of Largest Ten 2023 QS Percentage Accounts	Avg. of Smallest Ten 2023 Non-Zero QS Percentage Accounts	Account with Single Smallest 2023 Non-Zero QS Percentage
2023 QS Percent	4.9%	2.7%	0.2%	0.001%
2023 QP Allocated (lbs.)	90,805	49,805	2,947	21.0
Trawl/Non-Trawl Option	**QP (lbs.) Allocated in 2025 per Account**			
Option 1 Status Quo	35,908	19,786	1,466	7.3
Option 2	33,164	18,274	1,354	0.0
Option 3	29,026	15,994	1,185	0.0
Difference between largest and smallest QP allocated	6,882	3,792	281	7

After IFQ allocations increased 22-fold in 2017, the weighted average of canary rockfish QP prices dropped from $1.14-$3.09 prior to 2017 down to less than $0.70 in 2018, 2019, and 2022 (Table 38). There was not enough data to provide a weighted average in 2017, 2020, 2021, or 2023. Only three trades of canary rockfish QP were made in 2022, while IFQ mortality was at its second highest that year, second only to the following year. It is likely that allocation reductions in 2025-26 will drive canary rockfish QP prices back up, but whether they will reach up to $3 per pound, as was the case prior to 2017, is difficult to predict. The 2025-26 allocations will still be several hundreds of metric tons higher than the pre-2017 IFQ allocations. Higher QP prices result in higher costs for individual vessels to cover their incidental catch of canary rockfish, which drives down net profits. Trades of canary rockfish QP are also likely to increase in 2025-26 compared to 2022 (3 trades), as vessels seek out additional QP to cover incidental catch.

Table 38. Canary rockfish IFQ allocation, annual quota pound price, and total number of quota pound trades, 2011-2023. Source: NOAA IFQ Quota Pound Price Data

Year	Canary Rockfish IFQ Allocation (mt)	Canary Rockfish QP Price ($USD)	Total Number of Canary Rockfish QP Trades
2011	25.9	$1.21	4
2012	26.2	$1.49	15
2013	39.9	$3.09	12
2014	41.1	$2.12	17
2015	43.2	$1.14	29
2016	44.5	$1.35	17

Year	Canary Rockfish IFQ Allocation (mt)	Canary Rockfish QP Price ($USD)	Total Number of Canary Rockfish QP Trades
2017	1,014.1	$0.67	14
2018	1,014.1	*Not enough data*	
2019	953.6	$0.30	12
2020	894.3	*Not enough data*	
2021	881.0	*Not enough data*	
2022	858.6	$0.66	3
2023	842.5	*Not enough data*	

If vessels are unable to acquire canary rockfish QP to cover bycatch due to the high cost and demand of QPs in the market, their ability to harvest their target species may be limited. Based on the following analysis, it seems likely that midwater trawl vessels (i.e., shoreside whiting and midwater rockfish fisheries) will be impacted by canary rockfish allocation reductions more than bottom trawl vessels in the IFQ fishery. It may be easier for bottom trawl vessels to avoid canary rockfish when low QP availability necessitates it, compared to midwater trawl vessels. However, canary rockfish are still marketable in the IFQ fishery. Bottom trawl landings of canary rockfish fetch a higher price per pound than midwater trawl landings, so even if bottom trawl vessels are able to avoid canary rockfish to maintain target species harvest, there would still be economic losses associated with the inability to catch and sell incidental canary rockfish. In 2023, the average price per pound of canary rockfish was $0.46 in bottom trawl landings and $0.28 in midwater trawl landings. In 2023, bottom trawl landings brought in $235,396 in ex-vessel revenue from canary rockfish, and midwater trawl landings brought in $167,258 in ex-vessel revenue.

While midwater rockfish attainment trends cannot be compared before and after 2017–the fishery first emerged around 2017–attainment trends in the shoreside whiting fishery indicate that lower canary rockfish allocations may limit the sector's ability to fully utilize their Pacific whiting allocation, especially when their whiting allocation is relatively high. With the exception of 2015 and 2016, the shoreside whiting fishery's Pacific whiting catch generally fluctuates in concert with the initial IFQ allocation of Pacific whiting, prior to tribal reapportionment (Table 38). However, initial allocation attainments were 52 percent in 2015 and 68 percent in 2016, record lows for the sector at a time when the Pacific whiting allocation was increasing from just over 700 mt in 2014 up to roughly 1,000 mt in 2017. It seems the sector was unable to take advantage of the Pacific whiting allocation increases until 2017, when Pacific whiting catch increased substantially alongside the canary rockfish allocation (Figure 3). It is worth noting that initial allocation attainments in the shoreside whiting fishery were 75 percent in 2022 and 63 percent in 2023. This means there are possibly other factors that could drive lower than full attainment in 2025-26 other than the canary rockfish allocation. Shoreside whiting industry members at the December 2023 Joint Technical Committee meeting of the hake treaty implementation process noted that Pacific whiting harvest in 2023 was unpredictable and variable in both time and space, making it challenging for them to attain their allocation.

Even so, with whiting allocations[4] continuing to be higher than those prior to 2017, reductions in the canary rockfish IFQ allocation could limit the shoreside whiting sector's ability to attain their initial whiting allocations in 2025-26. Compared to 2015 and 2016, shoreside whiting vessels were able to land twice as much Pacific whiting per week in 2017 and 2018 when they were not compelled to avoid bycatch of species with low allocations like canary rockfish. Bottom trawl vessels, on the other hand, were able to land relatively comparable amounts per week of one of their target species, petrale sole, before and after 2017. Bottom trawl attainment of the petrale sole IFQ allocation was 96 percent prior to 2017 alongside modest petrale sole allocation increases each year, indicating that bottom trawl vessels are likely able to maintain optimal harvest levels of petrale sole even under low canary rockfish allocations. Given the similarity in gear types used between the shoreside whiting and midwater rockfish fisheries, it is likely that midwater rockfish vessels will be impacted by canary rockfish allocation reductions to a similar degree as shoreside whiting vessels, or possibly to a greater degree given that canary rockfish is a co-occurring species with yellowtail and widow rockfishes.

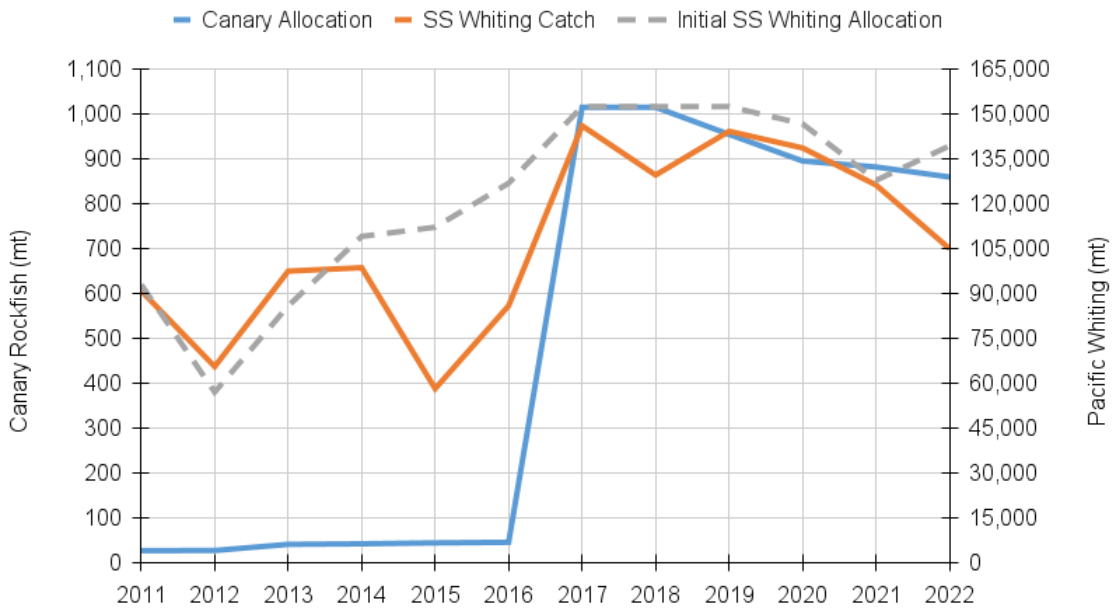

Figure 3. Pacific whiting catch and initial allocation in the shoreside whiting fishery of the IFQ program, compared to the canary rockfish IFQ allocation, 2011-2022. Source: allocations are from PacFIN Report GMT016 and Pacific whiting catch (i.e., mortality) is from the GEMM.

Annual vessel limits (AVLs) are a management tool in the IFQ fishery that limit the amount of QPs a single vessel can have tied to its vessel account in a single year and are calculated as a percentage of the total IFQ allocation, with different percentages for each IFQ species (50 CFR 660.140(e)(4)(i)). The current canary rockfish AVL is 10 percent of the IFQ allocation, which means that no vessel can have more than 10 percent of the canary rockfish allocation in its vessel account in a single year. With expected allocation reductions in 2025-26, the AVL would also

[4] Pacific whiting allocations for all three sectors of the Pacific whiting fishery (Catcher-Processor, Mothership, and Shoreside) are determined on an annual basis after the Pacific whiting TAC is set through the U.S.-Canada treaty process.

decrease accordingly, which could limit individual vessels from catching the total amount of canary rockfish they have in recent years, in addition to QP availability limitations.

Expected 2025 AVLs under all trawl/non-trawl allocation options and at-sea set-aside options are shown in Table 39. Possible 2025 AVLs range from 59,039 to 76,566 lbs., with a difference of 17,527 lbs. between the highest and lowest. Figure 4 groups each of the top 30 vessels in the IFQ fishery that caught the most canary rockfish in 2023 into groups of three, based on 2023 canary rockfish catches. For example, Group 1 is made up of the top three IFQ vessels that caught the most canary rockfish in 2023. Within each group, catches are averaged across the three vessels. Only Group 1, which caught nearly twice as much canary rockfish as Group 2, would be unable to catch the amount of canary rockfish they did in 2023, across all nine possible 2025 AVLs. Out of the top nine catching vessels (i.e., Groups 1-3), four vessels are bottom trawl vessels and may be able to actively avoid canary rockfish with few impacts to their target species harvest.

Table 39. Canary rockfish AVLs (lbs.) in 2025 across the three trawl/non-trawl allocation options and three at-sea set-aside options.

At-sea Set-aside Option	Trawl/Non-trawl Allocation Options		
	Option 1 Status Quo (72.3% / 27.7%)	**Option 2 (67.3% / 32.7%)**	**Option 3 (59.8% / 40.2%)**
	2025 IFQ AVL for Canary Rockfish (lbs.)		
Option 1 Status Quo (36 mt)	73,105	67,439	59,039
Option 2 (30 mt)	74,361	68,761	60,632
Option 3 (20 mt)	76,566	70,966	62,567

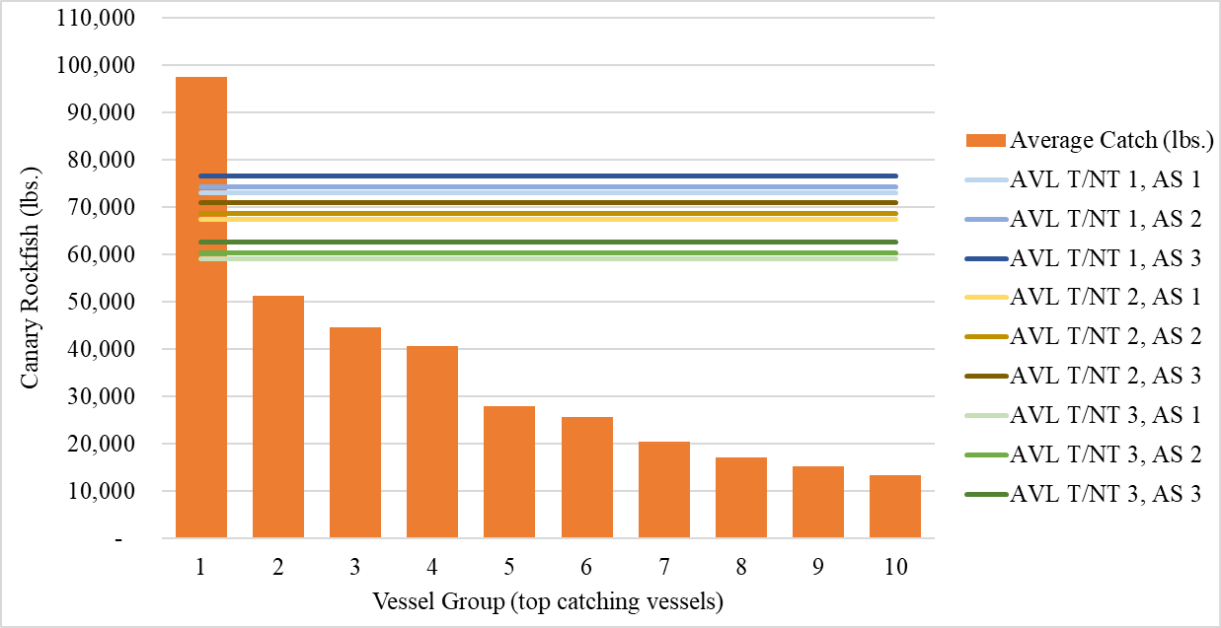

Figure 4. 2023 vessel-level catch of canary rockfish north of 40° 10′ N. lat., averaged across 3 IFQ vessels within each Vessel Group, compared to the 2025 and 2026 AVLs under trawl/non-trawl allocation ("T/NT") Options 1 (SQ), 2, and 3 for and at-sea set-aside ("AS") Options 1 (SQ), 2, and 3. The top 30 IFQ vessels that caught the most canary rockfish were placed in the ten vessel groups, with Group 1 catching the most out of all IFQ vessels. Source: NOAA Pacific Coast Groundfish IFQ Database Viewer

Non-Trawl Fishery

In addition to the trawl/non-trawl allocation, the Council can also choose to modify the informal sharing arrangement within the non-trawl allocation. There are two decision points for the Council to consider pertaining to the non-trawl allocation. The first is the decision about whether to reallocate commercial shares to the recreational sector and the second is how to partition the collective recreational share to the three states. Since restrictions on canary rockfish have been lifted, there has been more mortality in all non-trawl sectors (Figure 5).

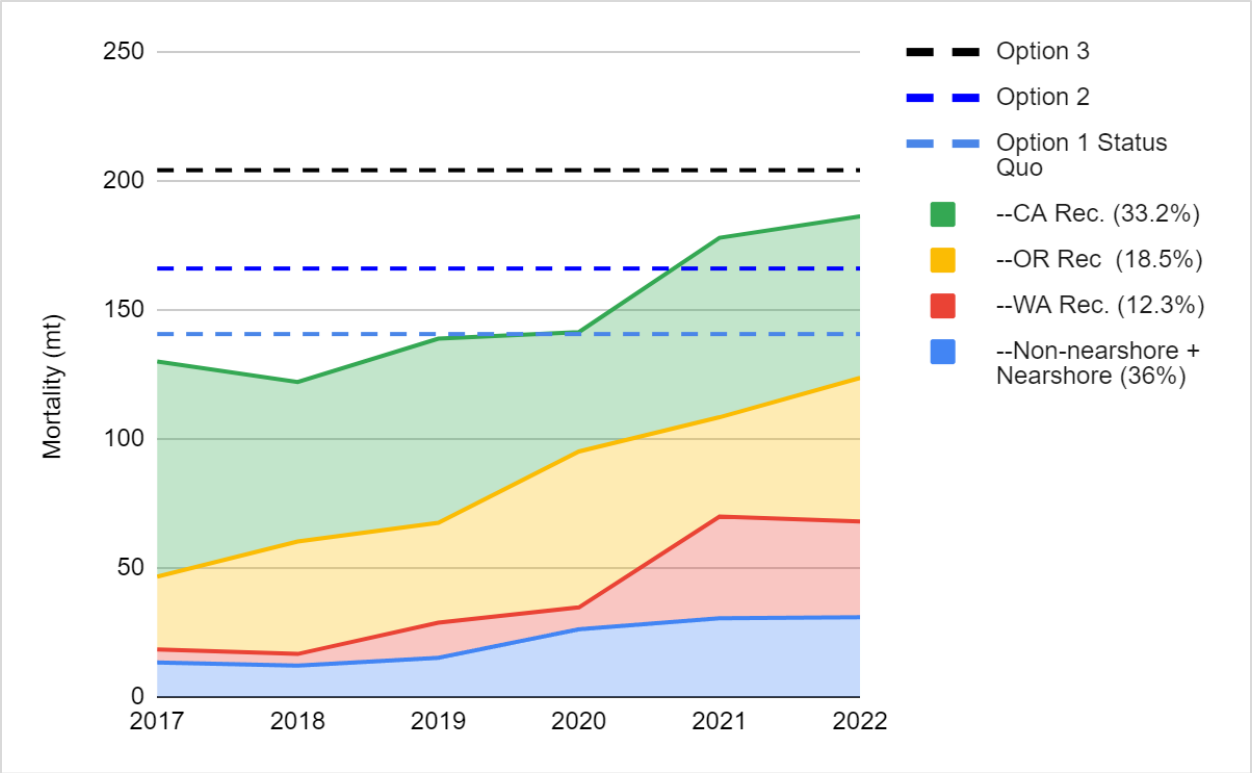

Figure 5. Non-Trawl mortality since 2017 showing expansions in all sectors through 2022. Options represent trawl/ non-trawl allocation options. Source: GEMM

Commercial Non-Trawl Fishery

It is important to note the distinction between how canary rockfish are utilized by the trawl and non-trawl sectors. Canary rockfish is largely incidentally caught in the trawl sector and QPs are used to cover incidental catch while targeting other species. Whereas in the non-trawl fisheries, there is a directed fishery targeting canary rockfish, which is projected to distribute a possible $394,159 to 339 vessels in 2024 (Table 40). In 2016-2022, commercial non-trawl canary rockfish landings have increased by 37 percent, signifying an emerging market prior to any changes implemented in 2023 (Figure 6).

This fishery is both an LE and OA fishery but growth has increased in the OA portion because of new opportunities to fish pole gear and non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) within the Non-Trawl RCA (Figure 6). In general, the trajectory of canary rockfish mortality in all non-trawl fisheries has been increasing. The expectation is that LE participation will continue to increase in the midwater shelf fishery, especially given the restrictions in California based on quillback rockfish. However, this claim cannot be definitively determined at this time.

Prior to 2020, the nearshore sector made up the larger component of canary rockfish mortality, however since 2016 the non-nearshore component has been increasing and surpassed the nearshore sector mortality in 2021 for the first time since 2012. Non-nearshore mortality is expected to continue to increase when compared to the nearshore sector (peach vs. blue and green bars, Figure 6). After 2020, the majority of the landings were made in the non-nearshore fishery. Since 2012, there has been an increase in fixed gear fishery effort, and mortality of targeting canary rockfish.

However, these landings plateaued in 2022. There was a small decrease in fixed gear landings in 2023, the majority of which were in California (Figure 6). There was a large downturn in effort and landings in November and December 2023. The reason for this decrease is unclear, though it could have been due to the September 2023 inseason actions. These actions restricted opportunity in the fishery which could have resulted in corresponding decreases in mortality. Overall, 2022 and 2023 seem to be anomalous years for OA in California, with the expectation being that this fishery will be increasing from 2024 onwards.

Canary rockfish landings are expected to increase due to actions taken for 2023 and 2024 that concentrated effort in the non-nearshore fishery due to recent management changes at the coastwide level (Amendment 32) and the California level (i.e., closures/gear-specific trip limits related to mitigating quillback rockfish impacts, and from opening the CCA). It is anticipated that 2024 will be the highest year on record for mortality of canary rockfish from the nearshore and non-nearshore sectors combined (even with the inseason trip limit reductions in November 2023).

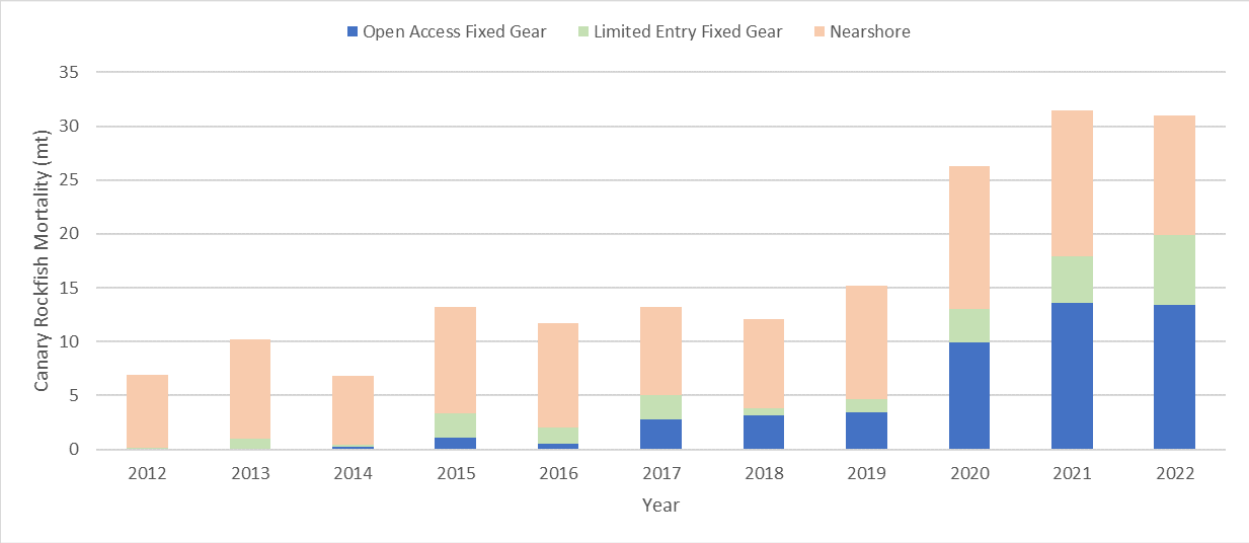

Figure 6. Canary rockfish mortality (mt) by sector of the commercial non-trawl allocation, 2011-2022. Source: GEMM

Increases in canary rockfish mortality is anticipated to extend to the 2025-26 biennium. Two model scenarios were used to attempt to quantify this concentrated effort: 1) a status quo trip limit scenario that does not account for effort shifts and 2) a scenario where the effort was increased by 20 percent and additional pounds were added to those vessels that had greater than 10 pounds per trip period (Table 40). The 20 percent increase used in the model was a conservative approach and does not imply that growth could not exceed 20 percent. Both models also account for trip limit reductions (LEFGN -25 percent, LEFGS -12.5 percent, OAN -50 percent, OAS -25 percent) that were taken in November 2023 for the 2024 year as a precautionary measure to account for the potential effort expansion. There is an estimated loss in ex vessel revenue associated with the November 2023 action to each vessel in 2024 and beyond: LEFGN - $6,761, LEFGS - $7,992, OAN -$13,929, OAS - $11,281.

The standard GMT trip limit model, which does not account for any new entrants into the fishery, projected a value of 31.9 mt, and this projection falls below all of the allocation options outlined

below (Table 40 and Table 41). However, this value does not represent any of the concentrated effort with either Amendment 32 or actions off of California. The second model which accounts for increased effort (due to participants coming into the fishery as other closures and restrictions in California happen, as well as Amendment 32) projected a value of 63.3 mt (Table 40).

The first decision that would change the commercial non-trawl allocation is the trawl/non-trawl allocation. In the following paragraph impacts will be between the trawl/non-trawl allocations under the status quo commercial/recreational allocation (50.7 mt or $287,517 in projected Ex vessel revenue under both status quo options

Table 42. This status quo option is below the projected 63.3 mt and would likely result in further restrictions to the commercial non-trawl fleet, which has taken proactive measures to decrease mortality starting in January 2024. The Option 2 trawl/non-trawl allocation scheme would provide 59.8 mt to the commercial sector, which is likely to allow for fewer restrictions throughout the year, and is an increase from status quo for both allocation decisions of 9.1 mt and a potential gain of $51,606 in ex-vessel revenue. The Option 3 trawl/non-trawl allocation scheme would result in 73.5 mt being allocated to the commercial sector and a potential gain of $129,297 in ex-vessel revenue. However, as stated above, the magnitude of potential effort concentration and shift into the midwater shelf fishery cannot be quantified at this time.

The second decision point is based on commercial/recreational shares of the non-trawl allocation, all comparisons in this paragraph will be under Option 2 therefore will be compared to 43.6 mt. The Option 2 trawl/non-trawl allocation scheme would provide 51.5 mt to the commercial sector and is an increase from of 7.9 mt and a potential gain of $44,800 in ex-vessel revenue. However, the second decision point change between commercial/recreational results in a potential 8.3 mt decrease in commercial and a corresponding $47,069 of potential lost revenue. The Option 3 trawl/non-trawl allocation scheme would provide 63.3 mt to the commercial sector, which might cover some of the increase in effort and is an increase from of 19.7 mt and a potential gain of $111,718 in ex-vessel revenue. The decision point change between commercial/recreational results in a potential 10.2 mt decrease in commercial and a corresponding $59,752 of potential lost revenue.

Applying Option 2 of the commercial/recreational sharing arrangement to either Option 1 or Option 2 of the trawl/non-trawl allocation options would further restrict the commercial non-trawl sectors where concentrated effort in this midwater shelf fishery is expected to occur as a result of the management actions taken in 2023 and 2024. However, as previously stated, the Option 2 trawl/non-trawl allocation scheme would increase the commercial non-trawl share from status quo for both allocation decisions, but Option 2 of the commercial/recreational share would still likely require additional restrictions, and effectively the allocation would be the same (a difference of <1 mt). Unless Option 3 is chosen for the trawl/non-trawl allocation, it is likely that additional reductions to trip limits will need to be implemented inseason.

Table 40. Canary rockfish trip limit projection comparison, modeled with and without the effort concentration described in the background section above. LEFG and OA individual vessel landings per period were scaled up and participation was modeled to increase by 20 percent.

Trip Limit Area	Sector	Trip Limit Projection (mt)	Projected Ex-vessel Revenue	Number of Vessels	Increased Effort Trip Limit Projection (mt)	Projected Ex-vessel Revenue	Projected Number of Vessels
North of 40° 10′ N. lat.	LEFG	4.9	$12,204	26	6.3	$17,863	33
	OA	11.2	$57,357	126	25.3	$131,372	151
South of 40° 10′ N. lat.	LEFG	3.7	$21,608	15	5.8	$41,021	85
	OA	12.1	$100,164	114	25.9	$203,903	137
	Total	**31.9**	**$191,334**	**281**	**63.3**	**$394,159**	**339**

Under Option 1 (status quo), 36 percent non-trawl allocation, both Option 1 and Option 2 trawl/non-trawl allocation options would set the commercial non-trawl allocation under the projected value, indicating even further reductions in trip limits will have to take place (Table 41). Trip limit reductions could result in regulatory discarding when participants are targeting other midwater stocks (e.g., yellowtail rockfish, bocaccio rockfish). Trawl/non-trawl Option 3 is the only option that would potentially account for the effort concentration described above and also provide relief to the recreational sector. The difference between the non-trawl commercial sharing options shown in Table 41 would be from 7 mt to 10.2 mt to be shared among the three states, which represents a potential loss in ex-vessel revenue of between $42,000 and almost $60,000 if the commercial non-trawl sector fully attained their allocation.

If canary rockfish allocation structures are changed, additional trip limits may need to be analyzed. However, as previously mentioned, the magnitude of the change in effort is hard to predict, and therefore, a more appropriate route might be inseason action once the effects of these actions can be monitored.

Table 41. Comparison between commercial non-trawl Option 1 SQ (36 percent of the non-trawl allocation) and Option 2 (31 percent of the non-trawl allocation) across the various trawl/non-trawl allocations (Option 1 Status Quo, Option 2-5 percent, and Option 3-12.5 percent).

Non-trawl Commercial Sharing Options	Trawl/Non-trawl Allocation Options		
	Option 1 Status Quo	Option 2 - 5%	Option 3 - 12.5%
Trawl %	72.3%	67.3%	59.8%
Trawl Allocation	367.3	341.9	303.8
Difference from SQ	-	-25.4	-63.5
Non-Trawl %	27.7%	32.7%	40.2%
Non-Trawl Allocation	140.7	166.1	204.2
--Non-nearshore + Nearshore Option 1 Status Quo (36%)	50.7	59.8	73.5
--Non-nearshore + Nearshore Option 2 (31%)	43.6	51.5	63.3
Difference from SQ	-7.0	-8.3	-10.2
Potential loss in ex-vessel revenue	$42,029	$47,069	$59,752

Table 42. Potential ex-vessel revenue associated with the various trawl/non-trawl allocation options as well as the commercial sharing options. Bold values indicate the potential ex-vessel revenue that would be an increase from the status quo options. The red highlight indicates a potential ex-vessel revenue that would incur a loss for the status quo options. Although it should be noted that the Option 2 x Option 2 value and the status quo x status quo value have a difference of less than 1 mt which is effectively the same allocation.

Non-trawl Commercial Sharing Options	Trawl/Non-trawl Allocation Options		
	Option 1 Status Quo	Option 2 - 5%	Option 3 - 12.5%
--Non-nearshore + Nearshore Option 1 Status Quo (36%)	$287,517	**$339,123**	**$416,814**
--Non-nearshore + Nearshore Option 2 (31%)	$247,253	**$292,053**	**$358,970**

Recreational Fisheries

The non-trawl sector allocation is divided into sector-specific shares among the non-trawl commercial fisheries and between the states' recreational fisheries. Action is not required if a sector-specific share is expected to be or is exceeded; however, each state manages their recreational fishery to the sector-specific state shares and coordinates to collectively keep total non-trawl mortality within the total non-trawl allocation. There are two options in the range to

determine how each state recreational share receives the remainder of the non-trawl allocation (i.e., the collective recreational share) after allocating either 31 or 36 percent to the commercial non-trawl sector. Option 1 (SQ) would apply proportions of the collective recreational share that are based on status quo (2023-24) proportions. Option 2 would apply proportions based on each state's highest three years of mortality (Table 43). The three highest years for each state was chosen to reflect the highest potential fishing capacity of each state's recreational fishery as a whole when unrestricted, as each state eased up fishing restrictions in response to a higher canary HG on different timelines and to different degrees.

Table 43. Recreational canary rockfish mortality estimates from the highest three years of catch since 2017 for each state recreational sector, which are used to calculate the recreational share Option 2 proportions applied to the collective recreational share. Source: 2011-2022 recreational mortality estimates are from the GEMM, and 2023 mortality is derived from each state's own final season estimates.

State Rec. Sector	Highest 3 Years of Canary Rockfish Mortality (mt) - Year in Parentheses			Average Mortality from Highest 3 Years (mt)	Proportion of Total Averaged Mortality a/
WA	39 (2021)	37 (2022)	25 (2023) b/	34	20.2%
OR	61 (2020)	56 (2022)	57 (2023) b/	58	34.4%
CA	83 (2017)	71 (2019)	74 (2023) b/	76	45.4%
			Total	168	

a/ This proportion would then be applied to the remaining 64 or 69 percent of the non-trawl allocation, after allocating 36 or 31 percent, respectively, to the commercial non-trawl sector.
b/ preliminary mortality estimates

Table 44 shows the range of possible shares each state recreational fishery could receive in 2025 across all trawl/non-trawl allocation, commercial/recreational, and within recreational shares options. There are 12 possible shares in the range for each state, ranging from 17.3 to 28.5 mt for Washington recreational, 26.0 to 48.5 mt for Oregon recreational, and 46.7 to 64.0 mt for California recreational.

Table 44. With a Fishery HG of 508 metric tons of canary rockfish available for harvest in 2025, this table provides the amount of quota each state's recreational fishery will be allocated depending on the option selected.

Trawl / Non-Trawl	Commercial / Recreational	Recreational State Shares	Washington	Oregon	California
Status Quo: Option 1 (72.3% Trawl, 27.7% Non-Trawl)	Status Quo: Option 1 (36% Comm, 64% Rec)	Status Quo: Option 1	17.3 mt (19.2%)	26.0 mt (28.9%)	46.7 mt (51.9%)
		Option 2	18.2 mt (20.2%)	31.0 mt (34.4%)	40.9 mt (45.4%)
	Option 2 (31% Comm, 69% Rec)	Status Quo: Option 1	18.6 mt (19.2%)	28.1 mt (28.9%)	50.4 mt (51.9%)
		Option 2	19.6 mt (20.2%)	33.4 mt (34.4%)	44.1 mt (45.4%)

Trawl / Non-Trawl	Commercial / Recreational	Recreational State Shares	Washington	Oregon	California
Option 2 (67.3% Trawl, 32.7% Non-Trawl)	Status Quo: Option 1 (36% Comm, 64 Rec)	Status Quo: Option 1	20.4 mt (19.2%)	30.7 mt 28.9%)	55.2 mt (51.9%)
		Option 2	21.5 mt (20.2%)	36.6 mt (34.4%)	48.3 mt (45.4%)
	Option 2 (31% Comm, 69% Rec)	Status Quo: Option 1	22.0 mt (19.2%)	33.1 mt 28.9%)	59.5 mt (51.9%)
		Option 2	23.2 mt (20.2%)	39.4 mt (34.4%)	52.0 mt (45.4%)
Option 3 (59.8% Trawl, 40.2% Non-Trawl)	Status Quo: Option 1 (36% Comm, 64% Rec)	Status Quo: Option 1	25.1 mt (19.2%)	37.8 mt 28.9%)	67.8 mt (51.9%)
		Option 2	26.1 mt (20.2%)	45.0 mt (34.4%)	59.3 mt (45.4%)
	Option 2 (31% Comm, 69% Rec)	Status Quo: Option 1	27.1 mt (19.2%)	40.7 mt 28.9%)	73.1 mt (51.9%)
		Option 2	28.5 mt (20.2%)	48.5 mt (34.4%)	64.0 mt (45.4%)

Washington Recreational

Recreational fisheries in Washington are primarily constrained by yelloweye rockfish although in recent years closer attention to catch of nearshore species (e.g., black rockfish, copper rockfish, quillback rockfish) has become necessary to ensure catch does not exceed HGs. Because preliminary 2025-2026 expectations for canary rockfish harvest limits reduce the Washington canary recreational HG by 58 percent or from 41 to 17 mt (rounded) compared to the previous biennium, canary rockfish will also need to be considered when structuring the recreational fishery.

Fishery utilization of Washington's recreational canary rockfish HG reflects the precautionary approach to ease restrictions and the growing dependence on this species. Prior to 2021, the recreational fishery average catch did not exceed 30% utilization because regulations limited access. In contrast, the fishery achieved 92% in 2021, 88% in 2022 and 62% in 2023 of the HG when canary rockfish specific sub-bag daily limits were no longer in effect and following the opening of two YRCAs (Table 45). As restrictions progressively eased, not only did anglers enjoy opportunity to retain canary rockfish generally and especially in the lingcod deepwater fishery and the Pacific halibut fishery but pressure on nearshore stocks eased. In 2023 black rockfish accounted for 54% of total recreational rockfish mortality compared to 74% in 2019. However, reduced canary rockfish opportunity in the upcoming biennium may moderate or reverse this trend if new management measures direct angler effort back to black rockfish which concurrently will see HGs in 2025 and 2026 (226 and 223 mt, respectively) decrease 16-18 percent compared to the 2024 HG (271 mt).

Management measures will be needed to reduce canary encounters and retention or ensure the Washington HG is not exceeded under the allocation options. Management measures such as bag limits, depth restrictions, and area closures have been effective tools for minimizing encounters and keeping catch within state specific harvest guidelines (HG). Affected fisheries include the bottomfish fishery, both the deepwater lingcod fishery and nearshore fishery which account for approximately 60 percent of canary rockfish catch and the halibut fishery which accounts for about 30 percent annually.

Table 45. Washington recreational canary rockfish harvest guidelines (HGs), total mortality (mt), harvest guideline attainment and daily canary rockfish bag limits, 2017 - 2026.

	2017	2018	2019	2020[a/]	2021[b/]	2022	2023	2024	2025	2026
WA Rec. HG	50.0	50.0	47.0	44.0	43.0	42.0	41.0	40.8	17.1	17.2
WA Rec. Total Mortality	5.0	4.5	13.7	7.8	39.5	37.1	25.1	22.1[c/]		
Percent HG utilization	10%	9%	29%	18%	92%	88%	62%	76%		
Daily limit	1 [d/]	2	No sublimit; subject to 7 rockfish daily limit							
Depth Restriction										
Marine Area 1	Deepwater lingcod closure [d/]									
Marine Area 2	YRCAs closed [f/]				YRCAs open					
	Deepwater lingcod closure [d/]									
Marine Area 3 and 4	C-Shaped YRCA closed									

a/ North coast (Marine areas 3 and 4) ports at La Push and Neah Bay were closed entirely in 2020.

b/ La Push opened to the public July 19, 2021; Neah Bay remained closed.

c/ Projected estimate.

d/Canary rockfish were only added to the daily bag limit for Marine areas 1 and 2 (Columbia River and south coast, respectively).

e/Specific provisions varied across years modifying period in effect and species retention.

f/South Coast YRCA and Westport Offshore YRCA

Oregon Recreational

The recreational bottomfish fishery off Oregon is structured around the most commonly caught species (i.e., black rockfish and lingcod), prohibited species (i.e., yelloweye rockfish and quillback rockfish), and species that annually approach harvest guidelines (i.e., nearshore rockfish and cabezon). For the 2025-2026 biennium, canary rockfish will be added to the list of species that will influence bag limits, sub-bag limits and potentially depth restrictions, as the expected HG will be reduced by more than half from the previous biennium. Attainment levels have increased since 2017 and have exceeded 90 percent attainment in 2020 and 2023 (Table 46).

Table 46. The Oregon recreational fishery total mortality (mt), harvest guideline (mt) and percent attainment of canary rockfish 2017-2024. Projections are included for 2024. Proposed harvest guidelines are included for 2025-2026. Sources: GEMM (2017-2022), RecFIN (2023) and MORG (2024).

	2017[a/]	**2018**[b/]	**2019**	**2020**[c/]	**2021**[d/]	**2022**[e/]	**2023**[f/]	**2024**[g/]	**2025**	**2026**
OR Rec. HG	75.0	75.0	70.9	66.7	65.0	63.4	62.3	62.9	26.0	26.1
OR Rec. Total Mortality	28.2	43.6	38.7	60.6	39.9	55.7	56.9	62.2		
Percent HG Utilization	38%	58%	55%	91%	61%	88%	91%	99%		
Depth restriction [h/]	Apr - Sep		May - Sep	Jun - Aug		Jul - Aug	NA			
Marine bag limit [i/]	7	5			6	5				
longleader bag limit [j/]	10						15	12		

a/ Rockfish closed to fishing September 18, 2017. Offshore rockfish allowed with longleader gear October 1, 2017.

b/ Daily bag limit reduced to four July 1 through September 18 for 2018. First full year of the new longleader fishery.

c/ Daily bag limit increased to seven July 1 through December 31 for 2020.

d/ Daily bag limit reduced to five May 10 through September 18 for 2021.

e/ Daily bag limit reduced to four September 6 through December 31 for 2022.

f/ Longleader bag limit reduced to 10 January 1 through February 28 and again September 5 through December 31 for 2023.

g/ Projections for 2024 based on MORG.

h/ Season depth restriction set at 30-fathoms for 2017-2018 and at 40-fathoms 2019-2022. Depth restriction removed in 2023.

i/ Marine bag limit includes all groundfish species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt; of which no more than one may be cabezon.

j/ Longleader fishing must take place seaward of the 40-fathom regulatory line with the following rockfish allowed for retention: blue, bocaccio, canary, chilipepper, deacon, greenstriped, redstripe, silvergray, widow, and yellowtail rockfishes.

Given the lower anticipated HG, a sub-bag limit will be necessary to reduce canary rockfish impacts from the Oregon recreational fishery. Sub-bag limits will likely start at a five-fish bag limit, though a smaller sub-bag limit, and/or no retention, may be a necessary inseason action. Canary rockfish are caught both in the longleader fishery (inception 2018) and the traditional bottomfish fishery, they are also encountered and harvested during other recreational fishing such as halibut and salmon fishing impacting more than just bottomfish anglers.

During the 2025-2026 biennium, the HG of black rockfish will also be reduced for Oregon recreational anglers. The lower HG will limit nearshore fishing opportunities for Oregon recreational anglers, potentially increasing angler participation in the longleader fishery. With both canary rockfish (offshore) and black rockfish (nearshore) HGs reduced, depth restrictions might not be an option for management as this would only put more pressure on the other resource.

California Recreational

For the 2025-26 biennium, the canary rockfish ACL will see a 55.5 percent decrease due to updated stock assessment results. The status quo California recreational HG for 2025 and 2026 is 46.7 mt and 46.9 mt, respectively. California recreational catch of canary rockfish catch in 2023 is estimated at 73.7 mt (Table 47). While there are significant changes occurring to California fishing season structures, related primarily to quillback rockfish, it is reasonable to assume that under the status quo canary rockfish allocation structure, California recreational canary rockfish catches in 2025 and 2026 would be similar to those of 2023, resulting in the California recreational HG being exceeded by roughly 32.3 mt.

2025-26 recreational seasons off California are still being developed. In the final alternative that is adopted, it is anticipated that seasons will be different from 2023. The main difference being opportunity offered only shoreward of the 20 fm RCA line (state waters only) and fisheries operating seaward of the 50 fm RCA line. It is unknown at the writing of this document what impact these new season structures will have on canary rockfish catch and effort. However, it is reasonable that eliminating fishing between the 20 to 50 fm depths will have an impact on canary rockfish catch and effort as the fishery typically operated less than 50 fathoms but still saw abundant canary catch. Significant changes to season structures are difficult to model. It is unknown if this change in season structure will lower overall effort or simply shift existing effort to the shelf where canary rockfish are one of the primary targets. If season structure alone will not keep California canary rockfish under the California recreational HG, then additional management measures such as bag or sub-bag limit reductions will need to be considered.

Table 47. California recreational canary rockfish harvest guideline (HG), total mortality, harvest guideline attainment and daily canary rockfish bag limits.

	2017	**2018**	**2019**	**2020**	**2021**[b/]	**2022**	**2023**
CA Rec. HG	135	135	127.3	119.7	116.75	113.89	111.7
CA Rec. Total Mortality	83.44	61.8	71.4	56.4	69.6	62.6	73.7
Percent HG utilization	62%	46%	56%	47%	60%	55%	67%
Daily limit	1	1->2 [a/]	2->3 [b/]	3	No sub limit; subject to 10 RCG daily limit		

a/ Canary sub-bag limit was increased from 1 to 2 fish via inseason change effective April 14, 2018.
b/ Inseason changes effective June 1, 2019, increased canary sub-bag limit from 2 to 3 fish (statewide)

2.7 Widow Rockfish

2.7.1 Background

At the November 2023 Council meeting (Agenda Item E.7.a, Supplemental GMT Report 3), the GMT identified that the 2025-26 trawl allocations are expected to be lower than that sector's mortality in recent years (Table 48). Widow rockfish was last assessed in 2019 with the assessment estimating the population well above the biomass target, resulting in high OFLs and ACLs that slowly decrease over time as the population size declines toward the target biomass (Adams et al., 2019). In 2023, a catch-only projection was conducted to account for realized catches from 2019 to 2022, resulting in updated ACLs for 2025-26 (Agenda Item G.2, Attachment 14, September 2023). Though the catch-only projection increased the 2025-26 ACLs relative to the previous projections from the 2019 assessment, the ACLs continue to decline given the relatively high attainment of widow rockfish and the consequent slowly decreasing biomass over time. The fishery HG for widow rockfish is currently split between the trawl and non-trawl sectors with the non-trawl sector receiving a fixed allocation amount (400 mt in 2023-24) and the remaining allocated to the trawl sector.

The status quo fixed amount of 400 mt for the non-trawl sector was adopted as part of the 2021-22 Harvest Specifications and Management Measures package, moving the non-trawl sector allocation from 9 percent of the ACL to a lower fixed amount. The 400 mt was intended to provide as much widow rockfish to the trawl sector as possible, where it is economically important, while accounting for potential growth in offshore midwater rockfish fisheries in the fixed gear and recreational sub-sectors of non-trawl (Agenda Item G.6.a, Supplemental GMT Report 1 April 2020). In 2020, the GMT recommended 300 mt, but the Council ultimately chose 400 mt due to uncertainty in this growth. At the time, the Council was considering providing all non-trawl fisheries greater access to the shelf, where widow rockfish occur, as part of the 2021-2022 biennium (e.g., higher trip limits and reduction of recreational depth restrictions). The Council was also considering future liberalizations such as the now-passed Non-Trawl RCA Modification package (Amendment 32). At the time, however, the trawl allocations were high enough to account for expected trawl mortality, whereas in 2025-26, trawl allocations are going to be lower than recent mortality.

Since 2016, the mortality of widow rockfish by the non-trawl sector has continued to be well below the current allocation of 400 mt, ranging between 4.9 and 38.5 mt. Given the high likelihood of over 90 percent attainment of the trawl allocation, the following options were analyzed:

Trawl/Non-trawl Allocation

The following options were analyzed for the 2025-26 widow rockfish trawl/non-trawl allocations:

- **Option 1 Status Quo:** a fixed 400 mt of the fishery HG is allocated to the non-trawl sector and the remainder is allocated to trawl.
- **Option 2:** a fixed 300 mt of the fishery HG is allocated to the non-trawl sector and the remainder is allocated to trawl.
- **Option 3:** a fixed 200 mt of the fishery HG is allocated to the non-trawl sector and the remainder is allocated to trawl.

Table 48. Trawl/non-trawl allocations, mortality, and attainments for widow rockfish from 2011-2026. Status quo allocations are 400 mt to non-trawl and the remainder to trawl. GF = groundfish. Source: GEMM total mortality, PacFIN for 2023 landings data and 3 year-average of discard mortality from the GEMM. Washington recreational fishery sector estimates not included (see Chapter 6. Washington Recreational Fisheries).

Year	ACL (mt)	Fishery HG (mt)	Total Directed GF Mort. (mt)	Trawl			Non-Trawl a/		
				Sector Alloc. (mt)	Sector Mort. (mt)	Sector attain.	Sector Alloc. (mt)	Sector Mort. (mt)	Sector attain.
2011	600	539	176	491	175	36%	49	1.9	4%
2012	600	539	241	491	234	48%	49	6.5	13%
2013	1,500	1,411	462	1,284	443	34%	127	19.5	15%
2014	1,500	1,411	727	1,284	711	55%	127	16.4	13%
2015	2,000	1,880	858	1,711	850	50%	169	7.7	5%
2016	2,000	1,880	989	1,711	985	58%	169	3.8	2%
2017	13,508	13,290	6,352	12,094	6,343	52%	1,196	9.5	1%
2018	12,655	12,437	10,556	11,318	10,523	93%	1,119	33.3	3%
2019	11,831	11,583	9,552	10,540	9,523	90%	1,042	29.2	3%
2020	11,199	10,951	8,429	9,965	8,419	84%	986	11.5 b/	1%
2021	14,725	14,477	10,881	14,077	10,869	77%	400	11.7	3%
2022	13,788	13,540	12,117	13,140	12,096	92%	400	20.9	5%
2023	12,624	12,386	10,857	11,510	10,833	94%	400	24.8	6%
2024	11,482	11,244		10,844			400		
2025	11,237	11,019		10,619			400		
2026	10,392	10,174		9,774			400		

a/ Non-Trawl allocation mortality estimates do not include Washington recreational mortality, because they are not recorded in the GEMM. This is because WDFW's recreational sampling estimates do not report widow rockfish at the species level.

b/ California Recreational Data from 2020 pulled from GEMM will be incomplete due to CRFS not producing estimates from April-June of that year. When CDFW has provided comprehensive mortality for that year they typically include the average proxy values for the April-June time period. 1.4 mt shown in the GEMM and an average proxy value of 1.7 mt was added to the GEMM value for a more accurate value or 3.1 mt for CA rec in 2020.

2.7.2 Impacts

Trawl Fishery

The five-year average of widow rockfish mortality in the groundfish trawl fishery is 10,375 mt (2019-2023), which is slightly less than the 2025 allocation and slightly higher than the 2026 allocation (Table 1), indicating that the trawl sector will likely fully attain their allocation in the 2025-26 cycle. There is a 476 mt at-sea set-aside for widow rockfish that is deducted from the trawl allocation before allocating the remainder to the individual fishing quota (IFQ) fishery. There are not currently any alternative at-sea set-asides that have been proposed or analyzed for widow

rockfish. Because the at-sea set-aside is fixed, the trawl/non-trawl allocation options for widow rockfish would not impact that fishery. Therefore, the rest of the following analysis is specific to the Shorebased IFQ fishery (hereafter "IFQ").

Widow rockfish is an important target species in the midwater rockfish fishery, which is a portion of the Shorebased IFQ fishery (Chapter 3. At-Sea Whiting Set-Asides). The vast majority of widow rockfish mortality in the IFQ fishery is attributed to midwater rockfish vessels, which has comprised 24-28 vessels annually since 2017 (Figure 7). Of the 24-48 vessels in the midwater rockfish fishery, around 2-34 percent of their total annual revenue comes from widow rockfish landings, with a median in 2022 and 2023 of approximately 12 percent.

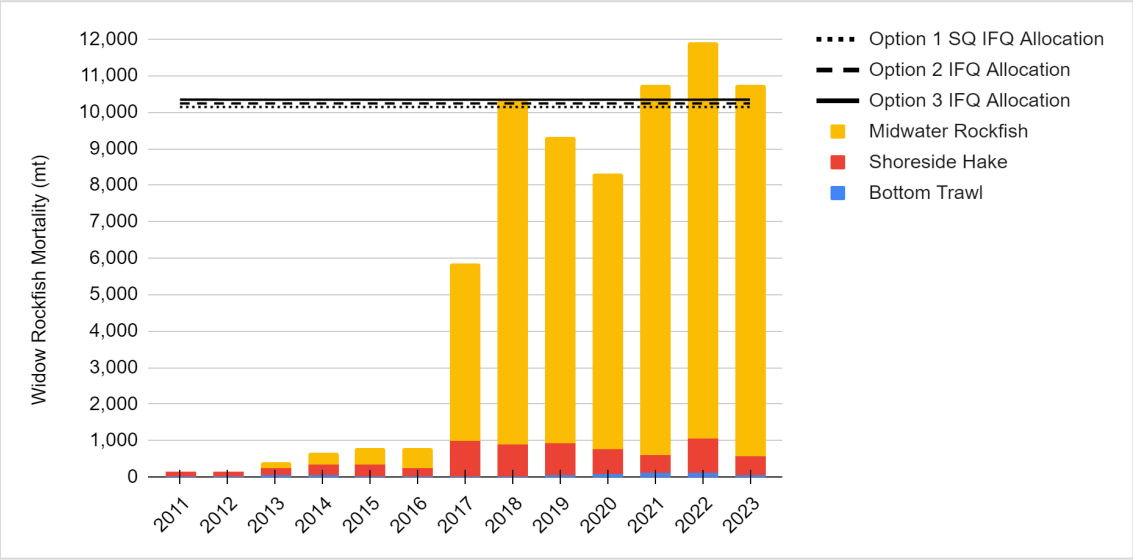

Figure 7.Widow rockfish mortality (mt) by sector of the IFQ fishery, 2011-2023, compared to the 2025 IFQ allocation under the Option 1 (SQ), Option 2, or Option 3 trawl/non-trawl allocation schemes.

After the at-sea set-aside deduction, the resulting IFQ allocations of widow rockfish in 2025 and 2026 are shown in Table 49. Average annual widow rockfish mortality in the IFQ fishery since 2021 has been 998 mt and 1,843 mt higher than the expected 2025 and 2026 IFQ allocations, respectively, under the status quo trawl/non-trawl allocation scheme. Increasing the trawl allocation, and thus the IFQ allocation, by 100 mt (Option 2) or 200 mt (Option 3) could lessen the extent of economic losses for midwater rockfish participants as a result of allocation reductions. If all 200 additional metric tons under Option 3 were utilized by the IFQ fishery, the total potential economic gains compared to Option 1 Status Quo equate to $119,048 in ex-vessel revenue, based on the 2023 average price per pound of widow rockfish in the midwater rockfish and bottom trawl fisheries[1]. Under Option 2, the potential economic gains would be $59,524.

70 percent of all IFQ quota share accounts (QSA) in 2023 owned some amount of widow rockfish quota shares (QS). Compared to 2023, individual QSA would be allocated anywhere from 34 to 124,547 lbs. less of widow rockfish in 2025 under the Option 1 Status Quo allocation scheme,

[1] Shoreside hake was excluded, because widow rockfish is considered incidental catch in this fishery and therefore generally fetches a much lower price per pound than in the midwater rockfish and bottom trawl fisheries.

depending on how much quota share they own (Table 50). The ten QSAs with the largest percentage of allocation shares would be allocated an average of 84,624 lbs. less of widow rockfish per account in 2025 under Option 1 Status Quo, compared to 2023. That equates to an average loss in ex-vessel revenue of $22,848 per account, assuming all of the allocated QPs were used to catch widow rockfish and not leased to other accounts. Option 2 would lessen those losses by approximately $1,700 per account, and Option 3 would lessen them by approximately $3,300 per account. These estimates in ex-vessel revenue losses do not account for the lost opportunity for continued economic growth in the next biennium, as the midwater rockfish fishery has steadily grown in overall landings since its emergence around 2017.

Table 49. 2025 and 2026 IFQ allocations in metric tons (mt) of widow rockfish under the two trawl/non-trawl allocation options.

	2025			2026			Avg. Widow Rockfish IFQ Mortality (mt), 2021-2023
	IFQ Allocation (mt)	Projected Catch (mt)	Attain.	IFQ Allocation (mt)	Projected Catch (mt)	Attain.	
Option 1 SQ	10,143	9,664.0	95%	9,298	8,900.3	96%	11,141
Option 2	10,243	Not Modeled		9,398	Not Modeled		
Option 3	10,343	9,844.7	95%	9,498	9,081.1	96%	

Table 50. Widow rockfish quota pounds (QP) that would be allocated in 2025 to the single quota share (QS) accounts with the largest and smallest 2023 QS percentage, as well as 2025 QP allocations based on the averages of the largest 10 and smallest 10 QSA percentages. QP Allocations are shown across each of the trawl/non-trawl allocation and at-sea set-aside management options. Source: NOAA IFQ Quota Share Account Balance Data

	Account with Single Largest 2023 QS Percentage	Avg. of Largest Ten 2023 QS Percentage Accounts	Avg. of Smallest Ten 2023 Non-Zero QS Percentage Accounts	Account with Single Smallest 2023 Non-Zero QS Percentage
2023 QS Percent	4.13%	2.80%	0.12%	0.001%
2023 QP Allocation (lbs.)	1,048,812	710,739	30,731	282
Option 1 Status Quo QPs (lbs.)	924,265	626,115	26,834	248
Option 2 QPs (lbs.)	933,378	632,288	27,098	251
Option 3 QPs (lbs.)	942,490	638,461	27,363	253
Increase in QPs Allocated Per Account Compared to Option 1 Status Quo				
Option 2 (lbs.)	9,112	6,173	265	2
Option 3 (lbs.)	18,225	12,346	529	5
Avg. Loss in Ex-vessel Revenue Per Account Compared to 2023 (No Action) a/				
Option 1 Status Quo	$33,627.60	$22,848.42	$1,052.32	$9.06
Option 2	$31,167.27	$21,181.74	$980.89	$8.39
Option 3	$28,706.94	$19,515.07	$909.46	$7.73

a/ based on the 2023 average price per pound of widow rockfish in the midwater rockfish and bottom trawl fisheries ($0.27). Shoreside hake was excluded, because widow rockfish is considered incidental catch in this fishery and therefore generally fetches a much lower price per pound than in the midwater rockfish and bottom trawl fisheries.

The IFQ fishery is managed with annual vessel limits (AVLs) that limit the amount of QPs that may be registered to a single vessel during the year and are calculated as a percent of the total IFQ allocation (50 CFR 660.140(e)(4)(i)). The widow rockfish AVL is 8.5 percent. Figure 8 compares the expected 2025 and 2026 widow rockfish AVLs to vessel-level 2023 widow rockfish catches, averaged across three vessels in each of ten groups, where Vessel Group 1 comprises the three vessels with the highest 2023 catch of widow rockfish. Under all three trawl/non-trawl allocation options, Vessel Group 1 (three vessels) would be unable to reach their 2023 catch levels under the 2025 AVL, and both Vessel Groups 1 and 2 (a total of six vessels) would be unable to reach their 2023 catch levels under the 2026 AVL. The 2026 AVL would be about 158,000 lbs. lower than the 2025 AVL due to a lower IFQ allocation. Compared to the scale of the IFQ allocations in 2025-26, there is minimal difference in AVL impacts between the trawl/non-trawl allocation options.

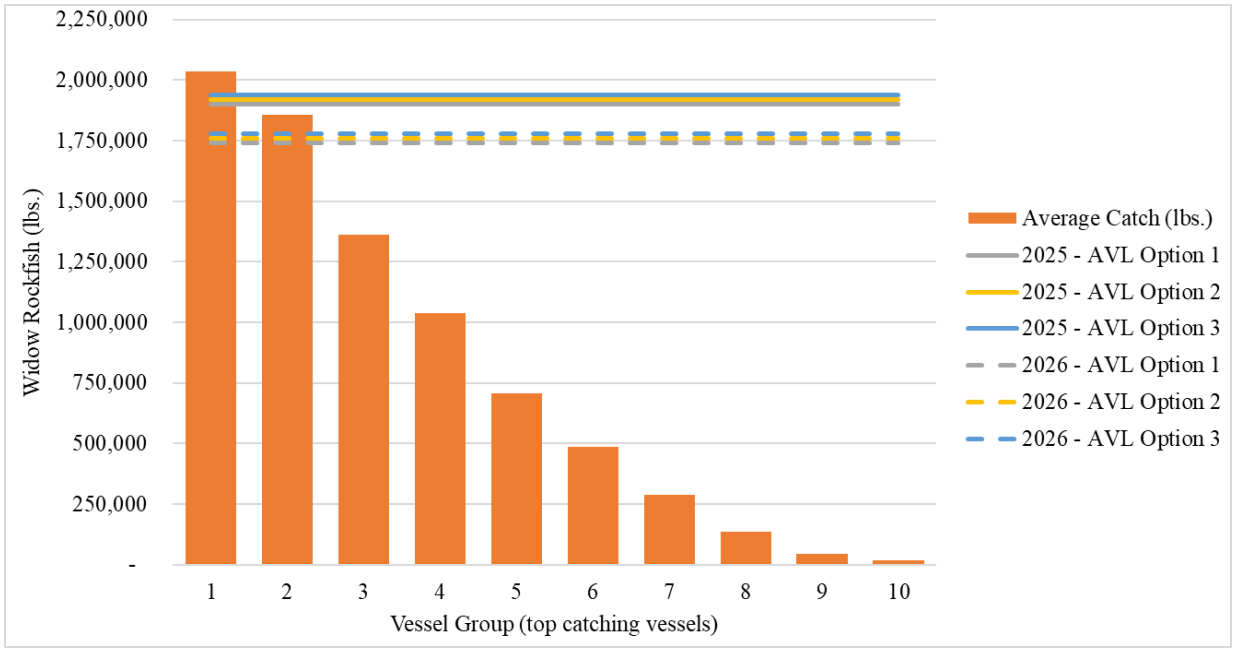

Figure 8. 2023 vessel-level catch of widow rockfish north of 40° 10′ N. lat., averaged across 3 IFQ vessels within each Vessel Group, compared to the 2025 and 2026 annual vessel limits AVLs under trawl/non-trawl allocation Options 1 (SQ), 2, and 3 for widow rockfish. The top 30 IFQ vessels that caught the most widow rockfish were placed in the ten vessel groups, with Group 1 catching the most out of all IFQ vessels.

Non-Trawl Fishery

The U.S. West Coast commercial non-trawl fishery is made up of the nearshore sector and the non-nearshore sector that operate in different depths and under different federal and state regulations. Fishing in federal waters is managed by limited entry trip limits and open access trip limits. Since canary rockfish was declared rebuilt in 2015, there has been development of a mid-water shelf fishery that has been targeting yellowtail rockfish, widow rockfish, and canary rockfish. Although fishermen can target those species individually, they form the basis of the mid-water fishery. This fishery is mostly an OA fishery because it is being prosecuted with pole gear and the non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) within the Non-Trawl RCA. In general, the trajectory of all non-trawl fisheries mortality of widow rockfish has been increasing throughout time (Figure 3). There is also some expectation that LE vessels will enter into this fishery, especially given the restrictions in California based on quillback rockfish, however, at this time quantifying when and how many vessels will take advantage of this fishery is highly uncertain and cannot be modeled.

In 2023, there was a downturn in the OA fisheries which had been increasing since 2020 (red area; Figure 9). The majority of the landings happened in California, and there were less widow rockfish landings throughout the whole year in 2023, which seemed partly driven by two OA vessels that did not fish in 2023 and made up a large part of the landings prior to that. There was also a big downturn in November and December, possibly due to the inseason actions that took place at the September 2023 meeting. Overall, 2023 seems to be an anomalous year in OA in California, with the expectation being that this fishery will be increasing from 2024 on. Given that two vessels could have impacted the mortality in the OA sector a noticeable amount (from 2022-2023), there is more uncertainty now about what the concentration of effort will be and whether the 2020

decision to maintain 400 mt in the non-trawl sector to account for expansion would be realized in 2025-26.

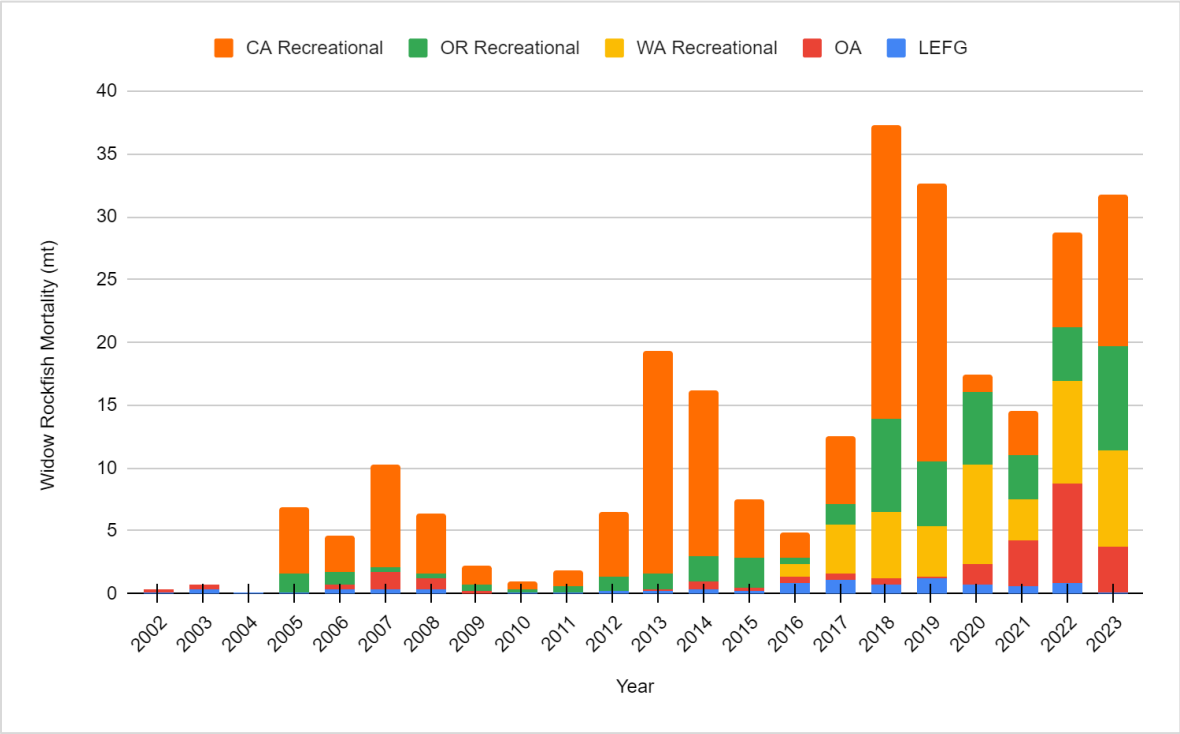

Figure 9.Widow rockfish mortality (mt) by sector of the non-trawl allocation, 2011-2023; 2023 values represent total mortality values (estimated for commercial with the three-year average). Source: 2002-2022 GEMM, 2023 PacFIN; Washington widow rockfish total mortality (mt) values were derived by applying the proportion of unexpanded widow rockfish catch/total unexpanded unidentified catch to expanded Unidentified Fish, RecFIN.

The Council has increased the opportunity in the midwater shelf fishery with Council action during the 2023-24 harvest specifications cycle to allow for use of non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) within the non-trawl RCA, and then again starting in January 1, 2024 with Amendment 32 allowing LEFG vessels to harvest to limited entry trip limits. Since these actions have just been taken, it is hard to quantify what the shift in effort will look like in Oregon. Additional action has been taken in California that will impact this fishery. Along with allowing retention within the non-trawl RCA, Amendment 32 reopened the Cowcod Conservation Areas (CCAs), which is an area where commercial widow rockfish occurred pre-CCAs. Reopening this area will provide additional fishing grounds in the next biennium and, given the actions taken to incentivize an offshore commercial fixed gear fishery off California, will increase non-nearshore opportunity.

Amendment 32 occurred simultaneously to Council inseason action for 2024 to reduce quillback rockfish mortality off of California which will concentrate effort on the self and opportunity is limited elsewhere (see Agenda Item E.9.a, Supplemental GMT Report 1, November 2023). With recent concentrated effort in the non-nearshore fishery due to recent management changes at the coastwide level (Amendment 32) and the California level (i.e., closures/gear-specific trip limits related to mitigating quillback rockfish impacts), it is anticipated that 2024 will be the highest year on record for landings of widow rockfish from the nearshore and non-nearshore sectors combined.

Although the non-trawl sector has not attained the 400 mt that was put in place as of 2021, the Council action (Amendment 32) and management measures that are being implemented in California waters to reduce impacts to quillback rockfish have concentrated effort in this non-trawl shelf sector. Given the lower canary rockfish trip limits that are likely going to be present, there is a higher likelihood that participants of the commercial non-trawl sector will increase attainment of widow rockfish over the next few years. This potential action could be viewed in the context of how the fisheries can develop into the future and not the immediate need. Therefore, any display of potential loss in ex-vessel revenue could be viewed as if the fishery developed to where 400 mt were being attained, and any loss was out of the commercial sector (which applies an average price per pound). Option 2 would move 100 mt from the non-trawl, and that potential loss of revenue for a future non-trawl fishery could be as high as $492,894 if the average proportions of catch of the three commercial sectors and the price per lb. was similar in future years. Option 3 would move 200 mt from the non-trawl sector into the trawl sector, and that potential loss of revenue for a future non-trawl fishery could be as high as $984,801 under the same assumptions (Table 51).

Table 51. Averages over the three commercial non-trawl sectors –limited entry (LE), open access (OA), the nearshore– are used to estimate the potential loss in ex-vessel revenue if 200 mt is moved from non-trawl to the trawl sector. Potential loss in ex-vessel revenue is assuming a time in the future where the non-trawl sectors would be attaining the 400 mt, it is also assuming all of the "loss" was felt by the commercial sectors.

	LE	OA	Nearshore
Percent of commercial catch (avg 21-23)	7.68%	78.22%	14.10%
Average price per lb. (21-23)	$1.96	$2.08	$3.25
Option 2: 300 mt partitioned	23.04	234.66	42.3
Option 2: Potential lost Ex-vessel revenue	**$33,185**	**$358,683**	**$101,025**
Option 3: 200 mt partitioned	15.36 mt	156.44 mt	28.2 mt
Option 3: Potential lost Ex-vessel revenue	**$66,241**	**$716,838**	**$201,720**

Recreational Fisheries

Washington Recreational Fishery

Species-specific estimates of widow rockfish mortality are not available for the Washington recreational fishery. The Washington Department of Fish and Wildlife (WDFW) Ocean Sampling Program (OSP) collects species information when intercepting anglers during dockside interviews. However, the catch estimation procedure combines some species including widow rockfish into a single Miscellaneous category, which is then expanded, renamed, and reported as Unidentified Fish in RecFIN. To evaluate catch and the relative importance of widow rockfish to the recreational fishery, the proportion of widow rockfish comprising the unexpanded estimate of Miscellaneous species was applied to Unidentified Fish total mortality.

Using this approach, Washington recreational widow rockfish catch was internally estimated to be 8 mt in 2022 and in 2023 (Table 52). These compare to an average catch of 4 mt from 2016 through 2021. This increase is likely due to relaxed depth restrictions implemented in 2021 that expanded deepwater fishing opportunities. Widow rockfish are not a primary target but caught incidentally by anglers fishing for lingcod and yellowtail.

Actions taken to address management needs of other species (e.g., canary rockfish) in the recreational fishery in 2025-2026 will likely impact widow rockfish encounters and retention in the recreational fishery as much or more than specific actions to address widow rockfish. If actions reduce deepwater fishing opportunity, widow rockfish retention could be expected to decrease, particularly if management measures include area closures. Actions that reduce rockfish daily sub-bag limits such as might be taken for canary rockfish may be less impactful to widow rockfish catch unless that spurs targeting widow rockfish.

Table 52. Washington internal estimates of widow rockfish mortality (mt) in the Washington recreational fishery from 2016-2023. Source: WDFW OSP data and RecFIN.

Year	Unidentified Fish mortality (mt)	Estimated Widow rockfish mortality (mt)
2016	4	1
2017	10	4
2018	15	5
2019	15	4
2020	12	8
2021	7	3
2022	25	8
2023	25	7

Oregon Recreational Fishery

In Oregon, the development of the longleader fishery has led to increases in widow rockfish catch, with the highest catch happening in 2023 (8.2 mt, Figure 9, Table 53). Depending on how anglers respond to management action taken with canary rockfish and black rockfish, it is anticipated that the Oregon recreational sector will catch more widow rockfish into the future for two reasons; (1) lowering the bag limit for nearshore rockfish to minimize black rockfish impacts may cause more anglers to go offshore and fish with longleader gear and (2) if a sub-bag limit of canary rockfish is implemented, anglers will look to displace any lost canary rockfish with either yellowtail or widow rockfishes.

Table 53. Oregon recreational total mortality (metric tons [mt]) of widow rockfish from 2014-2023. (Source: RecFIN)

Year	Mortality (mt)
2014	2.0
2015	2.3
2016	0.5
2017	1.7
2018	7.4
2019	5.3

Year	Mortality (mt)
2020	5.8
2021	3.5
2022	4.2
2023	8.2

California Recreational Fishery

In the California recreational fisheries, the shift towards offshore only fishing (seaward of 50 fm) to reduce impacts to quillback rockfish may have driven an increase in recreational catch. Widow rockfish catch was 7.5 mt in 2022 and increased to 11.3 mt in 2023 (California Recreational Fishery Survey estimates Jan-Dec, Table 54). If the offshore-only recreational fisheries off California continue into the future, the expectation is for the recreational fishery to be similar or increasing widow rockfish catch.

Table 54. Widow rockfish mortality in California recreational fisheries from 2015 through 2023.

Year	Mortality (mt)
2015	4.7
2016	2.0
2017	5.4
2018	23.4
2019	22.0
2020	3.1[a/]
2021	3.6
2022	7.5
2023	11.3[b/]

a/ Data from 2020 pulled from RecFIN will be incomplete due to CRFS not producing estimates from April-June of that year. When CDFW has provided comprehensive mortality for that year they typically include the average proxy values for the April-June time period. 1.4 mt shown in RecFIN and an average proxy value of 1.7 mt was added to the RecFIN value for a more accurate value or 3.1 mt for CA rec in 2020.
b/ RecFIN does not include December 2023 CRFS estimates as of 2/15/2024. Dec 2023 CRFS estimate was added to the value currently in RecFIN.

2.8 Petrale Sole

Petrale sole ACLs are decreasing in 2025-26 by 32 percent and 36 percent, respectively, compared to 2023. Additionally, in 2026, petrale sole enters the precautionary zone (i.e., below the management target), which means the 25-5 rule is applied (FMP §4.6.1)). Petrale sole is a valuable target species in the groundfish trawl fishery with some incidental catch in the non-trawl fishery. It is subject to a biennial allocation of a fixed 30 mt to the non-trawl sector and the remainder of the fishery HG to the trawl sector (2,005.5 mt in 2025; 1,889.5 mt in 2026). In 2023, the non-trawl sector exceeded the status quo 30 mt HG allocation (Table 55) by an estimated non- 0.2 mt.

The decrease in the 2025-26 ACLs relative to the current biennium (Table 55) are in response to the 2023 stock assessment of petrale sole (Taylor et al., 2023). The reduction in ACL translates to commensurate trawl/non-trawl allocation reductions. This change primarily impacts the Shorebased IFQ fishery, as the at-sea set-asides and non-trawl sectors are both allocated fixed amounts. The following sections analyze the impacts to the trawl and non-trawl sectors under status quo management measures, as well as possible factors driving the in recreational mortality in 2023. California recreational mortality saw the greatest change in mortality in 2023 with 21.4 mt of harvest from this sector alone, as compared to an average of 4 mt for the last five years.

Table 55. Trawl/non-trawl allocations, mortality, and attainments for petrale sole from 2011-2024 (excluding landings and attainment in 2024) and expected 2025-26 harvest specifications. GF = groundfish

Year	ACL (mt)	Fishery HG (mt)	Total Directed GF Mort. (mt)	Trawl				Non-Trawl			
				Sector Alloc. (mt)	Sector Mort. (mt)	Sector attain.	% of total directed GF mort. (mt)	Sector Alloc. (mt)	Sector Mort. (mt)	Sector attain.	% of total directed GF mort. (mt)
2011	976	911	814	876	812	92.7%	99.8%	35	1.3	3.8%	0.2%
2012	1,160	1,095	1,058	1,060	1,057	99.7%	99.8%	35	1.7	5.0%	0.2%
2013	2,592	2,358	2,129	2,323	2,126	91.5%	99.8%	35	3.3	9.3%	0.2%
2014	2,652	2,418	2,320	2,383	2,319	97.3%	99.9%	35	1.3	3.8%	0.1%
2015	2,816	2,579	2,504	2,544	2,500	98.3%	99.8%	35	3.9	11.0%	0.2%
2016	2,910	2,673	2,481	2,638	2,475	93.8%	99.8%	35	5.5	15.7%	0.2%
2017	3,136	2,895	2,743	2,750	2,735	99.5%	99.7%	145	7.9	5.4%	0.3%
2018	3,013	2,772	2,654	2,633	2,645	100.5%	99.6%	139	9.4	6.7%	0.4%
2019	2,908	2,587	2,392	2,458	2,378	96.7%	99.4%	129	14.0	10.8%	0.6%
2020	2,845	2,524	2,124	2,398	2,116	88.2%	99.6%	126	8.8	7.0%	0.4%
2021	4,115	3,728	2,825	3,698	2,817	76.2%	99.7%	30	8.1	26.9%	0.3%
2022	3,660	3,273	3,009	3,243	2,997	92.4%	99.6%	30	11.7	38.9%	0.4%
2023	3,485	3,099	3,079	3,069	2,827	92.1%	98.9%	30	30.23	100.9%	1.1%
2024	3,285	2,899		2,869				30			
2025	2,354	2,035.5		2,005.5				30			
2026	2,238	1,919.5		1,889.5				30			

2.8.1 Trawl/Non-trawl Allocation Options

This analysis explores three options (Table 56). Option1 is status quo and no changes to the petrale sole allocation would occur; whereas, under Options 2 and 3, trawl allocations would be reduced by 45 mt and 5 mt, respectively These allocation changes are proposed to accommodate recent increases in non-trawl mortality.

- **Option** 1: Status Quo: a fixed 30 mt of the fishery HG is allocated to the non-trawl sector and the remainder is allocated to trawl.

- **Option 2:** a fixed 45 mt of the fishery HG is allocated to the non-trawl sector and the remainder is allocated to trawl.
- **Option 3:** a fixed 35 mt of the fishery HG is allocated to the non-trawl sector and the remainder is allocated to trawl.

Table 56. Trawl/no-trawl petrale sole allocation options for the 2025-26 biennium

Option	Year	Trawl Allocation (mt)	Non-Trawl Allocation (mt)
Option 1	2025	1,945.5	30
	2026	1,799.5	30
Option 2	2025	1,930.5	45
	2026	1,784.5	45
Option 3	2025	1,940.5	35
	2026	1,794.5	35

2.8.2 Impacts

Trawl Fishery

Over 99 percent of trawl-caught petrale sole is caught by bottom trawl vessels in the Shorebased IFQ fishery. The five-year average of petrale sole mortality in the groundfish trawl fishery is 2,627 mt (2019-2023), which is 145 percent of the 2025 allocation and 144 percent of the 2026 allocation (Figure 10). Petrale sole mortality in the bottom trawl fishery has been steadily increasing since 2011, with the exception of 2020 due to the COVID-19 pandemic, noting that the stock was overfished and rebuilding between 2011-2015. Petrale sole mortality in the at-sea sectors has been less than 0.02 mt annually since 2002, which is well within the fixed 5 mt status quo at-sea set-aside.

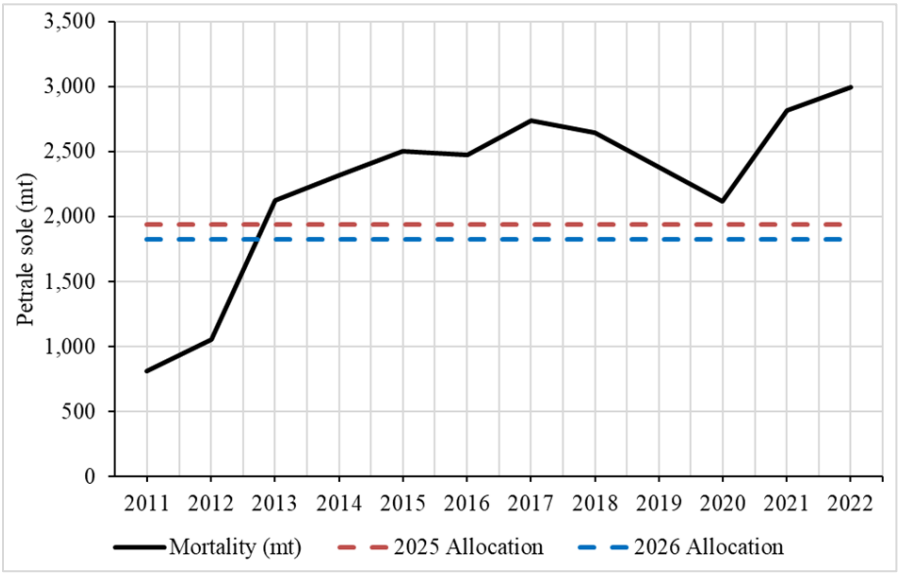

Figure 10 Petrale sole mortality (mt) in the IFQ fishery from 2011 to 2022, compared to the 2025 and 2026 allocations (dashed lines). Source: GEMM -Petrale was overfished 2011-2015, catches were therefore low.

Table 57 shows the estimated reductions in trawl allocations and the resulting reduction to the trawl IFQ program

Table 57. The impact of options 1-3 in terms of amounts allocated to the trawl individual fishery quota (IFQ) amounts relative to the total trawl allocations.

Option	Year	Trawl Allocation (mt)	At-sea Set-aside (mt)	IFQ Amount (mt)
Option 1	2025	2,006	5	2,001
	2026	1,880		1,885
Option 2	2025	1,991		1,986
	2026	1,865		1,870
Option 3	2025	2001		1,996
	2026	1,775		1,880

Option 1

Under Option 1 status quo management measures, the IFQ fishery is projected to catch 1,852 mt of petrale sole in 2025 and 1,745 mt in 2026, with 93 percent allocation attainment both years. Those projections are 1,028 mt and 1,135 mt lower than the fishery's recent average mortality since 2021 (Table 58). Those differences amount to potential ex-vessel revenue losses of $2,719,595 in 2025 and $3,002,665 in 2026, based on the 2023 average price per pound of petrale sole caught by bottom trawl vessels ($1.20). In 2023, the IFQ fishery earned $7,410,493 in ex-vessel revenue from petrale sole landings alone..

Table 58. 2025-26 IFQ petrale sole allocations, projected catch, and projected attainment under Alternative 1 HCR and status quo management measures.

2025			2026			Avg. petrale sole IFQ Mortality (mt), 2021-2023
IFQ Allocation (mt)	Projected IFQ Catch (mt)	Projected IFQ Attain.	IFQ Allocation (mt)	Projected IFQ Catch (mt)	Projected IFQ Attain.	
2,001	2,001	2,001	2,001	2,001	2,001	2,001

Option 2

Option 2 reduces the trawl allocation by 15 mt, it would also further expand upon the petrale sole allocation reductions the IFQ fishery will experience in 2025-26, albeit marginally relative to the full allocation. While small relative to the allocation, a difference of 15 mt equates to roughly $40,000 in ex-vessel revenue for bottom trawl vessels. Eleven of the 52 IFQ bottom trawl vessels that participated in 2023 derived the majority of their revenue from petrale sole. The other major revenue contributors for bottom trawl vessels are Dover sole, sablefish, and chilipepper rockfish. Bottom trawl vessels may be limited in their ability to supplement petrale sole losses with Dover sole because of shortspine thornyhead allocation reductions, a co-occurring species. If markets can accommodate the additional landings, bottom trawl vessels may be able to make up for lost petrale sole revenue by increasing their sablefish catch. However, the average 2023 price per pound of sablefish from bottom trawl landings was less than $1.00, and the GAP has already expressed concerns about potentially flooding the sablefish markets.

Option 3

Option 3 reduces the trawl allocation by 5 mt.. While a 5 mt shift is small, relative to the allocation, it equates to approximately $2,700 in ex-vessel revenue for bottom trawl vessels. Eleven of the 52 IFQ bottom trawl vessels that participated in 2023 derived the majority of their revenue from petrale sole. Similar to Option 2, the reduction could initiate further ripples in the trawl fishery, though likely with lower impact than Option 2.

2.8.3 Non-Trawl Fishery

Total petrale sole non-trawl mortality (commercial +recreational) has averaged 8.2 mt or 18.9% of allocation since 2011 (Table 55). Compared to trawl mortality, the non-trawl sector is responsible, on average for 0.35 percent of directed petrale mortality. 2023 was the first year the allocation has been exceeded. Petrale sole non-trawl fishery mortality steadily increased from 2014-2017, stabilized from 2017-2022, and spiked in 2023 with the additional catches coming from primarily California recreational fisheries (Figure 11). The vast majority of petrale sole mortality in the non-trawl fishery is retained. The relatively small portion of discard mortality is from the LEFG sector, with an average of 0.27 mt per year since 2002 (i.e., less than one percent of the non-trawl allocation, annually). The largest increases have been seen in the California recreational fishery.

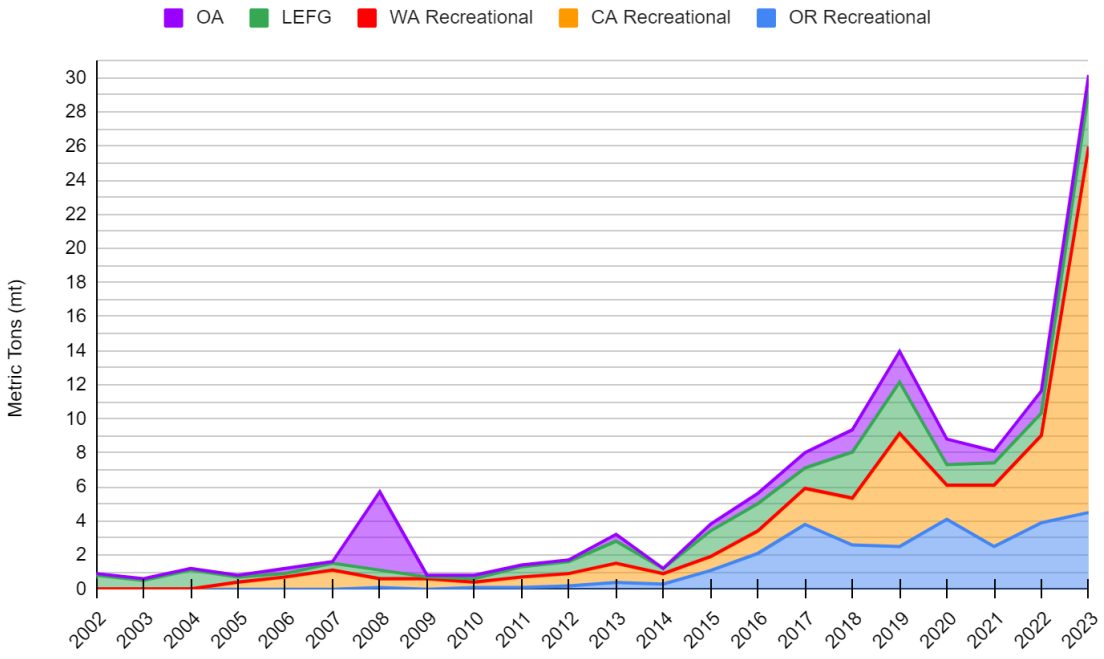

Figure 11. Non-trawl mortality by sector of petrale sole from 2002-2023. The status quo non-trawl allocation is 30 mt

Commercial Non-Trawl Fisheries

Petrale sole are primarily caught on targeted sablefish trips in commercial non-trawl non-nearshore fishery. The remainder of the commercial non-trawl mortality is attributed to the nearshore fishery in minor amounts. The commercial non-trawl mortality has averaged 4.11 mt over the last five years (Table 59)

Table 59. Total estimated commercial non-trawl petrale sole mortality (PacFIN, 3/13/2024)

Year	Commercial Non-Trawl Mortality (mt)
2019	8.72
2020	2.71
2021	1.72
2022	2.54
2023	4.87
Ave.	4.11

The projections in Table 60are based on different sablefish attainment scenarios and the bycatch ratio for petrale sole from the non-nearshore model. To address whether there is a risk of a harvest specification being exceeded, the GMT provides a range of scenarios that are more likely than full 2025-26 sablefish ACL attainment. The GMT modeled different ACL scenarios as proxies for low and medium attainment of the 2025-26 ACLs.

- High Attainment Scenario: The Non-nearshore modeled projections for the full ACL values and therefore the full fixed gear sablefish north of 36° N. lat. share attainment.
- Medium Attainment Scenario: This scenario uses the ACL proxy of 18,048 mt, which is the average ACL of 2023-2026 to model for incidental harvest within the sablefish fishery. This results in a limited entry fixed gear share of 8,489 mt and an open access share of 1,518 mt.
- Low Attainment Scenario: The 2023 sablefish ACL north of 36° N. lat. represents a low attainment scenario given that the model models the resulting limited entry and open access fixed gear share (of 3,993 mt and 714 mt, respectively).. This estimate uses landings data and a three year moving average of discards. The 2023 ACL was used, because, it represents the highest harvest limits have been since 2011.

Based on discussion with GAP members and public testimony it is reasonable to expect that sablefish will be under a low attainment scenario until markets improve; therefore, a reasonable projection range for petrale sole from the fixed gear sector is 4.3-4.64 mt for the 2025-2026 years (Table 60).

Table 60. Petrale sole mortality projections caught within the targeted sablefish fishery from the non-nearshore model with the additional average mortality between 2021-2023 from the GEMM for the nearshore sector compared with the no action landings as the low range of the projection.

Non-Nearshore Fixed Gear Mortality Projection (mt)			Nearshore Mort Estimate (Avg. of 2021-23)	Landings in 2023: No Action (mt)
High attainment scenario	Medium attainment scenario	Low attainment scenario		
15.54	9.83	4.62	0.02	4.3

Recreational Fishery

The recreational fishery petrale sole estimated mortality (Table 61) has been increasing over the last five years (2019-2023), with estimated mortality for all states combined has increased

approximately 475 percent. However, it is important to note, that without the 2023 value, which appears anomalous to years prior, shows a 103 percent increase in mortality for all states combined. Each section below are specific to mortality of petrale sole in the recreational fishery.

Table 61. Total estimated recreational mortality petrale sole mortality 2019-23 (PacFIN, 3/13/2024)

Year	Recreational Mortality (mt)
2019	4.5
2020	6.0
2021	6.0
022	9.0
2023	25.6
Ave	10.2

California Recreational Fishery

2023 petrale sole mortality in the California recreational fishery increased substantially compared to 2021 and 2022 (Table 62). It is difficult to decipher what drove the 2023 changes observed, but there are likely multiple potential factors influencing the increase in total mortality. The increase could have been influenced by closures of other fisheries (e.g., salmon), introduction of all-depth fishing and the offshore-only groundfish fishery (which required anglers to fish seaward of the 50 fm Non-Trawl RCA line) at the start of 2023, and inseason action in 2023 which halted all-depth fisheries in Aug./Sep. of 2023 north of Pt. Conception to offshore-only fishing (CDFW Press Release).

Table 62. 2019-2023 petrale sole total mortality (mt) by Groundfish Management Area and Boat Modes (charter boat = PC; and private skiff= pr) from 2019-2023. CRFS catch estimates through November 2023. No reported data is represented by "-."

Groundfish Management Area	2019		2020		2021		2022		2023	
	PC	PR	PC	PR	PC	PR	PC	PR	PC	PR
Northern Management Area	0.3	0.0	1.6	0.6	0.0	0.2	0.1	1.3	0.1	1.8
Mendocino Management Area	0.1	1.0	0.1	0.2	0.0	0.3		0.8	0.3	1.6
San Francisco Management Area	0.3	0.2	-	0.01	0.0	0.4	0.2	0.6	2.4	4.6
Central Management Area	0.8	2.3	0.1	0.9	0.9	1.6	0.6	1.4	2.0	8.2
Southern Management Area	0.0	0.0	-	-	-	0.0	-	0.0	0.0	0.1
Total Mortality by Mode	**1.5**	**3.5**	**1.8**	**1.7**	**1.0**	**2.5**	**0.9**	**4.1**	**4.9**	**16.2**
Total PC/PR Mortality by Year	5.0		3.5		3.5		5.1		21.0	
Percentage of Total by Mode	30%	70%	51%	49%	29%	71%	19%	81%	23%	77%

These changes were primarily to reduce impacts to California quillback rockfish. The biggest change between 2023 and previous years is the introduction of the offshore-only groundfish fishery which likely is driving the bulk of the additional recreational petrale sole catch. Table 63 presents the 2023 recreational harvest of petrale sole by month, management area, and boat mode, with depth restrictions for each management area also shown.

Table 63. 2023 petrale sole total mortality (in mt) by Groundfish Management Area, Boat Mode (Charter boat and Private skiff), and month in 2023. CRFS catch estimates through November 2023. The depth restrictions for each management area are also shown. No reported data is represented by "-," data that is not yet available is represented by a "/." Northern Management Area = NMA: Mendocino Management Area =MMA; SFMA = San Francisco Management Area; CMA = Central Management Area, SMA = Southern Management Area. Rockfish/Cabezon/Greenling = RCG.

		Jan		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NMA RCG season/depth			**Closed**				**May 15 All depth**	**All depth**		**All depth till Aug 21 > 50fm**	**> 50fm**	**> 50fm till Oct 15 then closed**	**Closed**	
Sum	**1.88**	**0**		**0**	**0**	**0**	**0.17**	**0.23**	**0.88**	**0.43**	**0**	**0.18**	**0**	**/**
PC	**0.1**	-		-	-	-	0.02	0.01	0.06	0.02	-	-	-	/
PR	**1.78**	-		-	-	-	0.15	0.22	0.82	0.41	-	0.18	-	/
MMA RCG season/depth			**Closed**				**May 15 > 50 fm**	**>50**	**July 15 >50 fm after All depth**	**All depth Aug 21 > 50fm**	**> 50fm**			
Sum	**2.24**	**0**		**0**	**0**	**0**	**0.3**	**0.48**	**0.88**	**0.04**	**0.36**	**0.1**	**0.08**	**/**
PC	**0.32**	-		-	-	-	0.06	0.12	-	-	0.09	0.03	0.03	/
PR	**1.92**	-		-	-	-	0.24	0.37	0.88	0.04	0.26	0.07	0.05	/
SFMA RCG season/depth			**Closed**				**May 15 > 50 fm**	**>50**	**July 15 >50 fm after All depth**	**All depth till Aug 21 > 50 fm**	**> 50fm**			
Sum	**6.92**	**0**		**0**	**0**	**0**	**0.6**	**2.03**	**0.54**	**0.61**	**2.88**	**0.25**	**0.02**	**/**
PC	**2.36**	-		-	-	-	0.07	0.42	-	-	1.85	0.02	-	/
PR	**4.55**	-		-	-	-	0.53	1.6	0.54	0.61	1.03	0.23	0.02	/
CMA RCG season/depth			**Closed**				**All Depth**				**> 50fm**			
Sum	**10.21**	**0**		**0.05**	**0.32**	**0.29**	**0.59**	**1.24**	**3.63**	**1.4**	**1.98**	**0.41**	**0.3**	**/**
PC	**2.05**	-		0.05	0.29	0.24	0.16	0.31	0.64	0.05	0.23	0.08	-	/
PR	**8.16**	-		-	0.03	0.06	0.43	0.93	2.98	1.34	1.75	0.34	0.3	/
SMA RCG season/depth			**Closed**				**All Depth**				**All depth till, Sep 16 > 50fm**	**> 50fm**		
Sum	**0.09**	**0**		**0**	**0**	**0.03**	**0**	**0.03**	**0**	**0**	**0**	**0**	**0.04**	**/**
PC	**0.03**	-		-	-	0.03	-	-	-	-	-	-	-	/
PR	**0.07**	-		-	-	-	-	0.03	-	-	-	-	0.04	/

Based on recreational catch estimates for 2023, 77 percent of catch came from the private rental (PR) mode, and 23 percent came from the party charter (PC) mode, which is roughly the same as

the 3:1 ratio of petrale sole catch for PR:PC seen in previous years (Table 62). This suggests that the recreational sector has not greatly changed its practices and, collectively, caught more petrale sole in 2023. From 2021 to 2023, the Central Management Area (CMA) contributed the greatest total mortality (mt) of petrale sole, making up 71 percent of California's total mortality (mt) in 2021, 39 percent in 2022, and 39 percent in 2023. This is likely due to the closer proximity to deeper depths around the Monterey Canyon, providing easier access to petrale sole fishing grounds. In 2023, the San Francisco Management Area (SFMA) contributed 48 percent of California's total mortality (mt), compared to 11 percent in 2021 and 15 percent in 2022. This is a substantial increase in petrale sole harvest in the SFMA likely due to the bathymetry of the area, which has limited offshore-only areas to harvest groundfish. This feature of the area pushed anglers into areas which are also surrounded by prime petrale sole habitat. The Northern Management Area (NMA) also increased in total mortality from 2021 through 2023, likely due to offshore fishing and anglers keeping petrale sole when fishing for Pacific halibut. As seen in Table 63, petrale sole harvest decreased in the NMA after the August closure of the Pacific halibut fishery (CDFW press release on Pacific halibut closure).

A petrale sole bag limit analysis investigated whether the 2023 recreational spike in catch was due to a small number of anglers taking a large amount of petrale sole or a large number of anglers taking a low amount of petrale sole. In 2023, more than 75 percent of the recreational bags that contained any petrale sole had four or fewer petrale sole. Less than 25 percent of recreational bags containing petrale sole in 2023 had five or more petrale sole, with up to 13 petrale sole in less than 2 percent of bags sampled. In 2022 more than 95 percent of the recreational bags that contained any petrale sole had four or fewer petrale sole. Less than 5 percent of recreational bags containing petrale sole in 2022 had five or more petrale sole, with up to 20 petrale sole in less than 0.4 percent of bags sampled. This suggests that petrale sole catch per angler is increasing, as opposed to a small number of anglers specifically targeting or retaining large amounts of petrale sole.

If management measures are needed to limit California recreational petrale sole catch in order to stay within the non-trawl allocation, a bag limit may not be effective unless it was very low (1-3 fish, or no retention), since most anglers do not keep more than 4 fish. As fisheries are likely changing in 2024 and 2025-26 to allow for increased nearshore opportunity it might be premature to impose a bag limit on the fishery at the start of the year. Since recreational estimates typically have a two month lag, we likely would not have a solid estimate of petrale sole harvest until the September Council meeting. At this point imposing any bag through inseason action (including down to 1 fish) would likely have limited impact on petrale sole harvest, as recreational effort tends to be substantially lower in the Fall and most anglers only keep 1 fish. While an inseason bag limit adjustment during the year may not be as effective, it could potentially be useful as a mid-biennium action. Specifically, if an allocation was exceeded in 2025, a bag limit or other management measure could be implemented for the start of the 2026 season to prevent exceeding the allocation for a second consecutive year, which would be more effective than imposing a bag limit mid-season.

Petrale sole exhibit ontogenetic shift throughout the year. "Juveniles show little coastwide or bathymetric movement while studies suggest that adults generally move inshore and northward onto the continental shelf during the spring and summer to feeding grounds and offshore and southward during the fall and winter to deep water spawning grounds" (SAFE 2022). This yearly shift in movement, along with California recreational anglers being required to fish deeper than 50

fm or being allowed to fish all-depths during the spring and summer months, may also play a role in the increased petrale sole harvest in 2023. As illustrated in Table 63, higher petrale sole harvest is seen in summer months, which seems to correlate to the all-depth or offshore-only California recreational fishery.

Chapter 8 analyzes a year-round California recreational fishery with unlimited petrale sole retention at all depths and with petrale sole exempt from the general finfish bag limit. These management measures were implemented previously to encourage petrale sole fishing, as the non-trawl allocation of 30 mt was under attained. Petrale sole recreational catch is typically reported through CDFW inseason reports at each Council meeting. If new tools for the 2025-26 biennium were added to manage harvest of petrale sole in the non-trawl sectors, the Council could take inseason action at any of their meetings, or mid-biennium if it appeared the non-trawl allocation would be exceeded, particularly if the ACL appeared to be at risk.

It is unclear if the 2023 California recreational harvest is a one-time spike or a new normal for the fishery. It is safe to assume that any year where there is an offshore-only season, there will likely be higher than average recreational petrale sole catch off of California. Changes to the recreational season structure in 2025-26 to reduce California quillback rockfish impacts will likely be similar to the inseason changes for the 2024 season outlined in Agenda Item F.8.a Supplemental CDFW Report 2 March 2024. These changes will likely result in months where recreational fishing is only allowed shoreward of 20 fm which would likely decrease petrale sole catch. Months that will be seaward of 50 fm will likely see similarly higher petrale sole catch in the northern portion of the state as was seen in 2023. Additionally, as salmon recover and fishing opportunity for salmon increases, there will likely be some reduction to groundfish effort overall. However, it is unknown if this additional petrale sole harvest will facilitate a new and lasting interest in petrale sole harvest, as seen with the rise of the Pacific halibut fishery which manifested during the previous California salmon closures. There appears to be some indication that this spike in catch is primarily due to pushing anglers into offshore waters with anglers incidentally catching petrale sole rather than a large increase in anglers targeting petrale sole.

Oregon Recreational Fishery

Over the past 10 years, petrale sole catch in the Oregon recreational fishery has increased. Some of this may be in response to an increase in annual bottomfish angler trips per year beginning in 2015, though the majority of petrale sole are encountered incidentally on Pacific halibut (halibut) trips, as petrale sole are rarely (if ever) the targeted species (Table 64). The recreational halibut seasons are broken up between all-depth fishing days (no depth restriction) and nearshore fishing days (fishing allowed shoreward of the 40-fathom regulatory line) off Oregon. Since 2019, the halibut allocation has been at a high enough quota that has allowed for additional all-depth halibut fishing days, providing anglers more opportunity to harvest halibut along with petrale sole. Petrale sole catch rates have also increased, peaking in 2020 at 0.16 petrale sole per halibut angler (Table 64). Current management measures for petrale sole off Oregon is limited to 25 fish per angler, with no depth, time or area restrictions (outside of the Stonewall Bank Yelloweye Rockfish Conservation Area [YRCA]).

If the halibut allocation remains high enough for all-depth halibut fishing, petrale sole encounters will remain similar to the last few years. Additionally, if the rockfish bag limits decrease due to lower quotas, anglers may choose to target flatfish. For example, in response to a closure of

nearshore rockfish in 2017, there was an increase in petrale sole both targeted and retained. Petrale sole caught in the bottomfish and halibut fisheries is included in Table 64.

Table 64. Oregon recreational petrale sole total mortality (in mt) by trip type and catch per angler trip on halibut trips only. (Source: RecFIN)

Year	Bottomfish	Pacific Halibut	Other	Total	Catch per angler from Pacific halibut trips
2014	0.1	0.1	0.1	0.3	0.01
2015	0.2	0.9	0.1	1.1	0.05
2016	0.2	1.8	0.1	2.1	0.08
2017	1.2	2.3	0.2	3.8	0.10
2018	0.3	2.0	0.3	2.6	0.09
2019	0.3	2.0	0.3	2.5	0.11
2020	0.2	3.5	0.4	4.1	0.16
2021	0.2	1.7	0.7	2.5	0.11
2022	0.4	3.0	0.5	3.9	0.13
2023*	0.4	3.4	0.7	4.5	0.15

* 2023 data available through November only.

Washington Recreational Fishery

Species-specific estimates of flatfish mortality are not available for the Washington recreational fishery. The Ocean Sampling Program collects species information when intercepting anglers during dockside interviews. However, the catch estimation procedure combines all flatfish species, other than Pacific halibut, to produce a Flatfish Order estimate.

Flatfish species targeting and mortalities are not substantial in the Washington recreational fishery; total Flatfish Order mortality from 2016 to 2023 averaged 1.8 mt. The singular exception is sanddabs which are targeted for use as bait by a small segment of anglers. Over this same range of years, sanddab species comprised 80 percent of all Flatfish. To evaluate catch and the relative importance of petrale sole to the recreational fishery, the proportion of petrale sole comprising the unexpanded estimate of flatfish species was applied to Flatfish Order total mortality. Based on this approach, the total mortality of petrale sole in the Washington recreational fishery in 2023 was estimated at 0.08 mt. Since 2016, total petrale mortality averaged 0.03 mt (Table 65).

Actions to address management needs of other species in the recreational fishery in 2025-2026 are not anticipated to affect the relative importance of petrale sole to anglers.

Table 65. 2016-23 Estimated Washington recreational petrale sole mortality (as a percent of Flatfish Order) (mt).

Year	Estimated Flatfish Order mortality (mt)	Estimated petrale sole mortality (mt)
2016	1.96	0.02
2017	1.23	0.02

Year	Estimated Flatfish Order mortality (mt)	Estimated petrale sole mortality (mt)
2018	1.58	0.05
2019	1.57	0.05
2020	2.02	0.01
2021	1.79	0.01
2022	1.62	0.03
2023	2.89	0.08

2.8.4 Summation

The increase in non-trawl mortality and the potential for an allocation exceedance initiated the GMT to investigate whether the petrale sole trawl/non-trawl allocations need to be adjusted in 2025-26 to accommodate the additional non-trawl mortality. The non-trawl allocation was only minimally exceeded in 2023, and the trawl sector attained approximately 92 percent of their allocation. Therefore, the ACL is not expected to be exceeded in 2023, pending final mortality estimates in Fall of 2024. 2023 mortality could be an anomaly, given it does not fit the pattern for the last 12 years. It appears, even though the non-trawl HG was exceeded, as if the ACL is at risk, The commercial non-trawl fishery mortality is low, approximately seven percent on average, compared to the 30 mt non-trawl allocation. The recreational fishery seems to be the driver of petrale mortality in the overall non-trawl sector, however, prior to 2023, the recreational sector was approximately 21 percent of the non-trawl petrale mortality. Based on this analysis, it does not appear that reallocation is necessary for the 2025-26 biennium. Routine management measures related to depth/area closures may be sufficient to reduce recreational mortality, noting that there are not any bag-limits specific to this stock

[Council gave guidance at the March 2024 meeting to not explore reallocation of petrale sole further]

2.9 Harvest Guidelines and State Shares for Stocks in a Complex

2.9.1 Cowcod

Under Alternative 1, cowcod south of 40°10′ N. lat. is allocated to the trawl/non-trawl fishery at 36 percent to 64 percent, respectively, which is the same as under No Action. The non-trawl sector is managed under a 50:50 commercial/recreational sharing agreement (Table 66.)

Table 66. Alternative 1 2025 and 2026 cowcod south of 40°10′ N. lat. annual catch limit (ACL), harvest guideline (HG), and allocations in metric tons (mt). .

Specification	2025 (mt)	2026 (mt)
ACL	77.6	75.3
Harvest Guideline	66.5	65.2
Trawl (36%)	23.9	23.5
Non-Trawl (64%)	42.6	41.7
Commercial (50%)	21.3	20.85
Recreational (50%)	21.3	20.85

2.9.2 Slope rockfish south of 40° 10′ N. lat. and blackgill rockfish

Under Alternative 1, blackgill rockfish is managed within the slope rockfish complex south of 40° 10′ N. lat. and is allocated by the same method as described under No Action.. Table 67 shows the 2025 and 2026 calculated trawl and non-trawl allocations for blackgill rockfish and other slope species within the slope rockfish complex south of 40° 10′ N. lat.

Table 67. Alternative 1. Council recommended two-year slope rockfish south of 40° 10′ N. lat. allocations as a complex and as shares of blackgill rockfish and other rockfish in metric tons (mt)

Category	2025		2026	
	Trawl	Non-trawl	Trawl	Non-trawl
Blackgill rockfish share [mt] (41% trawl; 59% non-trawl)	68.75	98.93	68.08	97.97
Other rockfish slope share a/ [mt] (91% trawl; 9% non-trawl)	478.17	47.29	476.86	47.16
Subtotal share (mt)	546.92	146.22	544.94	145.13
Total (mt)	693.1		690.1	
% of total share	78.9%	21.1%	79%	21%
Total combined off-top (mt)	19.1		19.1	
Apportioned off-top (mt)	15.07	4.03	15.08	4.02
Final two-year allocation (mt)	531.81	142.19	529.88	144.92

a/ slope south of 40°10 N. ACL lat. minus blackgill south of 40°10 N. ACL contribution

2.9.3 Washington Cabezon/Kelp Greenling Complex

The Council did not recommend specific component species HGs for the Washington cabezon and kelp greenling complex under Alternative 1 for the 2025-26 biennium.

2.9.4 Oregon Black/Blue/Deacon and Cabezon/Kelp Greenling Complexes

The Council did not recommend any federally-specified component stock HGs for Oregon black/blue/deacon rockfish complex and the Oregon cabezon/kelp greenling complexes off of Oregon under Alternative 1 for the 2025-26 biennium.

2.9.5 Non-trawl Sharing Agreement for Canary Rockfish

Under Alternative 1, the canary rockfish non-trawl HG is subject to a commercial non-trawl and state-specific recreational percentage-based sharing arrangement (Section 1.5.5) as described under No Action. These amounts could change if the Council adopted a new allocation strategy for canary rockfish (see § 2.6)

Table 68. Alternative 1: Canary rockfish commercial non-trawl and recreational shares for 2025-26 based on status quo sharing agreement percentages (%) non-trawl rounded to the nearest tenth of a metric ton (mt).

Sector	2025 (mt)	2026 (mt)
Non-Trawl	140.8	141.2
Nearshore & Non-Nearshore (36%)	50.7	50.8
WA Recreational (12.3%)	17.3	17.4
OR Recreational (18.5%)	26.1	26.1
CA Recreational (33.2%)	46.7	46.9

2.9.6 Non-trawl Sharing Agreement for Bocaccio South of 40° 10′ N. lat.

Under Alternative 1, the non-trawl sharing agreement for bocaccio south of 40°10′ N. lat is the same as under No Action. The sharing agreement is 30.9 percent to the commercial non-trawl fishery and 69.1 percent to the California recreational fishery (Table 69).

Table 69. Alternative 1: Bocaccio south of 40° 10′ N. commercial non-trawl and recreational shares for 2025-26 based on status quo sharing agreement percentages (%) non-trawl in metric tons (mt).

Sector	2025 (mt)	2026 (mt)
Non-trawl	1,020.6	1,025.1
Non-nearshore & Nearshore (30.9%)	315.4	316.8
CA Recreational (69.1%)	705.2	708.3

2.9.7 Nearshore Rockfish Complex North of 40°10′ N. lat.

Under Alternative 1, the Council did not recommend any formal changes to the informal nearshore rockfish north of 40°10′ N. lat. sharing agreement for the 2025-26 biennium. Table 70 displays the values for these stocks under status quo informal allocations. The nearshore rockfish complex N. of 40°10 is subject to 3.3 mt. off-the-top deduction. State specific off-the-top deductions are proportional to their HGs.

In prior biennial processes, copper rockfish was considered as separate stocks off Washington and Oregon. The stock's ACL contribution to the nearshore rockfish complex north of 40°10′ N. lat. was therefore not shared between the states. Each state managed 100% of their contribution. Under

Amendment 31, copper rockfish was designated as a combined north of 42° N. lat. (i.e., Oregon/Washington) stock and has a single ACL for the area. The 2025-26 ACL is 16.33 mt and 15.82 mt, respectively, for the stock. Oregon and Washington could consider a new informal sharing agreement; therefore, the copper rockfish north of 42° N. lat. stock sharing agreement is left blank, though will be updated as appropriate

Table 70. Alternative 1. Nearshore Rockfish Complex North of 40° 10′ N. lat. sharing arrangement percentages (%) and ACL contributions (contr.) to complex in metric tons (mt) with values rounded to nearest tenths.

Rockfish	Sharing Agreement %			2025 specifications (mt)				2026 specifications (mt)			
	WA %	OR%	CA%	ACL contr	WA	OR	CA	ACL contr	WA	OR	CA
Black and Yellow /Gopher	12.9%	58.4%	28.7%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blue/deacon (CA)	0.0%	0.0%	100%	27.7	0.0	0.0	27.7	27.4	0.0	0.0	27.4
Blue/deacon (WA)	100%	0.0%	0.0%	5.6	5.6	0.0	0.0	5.5	5.5	0.0	0.0
Brown	0.0%	8.0%	92.0%	1.7	0.0	0.1	1.6	1.7	0.0	0.1	1.6
Calico a/	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China (WA)	100%	0.0%	0.0%	7.7	7.7	0.0	0.0	7.4	7.4	0.0	0.0
China (OR/CA)	0.0%	80.9%	19.1%	16.1	0.0	13.8	3.3	15.7	0.0	12.7	3.0
Copper (OR/WA) b/	-	-	-	-	-	-	-	-	-	-	-
Copper (WA)	100%	0.0%	0.0%	-	*	0.0	0.0	-		0.0	0.0
Copper (OR)	0.0%	100%	0.0%	-	0.0	*	0.0	-	0.0	-	0.0
Copper (42°- 40° 10′)	0.0%	0.0%	100%	6.8	0.0	0.0	6.9	6.8	0.0	0.0	6.8
Grass	12.9%	58.4%	28.7%	0.5	0.1	0.3	0.1	0.5	0.1	0.3	0.1
Kelp a/	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Olive	12.9%	58.4%	28.7%	0.3	.04	0.2	0.1	0.3	.04	0.2	0.1
Quillback (WA)	100%	0.0%	0.0%	2.2	2.2	0.0	0.0	2.2	2.2	0.0	0.0
Quillback (OR)	0.0%	100%	0.0%	2.7	0.0	2.7	0.0	2.7	0.0	2.7	0.0
Quillback c/ (42° - 40° 10′)	0.0%	0.0%	100%	-	0.0	0.0	-	-	0.0	0.0	-
Treefish	12.9%	58.4%	28.7%	0.2	.03	0.1	0.1	0.2	.03	0.1	0.1
Total (mt)				**87.8**	17.5	30.8	39.4	**86.1**	17.1	30.0	39.0
off-the-top (mt)				**3.3**	0.7	1.2	1.5	**3.3**	0.7	1.1	1.5
off-the-top %					19.9%	35.1%	44.9%		19.9%	34.8%	45.3%
HG (mt)					16.8	29.7	37.9		16.5	28.9	37.5

a/ species part of complex but do not have specifications north of 40°10′ N. lat.
b/ the copper rockfish north of 42° N. lat. have not been determined as of this writing (12/28/23)
c/ Quillback rockfish off CA harvest specifications have not been adopted by the Council

3. Alternative 2

Under the Alternative 2, default HCRs, as detailed above under Alternative 1, would be implemented for all stocks except the following:

- California Quillback Rockfish Stock: ABC Rule[1]
- Dover Sole: ACL = ABC P* 0.45
- Shortspine Thornyhead: ACL < ABC P* 0.45, 40-10 adjustment applies.
- Rex sole: ACL = ABC P* 0.45
- Canary Rockfish: ACL < ABC P* 0.40, 40-10 adjustment applies.
- Sablefish: ACL = ABC P*0 .40

The Council considered, but rejected, alternative HCRs for canary rockfish and sablefish. The Council agreed with the GMT recommendations found in Agenda Item E.5.a, Supplemental GMT Report 2, November 2023. Briefly, the Council rejected the alternative HCR for canary rockfish as the yield would not accommodate the needs of the fishery and may constrain fishing activities due to the mixing of this stock with other midwater species. The Council rejected the Alternative 2 sablefish HCR as there is no conservation concern at this time and the stock will be reassessed in 2025. As described above, No Action is an untenable option; therefore, no meaningful comparison between ACL values can be detailed. Therefore, only the differences between Alternative 1 and Alternative 2 are presented.

This alternative considers the ABC Rule rebuilding strategy California quillback rockfish (Agenda Item F.2, Attachment 1, March 2024 see tables 2 and 5). Under this strategy, the OFL is 1.52 mt and ACL is 1.52 mt for 2025 and the 2026 OFL is 1.71 mt and ACL is 1.5 mt.

3.1 Rockfish Conservation Area Updates

The RCA updates under Alternative 2 are the same as under Alternative 1 (Section 2.1).

3.2 Off-the-Top Deductions

Under Alternative 2, the deductions from groundfish ACLs for Tribal, EFP, research, IOA, and recreational are the same as described under Alternative 1 (Section 2.2). California quillback harvest specification under Alternative 2 is the ABC Rule (Agenda Item F.2, Attachment 1, March 2024). Dover sole, rex sole, and shortspine thornyhead have alternative HCRs, which results in different HGs post off-the-top deductions (Table 71). The differences between the Alternative 1 and Alternative 2 HGs are shown in Table 72.

The Alternative 2 Dover sole HCR (ABC=ACL, P* 0.45) results in a lower ACL respective of Alternative 1. The 2025-26 ACLs (47,424.2 mt and 47,457.2 mt, respectively) are reduced by 1,584.1 mt resulting in HGs of 45,839.9 mt and 40,872.9 mt for 2025 and 2026, respectively.

The Alternative 2 shortspine thornyhead HCR is ACL < ABC P* 0.45, 40-10 adjustment applies, increases the ACL over Alternative 1. The apportionment scheme is the same as described under

[1] Agenda Item F.2, Attachment 1, March 2024 see tables 2 and 5

Alternative 1. The 2025-26 Alternative 2 ACLs for shortspine thornyhead north of 34° 27′ N. lat. (576 mt and 582 mt, respectively) are reduced by 70.2 mt, resulting in HGs of 505.8 mt and 511.8 mt for 2025 and 2026, respectively. The 2025-26 Alternative 2 ACLs for shortspine thornyhead south of 34° 27′ N. lat. (240 mt and 242 mt, respectively) are reduced by 1.8 mt, resulting in HGs of 238.2 mt and 240.2 mt for 2025 and 2026, respectively.

The Alternative 2 rex sole HCR is ABC P* 0.45, which increases the ACL relative to Alternative 1. The 2025-26 rex sole ACLs are not directly reduced by an off-the-top deduction. The deduction is applied to the other flatfish complex, under which rex sole is managed. The other fish complex is reduced by 171.3 mt resulting in HGs of 7,802.7 mt and 6,972.7 mt for 2025 and 2026, respectively.

3.2.1 California Quillback Rockfish

As discussed under Alternative 1, the Council adopted three sets of harvest specifications for the California quillback rockfish stock for overwinter analysis. The Alternative 2 California quillback rockfish stock is the ABC Rule from the 2023 rebuilding analysis (Agenda Item E.2, Attachment 1, November 2023). The 2025 OFL = 1.52 mt and the ACL = 1.3 mt, and the 2026 OFL is 1.71 and the ACL is 1.5.

Table 71. Alternative 2. 2025 and 2026 tribal, EFP, research (Res), and incidental open access (IOA) groundfish set-asides and harvest guideline (HG) for species with alternative annual catch limit (ACL) in metric tons (mt).

Species	Area	Yr.	ACL (mt)	Tribal (mt)	EFP (mt)	Res. (mt)	IOA (mt)	Sum (mt)	Fishery HG (mt)
Quillback Rockfish a/	California	2025	1.3	0	0	0.1	0	0.1	1.2
		2026	1.5	0	0	0.1	0	0.1	1.4
Dover sole	Coastwide	2025	47,424.2	1,497.0	0.0	61.9	25.2	1,584.1	45,840.1
		2026	42,457.2	1,497.0	0.0	61.9	25.2	1,584.1	40,873.1
Shortspine thornyhead	N of 34º27’ N. lat.	2025	576	50.0	0.0	15.8	4.4	70.2	505.8
		2026	582	50.0	0.0	15.8	4.4	70.2	511.8
	S of 34º27’ N. lat.	2025	240	-	0.0	0.5	1.3	1.8	238.2
		2026	242	-	0.0	0.5	1.3	1.8	240.2
Other flatfish c/	Coastwide	2025	7,974.3	60.0	0.0	23.6	87.7	171.3	7,803
		2026	7,143.9	60.0	0.0	23.6	87.7	171.3	6,972.6
Rex Sole b/	Coastwide	2025	4,549.7	-	-	-	-	0	4,549.7
		2026	3,719.2	-	-	-	-	0	3,719.2

a/ specifications have not been adopted and are for analysis only.

b/ The other flatfish complex is shown as rex sole is managed in this complex. The alternative HCR results in increases to the complex ACL and, subsequently, the HG post set-sides.

c/ Rex sole is shown as it was assessed in 2023. It is managed as part of the other flatfish complex and does not have any direct off-the-top set-asides. The set-asides are specific to the other flatfish complex. ACL=HG

Table 72. provides a comparison of the Alternative 1 to the Alternative 2 HGs. With the exception of Dover sole, the HGs under Alternative 2 are higher than Alternative 1. For California quillback rockfish, the 2025-26 Alternative 2 HGs differ from the Alternative 1 HGs by 0.04 mt and 0.03

mt, respectively. When rounded, the Alternative 2 HGs are equivalent to Alternative 1 HGs. The 2025-26 difference, 0.04 mt and 0.03 mt.

Table 72. Alternative 2: Comparison of the 2025-26 Alternative 1 and Alternative 2 harvest guidelines (HG) in metric tons (mt) and the difference, in mt, between the two HGs (Alt 2 HG -Alt 1 HG).

Stock	Area	Yr.	Alt 1 HG (mt)	Alt2 HG (mt)	HG Difference Alt2:Alt1 (mt)
Quillback Rockfish	California	2025	1.16	1.2	+0.04
		2026	1.37	1.4	+0.03
Dover Sole	Coastwide	2025	48,415.9	45,840.1	-2,575.8
		2026	48,415.9	40,873.1	-7,542.8
Shortspine Thornyhead	N of 34º27' N. lat.	2025	431.7	505.8	+74.1
		2026	433.5	511.8	+78.3
	S of 34º27' N. lat.	2025	207.2	238.2	+31.0
		2026	208.0	240.2	+32.2
Other flatfish a/	Coastwide	2025	7220.7	7,803	+582.3
		2026	6,563.7	6,972.6	+408.9
Rex Sole	Coastwide	2025	3,966.7	4,549.7	+583.0
		2026	3,309.7	3,719.2	+409.5

a/ The other flatfish complex is shown as rex sole is managed in this complex. The alternative HCR results in increases to the complex ACL and, subsequently, the HG post set-sides.

b/ For rex sole, the ACL contributions are shown, this stock does not have an HG.

3.3 Annual Catch Target

Under Alternative 2, ACTs for yelloweye and copper rockfishes remain the same as under Alternative 1.

3.3.1 California Quillback Rockfish ACT

Under Alternative 2, the method to calculate the California quillback rockfish ACT the is the same as described under No Action, with the exception that the stock will not be managed in a complex (see Alternative 1). The Alternative 2 California quillback rockfish stock HG is 1.2 mt (see Table 71) which results in ACTs shown in Table 73. The Alternative 2 ACT is 0.04 and 0.03 mt higher than under Alternative 1, which is consistent with the description of the harvest specification described in Table 71 and Table 72.

Table 73. Alternative 2. Estimated annual catch target (ACT) strategy for California quillback rockfish.

	OFL (mt)	ABC:ACL (mt)	HG (mt)	ACT (mt)
2025	1.52	1.3	1.2	1.2
2026	1.77	1.5	1.4	1.4

3.4 Allocations

3.4.1 Amendment 21 and Biennial Allocations

Under Alternative 2, the trawl/non-trawl allocations are the same as described under Alternative 1 Table 74) except Dover sole, shortspine thornyhead north and south of 34° 27′ N. lat., and other flatfish.

Table 74. Alternative 2. 2025 and 26 stock and stock complex fishery harvest guidelines, allocation type, allocation percentages (%) and calculated trawl and non-trawl allocations in metric tons(mt).

STOCK	AREA	Alloc. Type	Year	HG or ACT	Trawl		Non-Trawl	
					%	mt	%	mt
Dover sole	Coastwide	Biennial	2025	45,840.1	95	43,548.1	5	2,292
			2026	40,873.1		38,829.5		2,043.6
Shortspine thornyhead	N of 34º27’ N. lat.	A-21	2025	505.8	95	480.5	5	25.3
			2026	511.8		486.2		25.6
Shortspine thornyhead a/	S of 34º27’ N. lat.	A-21	2025	238.2	-	50	-	188.2
			2026	240.2		50		190.2
Other flatfish b/	Coastwide	A-21	2025	7,803	90	7,022.7	10	780.3
			2026	6,972.6		6,275.3		697.3

a/ shortspine thornyhead south of 34° 27′ N. lat. is int allocated by percentages, but by 50 mt to trawl and the remainder to non-trawl.
b/ shown due to the alternative rex sole HCR is under consideration by the Council – rex sole is a component stock of the other flatfish complex.

Table 75 shows the difference between Alternative 1 and Alternative2 trawl and non-trawl the allocations for stocks with alternative HCRs. Of these stocks, only Dover sole allocations decrease, the remaining allocations for these stocks increase relative to Alternative 1 or do not change (i.e., shortspine thornyhead south of 34°27′ trawl allocation). It is important to note that the Alternative 1 ACL for Dover sole is greater than its ABC, which cannot be adopted; therefore, of the two action alternatives, only the Alternative 2 trawl/non-trawl allocations can be adopted.

Table 75. Alternative 2: Difference between Alternative 2 and Alternative 1 trawl and non-trawl allocations

			Alternative 1		Alternative 2		Difference Alt. 2 vs Alt. 1	
			Trawl	Non-Trawl	Trawl	Non-Trawl	Trawl	Non-Trawl
Stock	**Area**	**Year**	**mt**	**mt**	**mt**	**mt**	**mt**	**mt**
Dover Sole	Coastwide	2025	45,995.1	2,420.8	43,548.1	2,292	-2,447.0	-128.8
		2026	45,995.1	2,420.8	38,829.4	2,043.7	-7,165.7	-377.1
Shortspine Thornyhead	N of 34º27’ N. lat	2025	410.1	21.6	480.5	25.3	+70.4	+3.7
		2026	411.8	21.7	486.2	25.6	+74.4	+3.9
	S of 34º27’ N. lat.	2025	50	157.2	50	188.2	0.0	+31.0

			Alternative 1		Alternative 2		Difference Alt. 2 vs Alt. 1	
			Trawl	Non-Trawl	Trawl	Non-Trawl	Trawl	Non-Trawl
Stock	**Area**	**Year**	**mt**	**mt**	**mt**	**mt**	**mt**	**mt**
Shortspine Thornyhead		2026	50	158	50	190.2	0.0	+32.2
Other Flatfish	Coastwide	2025	6,498.6	722.1	7,022.7	780.3	+524.1	+58.2
		2026	5,907.3	656.4	6,275.4	697.3	+368.1	+40.9

3.4.2 Rebuilding Species Allocation

Yelloweye rockfish

Under Alternative 2, yelloweye rockfish allocations are the same as under Alternative 1 (Section 1.4.1).

Quillback rockfish

Under Alternative 2, California quillback rockfish is not subject to allocation between sectors.

3.5 Harvest Guidelines and State Shares for Stocks in a Complex

Under Alternative 2, the HGs and state shares are the same as described under Alternative 1 (Section 1.5).

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4. Alternative 3

Under the Alternative 3, default HCRs, as detailed above under Alternative 1, would be implemented for all stocks except California quillback rockfish.

- California Quillback Rockfish Stock: CDFW Recommended OFL/ACL [1]

Under Alternative 3, the California quillback rockfish harvest specification is OFL = 8.41 mt and the ABC:ACL = 5.06 mt. for 2025 and 2026(Agenda Item E.2, Supplemental CDFW Report 2 November 2023).

The Council did not specify a 2026 OFL/ACL for analysis. In order to facilitate the Council with impact analysis for the full biennium under Alternative 3 for California quillback rockfish, the same OFL/ACL was used for the 2026 analyses under Alternative 3. It is possible a different 2026 specification will be selected by the Council.

4.1 Rockfish Conservation Area Updates

The RCA updates under Alternative 3 are the same as under Alternative 1 (Section 2.1).

4.2 Off-the-Top Deductions

Under Alternative 3, the off-the-top deductions are the same as described under Alternative 1 (Section 2.2). California quillback alternative harvest specification under Alternative 3 OFL = 8.41 mt and the ABC:ACL = 5.06 mt. for 2025 and 2026(Agenda Item E.2, Supplemental CDFW Report 2 November 2023) which is subject to a 0.1 mt research set-aside (Table 76). The off-the-top reduction results in a California quillback rockfish fishery HG of 4.96 for 2025 and 2026

Table 76. Alternative 3: 2025 and 2026 tribal, EFP, research (Res), and incidental open access (IOA) groundfish set-asides and harvest guideline (HG) for California quillback rockfish in metric tons (mt).

Species	Area	Yr.	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
QUILLBACK ROCKFISH	California	2025	5.06	0.0	0.0	0.1	0.0	0.1	4.96
		2026	5.06	0.0	0.0	0.1	0.0	0.1	4.96

The differences between the Alternative 1, Alternative 2, and Alternative 3 California quillback rockfish HGs are shown in Table 77. When rounded the differences between the Alternative 1 and Alternative 2 HGs for 2025-26, respectively. Alternative 3 is 3.8 mt and 3.6 mt higher than the other two Alternative HGs -the caveat is that Alternative 1 and Alternative 2 HGs are, when rounded, the same number.

[1] Agenda Item E.2, Supplemental CDFW Report 2 November 2023

Table 77. Alternative 3: Comparison of the 2025-26 Alternative 1, Alternative 2 and Alternative 3 California quillback rockfish harvest guidelines (HG) in metric tons (mt) and the difference, in mt, between the HGs (Alt 3 HG -Alt 1 HG; Alt 3 HG – Alt 2 HG).

Stock	Area	Yr.	Alt 1 HG (mt)	Alt 2 HG (mt)	Alt3 HG (mt)	HG Difference Alt3:Alt1 (mt)	HG Difference Alt3:Alt2 (mt)
Quillback Rockfish	California	2025	1.16	1.2	4.96	+3.8	+3.76
		2026	1.37	1.4	4.96	+3.59	+3.56

4.3 Annual Catch Target

Under Alternative 3, ACTs for yelloweye and copper rockfishes remain the same as under Alternative 1.

4.3.1 California Quillback Rockfish ACT

Under Alternative 3, the method to calculate the California quillback rockfish ACT the is the same as described under No Action, with the exception that the stock will not be managed in a complex (see Alternative 1). The Alternative 3 California quillback rockfish stock HG is 4.96 mt (see Table 76) which results in ACTs shown in Table 78.

Table 78. Alternative 3. Estimated annual catch target (ACT) strategy for California quillback rockfish under Alternative 3 harvest specifications.

	OFL (mt)	ABC:ACL (mt)	Off the Top (mt)	HG (mt)	ACT (mt)
2025	8.41	5.06	0.10	4.96	4.96
2026	8.41	5.06	0.10	4.96	4.96

Table 79 shows the difference between the Alternative 1 ACT, Alternative 2, Alternative 3 ACTs for California quillback rockfish. The 2025-26 Alternative 3 California quillback rockfish ACT is 3.8 and 3.59 mt (respectively) higher than Alternative 1. The 2025-26 Alternative 3 California quillback rockfish ACT is 3.76mt and 3.56 mt (respectively) higher than Alternative 2 California quillback rockfish ACTs. These values are consistent with the differences between the Alternative harvest specification described above (Table 77).

Table 79. Alternative 3: Comparison of Alternative 1-3 annual catch target (ACT) comparison

	Alt 1 ACT (mt)	Alt 2 ACT (mt)	Alt 3 ACT (mt)	Difference Alt 3 and Alt1 (mt)	Difference Alt 3 and Alt1 (mt)
2025	1.16	1.2	4.96	+3.8	+3.76
2026	1.37	1.4	4.96	+3.59	+3.56

4.4 Allocations

4.4.1 Amendment 21 and Biennial Allocations

Under Alternative 3, the trawl/non-trawl allocations are the same as described under Alternative 1 Allocations (2.4.1.)

4.4.2 Rebuilding Species Allocation

Yelloweye rockfish

Under Alternative 3, yelloweye rockfish allocations are the same as under Alternative 1 (§2.4.20).

Quillback rockfish

Under Alternative 3, California quillback rockfish is not subject to allocation between sectors. (§2.4.20).

4.5 Harvest Guidelines and State Shares for Stocks in a Complex

Under Alternative 3, the HGs and state shares are the same as described under Alternative 1 (§2.9)

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5. Alternative 4

Under the Alternative 4, default HCRs, as detailed above under Alternative 1, would be implemented for all stocks except California quillback rockfish. Under Alternative 4, the California quillback rockfish harvest specification is OFL = 1.52 mt and the ABC:ACL = 0 mt. for 2025 and OFL = 1.81 mt and the ABC:ACL = 0 mt 2026 (Table 2, Agenda Item F.2, Attachment 1, March 2024). The T_{target} year to rebuild the California quillback stock under Alternative 4 specifications would be 2045 with a 0.999 probability of rebuilding by T_{max} (2071). Adopting an F=0 strategy would equate to no mortality of California quillback rockfish whatsoever. The expectation is an F=0 strategy would also represent no California quillback rockfish mortality in all non-groundfish fisheries where there has been mortality in the past, e.g., Pacific halibut fishery. Additionally, the fisheries managed by California may need to consider management measures to ensure F=0 as fish caught in state waters would be considered as part of the total mortality of this stock.

5.1 Rockfish Conservation Area Updates

The RCA updates under Alternative 4 are the same as under Alternative 1 (Section 2.1).

5.2 Off-the-Top Deductions

Under Alternative 4, the off-the-top deductions are the same as described under Alternative 1 (Section 2.2) unless removed by the Council. A F=0 strategy could not support an off-the-top deduction as this strategy results in no fishing mortality for the stock. Therefore, the 0.1 mt research set-aside for California quillback rockfish could not be adopted under this alternative as negative HG is not possible. Therefore, it this analysis assumes set-asides would have to equal zero to achieve an F=0 scenario. (Table 80).

Alternative 4 could also require reconsideration of all federal and state fishery independent research that could impact quillback rockfish. Under Alternative 4, no set asides for research purposes could be authorized. With quillback rockfish status as over-fished, and currently in the process of establishing a rebuilding plan, collecting additional quillback rockfish data is crucial for recovery of the stock. These factors could jeopardize future stock assessments for California quillback. Further, State scientific collection permits are not under Council or NMFS jurisdiction, which further illustrates the difficulties of the federal rebuilding plan to achieving F=0.

Table 80. Alternative 4: 2025 and 2026 tribal, EFP, research (Res), and incidental open access (IOA) groundfish set-asides and harvest guideline (HG) for California quillback rockfish in metric tons (mt).

Species	Area	Yr.	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Sum (mt)	Fishery HG (mt)
QUILLBACK ROCKFISH	California	2025	0	0.0	0.0	0	0.0	0	0
		2026	0	0.0	0.0	0	0.0	0	0

A comparison between the Alternative 1, Alternative 2, and Alternative 3, and Alternative 4 California quillback rockfish HGs are shown in Table 81In this table the differences between the HGs is the Alternative 4 HG minus the other Alternative HGs. Noting that under Alt 4, the set-

aside would need to be removed in order to achieve the F=0 scenario. Therefore, in all cases, Alternative 1 through Alternative 4 are greater than 0

Table 81. Alternative 4: Comparison between the 2025-26 Alternative 1 and Alternative 2 harvest guidelines in metric tons (mt)

Stock	Area	Yr.	Alt 1 HG (mt)	Alt 2 HG (mt)	Alt3 HG (mt)	Alt4 HG (mt)
Quillback Rockfish	California	2025	1.16	1.2	4.96	0 a/
		2026	1.37	1.4	4.96	0 a/

Quillback has been caught in all groundfish fisheries except at-sea or midwater trawl since 2013. Additionally, it has been caught in non-groundfish fisheries as well, including pink shrimp and Pacific halibut fisheries. Table 79 provides the estimated average mortality for quillback rockfish caught off of California. The mortality was incurred in non-trawl fisheries on an annual basis; whereas, mortality in the other sectors was sporadic over the 10 year period. The individual years are not shown due to confidentiality concerns. These values demonstrate the difficulty of an F=0 scenario for California quillback rockfish, noting it appears in all groundfish fisheries as well as in non-groundfish fisheries. Further, this stock is also encountered in state managed fisheries (i.e., surfperch, coastal pelagics species[CPS], etc.) . The mortality of state fishery catch may (CA halibut), or may not (e.g., CPS), be estimated by WCGOP. This then leads to uncertainty of total mortality for this stock.

Table 82. Estimated 10 year (2013-2022) average quillback rockfish mortality[2] off of California

Sector	10 Year Average (mt)
Incidental	0.1
Research	< 0.1
Bottom Trawl	< 0.1
Commercial Fixed Gear	3.0
California Recreational	8.0

5.3 Annual Catch Target

Under Alternative 4, ACTs for yelloweye and copper rockfishes remain the same as under Alternative 1.

5.3.1 California Quillback Rockfish ACT

Under Alternative 4, the method to calculate the California quillback rockfish ACT the is the same as described under No Action, with the exception that the stock will not be managed in a complex (see Alternative 1). The Alternative 4 California quillback rockfish stock HG is 0 mt (Table 83) as

[2] The NWFSC Fisheries Observation Science Program provided preliminary estimates of quillback mortality off California north and south of 40 10 (excluding research mortality) to the GMT, using the methods outlined in Somers et al. 2023. These estimates are in a pre-review, pre-decisional state and should not be formally cited. They are to be considered provisional and do not represent any final determination or policy of NOAA or the Department of Commerce."

under the F=0 scenario, the ACL equals zero. A California quillback rockfish ACT is not feasible under this Alternative.

Table 83. Alternative 3. Alternative 2. Estimated annual catch target (ACT) strategy for California quillback rockfish.

	OFL (mt)	ABC:ACL (mt)	Off the Top (mt)	HG (mt)	ACT (mt)
2025	1.52	0	0a/	0	0
2026	1.81	0	0a/	0	0

a/ the off the top amount for research is shown as 0 as a 0.1 mt research set-aside is not feasible under a 0 ACL scenario, i.e., an HG of less than 0 is not possible.

Table 84 shows the difference between the Alternative 1, Alternative 2, Alternative 3 and Alternative 4 California quillback rockfish ACTs. These values further indicate that an ACT under Alternative 4 is not feasible.

Table 84. Alternative 3: Comparison of Alternative 1-3 annual catch target (ACT) comparison

	Alt 1 ACT (mt)	Alt 2 ACT (mt)	Alt 3 ACT (mt)	Alt 3 ACT (mt)
2025	1.16	1.2	4.96	0
2026	1.37	1.4	4.96	0

5.4 Allocations

5.4.1 Amendment 21 and Biennial Allocations

Under Alternative 4, the trawl/non-trawl allocations are the same as described under Alternative 1 Allocations (2.4.1.)

5.4.2 Rebuilding Species Allocation

Yelloweye rockfish

Under Alternative 4, yelloweye rockfish allocations are the same as under Alternative 1 (§2.4.20).

Quillback rockfish

Under Alternative 4, California quillback rockfish is not subject to allocation between sectors. (§2.4.20).

5.5 Harvest Guidelines and State Shares for Stocks in a Complex

Under Alternative 4, the HGs and state shares are the same as described under Alternative 1 (§2.9)

Chapter 2: Tribal Fishery

Executive Summary

Tribal fisheries consist of trawl (bottom, midwater, and whiting), fixed gear, and troll. Principle management controls in the tribal fisheries include allocations, set-asides, HGs, and trip limits. Information relative to tribal fisheries and the Council process are found in the FMP §6.2.5 and 6.3.2.1 of the Groundfish Fishery Management Plan. The Tribal set-asides for the 2025-26 harvest specifications and management measure process are the same as in the last biennium, 2023-24.

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1. No Action -

1.1 Tribal Fishery Management Measures

Tribal fisheries consist of trawl (bottom, midwater, and whiting), fixed gear, and troll. Principle management controls in the tribal fisheries include allocations, set-asides, HGs, and trip limits. The Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) conducted their groundfish fisheries in 2023 with the allocations and management measures as described in Table . Tribal allocations and set-asides in 2023 are outlined in Table . For more information on the relation of tribal fisheries to the council process, consult sections 6.2.5 and 6.3.2.1 of the Groundfish Fishery Management Plan.

Under No Action, all tribal fisheries are managed not to exceed set-asides. Trip limits are subject to inseason adjustments in order to utilize tribal allocations and HGs. Full rockfish retention programs, where all overfished and marketable rockfish are retained, as well as a Makah trawl observer program, were in place to provide catch accountability. Federal publications regarding tribal management measures for 2022 & 2023 are found in 50 CFR 660.50.

Table 1. No Action. Tribal fishery management measures and regulations.

Tribal Management Measures
Black rockfish: For the commercial harvest of black rockfish off Washington State, the treaty Indian Tribes' harvest guideline is set at 30,000 lbs. for the area north of Cape Alava, WA (48°09.50' N. lat.) and 10,000 lbs. for the area between Destruction Island, WA (47°40' N. lat.) and Leadbetter Point, WA (46°38.17' N. lat.). This harvest guideline applies and is available to the Pacific Coast treaty Indian Tribes. There are no tribal harvest restrictions for black rockfish in the area between Cape Alava and Destruction Island.
Sablefish: The sablefish allocation to Pacific coast treaty Indian Tribes is 10 percent of the sablefish ACL for the area north of 36° N. lat. and is reduced by 1.9 percent for estimated discard mortality.
Pacific whiting: the tribal allocation is 17.5% of the United States Total Allowed Catch (TAC).
Arrowtooth flounder are managed to an annual tribal harvest guideline of 2,041 mt.
Big skate: are managed to an annual tribal harvest guideline of 15 mt.
Canary rockfish: are managed to an annual tribal harvest guideline of 50 mt.
Washington cabezon/kelp greenling complex are managed to an annual tribal harvest guideline of 2 mt.
Darkblotched rockfish are managed to an annual tribal harvest guideline of 5mt.
Dover sole: are managed to an annual tribal harvest guideline of 1,497 mt.
English sole: are managed to an annual tribal harvest guideline of 200 mt.
Lingcod: are managed to an annual tribal harvest guideline of 250 mt.
Longnose skate: are managed to an annual tribal harvest guideline of 220 mt.
Nearshore rockfish: are managed to an annual tribal harvest guideline of 1.5 mt.
Other Flatfish: are managed to an annual tribal harvest guideline of 60 mt
Pacific cod: are managed to an annual tribal harvest guideline of 500 mt.

Pacific ocean perch are managed to an annual tribal harvest guideline of 130 mt.

Pacific spiny dogfish are managed to an annual tribal harvest guideline of 275 mt.

Petrale sole: are managed to an annual tribal harvest guideline of 350 mt.

Shelf rockfish: are managed to an annual tribal harvest guideline of 30 mt.

Slope rockfish are managed to an annual tribal harvest guideline of 36 mt.

Thornyheads

- Shortspine thornyhead is managed to an annual tribal harvest guideline of 50 mt.
- Longspine thornyhead is managed to an annual tribal harvest guideline of 30 mt.

Yelloweye rockfish are managed to an annual tribal harvest guideline of 5mt.

Yellowtail rockfish: Yellowtail rockfish taken in the directed tribal mid-water trawl fisheries are subject to a catch limit of 1,000 mt for the entire fleet, per year.

Widow rockfish: Widow rockfish taken in the directed tribal midwater trawl fisheries are subject to a catch limit of 200 mt for the entire fleet, per year.

Specific Management Measures & Trip Limits

Rockfish: Full retention. Rockfish taken during open competition tribal commercial fisheries for Pacific halibut would not be subject to trip limits.

Makah Tribe bottom trawl fisheries: Bottom trawl vessels are restricted to small footrope trawl gear.

Nearshore rockfish: 300 lb. per trip limit per species or species group, or to the non-tribal LE trip limit for those species if those limits are less restrictive than 300 lb. per trip.

Shelf rockfish and slope rockfish: Redstripe rockfish are subject to an 800 lb. trip limit. Shelf (excluding redstripe rockfish), and Slope Rockfish groups are subject to a 300 lb. trip limit per species or species group, or to the non-tribal LEFG trip limit for those species if those limits are less restrictive than 300 lb. per trip. LEFG trip limits are specified in the regulations (Table 2 (North) in 660.00 Subpart E)

Other rockfish: 300 lb. per trip limit per species or species group, or to the non-tribal LE trip limit for those species if those limits are less restrictive than 300 lb. per trip.

Flatfish and other fish (small footrope bottom trawl): For Dover sole, English sole, other flatfish, and arrowtooth flounder trip limits will be established in tribal regulation only and adjusted in-season to stay within the overall harvest targets and overfished species limits.

Spiny dogfish are managed within the LE trip limits for non-tribal fisheries.

Yelloweye rockfish: All tribal fisheries are subject to a 100 lb. trip limit.

EFH: EFH closures in tribal U&A fishing areas do not apply to tribal fisheries

RCA: RCA closures in tribal U&A fishing areas do not apply to tribal fisheries

Monitoring: The Makah Tribe operates a shoreside observer program in the Tribal whiting fishery and an at-sea observer program in the Tribal midwater and bottom trawl fisheries to monitor and enforce Makah management measures.

Reporting: VMS declarations are required for Tribal trawl vessels only.

1.2 Impacts

Under No Action, set-asides were not exceeded, except for yelloweye rockfish. The Tribes encountered a "lightning strike" of yelloweye rockfish in their 2023 Pacific halibut fishery. Normally the tribal fleet avoids known hot spots of yelloweye rockfish in their fisheries, as they are subject to the full retention measures previously noted. However, the tribal Pacific halibut

fishery in 2023 extended into July; later in the year than at any time in the last 20 years. This resulted in tribal fishermen exploring recently unfished halibut grounds within their respective Usual and Accustomed fishing areas (U&As). During these explorations, previously unknown hotspots of yelloweye rockfish were encountered within the tribal U&As, and encountered yelloweye rockfish were fully retained as per tribal management measures. Following this event, these areas were closed to further longline fishing via tribal fishing regulation.

The projected groundfish mortality for 2023 is shown in Table 2

Table 2. No Action: Projected 2023 groundfish mortality in tribal fisheries.

Species	Current Treaty harvest guidelines and set-asides (2023) (mt)	2023 Total Mortality (mt)
Arrowtooth flounder	2,041	0
Black rockfish (WA) a/	18.14	.07
Big Skate	15	0
Cabezon	2	.63
Canary rockfish	50	3.09
Darkblotched rockfish	5	.06
Dover sole	1,497	6.38
English sole	200	0
Lingcod	250	32.08
Longnose skate	220	22.45
Longspine thornyheads	30	.36
Other flatfish	60	3.18
Pacific cod	500	28.07
Pacific ocean perch	130	0
Pacific whiting	80,806 (17.5% of TAC)	0
Petrale sole	350	108.56
Sablefish north of 36° N. lat.	849 (10% of TAC)	547.35
Shortspine thornyheads	50	3.98
Pacific spiny dogfish	275	0
Widow rockfish	200	0
Yellowtail rockfish	1,000	10.09
Yelloweye rockfish	5	8.79
Minor shelf rockfish	30	1.39
Minor slope rockfish	36	0
Minor nearshore rockfish	1.5	.14

a/ The treaty harvest guideline of black rockfish is set at 30,000 lbs. north of Cape Alava and 10,000 lbs. between Destruction Island and Leadbetter Point (50 CFR 660.50(f)(1)).

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2. Alternative 1

As detailed in November 2023 briefing book items E.7.a Supplemental Tribal Report 1 and E.7.a Supplemental Tribal Report 2, the requested treaty harvest guidelines and set-asides are identical to the No Action for all fisheries.

Upon review of the published CFRs, the Tribes will be amending their set-aside requests during the April 2024 PFMC meeting to include a 2 mt set-aside for starry flounder. A tribal starry flounder set-aside of 2 mt was initially put in place in 2007 following high catch events in the tribal bottom trawl fishery. While this set-aside has not been requested by the Tribes for the last several harvest specification cycles, it has remained in published CFR regulations (Footnote ff to Table 1a, Part 660, Subpart C, Title 50). Upon review of catch since 2005, the Tribes have elected to re-add a 2 mt starry flounder set-aside to their official set-aside request in 2025/26. Starry Flounder is not a constraining species in fisheries coastwide, and a tribal set-aside remains a useful ACL buffer in the event of a lightning strike. This is particularly true as the 2005 and 2006 high catch events in tribal fisheries that preceded this set-aside align with other large lighting strike events of starry flounder in the Open Access fishery and research activities.

Table 3 displays the requested treaty harvest guidelines and set-asides as requested in November 2023 briefing book items E.7.a Supplemental Tribal Report 1 and E.7.a Supplemental Tribal Report 2, with the addition of a 2 mt starry flounder set-aside.

Table 3. Alternative 1. Requested Treaty harvest guidelines and set-asides for 2025-2026.

Species	Requested Treaty harvest guidelines and set-asides (mt)
Arrowtooth flounder	2,041
Black rockfish (WA) a/	18.14
Big skate	15
Cabezon	2
Canary rockfish	50
Darkblotched rockfish	5
Dover sole	1,497
English sole	200
Lingcod	250
Longnose skate	220
Longspine thornyheads	30
Other flatfish	60
Pacific cod	500
Pacific ocean perch	130
Pacific whiting	17.5% of TAC
Petrale sole	290

Species	Requested Treaty harvest guidelines and set-asides (mt)
Sablefish north of 36° N. lat.	10% of TAC
Shortspine thornyheads	50
Pacific spiny dogfish	275
Starry flounder	2
Widow rockfish	200
Yellowtail rockfish	1,000
Yelloweye rockfish	8
Nearshore rockfish	1.5
Slope rockfish	36
Shelf rockfish	30

a/ The treaty harvest guideline of black rockfish is set at 30,000 lbs. north of Cape Alava and 10,000 lbs. between Destruction Island and Leadbetter Point (50 CFR 660.50(f)(1)).

3. Alternative 2

Tribal fisheries would operate under the HGs and allocations displayed in Table 3. Tribal fisheries would be managed using the same measures described under No Action (Table).

4. Alternative 3

This alternative does not affect tribal fisheries as it is specific to the California stock of quillback rockfish

5. Alternative 4

This alternative does not affect tribal fisheries as it is specific to the California stock of quillback rockfish

Chapter 3. At-Sea Whiting Set-Asides

Executive Summary

Several at-sea set-asides were exceeded in 2022 and 2023, triggering Council interest in revisiting all at-sea set-asides to determine if adjustments are warranted. In addition, several species categories with set-asides were assessed in 2023, leading to either substantial increases or decreases in ACLs and IFQ allocations in 2025-26.

A bootstrap simulation was used to estimate the risk, or probability, of exceeding the at-sea set-asides in 2025-26. Four different attainment and latitudinal distribution scenarios were simulated to account for uncertainty in fishing effort. Across the species with at-sea set-asides, the bootstrap results indicate varying degrees of increased risk if the sectors fully attained their Pacific whiting allocations, compared to maintaining recent average attainment levels. Similarly, there are varying degrees of risk depending on how much fishing effort is focused off of Washington, compared to both Washington and Oregon (i.e., "coastwide").

For the species with only one at-sea set-aside option (i.e., status quo), there is generally a low risk of the at-sea set-asides being exceeded. For the two species or complexes with two at-sea set-aside options, arrowtooth flounder and the Other Flatfish complex, the option that would increase the set-asides to 100 mt (Option 2) would better accommodate anomalous bycatch years without impacting the IFQ fishery because of low IFQ attainment. There are six remaining species categories that have more than two options for at-sea set-asides: canary rockfish, darkblotched rockfish, sablefish north of 36° N. lat., shortspine thornyhead north of 34° 27′ N. lat., widow rockfish, and yellowtail rockfish north of 40° 10′ N. lat. Only canary rockfish, shortspine thornyhead, and widow rockfish include options in the range that would reduce the 2025-26 set-asides, compared to 2023.

For canary rockfish and shortspine thornyhead, the risk in 2025-26 is dependent on whether unique fishing dynamics seen in 2022 and 2023 (e.g., fishing relatively close to the seafloor) continue into the next biennium. If they do, lower set-asides could limit the at-sea sectors' ability to fully utilize their Pacific whiting allocations or lead to increased avoidance measures and thus higher operational costs. In general, increasing the set-asides for stocks where there is relatively little impact to the IFQ fishery (e.g., sablefish and darkblotched rockfish) would likely offset some of the impacts from reductions to the canary rockfish and/or shortspine thornyhead set-asides. The risk of exceeding the set-aside for yellowtail rockfish north of 40° 10′ N. lat. may be overestimated in the bootstrap simulation results due to high variability of historical catches, and all three set-aside options would be higher than at-sea mortality since 2011.

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1. No Action

1.1 At-Sea - Management Measures

The at-sea Pacific whiting fishery is composed of catcher/processors (CP) that target Pacific whiting with midwater trawl gear and process at sea, as well as motherships (MS) that process catch from catcher vessels which also use midwater trawl gear. Prior to 2018, Pacific ocean perch ("POP"), darkblotched rockfish, widow rockfish, and canary rockfish were managed in the at-sea sectors to hard-cap allocations. Amendment 21-3 revised these hard allocations to soft-cap set-asides for POP and darkblotched rockfish, and Amendment 21-4 did the same for widow and canary rockfishes. Further, management measures have been established that restrict the Pacific whiting season dates and provide for Bycatch Reduction Areas (BRAs; 50 CFR §660.131) and Block Area Closures (BACs; 50 CFR §660.60).

The at-sea Pacific whiting fishery is managed under a system of cooperatives ("co-ops") that are similar to Individual Fishing Quota (IFQ) programs except that the harvest privilege is assigned to the co-op instead of an individual vessel. The members of the co-op determine how and when the collectively-held harvest privilege would be used. The trawl rationalization program established a set of rules for the formation of co-ops that incentivized participation by all MS catcher vessels in the co-op system. For the MS sector, all catcher vessels have participated in a single co-op since 2011. However, catcher vessels can choose to operate outside of the co-op in the non-cooperative fishery. The CP sector has been voluntarily operating under a co-op since 1997. Currently, all at-sea vessels are part of a co-op, and thus the allocation to a sector is, essentially, an allocation to the co-op. Regulations for the MS sector can be found at 50 CFR §660.150 and for the CP sector at 50 CFR §660.160.

Principle management measures for the at-sea fishery in 2023 include:

- Cooperative management as described above.
- If there are any allocations for non-prohibited species caught incidentally with whiting, the sector must stop harvesting and processing that species once the sector is projected to meet or exceed the allocation (50 CFR §660.150(c)(3)(i) and 50 CFR §660.160(c)(6)). However, there are currently no allocations used to manage the at-sea sectors, as all previous allocations were converted to set-asides through Amendments 21-3 and 21-4.
- Set-asides for species listed in Table 2 are managed on an annual basis unless there is a risk of a harvest specification being exceeded, unforeseen impact on another fishery, or a conservation concern (50 CFR 660.150(c)(2)(i)(B)(*1*)). If one of these circumstances occurs, inseason action may be taken. The at-sea fishery is not required to cease harvesting if the at-sea set-aside is exceeded.
- BRAs are groundfish conservation areas (50 CFR §660.11) closed to vessels using midwater trawl gear during the Pacific whiting primary season shoreward of a boundary

line approximating the 75-fathom, 100-fathom, 150-fathom, or 200-fathom depth contour (50 CFR 660.130(e)(6)). BRAs can be implemented through routine inseason action.[1]

- BACs are a type of groundfish conservation area which close portions of the ocean bounded by latitude and depth and can be implemented for groundfish or salmon mitigation purposes coastwide for midwater trawl gear. BACs can be used to close specific sectors of the at-sea fishery (i.e., CP, MS), the entire at-sea fishery, or the entire trawl fishery (at-sea and IFQ). Whiting vessels fishing under an approved Salmon Mitigation Plan (SMP) may or may not be subject to a BAC if implemented for the whiting sector to access the Chinook salmon reserve (3,500 fish; see regulations at 50 CFR 660.60(i)).

At-sea set-asides are designed so that mortality from the at-sea sectors is largely accounted for, thereby minimizing risk to the ACL, while also accounting for the difficulty of predicting bycatch in the fishery and the possibility that they could be occasionally exceeded. Therefore, the Council may wish to set the at-sea set-asides such that they are not expected to be exceeded in more than a certain percentage of years. For example, if the at-sea sectors are expected to remain within their shortspine thornyhead set-aside 3 out of every 4 years, on average, while maintaining status quo fishing practices and effort, the Council might set the set-aside such that the probability of exceeding is less than 25 percent. When choosing an at-sea set-aside, the Council should also consider the needs of other fisheries for high-value or constraining stocks and the overall risk of exceeding the ACL based on mortality in other fisheries. At-sea set-asides also involve tradeoffs between stocks. The at-sea sectors' ability to utilize their Pacific whiting allocation while staying within the set-asides of stocks of particular concern often depends on their ability to catch additional bycatch of other stocks that are of lesser conservation concern or of less importance to other fisheries.

1.2 Impact (Groundfish Mortality)

Both at-sea sectors (CP and MS) reached relatively low attainments of their respective Pacific whiting allocations in 2023 (Table), but attainment in the MS sector has been below 50 percent in most years since 2019. 2023 was the first year of implementation of several management measures applicable to the at-sea whiting fishery that were intended to improve utilization of Pacific whiting allocations, specifically an earlier season start date by two weeks and several other measures that enhance operational flexibility for the two sectors. Industry communication indicated that the two at-sea fleets were not able to fully take advantage of those new opportunities, in addition to difficulties finding aggregations of Pacific whiting with minimal bycatch. Vessels in both sectors left the Spring whiting fishery earlier than they typically would to prioritize the Alaska pollock fishery due to bycatch issues and large pollock opportunities, and fewer MS vessels returned to the West Coast fishery in the Fall after the Alaska pollock B season than would be typical in prior years.

[1] assuming it meets all requirements of routine management measure changes (e.g., new information, expected impacts previously disclosed, etc.)

Table 1. Pacific whiting post-reapportionment allocation, catches, and attainment by at-sea sector, 2011-2023.

Year	Mothership			Catcher Processor		
	Pacific Whiting Catch (mt)	Post Re-apport. Allocation (mt)	Post Re-apport. Attainment	Pacific Whiting Catch (mt)	Post Re-apport. Allocation (mt)	Post Re-apport. Attainment
2011	50,111	53,039	94%	71,610	75,138	95%
2012	38,152	39,235	97%	55,602	55,584	100%
2013	52,479	56,170	93%	77,942	79,574	98%
2014	62,039	73,049	85%	103,267	103,486	100%
2015	27,669	71,204	39%	68,483	100,873	68%
2016	65,019	80,575	81%	108,804	114,149	95%
2017	66,257	96,884	68%	137,129	137,252	100%
2018	67,145	96,644	69%	116,049	136,912	85%
2019	52,416	96,644	54%	116,379	136,912	85%
2020	38,110	93,352	41%	111,015	132,249	84%
2021	35,912	81,276	44%	103,357	115,141	90%
2022	59,183	89,144	66%	126,158	126,287	100%
2023	32,744	102,047	32%	107,053	144,566	74%

Table 2 shows the 2023 at-sea set-asides in regulation for all non-whiting bycatch species managed in the at-sea fishery, alongside the at-sea mortality for 2022, 2023, and 2019-2023 (average). All set-asides for species listed in Table 2 are determined each biennium to account for expected bycatch. During the 2021-22 harvest specifications and management measures setting process, the Council chose to remove the set-asides from regulation for species of negligible (i.e., less than 0.2 mt) at-sea bycatch, which includes yelloweye rockfish, English sole, longspine thornyhead north of 34° 27' N. lat., Pacific cod, and starry flounder. For species where there is low risk to the ACL or where reducing the set-aside offered little benefit to the IFQ fishery, the Council set the set-asides at the historical maximum. This included all other species except for sablefish north of 36° N. lat., canary rockfish, darkblotched rockfish, Pacific ocean perch, petrale sole, and widow rockfish, which were set at a custom set-aside based on potential risks to the ACL and/or tradeoffs with the IFQ fishery.

In 2023, mortality from 10 of the 15 set-aside species were higher than their respective 2019-2023 average annual mortality in the at-sea sector (Table 2). The set-asides of five species were exceeded in 2022[2] or 2023 or both: arrowtooth flounder, darkblotched rockfish, other flatfish,

[2] The 2022 at-sea set-aside amounts were the same as those in 2023.

sablefish north of 36° N. lat., and shortspine thornyhead north of 34° 27' N. lat. Only sablefish and shortspine thornyhead set-asides were exceeded in both years.

Table 2. 2023 at-sea set-asides in regulation for non-whiting species managed in the at-sea fishery along with 2022, 2023, and average 2019-2023 mortality by the at-sea fishery. Shaded rows indicate species for which the set-aside was exceeded in either 2022 or 2023, and shaded/italicized rows indicate that the set-aside was exceeded both years. Data Source = PacFIN NORPAC.

Species	Area	2023 Set-Aside (mt)	Mortality in At-Sea Fishery (mt)		
			2022	2023	Average 2019-2023
Arrowtooth flounder	Coastwide	70	71.4	53.0	38.7
Canary rockfish	Coastwide	36	5.8	20.1	7.6
Darkblotched rockfish	Coastwide	76.4	70.1	100.5	65.6
Dover sole	Coastwide	10	2.9	1.6	2.6
Lingcod	N. of 40°10' N. lat.	15	1.0	2.2	1.3
Longnose skate	Coastwide	5	3.1	2.9	1.5
Other flatfish	Coastwide	35	47.5	24.2	24.2
Pacific halibut	Coastwide	10	1.8	0.3	0.7
Pacific ocean perch	N. of 40°10' N. lat.	300	22.7	83.8	61.1
Petrale sole	Coastwide	5	-	*	<1
Sablefish	*N. of 36° N. lat.*	*100*	*305.4*	*160.6*	*122.0*
Shelf rockfish	N. of 40°10' N. lat.	35	10.3	6.2	9.0
Shortspine thornyhead	*N of 34° 27' N. lat.*	*70*	*244.7*	*99.0*	*98.2*
Slope rockfish	N. of 40°10' N. lat.	300	209.5	92.6	147.7
Widow rockfish	Coastwide	476	186.6	206.3	159.3
Yellowtail rockfish	N. of 40°10' N. lat.	320	27.7	266.2	171.8

* confidential

The at-sea Pacific whiting fishery uses midwater trawl gear that is deployed in the water column above the seafloor (i.e., “fishing depth”). The CP sector tends to fish in deeper bottom depths and slightly deeper fishing depths than the MS sector. The CP sector appears to have been fishing in relatively shallower bottom depths since 2021, compared to all other years prior. Industry input at the December 2023 Joint Technical Committee meeting of the hake treaty implementation process indicated that frequent bycatch encounters in 2023 were largely driven by the presence of Pacific whiting in shallower waters. Additionally, both sectors generally fished closer to the seafloor in 2022 and 2023 than all other years since 2011. Both of these operational changes in 2023 are likely responsible for the sectors exceeding several set-asides in 2022 and 2023 despite relatively low Pacific whiting allocation attainments.

For darkblotched rockfish and shortspine thornyhead, analysis of hauls[3] between 2011 and 2023 indicates that a higher ratio of fishing depth to bottom depth, or in other words fishing closer to the seafloor, predicts a higher probability of encountering the species as well as a higher volume of bycatch per haul. For canary rockfish, there was no difference in encounter rates across depth ratios, and fishing distance from the seafloor does not appear to predict the volume of canary rockfish per haul. Further, the distance from sea floor varied widely for the five CP hauls in 2023 that made up most of the 20 mt of canary rockfish caught. Alternative 1 discusses the 20 mt increase in canary rockfish bycatch in greater detail, including implications for setting the 2025-26 set-aside. As discussed in Alternative 1 below, the 2022 and 2023 at-sea set-aside exceedances for sablefish are likely driven by the incoming 2020 and 2021 year classes, which are estimated to be the largest year classes to enter the fishery on record.

[3] Only CP hauls were analyzed for darkblotched rockfish, because CP bycatch was the primary cause of the 2023 set-aside being exceeded, and MS bycatch increased only minimally compared to prior years (Table 9 in Chapter 3 §Darkblotched rockfish). Hauls from both sectors (CP and MS) were analyzed for shortspine thornyhead, because both sectors experienced substantial bycatch increases in 2022 and 2023 compared to prior years (Table 14 in Section Chapter 3 §Shortspine thornyhead north of 34° 27′ N. lat.).

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2. Alternative 1

2.1 At-Sea - Management Measures

Under Alternative 1, DHCR ACLs would be implemented for 2025-26. The range of at-sea set-asides put forward for consideration in the 2025-26 biennium are shown in Table 3, including the Option 1 Status Quo 2023 at-sea set-aside. For 8 of the 16 species categories, Option 1 Status Quo is the only option in the range. For 5 of the remaining 8 species categories, there are one or two options that would increase those set-asides. Options that would decrease the set-aside amount are included for canary rockfish, shortspine thornyhead north of 34° 27′ N. lat., and widow rockfish. Options that are lower than the status quo set-aside are being considered for these three species categories, despite recent exceedances of the at-sea set-asides for canary rockfish and shortspine thornyhead north of 34° 27′ N. lat., because of reductions to the ACLs in 2025-26 and thus anticipated impacts to the IFQ fishery, especially if the trawl allocation percentage is lowered for canary rockfish (See Chapter 1 §2.6).

Table 3. Range of at-sea set-aside options (mt) for the 2025-26 biennium by species category.

Species Category	Option 1 Status Quo (mt)	Option 2 (mt)	Option 3 (mt)
Arrowtooth flounder	70	100	-
Canary rockfish	36	30	20
Darkblotched rockfish	76.4	100	150
Dover sole	10	-	-
Lingcod north of 40° 10′ N. lat.	15	-	-
Longnose skate	5	-	-
Other flatfish	35	100	-
Pacific halibut	10	-	-
Pacific ocean perch	300	-	-
Petrale sole	5	-	-
Sablefish north of 36° N. lat.	100	300	429
Shelf rockfish complex north of 40° 10′ N. lat.	35	-	-
Slope rockfish complex north of 40° 10′ N. lat.	300	-	-
Shortspine thornyhead north of 34° 27′ N. lat.	70	100	50
Widow rockfish	476	300	-
Yellowtail rockfish north of 40° 10′ N. lat. a/	320	360	450

a/ Option 3 (450 mt) for yellowtail rockfish was added during overwinter analysis based on projection results of the bootstrap simulation. Option 3 was not originally in the range put forward by the Council in November 2023

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Alternative 1 contemplates the California quillback rockfish default HCR. The at-sea fishery does not have a specific quillback rockfish set-aside. Given this stock inhabits areas that the at-sea sector

does not generally fish due to depth and habitat constraints, it is unlikely this fishery will encounter this stock. Therefore, the following Alternative 1 analysis excludes California quillback

2.2 Impact (Groundfish Mortality)

Bootstrap Simulation Methods

Bootstrap simulations were conducted to estimate the probability of the 2025-26 set-asides being exceeded under four different possible effort scenarios. 22,000 fishing seasons were simulated using individual whiting haul data from 2002 to 2023, with each individual simulated season first randomly selecting a year (e.g., 2017) and then resampling from all individual positive hauls (i.e., Pacific whiting was caught) within the selected year until a season end occurs. Predicted catch from both at-sea sectors were combined for each simulated season in this analysis, because all set-asides are combined across both sectors.

Bootstrap probabilities were estimated under four different scenarios:

1. Coastwide[1] fishing effort and full Pacific whiting allocations are assumed to be removed
2. Coastwide fishing effort and recent (2017-2023) average Pacific whiting allocation attainment is assumed
3. Northern (north of 46° 16′ N. lat.) fishing effort and full Pacific whiting allocations are assumed to be removed
4. Northern (north of 46° 16′ N. lat.) fishing effort and recent (2017-2023) average Pacific whiting allocation attainment is assumed

Out of the four scenarios, the two sectors most closely exhibited Scenario 2 in 2023 in which effort was distributed coastwide and Pacific whiting allocation attainment was moderate to low. Allocation attainment and latitudinal distribution have generally been the main drivers of bycatch trends in the at-sea fishery, and therefore, other scenarios looking at variables such as depth were not explored. To minimize the number of bootstrap simulation runs, we did not include strictly "southern" fishing effort scenarios, but as will be demonstrated below, species categories for which the risk of exceeding the set-aside is higher under a coastwide scenario compared to a northern scenario may suggest that the risk would be even higher if the sectors predominantly fished south of 46° 16′ N. lat.

Under Scenarios 1 and 3, in which full Pacific whiting attainment is assumed, a season end was only simulated once each sector's full Pacific whiting allocation was reached. Under Scenarios 2 and 4, recent average attainment, a season end was simulated once each sector caught the amount that equates to the average 2017-2023 percent attainment of their sector-specific post-tribal reapportionment allocation of Pacific whiting (88 percent for the CP sector; 54 percent for the MS sector). The period 2017-2023 was selected because 2017-2019 represents years of high catch preceding the COVID-19 pandemic, which resulted in lower catches and allocation attainments in 2020 and 2021. Following the pandemic, catches and attainments in 2022 and 2023 have begun to

[1] "Coastwide" means the area between 42° N. lat. (i.e., OR-CA border) and the U.S.-Canada border. At-sea processing is prohibited south of 42° N. lat., and while fishing is still allowed, catcher vessels in the MS fleet generally do not fish very far south of that latitude in order to minimize the distance from processing platforms.

rebound, with the exception of MS catch in 2023 which was the lowest catch for that sector since 2016.

Full vs. average attainment in two alternative scenarios was compared because the at-sea sectors, and the MS sector in particular, have reached record low allocation attainments in recent years and could continue to reach low attainment levels if current conditions and fleet dynamics continue in 2025-26. However, if those drivers of attainment change, such as changes to oceanic conditions, bycatch dynamics, or better utilization of the new whiting fishery management measures implemented in 2023 that were intended to promote efficiency, the fleets could potentially reach closer to full utilization. Additionally, the MS fleet built and brought into the fleet a brand new vessel that is intended to increase catch per tow and allow the fleet to prioritize certain vessels in either the Alaska pollock or West Coast Pacific whiting fisheries. That vessel began test fishing in late 2023 and is expected to fully enter the fishery in 2024.

The Pacific whiting allocations are set through an annual treaty process outside of the Council process, and allocations for 2024 and beyond are yet to be established as of the time of writing this report. Therefore, the 2023 Pacific whiting allocation (post-tribal reapportionment) was used for both sectors as a proxy for the 2025-26 allocation that would trigger season end based on allocation attainment percentage (Table 4). While Scenarios 1 and 3 (full attainment) are less likely than Scenarios 2 and 4 (recent average attainment), even Scenarios 2 and 4 could overestimate the risk of exceeding a set-aside, because actual attainment of the 2023 allocations were lower than attainment assumptions under Scenarios 2 and 4 (nearly half for MS). This assumes 2023 is representative of 2025-26 attainments, but the sector's capacity to attain their allocations may increase by 2025 and 2026 due to efficiency improvements mentioned previously. Additionally, the 2023 Pacific whiting allocation was relatively high in 2023, driving down the attainment percentage compared to other years (Chapter 3 §1).

Table 4. Whiting allocation attainment percentages and catch amounts that trigger simulated season end for the full attainment scenarios (1 & 2) and the recent average attainment scenarios (3 & 4). Actual 2023 whiting catch and allocation attainments for each sector are provided for comparison. Data Source: 2023 Pacific whiting catch is from PacFIN report IFQ001; average 2017-2019 attainments are derived from PacFIN NORPAC data

Attainment Scenarios	At-sea Sector	Attainment of 2023 Whiting Allocation Simulated	Whiting Catch (mt) that Triggers Season end	Actual 2023 Whiting Catch	Actual 2023 Whiting Attainment
1 & 3 (Full)	CP	100%	144,566	107,053	74%
	MS	100%	102,047	32,744	32%
2 & 4 (Average)	CP	88%	127,218	107,053	74%
	MS	54%	55,105	32,744	32%

In addition to attainment scenarios, scenarios in which the at-sea sectors both exhibit either a coastwide effort distribution (42° N. lat. to the U.S.-Canada border) or a northern effort distribution (exclusively north of 46° 16′ N. lat. or the Washington-Oregon border) were compared. This comparison is important, because not only do the Pacific whiting schools drive spatial distribution of at-sea effort, but bycatch of certain groundfish stocks and important salmon populations may

drive at-sea vessels away from certain areas and into others. This is also a dynamic of the fishery that is difficult to predict 2-3 years out.

Scenarios 3 and 4 analyze attainment probabilities if both sectors hypothetically fished exclusively north of the Washington-Oregon border. While there is a low likelihood of both sectors fishing exclusively north of that border for an entire season, the results of those scenarios are meant to demonstrate which stocks have a higher risk of their set-aside being exceeded when at-sea effort is more northerly distributed. Therefore, the probability results of both northern scenarios (3 and 4) are not meant to be taken literally but only as a relative comparison against Scenarios 1 and 2, respectively.

Bootstrap Simulation Results

The following sections discuss the results of the bootstrap simulation. For species categories with more than one at-sea set-aside option, the results of the bootstrap simulation are provided for each species category in its respective section. Results are provided in the form of the 90th percentile of catches (mt) and the probability of exceeding each set-aside option, within each of the four scenarios. The 90th percentile of catches means that 90 percent of simulated seasons resulted in a total catch of that value or less. For example, a 90th percentile value of 267 mt means that 90 percent of simulated seasons resulted in a catch of 267 mt or less of sablefish north of 36° N. lat., assuming the full Pacific whiting allocations were taken and fishing effort was distributed between 42° N. lat. and the U.S.-Canada border (i.e., "coastwide"). Conversely, 10 percent of the simulations exceeded 267 mt.

For some species below, the 50th percentile is also provided. The 50th percentile (i.e., "median") is the simulated catch level where there were an equal number of simulated season catches either lower than or higher than that value and hence is considered risk neutral (Figure 1).

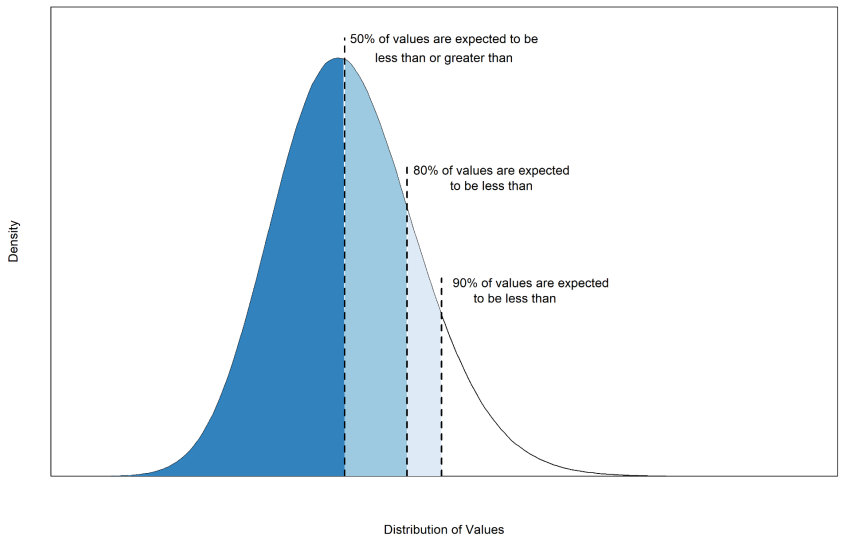

Figure 1. Illustration of the 50th, 80th, and 90th percentiles within a normal distribution

For species where there are high bycatch events in the historical season data being sampled, the 90th percentile catch value may be unusually high (e.g., yellowtail rockfish). Additionally, if there

are trends in the historical bycatch data, bycatch either increasing or decreasing over time, bootstrapping may under or overestimate potential future bycatch.

Unsurprisingly, bycatch projections, and consequently the risk of exceeding any one set-aside, increases if the full Pacific whiting allocations are caught by the at-sea sectors, compared to assuming recent average attainment levels. However, the degree of increased risk is not equal across species categories. For example, the risk of exceeding the canary rockfish set-aside increases by ~1 percent, while the risk to the yellowtail rockfish set-aside more than doubles. Similarly, the difference in risk between coastwide and northern effort distributions varies by species category, with some species categories decreasing in risk (e.g., sablefish, shortspine thornyhead) and other species categories increasing in risk (e.g., canary rockfish, yellowtail rockfish) under a northern scenario. For some stocks, such as canary rockfish, there is greater difference in risk between the coastwide and northern effort scenarios than there is between full and average attainment scenarios.

2.2.1 Set-Asides with One Option

For the 8 species categories with only one set-aside option (Option 1 Status Quo), the probability of exceeding their status quo set-asides is less than 15 percent even if the full 2023 Pacific whiting allocations are attained for both sectors and effort is coastwide. Assuming recent average attainments and coastwide effort, the probability of exceeding is zero for 7 of the species categories that have only one option; the exception is slope rockfish north of 40° 10′ N. lat. A northern fishing effort increases the risk of exceeding the set-asides for most of the species categories without additional options, but most dramatically for slope rockfish complex north of 40° 10′ N. lat., for which the risk increases from 3 percent to 44 percent assuming average attainment. Given that annual average slope rockfish north mortality since 2017 equates to 14 percent of the 2025-26 ACLs, the risk of exceeding the slope rockfish north complex ACL is low even if the at-sea set-aside were exceeded.

Petrale Sole

Petrale sole is one of the species categories with only the Option 1 Status Quo set-aside in the range for analysis. Petrale sole is projected to fall below the 25 percent flatfish depletion target starting in 2026. Consequently, ACLs are dropping by 28 percent in 2025 and 32 percent in 2026, compared to 2024, and IFQ allocations are dropping by 32 percent and 36 percent, respectively. Petrale sole is an important target species in the IFQ fishery and is generally fully attained, and mortality has been trending upwards in the non-trawl sectors. Therefore, high attainment of the 2025 and 2026 petrale sole ACLs is expected. Because petrale sole mortality in the at-sea sectors has been less than 0.02 mt per year since 2002, the risk of exceeding the Option 1 Status Quo petrale sole at-sea set-aside (5 mt) is estimated to be 0 percent under all four attainment and distribution scenarios.

2.2.2 Set-Asides with Two Options

Arrowtooth flounder and Other Flatfish

Arrowtooth flounder and the Other Flatfish complex both have two at-sea set-aside options for the Council to consider in 2025-26. For both, Option 2 would increase the set-aside to 100 mt,

compared to Option 1 status quo. Also, for both, the 2022 set-asides were exceeded[2], which created interest in increasing them for the next biennium.

The bootstrap simulation results indicate that the Option 1 Status Quo set-asides for both arrowtooth flounder and the Other Flatfish complex would be at risk of being exceeded nearly 1 every 3 years, on average, if the sectors fully attain their Pacific whiting allocation or around 3 every 20 years if the sectors continue with recent average attainment levels (both assuming a coastwide effort distribution). The risk of exceeding the set-asides of both arrowtooth flounder and Other Flatfish are reduced if fishing grounds in the north are prioritized. Option 2 reduces the risk of exceeding the set-aside to less than 10 percent for arrowtooth flounder and 0 percent for Other Flatfish.

Annual ACL and IFQ allocation attainments since 2017 have been less than 15 percent for both arrowtooth flounder and the Other Flatfish complex. Rex sole is part of the Other Flatfish complex and was assessed in 2023. Under Alternative 1 default HCRs, the outcome of the Rex sole assessment is leading to 52 percent and 39 percent increases in the Other Flatfish complex ACLs in 2025 and 2026, respectively, compared to the 2023 ACL. The arrowtooth flounder ACLs are dropping in 2025 and 2026 by roughly the same percentages, but 2025-26 ACLs are still expected to be roughly 13 times larger than total annual mortality within the last five years (2019-2023). Therefore, neither the arrowtooth flounder nor the Other Flatfish complex ACLs are expected to be at risk, even if the at-sea set-aside were exceeded in 2025-26. Option 2 for both arrowtooth flounder and Other Flatfish would better accommodate anomalous bycatch years in the at-sea whiting fishery than Option 1 Status Quo without impacting IFQ participants, since the IFQ fishery attains less than 15 percent of their allocations, each year.

Widow Rockfish

The at-sea set-aside options for widow rockfish are 476 mt (Option 1 Status Quo) and 300 mt (Option 2). Option 2 was added to the range during overwinter analysis due to reductions in the 2025-26 widow rockfish allocations to the IFQ fishery for which widow rockfish is an economically important target species. Those reductions are in addition to allocation reductions of other high value target species such as petrale sole and expected constraints of incidentally caught species such as canary rockfish and shortspine thornyhead. Therefore, cumulative economic impacts to the IFQ fishery are expected in 2025-26. Additionally, widow rockfish mortality in the at-sea fishery has been less than 210 mt in all years since 2011 with the exception of 2017 when it reached 476 mt (Table WDOW2). The maximum in 2017 is the basis for the status quo (Option 1) set-aside. Excluding 2017, the average at-sea mortality of widow rockfish has been 111 mt since 2011, well within the Option 2 set-aside of 300 mt.

The probability of exceeding the Option 1 Status Quo widow rockfish set-aside of 476 mt ranges 2-8 percent, with a slightly higher risk under a northern fishing effort scenario. The probability of exceeding the Option 2 set-aside of 300 mt ranges 8-30 percent (Table WDOW1). Assuming full Pacific whiting utilization attainment each year, which may be unlikely, and a coastwide effort distribution, the Option 2 set-aside is projected to be exceeded roughly every 1 in 5 years. Assuming recent average attainment levels, that risk drops to less than 1 in 10 years. Full utilization

[2] The arrowtooth flounder set-aside was exceeded by 1.4 mt (71.4 mt total at-sea mortality), and the Other Flatfish set-aside was exceeded by 12.5 mt (47.5 mt total at-sea mortality).

of the widow rockfish IFQ allocation can be expected in 2025-26, but depending on the Council's selection of the widow rockfish trawl/non-trawl allocation option (See §), there may be some unharvested widow rockfish in the non-trawl allocation. This would determine whether the ACL is at risk of being exceeded in 2025-26.

Table 5. 90th percentile of widow rockfish catches in four bootstrap simulation scenarios, probabilities of exceeding the set-aside by option, and 2023 widow rockfish mortality in the at-sea sectors for comparison.

Scenario	90th Percentile of Simulated Catches (mt)	Probability of Exceeding Set-Aside			2023 At-Sea Mortality (mt)
		Option 1 Status Quo (36 mt)	Option 2 (30 mt)	Option 3 (20 mt)	
Full, Coastwide	361.1	5%	21%	361.1	206.3
Full, Northern	432.5	8%	30%	432.5	
Average, Coastwide	278.4	2%	8%	278.4	
Average, Northern	337.5	3%	13%	337.5	

Table 6. Mortality of widow rockfish in the CP and MS sectors, total widow rockfish mortality across both sectors, and Pacific whiting allocation attainment for each sector, 2011-2023.

Year	CP Widow Mortality (mt)	MS Widow Mortality (mt)	Total At-Sea Widow Mortality (mt)	CP Pacific Whiting Attainment	MS Pacific Whiting Attainment
2011	24.1	12.9	36.9	95%	94%
2012	41.9	37.3	79.2	100%	97%
2013	15.7	15.5	31.2	98%	93%
2014	16.6	39.6	56.2	100%	85%
2015	17.5	17.2	34.7	68%	39%
2016	112.3	74.4	186.7	95%	81%
2017	409.9	66.1	476.0	100%	68%
2018	62.6	144.3	206.9	85%	69%
2019	92.9	106.0	198.9	85%	54%
2020	66.6	19.5	86.1	84%	41%
2021	96.1	19.4	115.5	90%	44%
2022	104.6	82.1	186.7	100%	66%
2023	184.0	22.3	206.3	74%	32%

The 50th percentile estimate of bycatch for widow rockfish is 182 mt if both at-sea sectors fully attain their Pacific whiting allocations, which is within both at-sea set-aside options. This means that, based on the bootstrap simulation, there is an equal probability of at-sea catches being lower or higher than 182 mt. A lower set-aside of 300 mt would reduce negative economic impacts to the IFQ fishery in 2025-26 while accounting for expected widow rockfish mortality in the at-sea sector, noting that there is a low probability of the set-aside being exceeded under either option.

2.2.3 Set-Asides with Three Options

The following sections provide impact analyses for species with three at-sea set-aside options. There are species-specific sections for canary rockfish, darkblotched rockfish, sablefish, shortspine thornyhead, widow rockfish, and yellowtail rockfish.

Canary rockfish

Under Alternative 1 (DHCRs), canary rockfish ACLs would decrease by 55 percent in 2025 and 2026, compared to recent years. Consequently, the overall trawl allocation is expected to decrease, and Chapter 1 §2.6 discusses the impacts from several management options that would transfer some (5 or 12.5 percent) of the trawl allocation percentage to non-trawl. The Shorebased IFQ fishery will be impacted to varying degrees[3], depending on the Council's decision on the canary rockfish trawl/non-trawl allocation in addition to the at-sea set-aside (See Chapter 3 §2). The following section primarily analyzes canary rockfish bycatch trends in the at-sea fishery and impacts to the at-sea sectors under different set-aside options, because the at-sea fishery would not be impacted by differences in the trawl allocation, unless the Council chose a certain set-aside based on its decision for trawl/non-trawl allocation percentages.

The at-sea set-aside options for canary rockfish are 36 mt (Option 1 Status Quo), 30 mt (Option 2), and 20 mt (Option 3). Option 3 is equivalent to the 2023 mortality of canary rockfish in the at-sea sectors, and Option 1 is equivalent to the 2023 set-aside in regulation (i.e., Status Quo). Mortality of canary rockfish has been less than 7 mt since 2002, with the exception of 2023 in which 20 mt was caught (Table 7). However, if fishing effort off of Washington were to increase in 2025-26 compared to 2023, the risk of exceeding the canary rockfish set-aside approaches up to 25 percent, depending on the set-aside option chosen and the level of whiting allocation attainment(Table 8). A 25 percent risk means that the set-aside is likely to be exceeded every 1 out of 4 years, on average. There is only a 1-5 percent difference in risk to the canary rockfish set-aside between the full and average attainment scenarios, yet the risk is roughly 20 percent higher if fishing effort is focused in the north compared to a coastwide effort distribution.

Table 7. Mortality of canary rockfish in the CP and MS sectors, total canary rockfish mortality across both sectors, and Pacific whiting allocation attainment for each sector, 2011-2023. Data Source: 2011-2022 mortality data is from the GEMM; 2023 mortality data is from PacFIN Report IFQ001

Year	CP Canary Mortality (mt)	MS Canary Mortality (mt)	Total At-Sea Canary Mortality (mt)	CP Pacific Whiting Attainment	MS Pacific Whiting Attainment
2011	0.5	0.1	0.5	95%	94%
2012	0.3	0.1	0.4	100%	97%
2013	0.2	0.5	0.6	98%	93%
2014	0.3	0.4	0.6	100%	85%
2015	0.1	0.1	0.2	68%	39%
2016	0.1	0.4	0.5	95%	81%

[3]As discussed in Chapter 4 §2, there are twelve possible IFQ allocations in 2025-26 based on the combination of trawl/non-trawl allocation options and at-sea set-asides.

2017	2.1	4.5	6.6	100%	68%
2018	0.9	4.7	5.5	85%	69%
2019	1.7	3.3	5.0	85%	54%
2020	0.4	0.5	0.9	84%	41%
2021	3.1	2.8	5.9	90%	44%
2022	3.2	2.6	5.8	100%	66%
2023	19.6	0.5	20.1	74%	32%

Table 8. 90th percentile of canary rockfish catches in four bootstrap simulation scenarios, probabilities of exceeding the set-aside by option, and 2023 canary rockfish mortality in the at-sea sectors for comparison.

Scenario	90th Percentile of Simulated Catches (mt)	Probability of Exceeding Set-Aside			2023 At-Sea Mortality (mt)
		Option 1 Status Quo (36 mt)	Option 2 (30 mt)	Option 3 (20 mt)	
Full, Coastwide	12.5	1%	3%	5%	20.1
Full, Northern	107.6	19%	20%	25%	
Average, Coastwide	8.1	1%	2%	4%	
Average, Northern	81.3	15%	19%	20%	

The 50th percentile estimate of bycatch for canary rockfish is 1.9 mt, which is well within all three set-aside options. This means that, based on the bootstrap simulation, there is an equal probability of at-sea catches being lower or higher than 1.9 mt. However, if the unique 2023 fishing dynamics that resulted in 20 mt of canary rockfish bycatch are expected to continue into 2025-26, this "risk neutral" estimate may be an underestimate of bycatch that can be expected.

The 20 mt of canary rockfish caught in 2023 was largely made up of five canary rockfish hauls in the CP sector. Those five hauls were deployed by five different processors in the fleet, and four of the five were deployed at around 47° N. lat. The fishing depths of those five hauls ranged 60-167 fm, and the bottom depths ranged 90-753 fm. All five hauls occurred in late May of 2023, with three of the hauls occurring on the same day (May 30th). This burst of large volume bycatch in a single day is indicative of the difficulty in predicting bycatch and avoiding canary rockfish to prevent exceeding the set-aside. The volume of canary rockfish on the majority of the hauls in 2023 (i.e., excluding the five mentioned previously) remained largely unchanged for both sectors since 2019. Compared to Option 1 Status Quo, Options 2 and 3 could make it more difficult for the sectors to fully or highly attain their Pacific whiting allocations if an unforeseen large bycatch event occurs and the sectors are forced to implement frequent move-along measures for the remainder of the season to stay within the set-aside, especially given the overlap in space discussed in the following paragraphs. Given the likelihood that other sectors will highly attain their canary

rockfish allocations in 2025-26, the Council may need to consider inseason action if the at-sea set-aside were exceeded or projected to be exceeded[4].

Industry comments indicated that the increase in canary rockfish bycatch in 2023 was largely driven by increased fishing off of Washington in efforts to avoid Chinook salmon bycatch in more southern fishing grounds. If salmon bycatch off of southern Oregon continues to be exceptionally high in 2025 and 2026, as it was in 2023, and the at-sea sectors prioritize fishing grounds in the north to avoid salmon bycatch, canary rockfish bycatch in 2025-26 could be comparable to or greater than 2023 bycatch amounts. A canary rockfish set-aside with sufficient buffer could allow the at-sea sectors greater flexibility to minimize their protected species impacts off of southern Oregon, most notably Chinook salmon. Another species that could see higher bycatch if the at-sea sectors are forced to avoid canary rockfish in their northern fishing grounds is sablefish, of which the sectors caught large amounts off of southern Oregon in 2021 and 2022, likely driven by new year classes entering the fishery. When fishing effort is distributed coastwide, the risk of exceeding the sablefish set-aside approaches roughly 30 percent, or approximately 1 exceedance every 3 years, under Option 1 Status Quo (100 mt). This risk could be even higher if effort shifts to predominantly southern fishing grounds. Increasing the sablefish set-aside above Status Quo could offset some of the impacts from reducing the canary rockfish set-aside to Options 2 or 3, in addition to accounting for increases in the sablefish ACLs in 2025-26.

Hauls in which canary rockfish are caught and hauls in which no canary rockfish are caught overlap in latitudinal space more often for the CP sector than for the MS sector, particularly since 2020 (Figure 2 [MS] and Figure 3 [CP]). This suggests that the two sectors may be impacted to different degrees if the canary rockfish set-aside is reduced and a higher frequency of move-along measures is required to stay within the combined set-aside. It is worth noting, however, that MS sector attainment has been especially low since 2020, and the degree of spatial separation during the years since may not be fully reflective of patterns that would be seen if the MS sector was able to fully attain their allocation. It is also possible that the degree of separation seen in the data could be driven by the MS sector already implementing more frequent move-along measures to avoid encountering canary rockfish in areas around 44° N. lat., thus impacting their ability to fully attain their allocation. The CP sector caught 19.6 mt of the 20 mt of canary rockfish caught in 2023.

[4] In the event an at-sea set-aside is exceeded or projected to be exceeded, inseason action may be taken if, "there is a risk of a harvest specification being exceeded, unforeseen impact on other fisheries, or conservation concerns," (50 CFR 660.150(c)(2)(i)(B)(1))

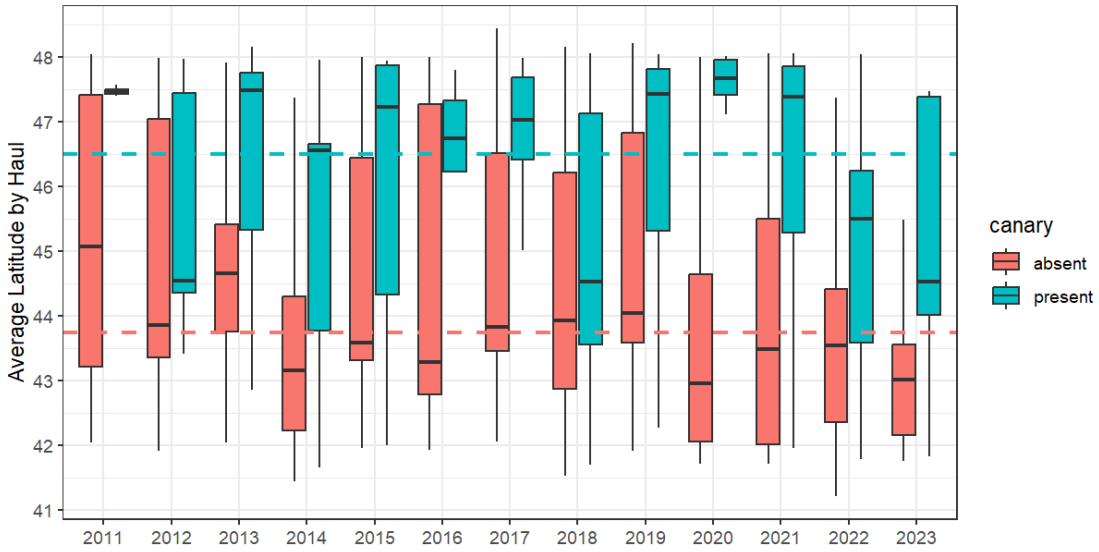

Figure 2. MS - Distribution of average latitude by haul across MS hauls with any canary rockfish bycatch (present) and with no canary rockfish bycatch (absent). The dashed lines represent the median latitude across all years. Outliers are removed to protect confidentiality. Data Source: PacFIN NorPac

Similarly, the MS sector's largest hauls of Pacific whiting tend to occur south of 43° N. lat. and deeper than 300 fm below the sea surface, which is also where they tend to catch the lowest amount of canary rockfish per haul (Figure 4[5]). While that relationship in latitude is roughly the same for the CP sector, that sector tends to see the largest volume hauls of both Pacific whiting and canary rockfish within the top 150 fm of the water column (Figure 5). Since 2018, roughly two thirds of CP hauls that caught any amount of canary rockfish were within the top 150 fathoms of the water column. For the MS sector, that proportion is closer to within the top 100-125 fathoms of the water column, with the exception of 2023 when canary rockfish were caught as bycatch more frequently below 150 fathoms than any other year since 2011, likely due to fishing closer to the bottom and in shallower waters that year.

[5] Figure 4 and Figure 4 are smoothed plots of catch per haul by fishing depth and latitude based on positive hauls (i.e., catch of the respective species occurred) from 2019 to 2023, using a generalized additive model (k = 9) to generate the smoothness. The larger the volume of catch per haul tends to be in that area, the further right the smoothed curve extends. The latitudinal plot for canary rockfish bycatch (b) in the CP sector (Figure 5), is forced into a linear relationship because of sparse data. The real curve is not quite linear in that the largest volume of canary rockfish hauls tend to occur around 47° 30′ N. lat., there is a group of moderately sized hauls around 44° N. lat., and very little to no canary rockfish is caught in most other latitudes. Also, the canary rockfish curves for both the MS and CP fishing depth plots forces a linear relationship within the top 100 fm due to sparse data, but for both sectors very little to no canary rockfish is caught above 50 fm, and the CP sector's canary rockfish bycatch appears to decline steeply in size of hauls going from 100 fm up to 50 fm.

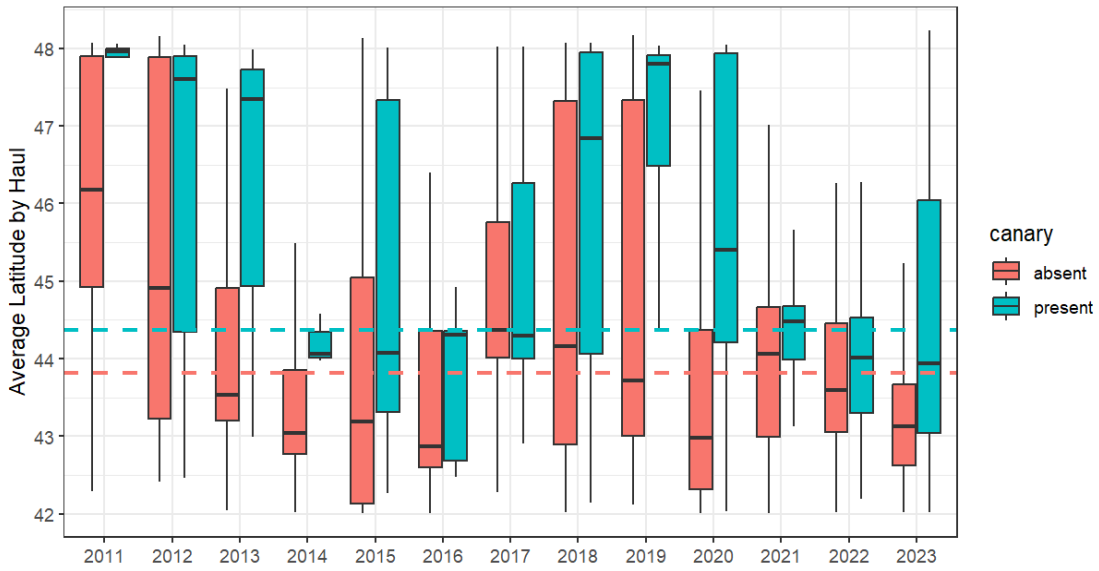

Figure 3. CP - Distribution of average latitude by haul across CP hauls with any canary bycatch (present) and with no canary bycatch (absent). The dashed lines represent the median latitude across all years. Outliers are removed to protect confidentiality. Data Source: PacFIN NorPac

Figures similar to Figure 4 and Figure 5 that only included 2023 hauls were also generate; however, there were minor differences compared to the overall 2019-2023 trend. In 2023, the CP sector did not catch any Pacific whiting deeper than 280 fm below sea level, and similarly, the MS sector did not catch any Pacific whiting deeper than 240 fm. This is likely due to both sectors generally fishing in shallower bottom depths in 2023. Pacific whiting catch volumes for both sectors were roughly comparable in latitude, with the exception of slightly lower volumes at roughly 45° 30′ N. lat. The MS sector differed in 2023 in that the volume of canary rockfish by haul peaked at around 160 fm fishing depth. For the CP sector, while the distribution of canary rockfish by fishing depth was comparable in 2023, the magnitude of the largest volume hauls at around 47° 30′ N. lat. was much higher (2-6 mt) in 2023 than they were in 2019-2022 (less than 1 mt each). As described previously, the increase in at-sea canary rockfish mortality from less than 7 mt prior to 2023 to 20.1 mt in 2023 was driven by five unusually large hauls at roughly the same time and mostly around 47° N. lat. Recall that 47° N. lat. is the band at which the CP sector tends to catch large volumes of Pacific whiting per haul, second only to the area around 44° N. lat. Avoiding this area to prevent exceeding the canary rockfish set-aside could mean more time on the water and higher operational costs to attain their Pacific whiting allocation.

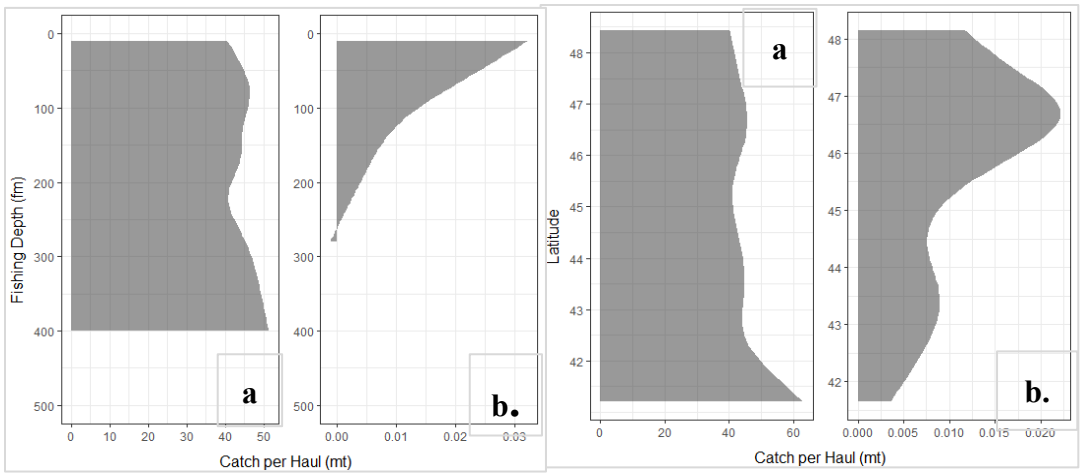

Figure 4. MS - Smoothed distribution of MS catch per haul (mt) of Pacific whiting (a) and canary rockfish (b) by fishing depth in the left two panels and latitude in the right two panels, 2019-2023. Method of smoothing is based on a generalized additive model where k = 9. Note that axes vary by plot.

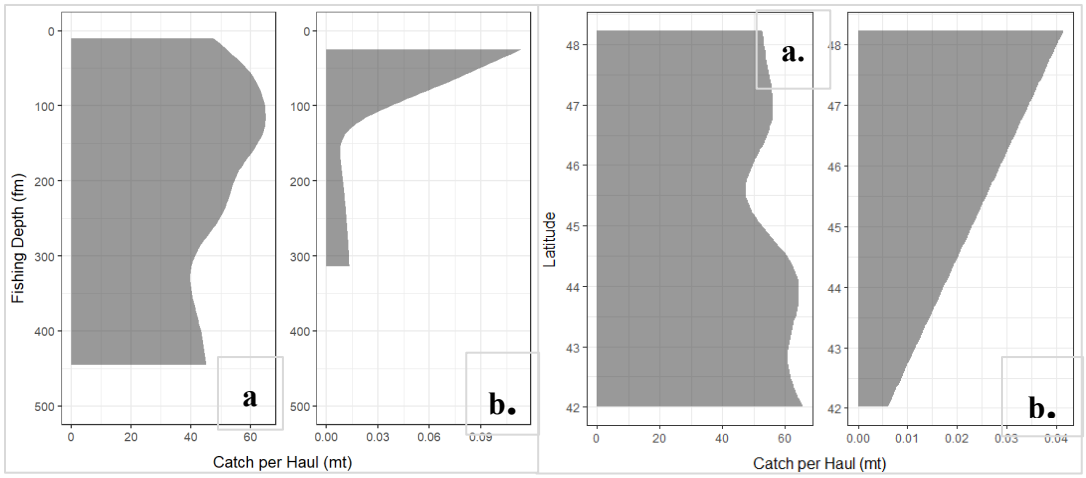

Figure 5. CP - Smoothed distribution of CP catch per haul (mt) of Pacific whiting (a) and canary rockfish (b) by fishing depth in the left two panels and latitude in the right two panels, 2019-2023. Method of smoothing is based on a generalized additive model where k = 9. Note that axes vary by plot.

Darkblotched rockfish

The options for darkblotched rockfish at-sea set-aside are 76.4 mt (Option 1 Status Quo), 100 mt (Option 2), and 150 mt (Option 3). The bootstrap simulation results indicate that higher Pacific whiting allocation attainment increases the catch estimate of darkblotched rockfish, but there is minimal difference between the coastwide and northern effort distributions (Table 9). If Option 1 Status Quo were chosen for 2025-26, the set-aside could be exceeded roughly 1 every 3 years if the at-sea sectors fully attain their whiting allocations or roughly 3 out of every 20 years if they continue to reach recent attainment levels (both assuming a coastwide distribution of fishing effort). The risk of exceeding the 2025 or 2026 ACLs as a result of an at-sea set-aside exceedance is low given that less than 60 percent of the ACL has been attained each year since the stock was declared rebuilt in 2017, and 2025-26 ACLs are roughly 300 mt higher than the maximum total mortality since 2002.

Mortality of darkblotched rockfish in the at-sea sectors increased dramatically in 2017, immediately following the rebuilding of the stock (

Table 10). This suggests that both sectors were able to avoid darkblotched rockfish under low darkblotched rockfish ACLs (i.e., prior to 2017) while continuing to fully attain their Pacific whiting allocations in most years. However, bycatch avoidance measures generally lead to more time on the water and higher operational costs. Requiring the sectors to take active measures to avoid darkblotched rockfish by setting the set-aside too low could create unnecessary burden on the fishery, because the stock's ACL is not at risk and is not a conservation concern. Additionally, the stock is not economically important to any other West Coast fisheries, and the Shorebased IFQ fishery has attained less than 50 percent of the sector's allocation since 2011. The annual vessel limits[6] for IFQ vessels that are projected under any of the darkblotched rockfish set-aside options are not expected to impact any currently participating IFQ vessel's ability to harvest their target species, based on 2023 darkblotched rockfish catches. Overall, a higher darkblotched rockfish set-aside could give the at-sea sectors more flexibility to strategically avoid other species that are of more importance to other directed groundfish fisheries and for which the ACL may be more fully attained (e.g., canary rockfish). For both sectors, the vast majority of darkblotched rockfish is caught on hauls that did not catch any canary rockfish, and only 11 percent of all hauls since 2018 caught the two species together.

Table 9. 90th percentile of darkblotched rockfish catches in four bootstrap simulation scenarios, probabilities of exceeding the set-aside by option, and 2023 darkblotched rockfish mortality in the at-sea sectors for comparison.

Scenario	90th Percentile of Simulated Catches (mt)	Probability of Exceeding Set-Aside			2023 At-Sea Mortality (mt)
		Option 1 Status Quo (74.6 mt)	Option 2 (100 mt)	Option 3 (150 mt)	
Full, Coastwide	115.4	28%	13%	4%	100.5
Full, Northern	129.8	25%	20%	6%	
Average, Coastwide	84.4	13%	7%	0%	
Average, Northern	99.3	21%	10%	7%	

Table 10. Mortality of darkblotched rockfish in the CP and MS sectors, total darkblotched rockfish mortality across both sectors, and Pacific whiting allocation attainment for each sector, 2011-2023. Data Source: 2011-2022 mortality data is from the GEMM; 2023 mortality data is from PacFIN Report IFQ001

Year	CP Darkblotched Mortality (mt)	MS Darkblotched Mortality (mt)	Total At-Sea Darkblotched Mortality (mt)
2011	10.3	1.7	12.0
2012	1.4	1.3	2.7
2013	2.1	4.2	6.3
2014	3.4	7.2	10.6

[6] Annual vessel limits are defined in regulations at §660.111(1)(ii).

Year	CP Darkblotched Mortality (mt)	MS Darkblotched Mortality (mt)	Total At-Sea Darkblotched Mortality (mt)
2015	5.6	2.4	7.9
2016	3.5	1.6	5.1
2017	32.0	7.6	39.6
2018	41.8	23.2	65.1
2019	45.6	30.4	76.0
2020	34.3	5.0	39.3
2021	33.5	6.9	40.4
2022	57.2	12.8	70.0
2023	89.9	10.6	100.5

Sablefish north of 36° N. lat.

The options for the sablefish at-sea set-aside are 100 mt (Option 1 Status Quo), 300 mt (Option 2), and 429 mt (Option 3). The Option 1 Status Quo set-aside of 100 mt was exceeded in 2022 due to large amounts of bycatch off of southern Oregon. Industry communication suggests that the large bycatch event was primarily made up of small fish, and the 2023 limited update assessment of sablefish indicates large incoming 2020 and 2021 year-classes. The results of the 2023 assessment will lead to sablefish ACL increases by roughly threefold in 2025 and 2026, and recent mortality in the at-sea sectors appears to mirror the increase in population size (Table 11)

Table 11 Mortality of sablefish north in the CP and MS sectors, total sablefish north mortality across both sectors, and Pacific whiting allocation attainment for each sector, 2011-2023. Data Source: 2011-2022 mortality data is from the GEMM; 2023 mortality data is from PacFIN Report IFQ001

Year	CP Sablefish Mortality (mt)	MS Sablefish Mortality (mt)	Total At-Sea Sablefish Mortality (mt)	CP Pacific Whiting Attainment	MS Pacific Whiting Attainment
2011	2.9	2.0	5.0	95%	94%
2012	4.2	0.9	5.1	100%	97%
2013	9.7	3.0	12.7	98%	93%
2014	15.3	0.9	16.2	100%	85%
2015	9.7	1.9	11.6	68%	39%
2016	18.1	9.6	27.7	95%	81%
2017	67.5	85.8	153.3	100%	68%
2018	92.2	24.6	116.8	85%	69%
2019	53.2	18.1	71.4	85%	54%
2020	6.5	8.7	15.2	84%	41%
2021	48.1	7.3	55.4	90%	44%
2022	111.1	194.1	305.2	100%	66%

The at-sea sectors are at risk of exceeding the Option 1 Status Quo set-aside roughly 1 out of every 3 years if fishing effort is distributed coastwide (Table 12). If fishing effort is distributed to the north, the risk of exceeding drops by more than half. The risk of exceeding the Option 3 set-aside (429 mt) is 5 percent or less under all four of the scenarios.

With most of the sablefish bycatch occurring off of southern Oregon in recent years, Option 1 Status Quo could force the fishery to operate in northern fishing grounds if they are approaching or exceed their sablefish set-aside, potentially leading to higher bycatch of stocks like canary rockfish or yellowtail rockfish. It is difficult to predict sablefish bycatch patterns in 2025-26 in the at-sea fishery, because sablefish population size and spatial distribution may change as the 2020 and 2021 year classes age over the next few years. By 2025, bycatch rates may not be as high as they were in 2022 when at-sea vessels were catching predominantly age-1 and age-2 fish.

The overall risk of reaching or exceeding the sablefish ACL north of 36° N. lat. in 2025 or 2026 is low because of low expected attainment from nearly all fisheries. Sablefish is an economically important stock to both the trawl and fixed gear groundfish fisheries. However, with ACLs increasing threefold in 2025-26, none of the at-sea set-aside options are expected to impact the Shorebased IFQ fishery.

Table 12. 90th percentile of sablefish north of 36° N. lat. catches in four bootstrap simulation scenarios, probabilities of exceeding the set-aside by option, and 2023 sablefish north mortality in the at-sea sectors for comparison.

Scenario	90th Percentile of Simulated Catches (mt)	Probability of Exceeding Set-Aside			2023 At-Sea Mortality (mt)
		Option 1 Status Quo (100 mt)	Option 2 (300 mt)	Option 3 (429 mt)	
Full, Coastwide	267.1	31%	8%	5%	160.6
Full, Northern	124.6	14%	7%	2%	
Average, Coastwide	195.8	26%	3%	0%	
Average, Northern	92.7	8%	0%	0%	

Table 13. Mortality of sablefish north in the CP and MS sectors, total sablefish north mortality across both sectors, and Pacific whiting allocation attainment for each sector, 2011-2023. Data Source: 2011-2022 mortality data is from the GEMM; 2023 mortality data is from PacFIN Report IFQ001

Year	CP Sablefish Mortality (mt)	MS Sablefish Mortality (mt)	Total At-Sea Sablefish Mortality (mt)	CP Pacific Whiting Attainment	MS Pacific Whiting Attainment
2011	2.9	2.0	5.0	95%	94%
2012	4.2	0.9	5.1	100%	97%
2013	9.7	3.0	12.7	98%	93%
2014	15.3	0.9	16.2	100%	85%
2015	9.7	1.9	11.6	68%	39%

Year	CP Sablefish Mortality (mt)	MS Sablefish Mortality (mt)	Total At-Sea Sablefish Mortality (mt)	CP Pacific Whiting Attainment	MS Pacific Whiting Attainment
2016	18.1	9.6	27.7	95%	81%
2017	67.5	85.8	153.3	100%	68%
2018	92.2	24.6	116.8	85%	69%
2019	53.2	18.1	71.4	85%	54%
2020	6.5	8.7	15.2	84%	41%
2021	48.1	7.3	55.4	90%	44%
2022	111.1	194.1	305.2	100%	66%
2023	130.2	30.4	160.6	74%	32%

Shortspine thornyhead north of 34° 27′ N. lat.

The at-sea set-aside options for shortspine thornyhead north of 34° 27′ N. lat. are 70 mt (Option 1 Status Quo), 100 mt (Option 2), and 50 mt (Option 3). Option 2 would increase the set-aside by 30 mt in 2025-26 compared to 2023-24, and Option 3 would reduce the set-aside by 20 mt. Option 2 is designed to accommodate 2023 at-sea mortality of 99 mt, but it is worth noting that the at-sea fishery caught a total of 245 mt of shortspine thornyhead north in 2022, exceeding the 2022 set-aside by 175 mt. At-sea mortality has been less than 100 mt in all other years. For shortspine thornyhead, there is very little difference in expected catches if the sectors fully attain their Pacific whiting allocations compared to only attaining recent average levels (Table 14). On the other hand, compared to a northern effort distribution, there is a 15-33 percent greater probability of the set-aside being exceeded if the sectors fish in a coastwide distribution, or in other words if the sectors fish off of both Oregon and Washington as opposed to just Washington. This means that if the at-sea sectors are forced to avoid northern fishing grounds to avoid canary rockfish due to high bycatch off Washington, they could experience greater bycatch of shortspine thornyhead off of Oregon. Again, the probabilities under an exclusively northern fishing scenario are not to be interpreted literally, but are meant to be relative comparisons to the coastwide effort scenario probabilities.

If the Council wished to keep shortspine thornyhead mortality in the at-sea sectors within the set-aside every 3 out 4 years, on average, Option 2 (100 mt) is the only option with a probability of exceeding that is less than 25 percent under full attainment (assuming coastwide effort). If recent average attainment reflects expected attainment in 2025-26, Options 1 (70 mt) and 2 (100 mt) have probabilities less than 25 percent. Under Option 3, which reduces the set-aside compared to status quo, the probability of exceeding the at-sea set-aside is 33-34 percent, or roughly 1 every 3 years on average. That level of frequency may trigger the Council needing to take inseason action to minimize bycatch in the at-sea fishery, which could impact the sectors' ability to utilize their Pacific whiting allocation and result in economic losses. (Table 15).

Table 14. 90th percentile of shortspine thornyhead north of 34° 27′ N. lat. catches in four bootstrap simulation scenarios, probabilities of exceeding the set-aside by option, and 2023 shortspine thornyhead north mortality in the at-sea sectors for comparison.

Scenario	90th Percentile of Simulated Catches (mt)	Probability of Exceeding Set-Aside			2023 At-Sea Mortality (mt)
		Option 1 Status Quo (70 mt)	Option 2 (100 mt)	Option 3 (50 mt)	
Full, Coastwide	178.7	31%	20%	34%	99.0
Full, Northern	42.6	0%	0%	1%	
Average, Coastwide	129.2	25%	15%	33%	
Average, Northern	37.6	0%	0%	0%	

For shortspine thornyhead, there is very little difference in expected catches if the sectors fully attain their Pacific whiting allocations compared to only attaining recent average levels (Table 14). On the other hand, compared to a northern effort distribution, there is a 15-33 percent greater probability of the set-aside being exceeded if the sectors fish in a coastwide distribution, or in other words if the sectors fish off of both Oregon and Washington as opposed to just Washington. This means that if the at-sea sectors are forced to avoid northern fishing grounds to avoid canary rockfish due to high bycatch off Washington, they could experience greater bycatch of shortspine thornyhead off of Oregon. Again, the probabilities under an exclusively northern fishing scenario are not to be interpreted literally, but are meant to be relative comparisons to the coastwide effort scenario probabilities.

If the Council wished to keep shortspine thornyhead mortality in the at-sea sectors within the set-aside every 3 out 4 years, on average, Option 2 (100 mt) is the only option with a probability of exceeding that is less than 25 percent under full attainment (assuming coastwide effort). If recent average attainment reflects expected attainment in 2025-26, Options 1 (70 mt) and 2 (100 mt) have probabilities less than 25 percent. Under Option 3, which reduces the set-aside compared to status quo, the probability of exceeding the at-sea set-aside is 33-34 percent, or roughly 1 every 3 years on average. That level of frequency may trigger the Council needing to take inseason action to minimize bycatch in the at-sea fishery, which could impact the sectors' ability to utilize their Pacific whiting allocation and result in economic losses.

Table 15. Mortality of shortspine thornyhead in the CP and MS sectors, total shortspine thornyhead mortality across both sectors, and Pacific whiting allocation attainment for each sector, 2011-2023. Data Source: 2011-2022 mortality data is from the GEMM; 2023 mortality data is from PacFIN Report IFQ001

Year	CP Shortspine Mortality (mt)	MS Shortspine Mortality (mt)	Total At-Sea Shortspine Mortality (mt)	CP Pacific Whiting Attainment	MS Pacific Whiting Attainment
2011	12.0	1.4	13.4	95%	94%
2012	1.2	0.5	1.7	100%	97%
2013	15.7	6.1	21.8	98%	93%
2014	18.8	1.6	20.5	100%	85%

2015	8.8	1.7	10.5	68%	39%
2016	7.2	3.3	10.5	95%	81%
2017	24.8	3.2	28.0	100%	68%
2018	59.6	9.8	69.4	85%	69%
2019	52.2	5.0	57.2	85%	54%
2020	9.5	0.1	9.6	84%	41%
2021	69.2	6.4	75.6	90%	44%
2022	185.0	59.2	244.2	100%	66%
2023	73.8	25.2	99.0	74%	32%

The 50th percentile estimate of bycatch for shortspine thornyhead north is 29.3 mt if both at-sea sectors fully attain their Pacific whiting allocations, which is within all three set-aside options. This means that, based on the bootstrap simulation, there is an equal probability of at-sea catches being lower or higher than 29.3 mt. However, if the unique 2022 fishing dynamics that resulted in 244 mt of shortspine thornyhead bycatch are expected to continue into 2025-26, this "risk neutral" estimate may be an underestimate of bycatch that can be expected.

As discussed in Chapter 3 §1, exceedances of the shortspine thornyhead north at-sea set-aside in 2022 and 2023 are likely caused by both sectors fishing closer to the seafloor in pursuit of Pacific whiting aggregations, in addition to the CP sector generally fishing in shallower bottom depths. At-sea haul-level data of both sectors from 2011-2023 indicates that shortspine thornyhead is encountered more frequently and caught in larger volumes closer to the seafloor. Unlike canary rockfish, the overall volume of shortspine thornyhead per haul increased in 2022 when the set-aside was exceeded, indicating that the exceedance was not due to large bycatch events but rather the sectors generally catching more shortspine thornyhead per haul. At-sea vessels may be able to prevent 2022 bycatch levels of shortspine thornyhead by fishing further off of the bottom but it may come at the cost of their ability to fully attain–or reach recent attainment levels of–their Pacific whiting allocations if the whiting aggregations continue to remain close to the seafloor. Therefore, depending on Pacific whiting dynamics in 2025-26, a lower set-aside may impact their ability to fully attain their Pacific whiting allocation or could require that the vessels spend more time and operational costs looking for whiting aggregations that are not close to the seafloor.

Yellowtail rockfish north of 40° 10′ N. lat.

The at-sea set-aside options for yellowtail rockfish north of 40° 10′ N. lat. are 320 mt (Option 1 Status Quo), 360 mt (Option 2), and 450 mt (Option 3). Option 3 (450 mt) was added to the range during overwinter analysis to account for the bootstrap simulation results that projected high risk of exceeding the Option 1 and Option 2 set-asides, particularly if the sectors prioritize northern fishing grounds. If both sectors fully attained their Pacific whiting allocations every year and fished in a coastwide distribution, the yellowtail rockfish north set-aside is projected to be exceeded nearly once every two years under the status quo set-aside, roughly once every three years under Option 2, and roughly once every 5 years under Option 3. If the sectors reach recent average attainment levels, those projections drop to roughly once every 5 years under Status Quo, 1 in 10 years under Option 2, and extremely rarely under Option 3 (Table 16). However, as discussed

below, these projections may be overestimating the true risk. The risk of exceeding the yellowtail rockfish north set-aside increases substantially under a northern fishing scenario, which is not surprising given that the large bycatch years are mainly driven by unusually large bycatch events off of Washington.

Table 16. 90th percentile of yellowtail rockfish north of 40° 10′ N. lat. catches in four bootstrap simulation scenarios, probabilities of exceeding the set-aside by option, and 2023 yellowtail rockfish north mortality in the at-sea sectors for comparison.

Scenario	90th Percentile of Simulated Catches (mt)	Probability of Exceeding Set-Aside			2023 At-Sea Mortality (mt)
		Option 1 Status Quo (320 mt)	Option 2 (360 mt)	Option 3 (450 mt)	
Full, Coastwide	524.7	44%	32%	10-15%	266.2
Full, Northern	3,843.4	95%	82%	50-75%	
Average, Coastwide	357.3	18%	10%	0%	
Average, Northern	2,504.3	65%	61%	50-75%	

The 50th percentile estimate of bycatch for yellowtail rockfish north is 295 mt if both at-sea sectors fully attain their Pacific whiting allocations, which is within all three set-aside options. This means that, based on the bootstrap simulation, there is an equal probability of at-sea catches being lower or higher than 295 mt. However, as discussed further in the next two paragraphs, even this "risk neutral" estimate may be an overestimate.

Yellowtail rockfish north mortality in the at-sea fishery appears to be highly variable across years, ranging from 27 mt to 317 mt since 2019, and no trend or pattern is apparent in the time series (Table 17). Pacific whiting allocation attainment since 2011 also does not appear to drive the amount of yellowtail rockfish bycatch in the fishery that year. For example, the fishery only caught 43 mt in 2012 but attainment was relatively high, compared to 317 mt when attainment was relatively low in 2019. In other years, yellowtail rockfish catch and Pacific whiting allocation attainments are both high (e.g., 2013) or both low (e.g., 2015). Most recently, attainments were relatively high in 2022 compared to other recent years but yellowtail rockfish catch was only 27 mt. Conversely, 2023 attainments were the lowest and second lowest on record for the MS and CP sectors, respectively, yet 266 mt of yellowtail rockfish was caught. In short, years with high yellowtail rockfish bycatch appear to largely be attributed to unusually large bycatch events off of Washington and are not necessarily predicted by whiting attainment.

Table 17. Mortality of yellowtail rockfish north of 40° 10′ N. lat. in the CP and MS sectors, total yellowtail rockfish mortality across both sectors, and Pacific whiting allocation attainment for each sector, 2011-2023. Data Source: 2011-2022 mortality data is from the GEMM; 2023 mortality data is from PacFIN Report IFQ001

Year	CP Yellowtail Mortality (mt)	MS Yellowtail Mortality (mt)	Total At-Sea Yellowtail Mortality (mt)	CP Pacific Whiting Attainment	MS Pacific Whiting Attainment
2011	14.6	66.7	81.3	95%	94%
2012	32.0	11.0	42.9	100%	97%

2013	78.4	167.9	246.3	98%	93%
2014	0.0	41.9	42.0	100%	85%
2015	0.5	81.5	82.1	68%	39%
2016	11.3	51.0	62.3	95%	81%
2017	130.2	147.9	278.1	100%	68%
2018	51.1	178.7	229.9	85%	69%
2019	164.2	152.7	316.9	85%	54%
2020	76.1	90.7	166.9	84%	41%
2021	3.5	78.9	82.4	90%	44%
2022	3.5	23.8	27.4	100%	66%
2023	236.1	30.1	266.2	74%	32%

The high variability in the input data complicates interpretation of the bootstrap simulation results. As an example, the lowest set-aside option of 320 mt (Option 1 Status Quo) is higher than the sectors' maximum mortality since 2011 (317 mt), but the bootstrap simulation results suggest that the 320 mt set-aside could be exceeded roughly 1 out of every 5 years (18 percent), on average, under current fishing effort and attainment dynamics (i.e., average attainment, coastwide effort). Therefore, it is possible that the risks to the set-asides shown in Table 16 are an overestimate of actual risk in 2025-26, and given the annual variability of actual catches, it is difficult to capture the true risk of exceeding the yellowtail rockfish set-aside even with a simulation that relies on 22 years of data. In general, higher Pacific whiting allocation attainment does not necessarily result in high yellowtail rockfish bycatch. The sectors are, however, likely to catch more yellowtail rockfish as bycatch if they prioritize northern fishing grounds, possibly more than doubling the risk to the set-aside depending on the extent of activity off Washington.

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3. Alternative 2

The impacts to the at-sea fishery under Alternative 2 are the same as those under Alternative 1 (default HCR), because the same range of at-sea set-aside options described under Alternative 1 would be applicable under Alternative 2. Alternative 2 contemplates the California quillback rockfish ABC Rule rebuilding strategy (Table 2, Agenda Item F.2, Attachment 1, March 2024). The at-sea fishery does not have a specific quillback rockfish set-aside. Given that this stock inhabits areas that the at-sea sector does not generally fish, and given that the at-sea fishery has not caught any quillback rockfish since 2009, it is unlikely this fishery will encounter this stock.

4. Alternative 3

Alternative 3 contemplates the California quillback rockfish Council selected harvest specifications for 2025-26 of an OFL =8.41mt, ACL =5.06 mt and an HG = 4.96 mt (Agenda Item E.2, Supplemental CDFW Report 2 November 2023). The at-sea fishery does not have a California quillback rockfish set-aside. Given this stock inhabits areas that the at-sea sector does not generally fish, and given that the at-sea fishery has not caught any quillback rockfish since 2009, it is unlikely this fishery will encounter this stock. Therefore, the impacts to the at-sea fishery under Alternative 3 are the same as those under Alternative 1 (default HCR), because the same range of at-sea set-aside options described under Alternative 1 would be applicable under Alternative 3.

5. Alternative 4

Alternative 4 contemplates the California quillback rockfish F=0 rebuilding strategy (Table 2, Agenda Item F.2, Attachment 1, March 2024). The at-sea fishery does not have a California quillback rockfish set-aside. Given this stock inhabits areas that the at-sea sector does not generally fish due to depth and habitat constraints and the at-sea fishery has not caught any quillback rockfish since 2009, it is unlikely this fishery will encounter this stock. Therefore, the impacts to the at-sea fishery under Alternative 4 are the same as those under Alternative 1 (default HCR), because the same range of at-sea set-aside options described under Alternative 1 would be applicable under Alternative 4.

Chapter 4. Trawl: Shore Based Individual Fishing Quota

Executive Summary

The Shorebased IFQ program is a system of transferable quota shares (QS) that operates within the limited-access groundfish trawl fishery, in addition to the Mothership (MS) and Catcher-Processor (CP) programs. High value IFQ species categories include sablefish north of 36° N. lat., petrale sole, widow rockfish, Pacific whiting, Dover sole, lingcod, and yellowtail rockfish north of 40°10' N. lat. This section describes 2025-26 allocations, catch impact projections, and analysis for groundfish species categories in the IFQ fishery under the range of alternatives up for consideration by the Council. Specifically, the HCR alternatives are:

Alternative 1, which implements the default Harvest Control Rules (HCRs) for all groundfish species. Under the default HCRs, shorebased IFQ allocations will decrease for some species (compared to No Action), notably canary rockfish, petrale sole, shortspine thornyhead north of 34° 27′ N. lat., arrowtooth flounder, and widow rockfish. Allocations for yellowtail rockfish, the other flatfish complex, and sablefish north of 36° N. will increase compared to No Action. For most IFQ species categories, catch projections increase or decrease roughly proportional to allocation increases or decreases. Canary rockfish, shortspine thornyhead, and petrale sole will be newly eligible for surplus carryover. IFQ allocations will be impacted by proposed changes to the biennial trawl/non-trawl allocation schemes for canary and widow rockfishes (See Chapter 1 §2.6 and §2.7) and to the at-sea set-asides for arrowtooth flounder, canary rockfish, darkblotched rockfish, other flatfish, sablefish north of 36° N. lat., shortspine thornyhead north of 34° 27′ N. lat., widow rockfish, and yellowtail rockfish north of 40° 10′ N. lat (Chapter 3 §2).

Under Alternative 1, canary rockfish attainment is projected to be between 84 and 96 percent, depending on the trawl/non-trawl allocation and at-sea set-aside options. There are no anticipated differential impacts to the IFQ fishery from the darkblotched rockfish at-sea set-aside options. Alternative 1 is not tenable for Dover sole because the ACL would be greater than the ABC in both 2025 and 2026. Petrale sole allocations will be lower than the IFQ fishery's mortality in every year since 2013, resulting in large projected revenue losses. The 2025 annual vessel limit (AVL) for petrale sole would limit 14 IFQ vessels from catching the amount they did in 2023. Sablefish catches are projected to increase, and none of the at-sea set-aside options are expected to negatively impact the IFQ fishery. Market constraints may limit catch increases. Decreasing IFQ allocations of shortspine thornyhead north of 34° 27′ N. lat. are projected to result in ~50 percent attainment, but the decrease in 2025-26 AVLs are not expected to limit any individual vessels from catching 2023 levels of shortspine thornyhead north across all at-sea set-aside options. Shortspine thornyhead allocation reductions may limit bottom trawl vessels' ability to utilize Dover sole, but they may be able to mitigate those impacts by prioritizing sablefish in deeper waters, assuming sablefish markets are not a limitation. Widow rockfish attainment is projected to be 95-96 percent regardless of the trawl/non-trawl allocation option chosen. Some individual vessels may not be able to catch as many widow rockfish as they have in the past due to annual vessel limit reductions. Yellowtail rockfish allocations are increasing and attainment is projected to be 73-74 percent regardless of the at-sea set-aside option chosen; however, there is the potential for the at-sea set-

asides to limit future growth in the midwater rockfish fishery. Additional yellowtail rockfish opportunities could potentially offset some of the impacts from the widow rockfish allocation reductions.

Alternative 2, where IFQ allocations are the same as Alternative 1, except for the other flatfish complex, shortspine thornyhead north of 34° 27′ N. lat., and Dover sole. These species categories would be managed with a P* of 0.45, resulting in increased IFQ allocations for the other flatfish complex and shortspine thornyhead north of 34° 27′ N. lat. and decreased allocations for Dover sole, compared to Alternative 1.

Under Alternative 2,catch projections remain the same as under Alternative 1 for all IFQ species categories except for Dover sole, other flatfish, Pacific halibut (minimal difference), and shortspine thornyhead north of 34° 27′ N. lat. The IFQ fishery is projected to catch roughly 0.4 percent more of the other flatfish complex, 9-13 percent more of shortspine thornyhead north, and 0.3 percent less Dover sole, compared to Alternative 1. The decreased Dover sole allocation is not expected to notably impact the IFQ fishery compared to either No Action (2023) or Alternative 1. Increased shortspine thornyhead north allocations could alleviate some of the vessel-level constraints and allow bottom trawl vessels more flexibility to target Dover sole or sablefish based on market demand.

1. No Action

1.1 Shorebased IFQ Management Measures

The Shorebased IFQ program is a system of transferable quota shares (QS) that operates within the limited-access groundfish trawl fishery, in addition to the Mothership (MS) and Catcher-Processor (CP) programs. IFQ permit owners are allocated a percentage, or QS, of the species-specific IFQ allocation and may fish up to the poundage reflected by that share within a calendar year. The 2023 Shorebased IFQ program management measures are incorporated by reference (§660.140) but are summarized in Table

Table 1. No Action - IFQ. Summary of IFQ fishery management measures in 2023.

Category	Management Measure
Catch controls	Individual Bycatch Quota (IBQ) for Pacific halibut north of 40° 10' N. lat. and IFQ quota pounds are debited from IFQ vessel accounts based on any catch that is landed or discarded. "Survival credits" are provided for discards of Pacific halibut, lingcod, and sablefish that utilize discard mortality rates endorsed by the SSC. Vessels are prohibited from participating in the IFQ fishery if they are in deficit status, or in other words, have a negative balance because the vessel exceeded their quota allocation for the prior year.
Landing limits	Cumulative bi-monthly landing limits (hereinafter "trip limits") for non-IFQ species and Pacific whiting outside of the primary season dates apply to each vessel (see regulations Table 1 North and South to Part 660, Subpart D). Once a vessel reaches a limit, the species or species complex can no longer be retained and sold.
Accumulation limits	The maximum number of QS and QPs an entity may control in the shorebased IFQ fishery and the maximum amount of QP in a vessel account (used and unused) are limited by accumulation limits (defined in regulation at 50 CFR 660.111). These limits vary according to the management unit for the stock or stock complex and are intended to prevent the consolidation of quota holdings by just a few entities.
Adaptive Management Program (AMP) pass throughs	Ten percent of the non-whiting QS is to be reserved for the AMP and each year the QP issued for that QS is available for use in the AMP. However, since AMP-related criteria for the distribution of the AMP-QP have not been developed, they are to be issued (i.e., passed through) to permit owners in proportion to their non-whiting QS until implementation of any regulatory changes.
Carryover provision	The carryover provision allows a limited amount of surplus QP or IBQ pounds in a vessel account to be carried over from one year to the next or allows a deficit in a vessel account in one year to be covered with QP or IBQ pounds from a subsequent year, up to a carryover limit. The carryover provision is anticipated to increase individual flexibility for harvesters, improve economic efficiency, and achieve OY while preserving the conservation of stocks. The eligible percentages used for the carryover provision may be modified during the biennial specifications and management measures process or based on a Council inseason recommendation, pending NMFS approval. Species categories eligible for potential issuance of surplus

Category	Management Measure
	carryover include those where the ABC is larger than the ACL and issuance of surplus carryover can occur up to the level where ACL = ABC.
Monitoring and reporting	100 percent of trips in the shorebased IFQ fishery are monitored at sea by either WCGOP observers or on-board electronic monitoring, while landings are tracked by electronic fish tickets and verified by catch monitors. Together, these two programs provide robust, near-real time tracking and reporting of IFQ species categories and Pacific halibut IBQ.
Gear restrictions	IFQ species categories may be harvested with groundfish trawl or legal groundfish non-trawl gear. Trawl gear restrictions (§660.112) prohibit certain types of gear that may be used in rocky habitat, reducing habitat impacts and also limiting overfished species bycatch for those species that inhabit rocky substrate. Selective flatfish nets are required shoreward of the boundary line approximating 100 fathoms from 40°10' N. lat. to 42° N. lat. Also, fishing with midwater trawl gear shoreward of the boundary line approximating 150 fathoms south of 40°10' N. lat. is prohibited.
RCAs	The trawl and non-trawl RCAs in effect for 2023 are described in Table 2 and Table 3, respectively. Vessels harvesting IFQ species categories must abide by applicable RCA closures, which are specified by gear type. "Gear switching" vessels in the Shorebased IFQ fishery using non-trawl gear to catch IFQ QP are subject to the non-trawl RCA closures. The Council took final action in March 2023 (Amendment 32) to move the seaward boundary of the non-trawl RCA to 75 fm between the OR/WA border and 34° 27' N. lat. and to allow LEFG and IFQ gear switching vessels to fish in the non-trawl RCA using stationary vertical jig gear or groundfish troll gear. Those regulatory changes are effective January 1, 2024.
Bycatch Reduction Areas (BRAs)	BRAs can apply to vessels using midwater trawl gear during the primary whiting season and can be used to mitigate groundfish bycatch by limiting fishing to depths greater than any of the specified management lines between 75 fathoms and 200 fathoms (see regulations at 660.130(e)(6) Subpart D).
Block Area Closures (BACs)	Amendment 28 (2020) developed BACs which can be used to restrict groundfish bottom trawling from shore to 700 fathoms and in state waters off of Oregon and California. Amendment 30 (2023) also made BACs available as a routine management measure to control catch of groundfish by midwater trawl and bottom trawl vessels off of all three states. The size of the BACs can be bounded by depth contours or latitudes defined in groundfish regulations. Whiting vessels fishing under an approved Salmon Mitigation Plan (SMP) may or may not be subject to a BAC if implemented for the whiting sector to access the Chinook salmon reserve (3,500 fish) (see regulations at 50 CFR 660.60(i))
Other Groundfish Conservation Areas (GCAs)	Fishing in conservation areas with trawl gear is subject to multiple GCAs as detailed at 50 CFR 660.112(a)(5). Cowcod Conservation Areas (CCAs) are closed to trawling.

Table 2. Trawl RCA configurations in regulation for 2023.

Area	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
North of 46°16' N. lat.	100 fm line - 150 fm line					
South of 46°16' N. lat.	Block Area Closures (BACs) may be implemented					

Table 3. Non-trawl RCA configurations in regulation for 2023.

Area	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
North of 46°16' N. lat.	shoreline a/ - 100 fm line b/					
46°16' N. lat. - 40°10' N. lat.	40 fm line - 100 fm line b/					
	30 fm line - 40 fm line					
40°10' N. lat. - 38°57.5' N. lat.	40 fm line - 125 fm line b/					
40°10' N. lat. - 34°27' N. lat.	50 fm line - 125 fm line					
South of 34°27' N. lat.	100 fm line - 150 fm line (also applies around islands)					

a/ The federal regulations specify "shoreline," but the federal non-trawl RCA only extends to the federal-state waters boundary of 3 nm. Within 3 nm, Washington has a state prohibition on non-trawl commercial fishing.
b/ The Council took final action in March 2023 (Amendment 32) to move the seaward boundary of the non-trawl RCA to 75 fathoms between the OR/WA border and 34° 27' N. lat. Those changes are effective January 1, 2024.

1.2 Impact (Groundfish Mortality)

1.2.1 IFQ Species Categories

The 2023 IFQ and IBQ allocations and total mortality for IFQ species categories are listed in Table 4. Three of the most economically important species categories to the Shorebased IFQ fishery are sablefish north of 36° N. lat., petrale sole, and widow rockfish.

Other high value IFQ species categories, with 2023 attainments in parentheses, include Pacific whiting (57 percent), Dover sole (8 percent), lingcod (21 percent coastwide), and yellowtail rockfish north of 40°10' N. lat. (76 percent). Canary rockfish and chilipepper rockfish both had 2023 attainments of 61 percent but are generally not considered economically important target species in the IFQ fishery. Attainments of the remaining IFQ species categories were all below 50 percent. Sablefish south of 36° N. lat. is another notable IFQ species category that continued to see low attainment in 2023 (10 percent). Sablefish south of 36° N. lat. is unique in that a majority of the impacts are attributed to "gear switchers" (i.e., IFQ participants who use fixed gear; 5 Year Catch Share Review).

While catch and attainment of sablefish south of 36° N. lat. has remained very low in recent years, sablefish north of 36° N. lat. has been historically highly attained, and catch generally fluctuates in concert with the allocation. However, in 2023 attainment dropped to 69 percent despite the northern sablefish allocation reaching its highest level yet during IFQ management. The approximately 30 percent increase in allocation from 2022 to 2023 was apparently more than the fishery could effectively make use of at that time. This could be due to abnormally low sablefish prices that continue to decline, as well as a large portion of the population currently made up of

small fish (sablefish pricing is size-dependent). Industry has expressed concerns that harvesting too much sablefish could flood the market and further drive down prices, and some sablefish buyers stopped receiving sablefish landings in September 2023 in response to market dynamics.

Table 4. No Action - Shorebased IFQ. Estimated mortality for IFQ species categories and Pacific halibut IBQ for 2023 compared to the allocations or set-asides. Data Source: NMFS Pacific Coast Groundfish IFQ Database

		No Action 2023			
IFQ Species Categories	**Area**	**Estimated Mortality (mt)**	**SB IFQ Allocation (mt) a/**	**% Attainment**	**Ex-vessel Revenue**
Arrowtooth flounder	Coastwide	800.2	15,640.3	5%	$26,998
Bocaccio rockfish	South of 40°10' N. lat.	255.6	700.3	36%	$226,242
Canary rockfish	Coastwide	516.0	842.5	61%	$403,331
Chilipepper	South of 40°10' N. lat.	950.3	1,563.8	61%	$999,904
Cowcod	South of 40°10' N. lat.	1.7	24.8	7%	$1,654
Darkblotched rockfish	Coastwide	184.0	646.8	28%	$112,043
Dover sole	Coastwide	3,832.4	45,973.2	8%	$3,532,363
English sole	Coastwide	234.8	8,320.6	3%	$25,018
Lingcod	North of 40°10' N. lat.	400.5	1,829.3	22%	$755,694
Lingcod	South of 40°10' N. lat.	50.1	284.2	18%	$106,504
Longspine thornyheads	North of 34°27' N. lat.	21.4	2,129.3	1%	$17,264
Shelf rockfish	North of 40°10' N. lat.	271.8	694.7	39%	$106,148
Shelf rockfish	South of 40°10' N. lat.	44.3	163.0	27%	$5,058
Slope rockfish	North of 40°10' N. lat.	192.1	894.4	21%	$39,322
Slope rockfish	South of 40°10' N. lat.	27.7	417.1	7%	$30,944
Other flatfish	Coastwide	319.1	4,142.1	8%	$218,526
Pacific cod	Coastwide	39.2	1,039.3	4%	$38,164
Pacific halibut b/	North of 40°10’ N. lat.	27.7	97.2	28%	$0
Pacific ocean perch	North of 40°10' N. lat.	224.7	2,956.2	8%	$120,556
Pacific whiting c/	Coastwide	100,954.4	178,582.8	57%	$18,792,670
Petrale sole	Coastwide	2,836.3	3,063.8	93%	$7,410,493
Sablefish	North of 36° N. lat.	2,677.4	3,893.5	69%	$4,511,916
Sablefish	South of 36° N. lat.	93.9	970.0	10%	$270,454
Shortspine thornyhead	North of 34°27' N.	276.9	1,146.7	24%	$238,245
Shortspine thornyhead	South of 34°27' N	0.0	50.0	0%	$0
Splitnose rockfish	South of 40°10' N. lat.	19.9	1,494.7	1%	$659
Starry flounder	Coastwide	0.2	171.9	0%	$52
Widow rockfish	Coastwide	10,896.9	11,509.8	95%	$6,393,048

		No Action 2023			
IFQ Species Categories	**Area**	**Estimated Mortality (mt)**	**SB IFQ Allocation (mt) a/**	**% Attainment**	**Ex-vessel Revenue**
YELLOWEYE ROCKFISH	Coastwide	0.5	3.33	10%	$95
Yellowtail rockfish	North of 40°10' N. lat.	2,860.8	3,761.9	76%	$1,504,577

a/ Shorebased IFQ allocations do not include surplus carryover.

b/ Pacific halibut is managed using IBQ, see regulations at §660.140.

c/ Pacific whiting values include inseason allocation reapportionments.

1.2.2 Pacific Halibut IBQ North of 40° 10′ N. lat.

The 2023 Shorebased IBQ allocation for Pacific halibut north of 40° 10′ N. lat. was 97.2 mt. The species is managed under an international agreement and the Total Constant Exploitable Yield (TCEY) is set by the International Pacific Halibut Commission (IPHC), outside of the Council process. The Pacific halibut mortality limit in the groundfish trawl fishery is set at 15 percent of the Area 2A (Washington, Oregon, and California) TCEY for legal sized Pacific halibut and is not to exceed 100,000 pounds annually. The trawl bycatch mortality limit is then converted to a round weight legal and sublegal sized amount using conversion factors provided by IPHC and NMFS at the time of calculation.

After these conversions, 10 mt is deducted to cover bycatch mortality in the at-sea Pacific whiting fishery and trawl fishery south of 40° 10' N. lat., and the remainder is issued as IBQ for use by vessels operating in the Shorebased IFQ program. Because of the 100,000-pound cap on the groundfish trawl mortality, any Area 2A TCEY higher than 666,667 pounds yields no further increase to the annual Pacific halibut IBQ mortality limit for the Shorebased IFQ program. The bycatch allocation percent can be adjusted downward or upward (above or below 15 percent) through the biennial specifications and management measures process, but the upper bound on the maximum allocations can only be changed though an FMP amendment. In 2023, 28 percent of the IBQ allocation was taken, and less than 50 percent has been taken since at least 2019.

1.2.3 Non-IFQ Species

Recent mortality estimates (2021 and 20221) for non-IFQ groundfish species and complexes are shown in Table 5 (Source: Groundfish Expanded Mortality Multiyear (GEMM)). Prior to 2021, the Shorebased IFQ fishery was managed with coastwide bimonthly trip limits for big skate. As part of the 2021-22 harvest specifications and management measures package, the Council chose to manage big skate to an unlimited trip limit, adding it to three other non-IFQ species categories that were already managed with unlimited trip limits: longnose skate, the Other Fish complex, and California scorpionfish. The Council also chose to manage blackgill rockfish in the Shorebased IFQ fishery with an unlimited trip limit and to continue managing it with southern slope QP.

[1] 2023 mortality estimates from the GEMM are not yet available as of the time of writing this report. As bycatch species, relying on GEMM estimates of discard mortality to determine total mortality impact is important, compared to just landings estimates in PacFIN.

Quillback rockfish were declared overfished and will be under a rebuilding plan in the 2025-26 biennium. No quillback rockfish were landed into California ports by the IFQ fishery prior to 2022. Since 2022, small amount have been landed into California annually, with the majority of quillback rockfish landed by bottom trawl vessels. Since 2011, quillback rockfish have only been recorded on observed IFQ trips off of California in 2014, 2019, and 2022, with 3 pounds or less observed each of those years. WCGOP observer data does not include 2023 at this time, but quillback rockfish landings increased beginning in 2023 and have continued to be higher in 2024 than years prior. The IFQ fishery has full observer or EM coverage, so it is likely that WCGOP observations of quillback rockfish could be higher in 2023 and 2024 than prior years. 2023 WCGOP data will be available for analysis in 2024. No quillback rockfish were identified in EM data for hauls south of 42° N. lat. during 2015-22.This is possibly due to the fact that a small portion of IFQ bottom trawl vessels are in the EM program, and the majority of quillback rockfish in the IFQ fishery appears to be caught by bottom trawl gear.

Table 5. 2021 and 2022 mortality estimates (mt) for non-IFQ groundfish species and complexes in the shorebased IFQ fishery. Data Source: GEMM

Species or Complex	Estimated IFQ Mortality (mt)	
	2021	2022
Big Skate	188.2	123.9
Black rockfish – CA	-	0.1
Black rockfish – WA	<0.1	<0.1
OR black/blue/deacon rockfish	<0.1	-
Cabezon – CA	-	<0.1
Cabezon/kelp greenling – OR	<0.1	<0.1
Cabezon/kelp greenling – WA	<0.1	<0.1
California halibut	1.7	0.7
Groundfish Unidentified	0.6	0.9
Longnose Skate	572.8	551.4
Nearshore rockfish complex north of 40° 10′ N. lat.	0.2	0.1
Nearshore rockfish complex south of 40° 10′ N. lat.	-	<0.1
Other groundfish	-	<0.1
Pacific Spiny Dogfish Shark	117.5	313.2
Roundfish Unidentified	<0.1	-

Table 6 shows Shorebased IFQ trip limits for non-whiting, non-IFQ groundfish species and species complexes that have trip limits listed in regulation, along with their 2023 landings and ACL attainments. Landings of most species or complexes in Table 6, with the exception of big skate, blackgill rockfish, longnose skate, and Pacific spiny dogfish, have been minimal to non-existent since the start of the Shorebased IFQ program in 2011. IFQ landings made up the majority of total

2023 mortality for big skate and longnose skate, along with roughly one-third of the Pacific spiny dogfish total mortality. The 2023 ACL attainments of all species and complexes in Table 6 were less than 50 percent.

Table 6. 2023 trip limits in regulation for non-IFQ species and complexes, 2023 landings, total estimated mortality across all Council-managed fisheries, and percent attainment of the 2023 ACL. Data Source: PacFIN APEX Groundfish Species Scorecard - Report GMT522

Species or Complex	Trip Limit	IFQ Landings (mt)	Total Estimated Mortality (mt)	Percent Attainment of ACL
Big skate	Unlimited	89.0	128.1	10%
Blackgill rockfish a/	Unlimited	18.7	76.2	11%
California cabezon	50 lb./month	-	33.1	18%
California scorpionfish	Unlimited	-	110.7	42%
Longnose skate	Unlimited	447.7	578.6	34%
Longspine thornyhead south of 34° 27′ N. lat.	24,000 lb./2 months	-	5.2	1%
Minor nearshore rockfish, Washington black rockfish & Oregon black/blue/deacon rockfish b/	300 lb./month	0.4	855.9	46%
Oregon cabezon/kelp greenling complex	50 lb./month	0.03	49.8	27%
Other Fish	Unlimited	-	58.3	26%
Pacific spiny dogfish	60,000 lb./month	167.5	472.7	32%

a/ The total estimated mortality and percent attainment of ACL are for the entire slope rockfish complex south of 40° 10′ N. lat. IFQ landings are of blackgill rockfish only. Blackgill rockfish make up an average of 36 percent of slope rockfish south mortality each year.

b/ The percent attainment is the total estimated mortality for all three species categories divided by the sum of ACLs for all three species categories in 2023

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2. Alternative 1

2.1 Shorebased IFQ - Management Measures

Alternative 1 implements the default HCRs for all groundfish species. The same principle management measures in No Action would be implemented under Alternative 1 as no proposed changes to IFQ management measures for the 2025-26 biennium. However, there are proposed changes to the biennial trawl/non-trawl allocation schemes for two IFQ species categories(See Chapter 1 §2.4)., as well as proposed changes to some at-sea set-asides (See Chapter 3. At-Sea Whiting Set-Asides). Both of those management schemes impact IFQ allocations in 2025-26. The changes being proposed are:

Canary rockfish: The status quo trawl and non-trawl allocation percentages are 72.3 percent and 27.7 percent, respectively. The proposed management changes would transfer 5 percent or 12.5 percent of the trawl allocation to the non-trawl allocation. This proposed change is due to >50 percent reductions in the canary rockfish ACLs in 2025-26 and therefore expected impacts to non-trawl fisheries that target canary rockfish.

Widow rockfish: The status quo biennial allocation is a fixed amount of 400 mt to the non-trawl sector and the remainder of the fishery HG to trawl. The proposed reallocation would decrease the fixed non-trawl allocation to either 300 mt or 200 mt, and the remainder would be allocated to the trawl sector. This proposed change is driven by low non-trawl allocation attainment and potential 2025-26 constraints in the IFQ fishery, for which widow rockfish is an important target species.

The species categories for which there are proposed changes to the at-sea set-asides in 2025-26 are shown in Table 7. Eight at-sea set-asides do not have more than one option and are not shown in Table 7, because the set-aside value would not change in 2025-26 compared to 2023.

Table 7. Alternative 1. At-sea set-aside options proposed for 2025-26 for species categories that have options that differ from No Action (2023).

Species Category	Option 1 Status Quo	Option 2	Option 3
Arrowtooth flounder	70	100	-
Canary rockfish	36	30	20
Darkblotched rockfish	76.4	100	150
Other flatfish	35	100	-
Sablefish north of 36° N. lat.	100	300	429
Shortspine thornyhead north of 34° 27′ N. lat.	70	100	50
Widow Rockfish	476	300	-
Yellowtail rockfish north of 40° 10′ N. lat. a/	320	360	450

a/ Option 3 (450 mt) for yellowtail rockfish was added during overwinter analysis based on projection results of the bootstrap simulation. Option 3 was not originally in the range put forward by the Council in e November 2023

Table 8 summarizes the harvest specification and management measure changes being proposed, including HCRs, that impact IFQ allocations and the resulting number of possible IFQ allocations for each IFQ species category in 2025. For most IFQ species categories, there is only one possible IFQ allocation in 2025. For canary rockfish, there are three proposed changes to the biennial trawl/non-trawl allocations and three proposed changes to the at-sea set-asides, which means that there are nine possible IFQ allocations for canary rockfish in the range of alternatives. For shortspine thornyhead north of 34° 27′ N. lat., there are up to 18 possible IFQ allocations, the most for any IFQ species category.

Table 8. Alternative 1. Proposed 2025-26 harvest specification and management measure changes that would impact IFQ allocations and resulting number of possible 2025 IFQ allocations, depending on the combination of alternatives and options chosen.

IFQ Species Category	Proposed Management Changes that Impact IFQ Allocation	Number of Possible 2025 IFQ Allocations
Arrowtooth flounder	At-sea set-aside (2)	2
Bocaccio rockfish South of 40°10' N.	None	1
Canary rockfish	Biennial trawl/non-trawl allocation (3); At-Sea set-aside (3)	9
Chilipepper rockfish South of 40°10' N.	None	1
Cowcod South of 40°10' N.	None	1
Darkblotched rockfish	At-sea set-aside (3)	3
Dover sole	Harvest Control Rule (Alt. 2) (2)	2
English sole	None	1
Lingcod North of 40°10' N.	None	1
Lingcod South of 40°10' N.	None	1
Longspine thornyhead North of 34°27' N.	None	1
Minor shelf rockfish North of 40°10' N.	None	1
Minor shelf rockfish South of 40°10' N.	None	1
Minor slope rockfish North of 40°10' N.	None	1
Minor slope rockfish South of 40°10' N.	None	1
Other flatfish	Harvest Control Rule (Alt. 2) (2) a/; At-sea set-aside (2)	4
Pacific cod	None	1
Pacific halibut (IBQ) North of 40°10' N.	None	1
Pacific ocean perch North of 40°10' N.	None	1
Pacific whiting	Biennial trawl/non-trawl allocation (3)	3
Petrale sole	None	1
Sablefish North of 36° N.	At-sea set-aside (3)	3
Sablefish South of 36° N.	None	1

IFQ Species Category	Proposed Management Changes that Impact IFQ Allocation	Number of Possible 2025 IFQ Allocations
Shortspine thornyhead North of 34°27' N.	Harvest Control Rule (Alt. 2) (2); At-sea set-aside (3) New management measure (3) b’	18
Shortspine thornyhead South of 34°27' N.	None	1
Splitnose rockfish South of 40°10' N.	None	1
Starry flounder	None	1
Widow rockfish	Biennial trawl/non-trawl allocation (3) At-sea set-asides (2)	6
Yelloweye rockfish	None	1
Yellowtail rockfish North of 40°10' N.	At-sea set-aside (3) c/	3

a/ Rex sole was assessed in 2023, and as a result of the stock assessment outputs, the Council is considering changing the HCR in 2025-26. Rex sole is part of the Other flatfish complex.

b/ The shortspine thornyhead allocation would be set at a coastwide scale under this new management measure but is compared to the status quo northern allocation in the analysis.

c/ A third at-sea set-aside option for yellowtail rockfish was added during overwinter analysis based on projection results of the bootstrap simulation. Option 3 was not originally in the range put forward by the Council in their November 2023 motion.

There are also three proposed new management measures that would impact vessels in the IFQ fishery (Chapter 9: New Management Measures):

- Require species-specific sorting of rockfish landings (there are sub-options in the range that exclude the trawl fishery)
- Update electronic monitoring (EM) discard and retention requirements in regulation to include sablefish and rex sole, and remove California halibut
- Remove the management line for shortspine thornyhead

2.2 Impact (Groundfish Mortality)

Alternative 1 analyzes the Shorebased IFQ fishery under the default HCR ACLs and associated allocations. Notable changes to IFQ allocations under Alternative 1 compared to the 2023 No Action under status quo management measures and allocations include:

- New 2023 stock assessments and catch-only updates resulted in notable decreases to the 2025-26 IFQ allocations for canary rockfish (61 percent decrease in both years), petrale sole (37 percent and 40 percent decreases, respectively), and shortspine thornyhead north of 34° 27′ N. lat. (70 percent decrease in both years).
- Due to the 2023 rex sole stock assessment, the IFQ allocation for the Other Flatfish complex, for which rex sole is a component species, is increasing by 56 percent in 2025 and 42 percent in 2026.
- While not due to a new 2023 stock assessment or catch-only update, the IFQ allocation for arrowtooth flounder is also decreasing by 45 percent in 2025 and 57 percent in 2026, compared to 2023.

- The 2023 limited update assessment of sablefish estimated that the 2020 and 2021 year classes are the largest on record, which will result in roughly three-fold increases in the 2025-26 ACLs, compared to 2023. The 2025-26 IFQ allocations for sablefish north of 36° N. lat. under status quo management measures are expected to increase by 245 percent in both years, and those of sablefish south of 36° N. lat. are expected to increase by 239 percent.

Changes to the IFQ allocations in 2025-26 for all other species categories are less than 30 percent of their respective 2023 No Action allocations. This includes modest decreases in the widow rockfish allocation and modest increases in the yellowtail rockfish allocations, both important target species in a portion of the IFQ fishery.

The IFQ catch projections were structured so that all species categories with at least two possible IFQ allocations were modeled with a "low" and "high" allocation each year. As described above, eight IFQ species categories have more than two possible IFQ allocations in 2025-26 under status quo IFQ management measures, based on other management changes being proposed. Therefore, those eight species categories with more than two possible allocations were modeled so that their "low" and "high" represented the bookends of their range. This approach captures the full suite of possible mortality impacts in 2025-26 while allowing for a manageable amount of model runs. For most species categories, the difference between the "low" and "high" bookends is relatively small, but for canary rockfish the "high" allocation is 30 percent larger than the "low" allocation. Table 9 below shows the 2025 and 2026 projected IFQ catches and attainments for species categories with multiple possible allocations under the Alternative 1 harvest specifications and status quo IFQ management measures. Table 10 shows the 2025 and 2026 projected IFQ catches and attainments for all remaining species categories with only one possible IFQ allocation under Alternative 1. Projections are made based on input data from the IFQ fishery from 2018-2023 and were linearly weighted, with the most recent year (2023) having the most influence on projections. Catch projections for all IFQ species categories generally follow fluctuations in allocation amounts, with varying correspondence. See Appendix C for more details about the IFQ model used to make these projections and the accompanying analysis.

Table 9. Alternative 1-Shorebased IFQ. 2025-26 allocations (mt), projected catch (mt), and percent attainment under Alternative 1 for IFQ species categories with alternative IFQ allocations based on management measure options. The "LOW" and "HIGH" allocations represent bookends, and for some species categories there are multiple possible allocations within those bookends.

Species Category	2025 Alternative 1						2026 Alternative 1					
	LOW			HIGH			LOW			HIGH		
	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.
Arrowtooth flounder	8,543	776.3	9%	8,573	776.5	9%	6,675	762.4	11%	6,705	762.7	11%
Canary rockfish	268	256.0	96%	348	291.1	84%	269	256.5	95%	348	291.5	84%
Darkblotched rockfish	543	157.5	29%	617	175.6	28%	522	152.3	29%	596	170.5	29%
Other flatfish	6,399	338.7	5%	6,464	338.9	5%	5,807	337.2	6%	5,872	337.3	6%
Petrale sole	1,986	1,839	93%	2,001	1,852	93%	1,870	1,732	93%	1,885	1,745	93%
Sablefish North	13,091	8,076.1	62%	13,420	8,268.3	62%	13,091	8,076.1	62%	13,420	8,268.3	62%
Shortspine thornyhead N.	309	164.8	53%	360	180.2	50%	310	165.2	53%	405	191.3	47%
Widow rockfish	10,143	9,664.0	95%	10,519	10,004	95%	9,298	8,900.3	96%	9,674	9,240.4	96%
Yellowtail rockfish North	4,140	3,048.3	74%	4,270	3,112.0	73%	3,948	2,954.3	75%	4,078	3,017.8	74%

Table 10. Alternative 1-Shorebased IFQ. 2025-26 allocations (mt), projected catch (mt), and percent attainment under Alternative 1 for IFQ species categories with only one possible IFQ allocation in 2025 and 2026.

Species Category	2025 Alternative 1			2026 Alternative 1		
	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.
Bocaccio South	653	253.5	39%	648	253.3	39%
Chilipepper rockfish South	2,091	1,268.0	61%	1,961	1,190.9	61%
Cowcod South	24	1.7	7%	23	1.7	7%
Dover sole	45,985	3,835.6	8%	45,985	3,835.6	8%
English sole	8,236	232.4	3%	8,174	232.1	3%
Lingcod North	1,503	381.8	25%	1,449	378.2	26%
Lingcod South	295	52.0	18%	305	53.7	18%
Longspine thornyhead N.	1,901	21.9	1%	1,812	21.9	1%
Minor shelf rockfish North	763	295.1	39%	755	292.2	39%
Minor shelf rockfish South	175	38.3	22%	175	38.2	22%
Minor slope rockfish North	858	192.8	22%	836	191.8	23%
Minor slope rockfish South	425	28.1	7%	423	28.0	7%
Pacific cod	1,044	36.6	4%	1,044	36.6	4%
Pacific halibut (IBQ) North	97	44.5	46%	97	44.5	46%
Pacific ocean perch North	2,723	221.4	8%	2,621	221.0	8%
Pacific whiting	178,581	101,966	57%	178,581	101,966	57%
Sablefish South	3,289	293.8	9%	3,288	293.7	9%
Shortspine thornyhead S.	50	0.0	0%	50	0.0	0%
Splitnose rockfish South	1,419	19.7	1%	1,382	19.6	1%
Starry flounder	188	0.2	0.1%	188	0.2	0.1%
YELLOWEYE ROCKFISH	3.3	0.4	11%	3.4	0.4	10%

Compared to 2023 attainments, the shorebased IFQ fishery is projected to show very similar attainment of their 2025 Alternative 1 allocations for most IFQ species categories (within ten percent change for 19 of the 30 species categories). The level of increase or decrease in allocation attainments in 2025-26 for the remaining 11 species categories ranges from a 122 percent increase in attainment for shortspine thornyhead north to a 34 percent decrease in attainment for Other Flatfish, and these dramatic changes are largely due to their respective allocation decreases and increases in 2025-26.

Projected absolute catch amounts (as opposed to allocation attainments) range from a 54 percent decrease in catches of canary rockfish to a roughly 210 percent increase in catches of sablefish

(both north and south). Other species categories for which catch is projected to decrease by more than 10 percent of their 2023 levels (in order of highest to lowest level of decrease) are shortspine thornyhead north, petrale sole, yelloweye rockfish, darkblotched rockfish, minor shelf rockfish south, and widow rockfish. Other species categories for which catch is increasing by more than 10 percent of their 2023 levels (in order of highest to lowest level of increase) are Pacific halibut and chilipepper rockfish south. More species categories are projected to have substantial decreases in catch in 2025 than substantial increases, and several of the species categories with projected catch decreases are economically important to the IFQ fishery. This means that there will be cumulative impacts to the IFQ fishery across all species categories in 2025-26 resulting from overall greater decreases in catch than increases in catch. Even with the >200 percent projected increase in sablefish catches, it is unlikely that the IFQ fishery would realistically reach that level of increase due to market constraints, as discussed in the sablefish section below.

Projections for the Pacific whiting sector were constrained to 2023 levels since the Pacific whiting allocation was fixed (as a placeholder) at the 2023 level among all alternatives. The overall purpose of the analysis was not to predict Pacific whiting catch, which is an internationally managed species with a separate harvest limit-setting process, but rather to better predict total IFQ groundfish impacts including bycatch by shoreside whiting vessels and the total economic value of the IFQ fishery, including both the whiting and non-whiting components. All other species in the shoreside whiting sector were modeled as bycatch fixed at 2023 bycatch rates. Bycatch of some species, including sablefish, has been trending upward in recent years, so the most recent year was judged to be the most reasonable near-term assumption.

Three IFQ species would be newly eligible for surplus carryover in 2025-26, because their ACL would be set lower than their ABC due to applying the 40-10 or the 25-5 HCRs (50 CFR 660.140(e)(5)). Those species are canary rockfish, shortspine thornyhead, and petrale sole. Petrale sole's ACL would only be eligible for surplus carryover in 2026 when it first enters the precautionary zone (i.e., depletion of less than 0.25 for flatfish). Shortspine thornyhead has never been eligible for surplus carryover, but canary rockfish was last eligible for surplus carryover in 2016 when it was in a rebuilding plan, and petrale sole's ACL was set below its ABC only once, in 2012, since the IFQ program began. Each year, NMFS makes an evaluation of the species that are eligible for surplus carryover and determines whether carryover is appropriate for the following year, taking into account factors such as conservation concern and ACL attainment. Surplus carryover may put the ACL at risk of being exceeded for highly attained species, because the additional QPs carried over from the previous year could lead to fleet-wide catch levels that exceed the IFQ allocation if those additional QPs are utilized. Additionally, surplus carryover is not accounted for in the reference data used to make IFQ catch projections for these three species.

The following sections provide additional analysis of impacts to the IFQ fishery due to changes to IFQ allocations in 2025-26 resulting from 2023 stock assessments and/or proposed management measures changes (i.e., trawl/non-trawl allocation, at-sea set-aside). There are only two IFQ species categories with alternative at-sea set-asides proposed that are not analyzed in more detail below: arrowtooth flounder and the Other Flatfish complex. IFQ allocation attainments for both are projected to be less than 12 percent in 2025 and 2026, regardless of the at-sea set-aside option. Therefore, there are no expected impacts to the IFQ fishery under either status quo management measures (compared to No Action) or any of the proposed management measure changes.

Impacts to California quillback rockfish from the IFQ fishery are expected to be similar to the No Action impacts described in Section §1.2.3. Quillback rockfish are not managed with an allocation or quota in the IFQ fishery, so the only management measures that could be used to limit quillback rockfish mortality include landing limits for non-IFQ species and the closure or modification of groundfish conservation areas that are applicable to the trawl fishery (50 CFR 660.112(a)(5)), which include the trawl RCA, BRAs, BACs, and CCAs. BRAs are not likely to be an effective tool in limiting IFQ mortality of quillback rockfish, because they are only applicable to midwater rockfish vessels. The majority of quillback rockfish mortality in the IFQ fishery comes from bottom trawl vessels. Currently, the trawl RCA is only closed north of 46° 16′ N. lat

2.2.1 Canary Rockfish

Under Alternative 1, the default HCR for canary rockfish is ACL<ABC with a P* of 0.45 and the 40-10 HCR applied, resulting in ACLs of 571 mt in 2025 and 573 mt in 2026. Canary rockfish was assessed in 2023, and the results of that stock assessment mean that 2025-26 ACLs are decreasing by 57 percent in both years, compared to the 2023 ACL. Additionally, canary rockfish is estimated to be in the precautionary zone in 2025-26, which means that the ACL will be set lower than the ABC, making canary rockfish eligible for surplus carryover for the first time since 2016 when it was in a rebuilding plan.

There are three trawl/non-trawl allocation options that have been analyzed, and other than Status Quo (Option 1), Options 2 and 3 would transfer 5 or 12.5 percentage points from the trawl allocation to the non-trawl allocation in 2025-26 (Chapter 1 §2.6). There are also currently three options for at-sea set-asides in the range analyzed: Option 1 Status Quo of 36 mt, Option 2 of 30 mt, and Option 3 of 20 mt (See Chapter 3 §2.2.3). At-sea set-aside Options 2 and 3 would result in a higher IFQ allocation for canary rockfish than Option 1 Status Quo. The full suite of potential canary rockfish IFQ allocations in 2025-26 is shown in Table 11. The potential 2025 IFQ allocation ranges from 267.8 to 347.6 mt, and the potential 2026 IFQ allocation ranges from 269.0 to 348.4 mt. The difference between the highest and lowest possible allocations is 79.8 mt in 2025 and 79.4 mt in 2026. The lowest possible allocation would be the result of transferring 12.5 percentage points from trawl to non-trawl (Option 3) and setting the at-sea set-aside at 36 mt (Status Quo). Conversely, the highest possible allocation would be the result of maintaining status quo trawl and non-trawl allocation shares and setting the at-sea set-aside at 20 mt (Option 3).

Table 11. Alternative 1. The 2025 and 2026 canary rockfish IFQ allocation under all combinations of the trawl/non-trawl allocation options and at-sea set-aside options.

At-sea Set-aside Option	Trawl/Non-trawl Allocation Options (Percent of HG allocated to trawl)					
	Option 1 Status Quo (72.3%)	Option 2 (67.3%)	Option 3 (59.8%)	Option 1 Status Quo (72.3%)	Option 2 (67.3%)	Option 3 (59.8%)
	2025 IFQ Allocation (mt)			2026 IFQ Allocation (mt)		
Option 1 SQ (36 mt)	331.6	305.9	267.8	332.4	307.2	269.0
Option 2 (30 mt)	337.6	311.9	273.8	338.4	313.2	275.0
Option 3 (20 mt)	347.6	321.9	283.8	348.4	323.2	285.0

Although there are nine possible canary rockfish IFQ allocations each year, two model runs were conducted based on the lowest and highest possible allocations in 2025-26, representing the bookends of potential impacts in the IFQ fishery. Under the lowest possible IFQ allocation, the fishery is projected to catch 256 mt in 2025 and 266 mt in 2026, resulting in attainments of 96 and 95 percent, respectively (Table 12). Under the highest IFQ allocation, the fishery is projected to catch 291 mt in 2025 and 292 mt in 2026, resulting in attainments of 84 percent both years.

Table 12. Alternative 1. The 2025 and 2026 projected catch and allocation attainment (%) of canary rockfish in the IFQ fishery based on the minimum allocation possible (LOW) and maximum allocation possible (HIGH), depending on various management options being considered.

Bookend Allocation Scenario	2025			2026		
	Allocation (mt)	Projected Catch (mt)	Attainment	Allocation (mt)	Projected Catch (mt)	Attainment
LOW	268	256.0	96%	269	256.5	95%
HIGH	348	291.1	84%	348	291.5	84%

The higher the allocation is, the higher the catch projection is, but the increase in catch is not proportional to the increase in allocation. The difference between the lowest and highest allocations is roughly 80 mt, whereas the difference in projected catches is 35 mt. Therefore, lowering the allocation by 80 mt does not mean that catches are necessarily expected to drop proportionally. This is likely because canary rockfish is a bycatch species in the shoreside whiting sector, and that sector's catch projections are modeled separately from all other IFQ sectors. All non-whiting species are modeled as bycatch for that sector, and the 2023 Pacific whiting allocation was used as a proxy for the 2025-26 Pacific whiting allocation, because that allocation is set through an annual treaty process and is unknown at this time for 2024 and beyond. Therefore, under both the lowest and highest canary rockfish allocations, bycatch projections of canary rockfish in the shoreside whiting sector are relatively similar, because they are based in part on 2023 Pacific whiting bycatch rates in the shoreside whiting sector.

However, because in the current analysis, canary rockfish is modeled as bycatch associated with the 2023 Pacific whiting allocation, it is also possible that the low projections of canary rockfish are overestimating what can truly be expected in 2025-26 under a low-end allocation . In reality, under lower canary rockfish allocations, the shoreside whiting sector might be able to actively avoid canary rockfish to a greater degree than they did in 2023. Prior to 2017, the shoreside whiting sector caught less than 30 mt of canary rockfish each year, but that sector has caught more than 70 mt each year since. This suggests that they may have been actively avoiding canary rockfish under very low allocations. In its current configuration, the IFQ model is not accounting for canary rockfish bycatch trends in the shoreside whiting sector based on fluctuations in the canary rockfish allocation.

Shoreside whiting bycatch has contributed 20-44 percent of total IFQ canary rockfish mortality since 2017, and the proportion from the midwater rockfish sector has been steadily growing since then (Figure 1). The bottom trawl sector has harvested an average of 49 percent of IFQ canary rockfish since 2017, reaching up to 70 percent in 2019. Less than 0.06 mt have been harvested each year by IFQ gear switchers, so that sector is not likely to be impacted by canary rockfish IFQ allocation reductions in 2025-26 and is also not shown in Figure 1. The canary rockfish IFQ allocation was exceeded by 1.7 mt in 2015, and in that year, shoreside whiting mortality made up 56 percent of total IFQ mortality, compared to less than 36 percent in all other years prior to 2018. The midwater rockfish sector had not developed yet, so the remaining mortality was predominantly from the bottom trawl sector. The allocation exceedance in 2015 does not necessarily indicate that the 2025-26 allocations are at risk of being exceeded, because they are still expected to be magnitudes higher than allocations prior to 2017 (Figure 2).

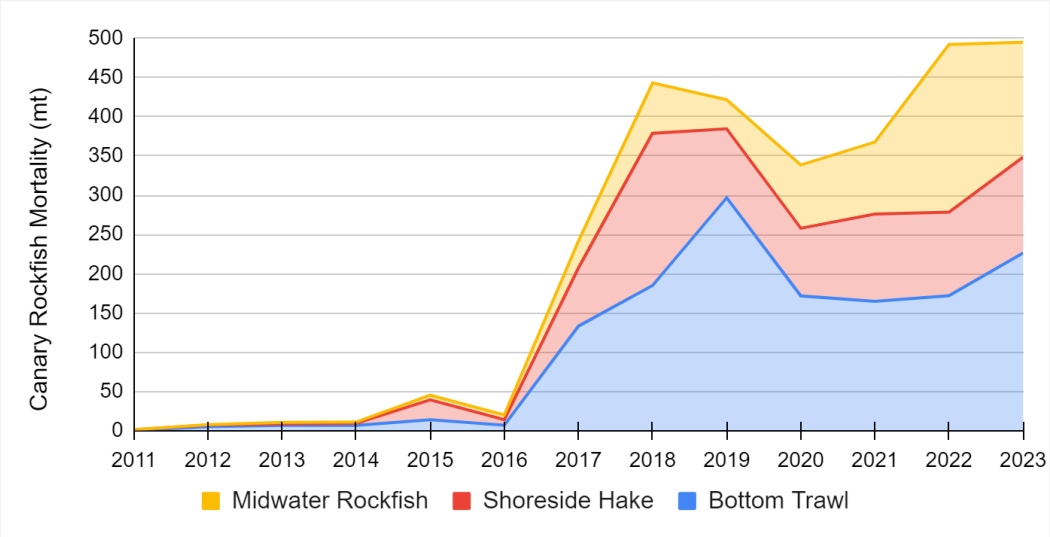

Figure 1. Canary rockfish mortality in the IFQ fishery by sector, 2011-2023. Source: 2011-2022 mortality is from the GEMM; 2023 mortality is estimated based on landings from PacFIN combined with a recent three-year average discard mortality from the GEMM.

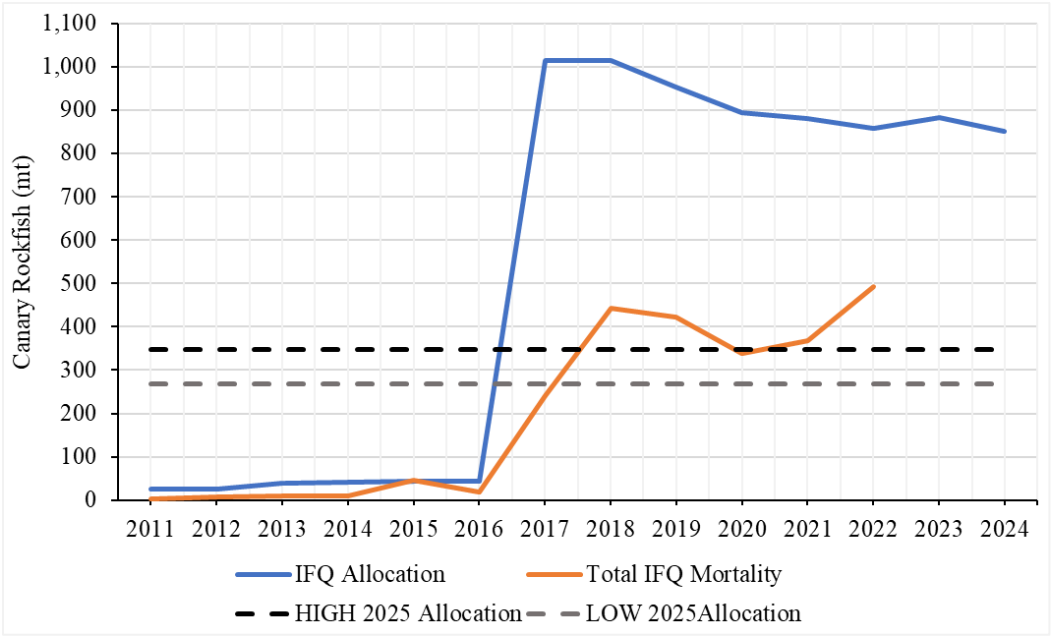

Figure 2. Total IFQ mortality since 2011 compared to historical IFQ allocations (2011-2024) and the lowest and highest possible 2025-26 IFQ allocations (dashed lines). Source: Historical IFQ allocations are from PacFIN Report GMT016, and 2011-2022 mortality is from the GEMM.

While the IFQ allocation may not be at risk of being exceeded in 2025-26 under any of the possible allocations, there are likely going to be negative impacts to the IFQ fishery as a result of allocation reductions compared to 2023-24, and those impacts are likely to be different for the different sectors of the IFQ fishery. Chapter 1 §2.6 analyzes these potential impacts across the nine possible 2025-26 IFQ allocations in more detail. Overall, that analysis shows that IFQ QP prices and number of trades are likely to increase in 2025-26 as demand for QPs increases under lower allocations, but prices may not increase to levels seen prior to 2018. The allocation decision analysis also indicates that midwater trawl vessels (i.e., shoreside whiting and midwater rockfish) will likely be impacted by canary rockfish allocation reductions to a greater degree than bottom trawl vessels, because it may be easier for bottom trawl vessels to avoid canary rockfish when low QP availability necessitates it. Shoreside whiting vessels and midwater rockfish vessels may find it harder to fully utilize their target species quota under lower canary rockfish allocations, whereas bottom trawl vessels appear to be able to maintain utilization levels of target species like Dover sole, petrale sole, and sablefish even under the lowest historical canary rockfish allocations. Lastly, AVL reductions in 2025-26, as a result of IFQ allocation reductions, are expected to limit around 3 IFQ vessels from catching the amount of canary rockfish those vessels caught in 2023. Chapter 1 §2.6 provides more detail on these analyses.

2.2.2 Darkblotched Rockfish

Under Alternative 1, the default HCR for darkblotched rockfish is ACL=ABC and P* of 0.45. The IFQ allocation for darkblotched rockfish is expected to decrease by 5 percent in 2025 and 8 percent in 2026 under status quo management measures. However, there are two alternative at-sea set-aside options being proposed that would reduce the IFQ allocation by 23.6 mt (Option 2) or 73.6 mt (Option 3), compared to the status quo at-sea set-aside. Darkblotched rockfish is generally not considered a target species in the IFQ fishery, and allocation attainments have been historically

low. Under Alternative 1, IFQ allocation attainments are projected at 28-29 percent in 2025 and 29 percent in 2026, across all three at-sea set-aside options. Therefore, there are no anticipated differential impacts to the IFQ fishery from the darkblotched rockfish at-sea set-aside options.

2.2.3 Dover Sole

The default HCR for Dover sole is setting the ACL equal to a fixed 50,000 mt. However, this default HCR would result in the ACL being greater than the ABC in both 2025 and 2026, making Alternative 1 an untenable HCR for Dover sole. Because of this, the Council is considering an Alternative 2 HCR for Dover sole in 2025-26 (See Chapter 4 §2.2.3). Under Alternative 1, the 2025 and 2026 Dover sole IFQ allocations would be 45,985 mt both years. IFQ mortality has not exceeded 8,000 mt since the program began in 2011, and 2025-26 IFQ catch is projected at 3,836 mt under Alternative 1, so the Alternative 1 HCR for Dover sole is not expected to differentially impact the IFQ fishery compared to No Action (2023). However, Dover sole catches may be lower in 2025-26 than current projections due to reductions in the shortspine thornyhead ACLs, a co-occurring species, as discussed in Chapter 4 §2.2.6.

2.2.4 Petrale Sole

The default HCR for petrale sole is ACL=ABC and P* 0.45. Under Alternative 1 (default HCRs), the status quo petrale sole IFQ allocation would decrease by 35 percent in 2025 and 38 percent in 2026, compared to the IFQ allocation in 2023. The status quo IFQ allocations would be 2,001 mt and 1,885 mt in 2025 and 2026, respectively. Petrale sole is projected to enter the precautionary zone (depletion of less than 0.25 for flatfish) in 2026, which means the 25-5 HCR will be applied, establishing a buffer between the ACL and ABC. This would make petrale sole eligible for surplus carryover in 2026 for the first time since 2012. The following analysis in this section analyzes the 2025-26 petrale sole IFQ allocations under status quo biennial trawl/non-trawl allocations. IFQ allocations under alternative trawl/non-trawl allocations are analyzed in Chapter 1, §2.8.

Petrale sole is a high value species in the IFQ fishery, with the majority caught as a target species in the bottom trawl sector. The five-year average of petrale sole mortality in the IFQ fishery is 2,627 mt (2019-2023), which is 145 percent of the 2025 allocation and 144 percent of the 2026 allocation. The maximum mortality of petrale sole since the IFQ program started was in 2022 when the fishery caught 2,997 mt (Figure 3). The drop in 2020 is likely due to impacts from the COVID-19 pandemic. Using a recent three-year average of discard mortality to estimate 2023 discard mortality, total mortality for 2023 is estimated at 2,827 mt, slightly lower than 2022. Although discard mortality estimates for 2023 have not yet been released, very little petrale sole is discarded in the IFQ fishery. This behavior is highly consistent, both recently and over the history of the IFQ program; the mean retention rate from 2018 through 2023 has been 99.3 percent (CV = 0.002, NMFS West Coast IFQ Program database). The IFQ fishery is projected to catch 1,852 mt in 2025 and 1,745 mt in 2026, with projected allocation attainments of 93 percent in both years.

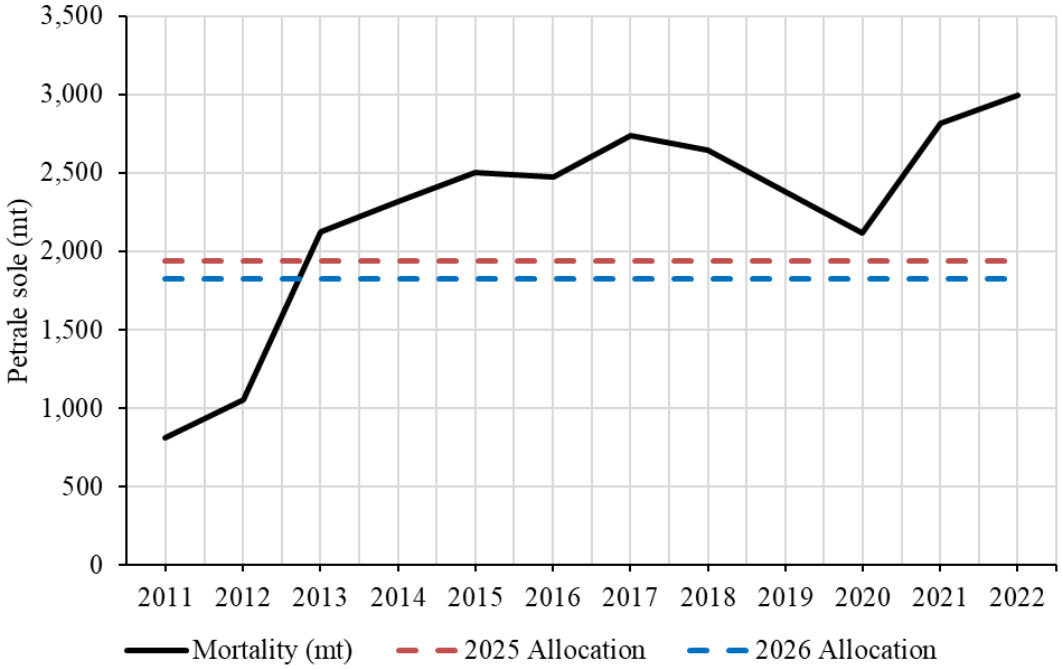

Figure 3. Petrale sole mortality (mt) in the IFQ fishery from 2011 to 2022, compared to the 2025 and 2026 allocations (dashed lines). Source: GEMM. Petrale sole was overfished between 2011-2015, which is the main reason catches were relatively low during that period. *The allocations in this figure are based on the 350 mt tribal set-aside that was preliminarily adopted in November before being reduced to 290 mt in April

Under Alternative 1, the 2025 and 2026 allocations will be lower than the IFQ fishery's mortality in every year since 2013. The maximum catch of 2,997 mt in 2022 is 1,145 mt higher than the projected catch in 2025 and 1,252 mt higher than the projected catch in 2026. Based on the average 2023 price per pound of petrale sole in the bottom trawl sector ($1.20 per pound), these differences equate to losses in ex-vessel revenue of $3,029,120 in 2025 and $3,312,191 in 2026. In 2023, the IFQ fishery as a whole earned $7,410,493 on petrale sole landings. The potential 2025 and 2026 losses amount to roughly 45 percent of the fishery's total 2023 petrale sole ex-vessel revenue. The status quo AVL for petrale sole is 4.5 percent of the IFQ allocation, or 198,513 lbs. in 2025 and 187.005 lbs. in 2026. This is lower than the 2023 vessel-level catches of 14 IFQ vessels, which, among those 14 vessels, would mean an average potential lost ex-vessel revenue of $93,564 per vessel in 2025 and $107,373 per vessel in 2026.

Only three bottom trawl vessels did not catch any petrale sole in 2023, out of 55 total bottom trawl vessels in the sector. For the 52 vessels that did land petrale sole in 2023, most of those vessels have relatively diverse fishing portfolios, with less than 50 percent of their total annual revenue coming from petrale sole. 11 bottom trawl vessels received more than 50 percent of their total revenue from petrale sole. The other major revenue contributors for bottom trawl vessels are Dover sole, sablefish, and chilipepper rockfish. However, overall petrale sole still contributes more to revenue than those other species. Petrale sole IFQ allocation reductions in 2025 and 2026 may result in increased catch of the other major revenue contributors in the bottom trawl sector in order to make up for losses. As discussed in the shortspine thornyhead section below, Dover sole is targeted as part of the Dover-thornyhead-sablefish (DTS) complex, along with sablefish and shortspine and longspine thornyheads. Shortspine thornyhead allocations are also decreasing

substantially in 2025-26, and while there is some indication that bottom trawl vessels could avoid shortspine thornyhead while still harvesting Dover sole and sablefish, bottom trawl vessels may still face potential shortspine thornyhead quota limitations if they are attempting to increase their Dover sole catch to make up for petrale sole losses.

Petrale sole allocation reductions in 2025-26 will result in an approximately 35 percent reduction in QPs allocated to IFQ QSAs (Table 13). 75 percent of QSAs own somewhere between 0.01 and 2.86 percent of the petrale sole IFQ allocation, with the largest ten QSAs owning an average of 2.21 percent per account. Those top ten accounts would receive an average of 51,713 lbs. less petrale sole in 2025 compared to what they received, on average, in 2023. This loss in QPs amounts to a potential loss of $62,056 in ex-vessel revenue per account if all lost QPs were used to catch and land petrale sole rather than traded on the QP market, based on the average price per pound of landed petrale sole in 2023 ($1.20). The 2023 weighted average price for traded QPs of petrale sole is $0.29 (NOAA IFQ Quota Pound Price Data), but that price could increase if QP demand increases under lower allocations. The weighted average price was $0.40 in 2012 when the allocation was much lower.

Table 13. Alternative 1. Petrale sole quota pounds (QP) that would be allocated in 2025 to the single quota share (QS) account with the largest and smallest 2023 QS percentage, as well as 2025 QP allocations based on the averages of the largest 10 and smallest 10 QSA percentages. Source: NOAA IFQ Quota Share Account Balance Data

	Account with Single Largest 2023 QS Percentage	Avg. of Largest Ten 2023 QS Percentage Accounts	Avg. of Smallest Ten 2023 Non-Zero QS Percentage Accounts	Account with Single Smallest 2023 Non-Zero QS Percentage
2023 QS Percent	2.86%	2.21%	0.19%	0.01%
2023 QP Allocation (lbs.) per Account	193,326	149,205	12,810	675
Average 2025 QP Allocation (lbs.) per Account	126,166	97,492	8,382	441
Potential Loss in Ex-vessel Revenue per Account a/	$80,592	$62,056	$5,314	$281

a/ compared to 2023 and assuming all lost QPs would have been used to sell petrale sole catches, not traded in the QP market. Revenue estimates are based on the 2023 average price per pound of petrale sole in the bottom trawl sector ($1.20).

2.2.5 Sablefish

Under Alternative 1, the default HCR for sablefish is ACL=ABC and P* of 0.45, and the coastwide ABC is apportioned into area-based ACLs north and south of 36° N. lat., with each receiving separate IFQ allocations. There are three possible IFQ allocations for each year in 2025-26, depending on the at-sea set-aside chosen (100 mt, 300 mt, or 429 mt; see Chapter 3. At-Sea Whiting Set-Asides), with minimal relative differences across the three possible allocations.

Sablefish shows by far the greatest degree of change in 2025-26 allocation levels compared to No Action (2023), with increases to the IFQ allocation for both northern and southern areas of nearly 3.5 times the 2023 levels. The IFQ fishery is projected to catch anywhere from 8,076 mt to 8,268 mt of sablefish north of 36° N. lat., depending on the at-sea set-aside option chosen (Table 14; Appendix C). However, those catch projections imply that the IFQ fishery would catch roughly 5,200 mt more than their maximum amount of catch since the IFQ program started (2,908 mt in 2022). Note that the projections for sablefish north in 2026 are the same as those in 2025, because the allocation is the same for both years. For sablefish south of 36° N. lat., the 2025-26 catch projections of 294 mt for both years imply that the fishery would catch 196 mt more than their 2022 catch, which is the highest since 2018. Sablefish south attainment is projected at 9 percent in both years.

Table 14. Alternative 1. The 2025 and 2026 projected catch and allocation attainment (%) of sablefish north of 36° N. lat. in the IFQ fishery based on the minimum allocation possible (LOW) and maximum allocation possible (HIGH), depending on the at-sea set-aside chosen.

Bookend Allocation Scenario	2025			2026		
	Allocation (mt)	Projected Catch (mt)	Attainment	Allocation (mt)	Projected Catch (mt)	Attainment
LOW	13,091	8,076.1	62%	13,091	8,076.1	62%
HIGH	13,420	8,268.3	62%	13,420	8,268.3	62%

Given the current market constraints discussed in Chapter 4 §1, it is highly unlikely that sablefish catches would increase to that extent (Appendix D). However, it is still possible that some amount of sablefish catch will increase in 2025 and 2026, compared to 2023, especially as the 2020 and 2021 year classes age and grow larger in size. Markets could rebuild to some extent over the next year or so, but even so, it is difficult to predict how much more sablefish the markets can absorb. Regardless of how much catch increases in 2025 and 2026, the sablefish IFQ allocations under Alternative 1 and across all three at-sea set-aside options are not expected to negatively impact any IFQ vessels or result in any harvest limitations.

2.2.6 Shortspine Thornyhead

Under Alternative 1, the default HCR for shortspine thornyhead is ACL<ABC and P* of 0.40 with the 40-10 HCR applied, because shortspine thornyhead is estimated to be in the precautionary zone in 2025-26. Because the ACL will be lower than the ABC in 2025-26, shortspine thornyhead will be eligible for surplus carryover for the first time in IFQ management history. The coastwide ABC is apportioned into area-based ACLs north and south of 34° 27′ N. lat. (Point Conception), with each receiving separate IFQ allocations. The IFQ fishery is allocated a fixed 50 mt of shortspine thornyhead south of 34° 27′ N. lat. and is projected to catch 0 mt in 2025-26. The remainder of this analysis focuses on shortspine thornyhead north of 34° 27′ N. lat. Additionally, the following analysis does not include potential coastwide IFQ allocations if the management line were removed as part of a new management measure being considered. Those potential allocations are analyzed Chapter 9, New Management Measures 9D

Under Alternative 1, the IFQ allocations of shortspine thornyhead north, which are percentage-based unlike shortspine thornyhead south, would decrease by approximately 70 percent in 2025-

26 (Table 15). The IFQ allocation would be 340 mt in 2025 and 342 mt in 2026 if the status quo at-sea set-aside of 70 mt were chosen. The modeled bookends for shortspine thornyhead north catches in the IFQ fishery are based on the at-sea set-aside options of 100 mt ("low" IFQ allocation) and 50 mt ("high" IFQ allocation). Catch is projected at 165 mt and 180 mt for those two IFQ allocation bookends, respectively, and allocation attainment is projected at 50-53 percent (Table 16). It is possible that all of the shortspine thornyhead north projections under both Alternatives 1 and 2 are underestimates, because the model is only informed by allocations that have been historically much higher than the allocations expected in 2025-26 (Appendix D). The degree of overestimation is dependent on the degree to which vessels can avoid shortspine thornyhead when QPs are scarce.

The different at-sea set-aside options for shortspine thornyhead are not expected to differentially impact the midwater rockfish or shoreside whiting sectors of the IFQ fishery, because those sectors catch less than 5 percent on average, combined, of the IFQ allocation for shortspine thornyhead north. The remaining 95 percent is attributed to bottom trawl vessels that catch thornyheads as part of a complex with Dover sole and sablefish.

Table 15. Alternative 1. Reduction in 2025-26 IFQ allocations of shortspine thornyhead north of 34° 27′ N. lat. compared to the 2023 allocation, under each at-sea set-aside Option.

	2023	2025			2026		
		At-sea Set-aside Option			At-sea Set-aside Option		
		Option 1 Status Quo (70 mt)	Option 2 (100 mt)	Option 3 (50 mt)	Option 1 Status Quo (70 mt)	Option 2 (100 mt)	Option 3 (50 mt)
IFQ Allocation (mt)	1,146.7	340.1	310.1	360.1	341.8	311.8	361.8
Tonnage Change from 2023 (mt)		-806.6	-836.6	-786.6	-804.9	-834.9	-784.9
% Change from 2023		-70%	-73%	-69%	-70%	-73%	-68%

Table 16. Alternative 1. The 2025 and 2026 projected catch and allocation attainment (%) of shortspine thornyhead north of 34° 27′ N. lat. in the IFQ fishery based on the minimum allocation possible (LOW) and maximum allocation possible (HIGH), depending on the at-sea set-aside chosen.

Bookend Allocation Scenario	2025			2026		
	Allocation (mt)	Projected Catch (mt)	Attainment	Allocation (mt)	Projected Catch (mt)	Attainment
LOW	310	165.2	53%	312	165.8	53%
HIGH	360	180.2	50%	362	180.6	50%

In 2023, 73 percent of all IFQ quota share accounts (QSA) received a percentage (QS) of the shortspine thornyhead north IFQ allocation in the form of QP. With shortspine thornyhead north IFQ allocation reductions in 2025-26 under Alternative 1, the ten individual QSAs with the largest

share of shortspine thornyhead north are expected to receive approximately 70 percent fewer quota pounds in 2025 compared to 2023, across all at-sea set-aside options (Table 17). Compared to the status quo at-sea set-aside, those same ten accounts would receive, on average, 1,528 lbs. less under Option 2 and 1,018 lbs. more under Option 3. The difference between at-sea set-aside Option 3 (highest IFQ allocation) and Option 2 (lowest IFQ allocation) is 3,450 lbs. for the QSA with the largest share of shortspine thornyhead north and an average of 2,546 lbs. for the top ten QSAs.

Table 17. Alternative 1. Shortspine thornyhead quota pounds (QP) that would be allocated in 2025 to the single quota share (QS) accounts with the largest and smallest 2023 QS percentage, as well as 2025 QP allocations based on the averages of the largest 10 and smallest 10 QSA percentages. QP allocations are based on the Alternative 1 IFQ allocation and are shown across each of the at-sea set-aside options. Source: NOAA IFQ Quota Share Account Balance Data

	Account with Single Largest 2023 QS Percentage	Avg. of Largest Ten 2023 QS Percentage Accounts	Avg. of Smallest Ten 2023 Non-Zero QS Percentage Accounts	Account with Single Smallest 2023 Non-Zero QS Percentage
2023 QS Percent	3.13%	2.31%	0.19%	0.02%
2023 QP Allocated (lbs.)	79,125	58,444	4,921	421.0
At-sea Set-aside Option	**QP (lbs.) Allocated in 2025 per Account**			
Option 1 SQ (70 mt)	23,461	17,315	1,424	149.9
Option 2 (100 mt)	21,391	15,787	1,299	136.7
Option 3 (50 mt)	24,841	18,333	1,508	158.7
Difference between largest and smallest QP allocated	3,450	2,546	209	22

11 QSAs did not transfer any of their allocated shortspine thornyhead north QP to a vessel account in 2023, indicating that if certain bottom trawl vessels need to acquire additional QPs, there may be other accounts to purchase QPs from. Those 11 QSAs with un-transferred QPs would be allocated a combined total of 65,507 lbs. of shortspine thornyhead north in 2025 under the status quo at-sea set-aside of 70 mt. If demand for shortspine thornyhead QPs increases due to allocation reductions, it is possible that the price of QPs could increase thereby potentially reducing net revenue for vessels. However, compared to other IFQ species categories, shortspine thornyhead north QP prices have been relatively low at less than $0.08 per pound since the start of the IFQ program and $0.03 per pound in 2022, the most recent year of data (NOAA IFQ Quota Pound Price Data).

While the IFQ allocation of shortspine thornyhead north of 34° 27′ N. lat. is decreasing in 2025-26, AVLs in the IFQ fishery are still expected to be higher than 2023 vessel-level catches, regardless of the HCR alternative or at-sea set-aside option the Council chooses (

Figure 4). Although fleet-wide catches of shortspine thornyhead have been declining since 2017, fleet-wide catches and attainment seem to generally track allocation fluctuations across years (Figure 5), suggesting that comparing 2025-26 AVLs to 2023 catches is likely still a conservative

estimation of potential impacts. With further allocation reductions in 2025-26, it would not be realistic to assume vessel-level catches would be comparable to years such as 2018 or 2017 when the allocation was relatively high.

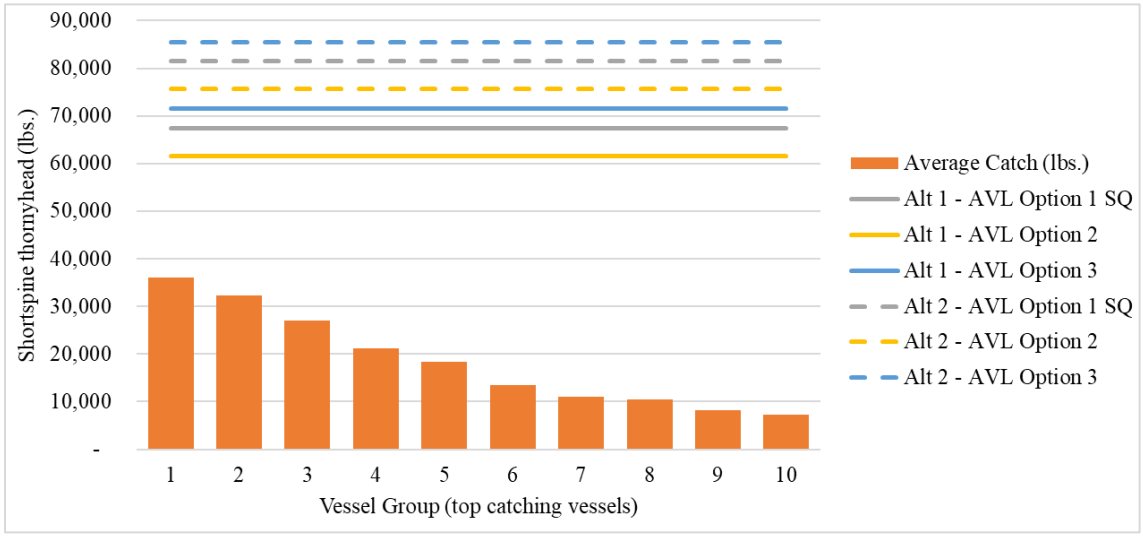

Figure 4. 2023 catch of shortspine thornyhead north of 34° 27′ N. lat., averaged across 3 IFQ vessels within each Vessel Group, compared to the 2025 annual vessel limits ("AVL") under at-sea set-aside Options 1 SQ, 2, and 3 for shortspine thornyhead north. The top 30 IFQ vessels that caught the most shortspine thornyhead north were placed in the ten vessel groups, with Group 1 catching the most out of all IFQ vessels. Source: Vessel-level catches are derived from the NOAA IFQ Database.

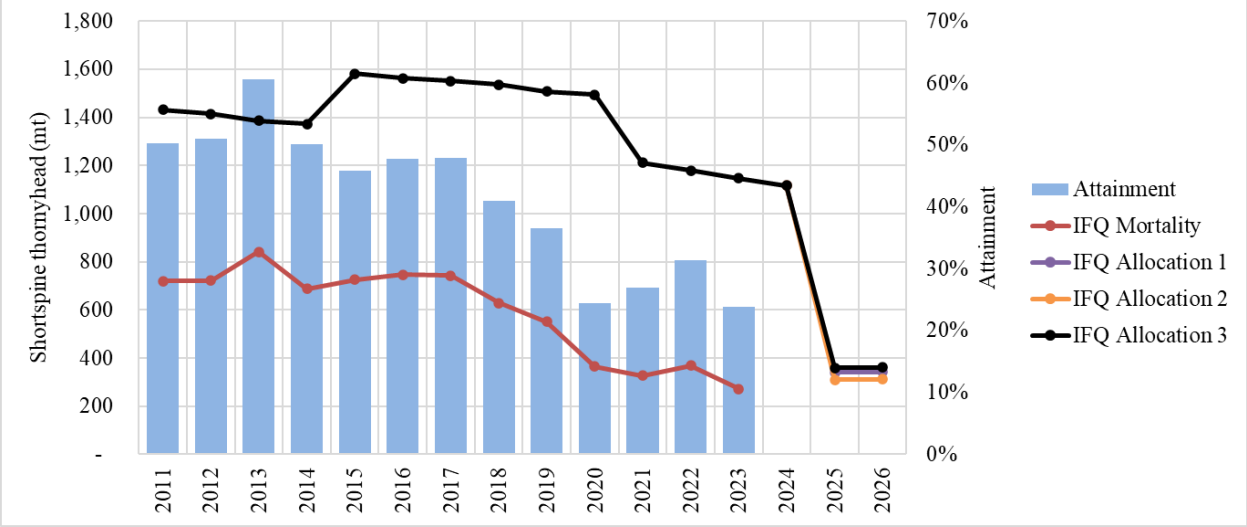

Figure 5. Annual IFQ mortality and allocation attainment of shortspine thornyhead north of 34° 27′ N. lat. from 2011 to 2023 and IFQ allocations from 2011 to 2026, with different allocations in 2025 and 2026 depending on the at-sea set-aside option (Allocation 1 = Option 1 SQ). All allocations in the figure are based on the Alternative 1 HCR. Source: 2011-2022 mortality is pulled from the GEMM, and 2023 mortality is based on landings from PacFIN and average GEMM discard mortality from 2020-2022.

Shortspine thornyhead is caught in the IFQ fishery as part of the DTS complex using bottom trawl gear[1], and sablefish allocations are increasing threefold in 2025 and 2026. The IFQ model catch projections do not currently account for co-occurrence of species within the DTS complex, so there is some uncertainty about the degree to which shortspine thornyhead north quota reductions would limit bottom trawl vessels' ability to target Dover sole and sablefish, especially given low allocation attainment of Dover sole and substantial allocation increases of sablefish. Analysis was conducted to investigate catch correlations among DTS species at the IFQ fishery, fleet (i.e., sector), and vessel levels. See Appendix C for details of this analysis. The results of the analysis provide some indication that IFQ vessels have some control over their catch composition among DTS species, but results varied among vessels as well as among years. Several factors likely contribute to DTS catch composition, such as fishing effort patterns in both time and space and specific target strategies. In the analysis, Dover sole showed strong correlations with shortspine thornyhead, whereas sablefish did not, suggesting that if sablefish catches increase in 2025-26, shortspine thornyhead catches are not necessarily expected to increase as well. Based on industry communication, bottom trawl vessels tend to encounter more thornyheads when they target Dover sole in shallower waters than when they target sablefish, which are generally in deeper waters than Dover sole. Dover sole catches have been declining steadily since the IFQ program began in 2011. However, a shorebased trawl processor indicated that new whole-fish markets in Australia are incentivizing Dover sole processing investments on the West Coast. Therefore, shortspine thornyhead north quota reductions in 2025-26 may force vessels to prioritize targeting sablefish in deeper waters, thereby impacting processors that are already making Dover sole investments and potentially flooding the market of sablefish, which is already at record low prices.

If vessels targeting Dover sole are forced to avoid shortspine thornyhead north due to quota limitations, the direct loss in ex-vessel revenue from shortspine thornyhead north is expected to be minimal for the majority of vessels, compared to target species. For bottom trawl vessels, shortspine thornyhead north made up an average of less than 10 percent of their ex-vessel revenue from species in the DTS complex since 2016 (Figure 6). Fewer than 3 bottom trawl vessels derive the majority of their DTS complex revenue from shortspine thornyhead north. Even so, if sablefish prices continue to be at record low levels and concerns about flooding the market persists, avoiding Dover sole to prevent thornyhead encounters could result in net lost ex-vessel revenue if those vessels cannot make up for that loss with sablefish landings despite high 2025-26 sablefish allocations.

[1] More than 95 percent of shortspine thornyhead north caught in the IFQ fishery is caught using bottom trawl gear.

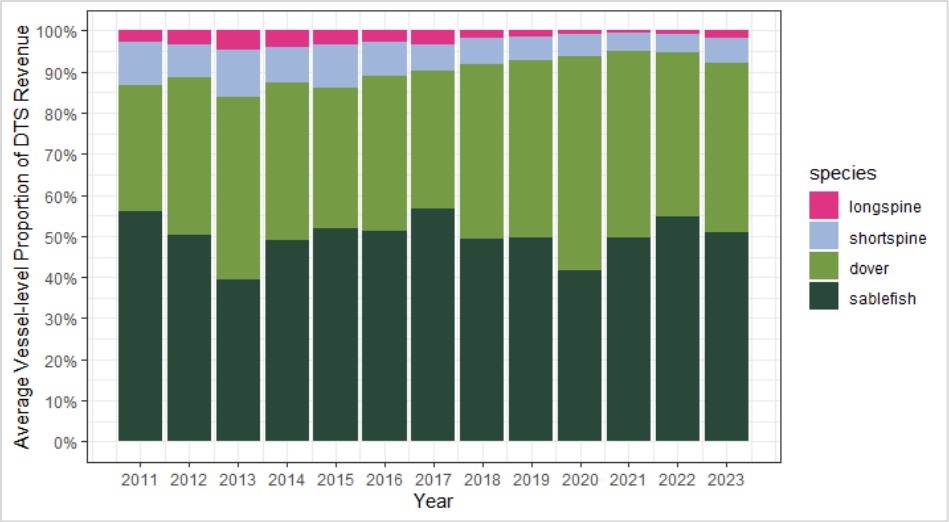

Figure 6. Average proportion of ex-vessel revenue from species in the DTS complex for IFQ bottom trawl vessels, 2011 –23. Source PacFIN landings data.

2.2.7 Widow Rockfish

Under Alternative 1, the default HCR for widow rockfish is ACL=ABC and P* of 0.45. Widow rockfish has become an important target species, alongside yellowtail rockfish, in the midwater rockfish sector of the IFQ fishery. Nearly all widow rockfish catch in the IFQ fishery is attributed to the midwater rockfish sector. Since 2017, 24-28 vessels have participated in the midwater rockfish sector each year. Because of widow rockfish ACL reductions in 2025-26 and low attainment of the non-trawl allocation, the Council is considering a potential management change that would transfer either 100 mt or 200 mt from the fixed non-trawl allocation to the trawl allocation, which receives the remainder of the fishery HG (See Chapter 1 §2.7).). The Council is also considering a lower widow rockfish at-sea set-aside of 300 mt, in addition to the status quo set-aside of 476 mt. This means that there are six possible IFQ allocations for widow rockfish in 2025-26 (Table 18). The widow rockfish IFQ allocations are expected to decrease 9-12 percent in 2025 and 16-19 percent in 2026, depending on the trawl/non-trawl allocation and at-sea set-aside options chosen. The ACLs, and consequently the downstream IFQ allocations, are decreasing steadily each year due to the time-varying sigma and the 2023 catch-only update of widow rockfish. Widow rockfish projections in the IFQ model generally track allocation patterns, and attainment is projected at 95 percent in 2025 and 96 percent in 2026 (Table 19).

Table 18. Alternative 1. The 2025 and 2026 widow rockfish IFQ allocation under all combinations of the trawl/non-trawl allocation options and at-sea set-aside options

At-sea Set-Aside Option	Trawl/Non-trawl Allocation Options (Fixed amount allocated to non-trawl, remainder to trawl)					
	2025 IFQ Allocation			2026 IFQ Allocation		
	Option 1 Status Quo (400 mt)	Option 2 (300 mt)	Option 3 (200 mt)	Option 1 Status Quo (400 mt)	Option 2 (300 mt)	Option 3 (200 mt)
Option 1 SQ (476 mt)	10,143	10,243	10,343	9,298	9,398	9,498
Option2 (300 mt)	10,319	10,419	10,519	9,474	9,574	9,674

Table 19. Alternative 1. The 2025 and 2026 projected catch and allocation attainment (%) of widow rockfish in the IFQ fishery based on the minimum allocation possible (LOW) and maximum allocation possible (HIGH), depending on the trawl/non-trawl allocation option.[2]

Bookend Allocation Scenario	2025			2026		
	Allocation (mt)	Projected Catch (mt)	Attainment	Allocation (mt)	Projected Catch (mt)	Attainment
LOW	10,143	9,664.0	95%	9,298	8,900.3	96%
HIGH	10,519	10,004.0	95%	9,674	9,240.4	96%

Of the 24-48 vessels in the midwater rockfish fishery, around 2-34 percent of their total annual revenue comes from widow rockfish landings, with a median in 2022 and 2023 of approximately 12 percent. The 2023 average price per pound of widow rockfish in the midwater rockfish and bottom trawl fisheries is $0.27[3]. Under Alternative 1 and all three trawl/non-trawl allocation options, and the status quo at-sea set-aside, the IFQ fishery is projected to catch 1,477 mt less of widow rockfish in 2025 and 2,241 mt less in 2026, compared to their average widow rockfish catch from 2021 to 2023 (11,141 mt). Based on the average price per pound of widow rockfish in 2023, those differences equate to fleetwide ex-vessel revenue losses of up to $879,172 in 2025 and up to $1,333,937 in 2026. IFQ QSAs with the ten largest shares of widow rockfish allocation would receive, on average, around 72,000-85,000 lbs. less of widow rockfish in 2025 per account, depending on the trawl/non-trawl allocation option chosen and assuming the status quo at-sea set-aside (Table 20). That equates to around $20,000-$23,000 in lost ex-vessel revenue per account, based on the 2023 average price per pound of landed widow rockfish in the midwater rockfish and bottom trawl fisheries ($0.27), assuming all lost QPs would have been used to catch and land widow rockfish rather than sold on the QP market. Widow rockfish QP prices have been moderate to low in recent years, relative to other IFQ species categories (NOAA IFQ Quota Pound Price Data).

Table 20 does not account for the Option 2 at-sea set-aside of 300 mt, which would increase the IFQ allocation by 176 mt across both years and across all three trawl/non-trawl allocation options. An additional 176 mt equates to an additional fleetwide ex-vessel revenue of $104,763, assuming all additional 176 mt are utilized by the midwater rockfish and bottom trawl sectors. However, some of the additional widow rockfish quota may be used by shoreside whiting vessels so that they can reduce avoidance measures. Additionally, many shoreside whiting vessels also operate as catcher vessels in the at-sea Mothership fleet, and they may prioritize one or the other sector depending on bycatch constraints.

[2]*These projections do not account for the at-sea set-aside Option 2 of 300 mt due to time constraints; those will be added prior to the June 2024 Council meeting. Projected bycatch in the shoreside whiting fishery makes up only 5 percent of total 2025-26 IFQ catch projections.

[3] Shoreside whiting was excluded, because widow rockfish is considered incidental catch in this fishery and therefore generally fetches a much lower price per pound than in the midwater rockfish and bottom trawl fisheries. Projected bycatch in the shoreside whiting fishery makes up only 5 percent of total 2025-26 IFQ catch projections.

Table 20. Alternative 1. Widow rockfish quota pounds (QP) that would be allocated in 2025 to the single quota share (QS) account with the largest and smallest 2023 QS percentage, as well as 2025 QP allocations based on the averages of the largest 10 and smallest 10 QSA percentages. QP Allocations are shown across each of the trawl/non-trawl allocation and at-sea set-aside management options. Source: NOAA IFQ Quota Share Account Balance Data

	Account with Single Largest 2023 QS Percentage	Avg. of Largest Ten 2023 QS Percentage Accounts	Avg. of Smallest Ten 2023 Non-Zero QS Percentage Accounts	Account with Single Smallest 2023 Non-Zero QS Percentage
2023 QS Percent	4.13%	2.80%	0.12%	0.001%
2023 QP Allocation (lbs.)	1,048,812	710,739	30,731	282
Trawl/Non-Trawl Option	**QP (lbs.) Allocated in 2025 per Account**			
Option 1 Status Quo	923,520	626,115	26,834	224
Option 2	932,625	632,288	27,098	226
Option 3	941,730	638,461	27,363	228
Trawl/Non-Trawl Option	**Loss in Ex-vessel Revenue per Account Compared to 2023 a/**			
Option 1 Status Quo	$33,828.85	$22,848.42	$1,052.32	$15.76
Option 2	$31,370.50	$21,181.74	$980.89	$15.17
Option 3	$28,912.16	$19,515.07	$909.46	$14.57

a/ based on the 2023 average price per pound of widow rockfish in the midwater rockfish and bottom trawl fisheries ($0.27) and assuming all lost QPs would have been used to sell widow rockfish catches rather than traded in the QP market. Shoreside whiting was excluded from the price per pound estimate because widow rockfish is considered incidental catch in this fishery and therefore generally fetches a much lower price per pound than in the midwater rockfish and bottom trawl fisheries.

Figure 7 compares the 2025 and 2026 widow rockfish annual vessel limits (AVLs) to vessel-level 2023 widow rockfish catches, averaged across three vessels in each of ten groups, with Vessel Group 1 comprising the three vessels with the highest 2023 catch of widow rockfish. Under Alternative 1, Vessel Group 1 (i.e., three vessels) would be unable to reach their 2023 catch levels under the 2025 AVL, and both Vessel Groups 1 and 2 (a total of six vessels) would be unable to reach their 2023 catch levels under the 2026 AVL. The 2026 AVL would be about 158,000 lbs. lower than the 2025 AVL due to a lower IFQ allocation. The status quo at-sea set-aside of 476 mt is assumed in Figure 7. However, even with the additional 176 mt under the Option 2 at-sea set-aside, the same IFQ vessels would still be unable to reach vessel-level catches comparable to 2023. An additional 176 mt would increase the AVL by 32,981 lbs.

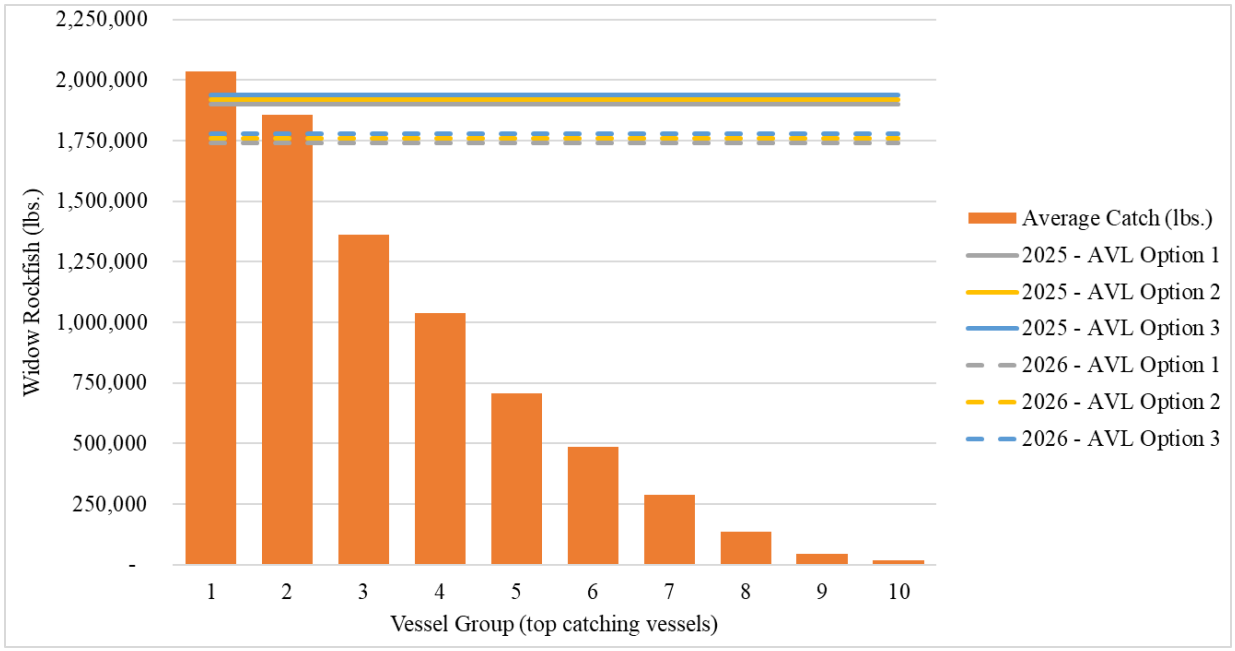

Figure 7. 2023 vessel-level catch of widow rockfish north of 40° 10′ N. lat., averaged across 3 IFQ vessels within each Vessel Group, compared to the 2025 and 2026 AVLs under trawl/non-trawl allocation Options 1 (SQ), 2, and 3 for widow rockfish. The top 30 IFQ vessels that caught the most widow rockfish were placed in the ten vessel groups, with Group 1 catching the most out of all IFQ vessels. Source: Vessel-level catches are derived from the NOAA IFQ Database.

2.2.8 Yellowtail Rockfish N. of 40° 10′ N. lat.

Under Alternative 1, the default HCR for yellowtail rockfish north of 40° 10′ N. lat. is ACL=ABC and P* of 0.45. Along with widow rockfish, yellowtail rockfish is an important target species in the midwater rockfish sector of the IFQ fishery. IFQ catches and attainments of yellowtail rockfish north have been steadily increasing since the start of the IFQ program in 2011, and the greatest increase was between 2016 and 2017 when the midwater rockfish sector first emerged as a target fishery. While most species categories are seeing reductions in IFQ allocations to some extent in 2025-26, under all of the at-sea set-aside options, the IFQ fishery would still see an increase in total allocation of 186-508 mt in 2025-26 (Table 21). Yellowtail rockfish attainments of the IFQ allocation are projected at 73 percent in 2025 and 73-74 percent in 2026, and the catch projections for both years are still higher than annual IFQ mortality since 2021 (Table 22), which has ranged from 2,696 mt to 2,919 mt.

Table 21. Alternative 1. Increases in 2025-26 IFQ allocations of yellowtail rockfish north of 40° 10′ N. lat. compared to the 2023 allocation, under each at-sea set-aside option.[4]

	2023	2025			2026		
		At-Sea Set-Aside Option			At-Sea Set-Aside Option		
		Option 1 SQ	Option 2	Option 3	Option 1 SQ	Option 2	Option 3
IFQ Allocation (mt)	3,761.9	4,270.2	4,230.2	4,140.2	4,077.8	4,037.8	3,947.8
Tonnage Change from 2023 (mt)		+508.3	+468.3	+378.3	+315.9	+275.9	+185.9
% Change from 2023		+14%	+12%	+10%	+8%	+7%	+5%

Table 22. Alternative 1. The 2025 and 2026 projected catch and allocation attainment (%) of yellowtail rockfish north in the IFQ fishery based on the minimum allocation possible (LOW) and maximum allocation possible (HIGH), depending on the at-sea set-aside option.

Bookend Allocation Scenario	2025			2026		
	Allocation (mt)	Projected Catch (mt)	Attainment	Allocation (mt)	Projected Catch (mt)	Attainment
LOW	4,140	3,048.3	74%	3,948	2,954.3	75%
HIGH	4,270	3,112.0	73%	4,078	3,017.8	74%

Additionally, none of the at-sea set-aside options for yellowtail rockfish are expected to limit individual IFQ vessels' ability to catch annual yellowtail rockfish amounts that are comparable to 2023 catches, based on the expected AVLs. There is also very little difference in AVL impacts across the three at-sea set-aside options, given the scale of the IFQ allocation. However, 2023 yellowtail rockfish mortality in the IFQ fishery (2,837 mt) was lower than most other years since 2017, possibly due to allocation reductions in 2023-24. IFQ mortality peaked in 2020 (3,389 mt) when the allocation was roughly comparable to what is expected in 2026[5]. This prompted a question regarding if anticipated 2025-26 AVLs under the three at-sea set-aside options would impact IFQ vessels' ability to reach or exceed 2020 catches (Figure 8). While vessel-level catches in 2020 were generally higher than in 2023, none of the at-sea set-aside options are expected to limit IFQ vessels from reaching 2020 levels of catch. The 2025 AVLs would be roughly 200,000 lbs. higher than the highest amount of vessel-level catch in 2020.

[4] These projections do not account for the at-sea set-aside Option 3 of 450 mt due to time constraints; those will be added prior to the June 2024 Council meeting

[5] The 2025 IFQ allocation is expected to be roughly 200 mt higher than that of 2026.

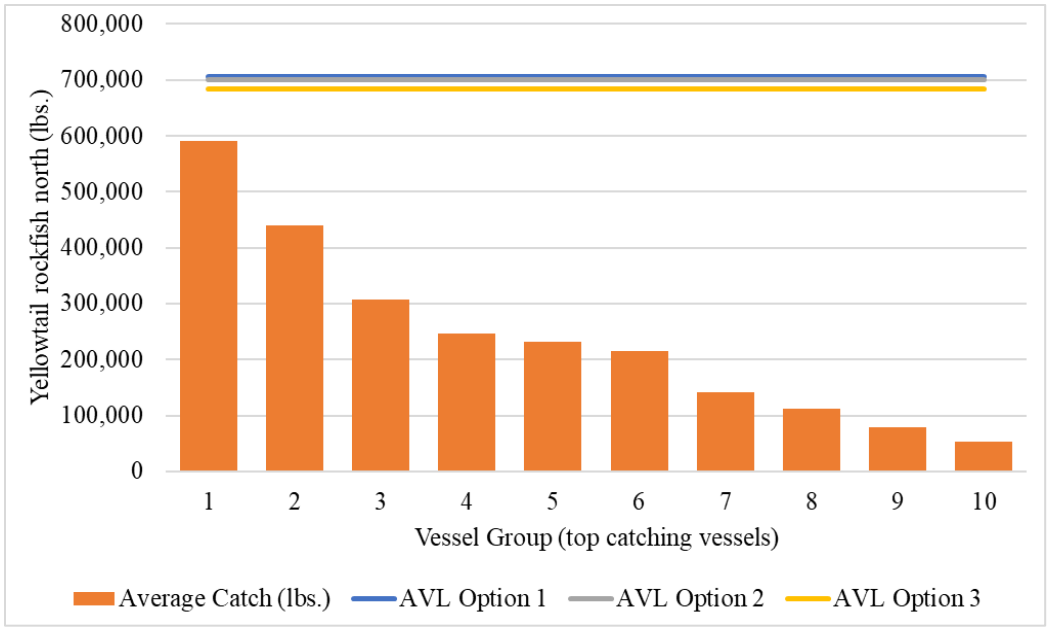

Figure 8. 2020 catch of yellowtail rockfish north of 40° 10′ N. lat., averaged across 3 IFQ vessels within each Vessel Group, compared to the 2025 annual vessel limits ("AVL") under at-sea set-aside Options 1, 2, and 3 for yellowtail rockfish. The top 30 IFQ vessels that caught the most yellowtail rockfish north were placed in the ten vessel groups, with Group 1 catching the most out of all IFQ vessels. Source: Vessel-level catches are derived from the NOAA IFQ Database.

If the midwater rockfish fishery continues to grow in capacity and effort, or if midwater rockfish vessels catch more yellowtail rockfish to mitigate losses of widow rockfish quota, individual vessels could be unable to maintain recent catch levels or to grow their catches and revenue over time. The degree to which that growth could occur is difficult to predict, but yellowtail rockfish mortality in the midwater rockfish sector increased an average of 42 percent each year between 2015 and 2019. Growth seemed to stagnate starting in 2020, with an average of 3 percent growth each year since then, possibly due to the COVID-19 pandemic. If the midwater rockfish fishery was able to rebound closer to initial growth rates and grew 26 percent[6] each year starting in 2024, the fishery would catch 3,128 mt of yellowtail rockfish north in 2026. However, the 2026 IFQ allocation is expected to be 4,078 mt under at-sea set-aside Option 1 Status Quo, leaving only 950 mt in the allocation. The shoreside whiting fishery, which catches the majority of the remaining yellowtail rockfish in the IFQ fishery, has caught up to 1,579 mt in a single year (also in 2020) and has also seen relatively steady growth in yellowtail rockfish bycatch since 2015. Therefore, while the yellowtail rockfish at-sea set-aside options do not appear to impact the IFQ fishery based on recent catch levels, they may inhibit the midwater rockfish fishery's ability to grow in capacity over the next few years, and to increasing degrees ranging from Option 1 Status Quo to Option 3.

Yellowtail rockfish is a main target species in the midwater rockfish sector alongside widow rockfish, and IFQ allocations for widow rockfish are decreasing by nearly the same proportion as yellowtail rockfish north allocations are increasing. It is possible that the opportunity for additional

[6] 26 percent is the long-term annual average growth rate 2015-2023, including the pre-2020 period of high growth and the recent period of low growth.

yellowtail rockfish catches could offset some of the impacts from the widow rockfish allocation reductions. Yellowtail rockfish fetch a similar price per pound as widow rockfish in the midwater rockfish sector, with annual averages ranging from $0.27 to $0.30 since 2021.

2.3 New Management Measures

The following section provides a summary of the new management measures considered for 2025-26 that would affect participants in the Shorebased IFQ Program. Detailed analyses of the new management measures can be found in Chapter 9: New Management Measures.

2.3.1 Update EM Discard and Retention Requirements

See Chapter 9. Chapter 9: New Management Measures for more details. This new management measure would add sablefish and rex sole to the existing list of allowable discards in the EM program, which would align current practices under the EM EFP to continue in the regulatory program. While this is largely an administrative measure, this action could increase the potential for economic benefits to IFQ vessels engaged in the EM program by freeing hold space for higher value target stocks.

2.3.2 Shortspine Thornyhead

This new management measure would remove the shortspine thornyhead management line at 34° 27′ N. lat. such that shortspine thornyhead is managed with a coastwide OFL/ABC/ACL in 2025-26. This would result in a coastwide IFQ allocation of shortspine thornyhead. Federal regulations dictate the process for area recombination of an IFQ managed species so that impacts from the area recombination are minimized in the first year of the recombination (50 CFR 660.140(c)(3)(vii)(A)(2)). While there would be very little difference to 2025 impacts in the IFQ fishery, this action may provide some economic relief to bottom trawl IFQ vessels in 2026 if the base year used to calculate trawl/non-trawl allocation proportions is 2025.

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3. Alternative 2

3.1 Shorebased IFQ - Management Measures

ACLs and IFQ allocations under Alternative 2 are the same as under Alternative 1, except for the other flatfish complex (due to rex sole), shortspine thornyhead, and Dover sole. Under Alternative 2, all three species would be managed with a P* of 0.45, resulting in increases in the IFQ allocations of approximately 6-8 percent for other flatfish and 20-24 percent for shortspine thornyhead north of 34° 27′ N. lat., compared to Alternative 1, depending on the at-sea set-aside options chosen for those two species categories. The Dover sole ACLs would be lower under Alternative 2 than under Alternative 1, resulting in decreases to the IFQ allocation by 5 percent in 2025 and 16 percent in 2026. There are no alternative at-sea set-aside options for Dover sole. The same potential management measure changes, including trawl/non-trawl allocations and at-sea set-asides, which are proposed under Alternative 1 would be considered under Alternative 2.

Alternative 2 also contemplates the California quillback rockfish ABC Rule rebuilding strategy (Table 2, Agenda Item F.2, Attachment 1, March 2024). The trawl fishery does not generally encounter quillback rockfish as this stock inhabits areas that the trawl IFQ sector does not generally fish due to depth and habitat constraints, it is unlikely this fishery will encounter this stock. Therefore, this stock is not discussed further under Alternative 2

3.2 Impact (Groundfish Mortality)

Table 23 and Table 24 below show the 2025-2026 allocations and projected catch under Alternative 2. Catch projections remain the same under Alternative 2 for all species categories except for Dover sole, other flatfish, Pacific halibut, and shortspine thornyhead north of 34° 27′ N. lat. Pacific halibut is a bycatch species in the IFQ fishery, and compared to Alternative 1, the Alternative 2 catch projections are only 0.1 mt higher in 2025 and 0.1 mt lower in 2026, with less than 50 percent projected attainment under both Alternatives 1 and 2. The impacts from Alternative 2 for the remaining three species categories are discussed in more detail below. With higher Alternative 2 allocations for other flatfish and shortspine thornyhead, the IFQ fishery is projected to catch roughly 0.4 percent more of the other flatfish complex and 8-12 percent more of shortspine thornyhead north, compared to Alternative 1. The IFQ allocation for shortspine thornyhead south is fixed at 50 mt, and therefore, IFQ catch projections are not different under Alternative 2 compared to Alternative 1. With lower Alternative 2 allocations for Dover sole, the IFQ fishery is projected to catch approximately 0.3 percent less Dover sole, compared to Alternative 1.

Table 23. Alternative 2-Shorebased IFQ. 2025-26 allocations (mt), projected catch (mt), and percent attainment under Alternative 2 for IFQ species categories with alternative IFQ allocations based on management measure options. The "LOW" and "HIGH" allocations represent bookends, and for some species categories there are multiple possible allocations within those bookends.

Species Category	2025 Alternative 2						2026 Alternative 2					
	LOW			HIGH			LOW			HIGH		
	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.
Arrowtooth flounder	8,543	776.3	9%	8,573	776.5	9%	6,675	762.4	11%	6,705	762.7	11%
Canary rockfish	268	256.0	96%	348	291.1	84%	269	256.5	95%	348	291.5	84%
Darkblotched rockfish	543	157.5	29%	617	175.6	28%	522	152.3	29%	596	170.5	29%
Other flatfish	6,922	340.1	5%	6,987	340.3	5%	6,175	338.1	5%	6,240	338.3	5%
Petrale sole	1,986	1,839.0	93%	2,001	1,852.4	93%	1,870	1,777.4	93%	1,885	1,745	93%
Sablefish North	13,091	8,076.1	62%	13,420	8,268.3	62%	13,091	8,076.1	62%	13,420	8,268.3	62%
Shortspine thornyhead N.	376	184.4	49%	431	196.9	46%	381	185.6	49%	484	207.4	43%
Widow rockfish	10,143	9,664.0	95%	10,519	10,004	96%	9,298	8,900.3	96%	9,674	9,240.4	96%
Yellowtail rockfish North	4,140	3,048.3	74%	4,270	3,112.0	73%	3,948	2,954.3	75%	4,078	3,017.8	74%

Table 24. Alternative 2-Shorebased IFQ. 2025-26 allocations (mt), projected catch (mt), and percent attainment under Alternative 2 for IFQ species categories with only one possible IFQ allocation in 2025 and 2026.

Species Category	2025 Alternative 2			2026 Alternative 2		
	Alloc. (mt)	Proj. Catch (mt)	% Attain.	Alloc. (mt)	Proj. Catch (mt)	% Attain.
Bocaccio South	653	253.5	39%	648	253.3	39%
Chilipepper rockfish South	2,091	1,268.0	61%	1,961	1,190.9	61%
Cowcod South	24	1.7	7%	23	1.7	7%
Dover sole	43,538	3,829.5	9%	38,819	3,817.6	10%
English sole	8,236	232.4	3%	8,174	232.1	3%
Lingcod North	1,503	381.8	25%	1,449	378.2	26%
Lingcod South	295	52.0	18%	305	53.7	18%
Longspine thornyhead N.	1,901	21.9	1%	1,812	21.9	1%
Minor shelf rockfish North	763	295.1	39%	755	292.2	39%
Minor shelf rockfish South	175	38.3	22%	175	38.2	22%
Minor slope rockfish North	858	192.8	22%	836	191.8	23%
Minor slope rockfish South	425	28.1	7%	423	28.0	7%
Pacific cod	1,044	36.6	4%	1,044	36.6	4%
Pacific halibut (IBQ) North	97	44.6	46%	97	44.5	46%
Pacific ocean perch North	2,723	221.4	8%	2,621	221.0	8%
Pacific whiting	178,581	101,966	57%	178,581	101,966	57%
Sablefish South	3,289	293.8	9%	3,288	293.7	9%
Shortspine thornyhead S.	50	0.0	0%	50	0.0	0%
Splitnose rockfish South	1,419	19.7	1%	1,382	19.6	1%
Starry flounder	189	0.2	0%	189	0.2	0%
YELLOWEYE ROCKFISH	3.3	0.4	11%	3.4	0.4	10%

3.2.1 Other Flatfish

Under Alternative 2, Rex sole, which is a component species in the Other Flatfish complex, would be managed with an HCR of ACL=ABC and P* of 0.45. IFQ allocations of the Other Flatfish complex under Alternative 2 would be 523 mt higher in 2025 and 368 mt higher in 2026, compared to Alternative 1 (Table 25). Those differences amount to roughly 8 percent and 6 percent of the overall IFQ allocations in 2025 and 2026, respectively. Allocation attainments under both HCR Alternatives are projected to be 5-6 percent in both years, so there are no anticipated differential impacts to the IFQ fishery across the two HCR Alternatives.

Table 25. 2025-26 IFQ allocations and projected attainments for the other flatfish complex under HCR Alternatives 1 and 2 for Rex sole, a component species in the other flatfish complex.

Rex Sole HCR Alternative	2025				2026			
	LOW		HIGH		LOW		HIGH	
	IFQ Alloc. (mt)	Proj. Attain. (%)	IFQ Alloc. (mt)	Proj. Attain. (%)	IFQ Alloc. (mt)	Proj. Attain. (%)	IFQ Alloc. (mt)	Proj. Attain. (%)
Alternative 1 (P* 0.40)	6,399	5%	6,464	5%	5,807	6%	5,872	6%
Alternative 2 (P* 0.45)	6,922	5%	6,987	5%	6,175	5%	6,240	5%

3.2.2 Dover Sole

Under Alternative 2, Dover sole would be managed with an HCR of ACL=ABC and P* of 0.45, and the 2025 and 2026 Dover sole IFQ allocations would be 43,538 mt and 38,819 mt, respectively (Table 26). IFQ mortality has not exceeded 8,000 mt since the program began in 2011. IFQ catch is projected at 3,830 mt in 2025 and 3,818 mt in 2026, with projected attainments of 9 percent and 10 percent, respectively. Projected attainments are higher under Alternative 2, compared to Alternative 1, because the allocations under Alternative 2 are 2,477-7,166 mt lower but the catch projections are only 6-18 mt lower than Alternative 1. Given how much higher the IFQ allocation is under both HCR alternatives compared to actual catches, the 2025-26 catches are not expected to be substantially different under either Alternative 1 or Alternative 2, especially given that Dover sole is an economically valuable target species in the IFQ fishery. Therefore, Alternative 2 is not expected to differentially impact the IFQ fishery compared to either No Action (2023) or Alternative 1. There are no alternative management measures being considered for Dover sole that would impact the IFQ allocation.

Table 26. 2025-26 IFQ Dover sole allocations and projected attainments under HCR Alternatives 1 and 2.

HCR Alternative	2025			2026		
	IFQ Allocation (mt)	Projected Catch (mt)	Projected Attainment (%)	IFQ Allocation (mt)	Projected Catch (mt)	Projected Attainment (%)
Alternative 1 (P* 0.40)	45,985	3,836	8%	45,985	3,836	8%
Alternative 2 (P* 0.45)	43,538	3,830	9%	38,819	3,818	10%

3.2.3 Shortspine Thornyhead

Under Alternative 2, shortspine thornyhead would be managed with an HCR of ACL<ABC and P* of 0.45. The following analysis assumes the management line at 34° 27′ N. lat. remains and does not include analysis of possible IFQ allocations if removed, which are analyzed in Chapter 9, New Management Measure 9D. Similar to Alternative 1, shortspine thornyhead would be eligible for surplus carryover under Alternative 2, because the ACL is set lower than the ABC. The impacts from the shortspine thornyhead south IFQ allocations would be the same as those

under Alternative 1, because the IFQ fishery is allocated a fixed amount of 50 mt under status quo management measures. Under Alternative 2, the shortspine thornyhead north IFQ allocations would be 381-431 mt in 2025 and 386-436 mt in 2026, depending on the at-sea set-aside option chosen (Table 27). The Alternative 2 HCR results in IFQ allocations that are 71 mt higher in 2025 and 74 mt higher in 2026. Projected allocation attainment ranges from 50-53 percent under Alternative 1 and 46-49 percent under Alternative 2 (Table 28). Projected attainments are slightly lower under Alternative 2, because projected catches do not increase as much as the allocation.

Table 27. All possible 2025-26 IFQ allocations of shortspine thornyhead north, based on HCR Alternatives 1 and 2 and at-sea set-aside options.

HCR Alternative	2023	At-sea Set-aside Option			At-sea Set-aside Option		
		Option 1 Status Quo (70 mt)	Option 2 (100 mt)	Option 3 (50 mt)	Option 1 Status Quo (70 mt)	Option 2 (100 mt)	Option 3 (50 mt)
		2025 IFQ Allocation (mt)			2026 IFQ Allocation (mt)		
Alternative 1 (P* 0.40)	1,146.7	340.1	310.1	360.1	341.8	311.8	361.8
Alternative 2 (P* 0.45)		410.5	380.5	430.5	416.2	386.2	436.2

Table 28. 2025-26 IFQ allocations and projected attainments for shortspine thornyhead north under HCR Alternatives 1 and 2.

HCR Alternative	2025				2026			
	LOW		HIGH		LOW		HIGH	
	IFQ Alloc. (mt)	Proj. Attain. (%)	IFQ Alloc. (mt)	Proj. Attain. (%)	IFQ Alloc. (mt)	Proj. Attain. (%)	IFQ Alloc. (mt)	Proj. Attain. (%)
Alternative 1 (P* 0.40)	310	53%	360	50%	312	53%	362	50%
Alternative 2 (P* 0.45)	381	49%	431	46%	386	48%	436	45%

As discussed under Alternative 1, there is some indication that bottom trawl vessels targeting the DTS complex may be able to avoid shortspine thornyhead by shifting effort away from Dover sole and towards sablefish in deeper waters. However, with sablefish prices at record lows and concerns about flooding the sablefish market, Alternative 2 for shortspine thornyhead would alleviate some of the vessel-level constraints and allow bottom trawl vessels more flexibility to target either Dover sole or sablefish depending on market opportunities, compared to Alternative 1. Specifically, the ten largest shortspine thornyhead QSAs would be allocated an average of 3,616 lbs. more of shortspine thornyhead north in 2025 under Alternative 2, compared to Alternative 1 (Table 29). Across all at-sea set-aside options, Alternative 2 results in a 2025 AVL that is 14,067 lbs. higher than the 2025 AVL under Alternative 1. Similar to Alternative 1, the Alternative 2 AVLs across

all at-sea set-aside options are not expected to limit any vessels from catching the amount of shortspine thornyhead they did in 2023 (Figure 5).

Table 29. Shortspine thornyhead quota pounds (QP) that would be allocated in 2025 to the single quota share (QS) accounts with the largest and smallest 2023 QS percentage, as well as 2025 QP allocations based on the averages of the largest 10 and smallest 10 QSA percentages. QP allocations are based on the Alternative 2 IFQ allocation and are shown across each of the at-sea set-aside options. Source: NOAA IFQ Quota Share Account Balance Data

	Account with Single Largest 2023 QS Percentage	Avg. of Largest Ten 2023 QS Percentage Accounts	Avg. of Smallest Ten 2023 Non-Zero QS Percentage Accounts	Account with Single Smallest 2023 Non-Zero QS Percentage
2023 QS Percent	3.13%	2.31%	0.19%	0.02%
2023 QP Allocated (lbs.)	79,125	58,444	4,921	421.0
At-sea Set-aside Option	**QP (lbs.) Allocated in 2025**			
Option 1 SQ (70 mt)	28,361	20,931	1,722	181.2
Option 2 (100 mt)	26,291	19,403	1,596	168.0
Option 3 (50 mt)	29,741	21,949	1,805	190.0
Increase compared to Alternative 1 a/	4,900	3,616	298	31.3

a/ The difference between Alternative 2 and Alternative 1 is the same for all at-sea set-aside options.

4. Alternative 3

Alternative 3 contemplates the California quillback rockfish Council selected harvest specifications for 2025-26 of an OFL =8.41mt, ACL =5.06 mt and an HG = 4.96 mt (Agenda Item E.2,Supplemental CDFW Report 2 November 2023). Impacts to California quillback rockfish from the IFQ fishery under Alternative 3 would be the same as those described under Alternative 1. Possible management measures to restrict California quillback rockfish mortality in the IFQ fishery would also be the same across all HCR alternatives. Those are landing limits for non-IFQ species and groundfish conservation areas.

5. Alternative 4

Alternative 4 contemplates the California quillback rockfish F=0 rebuilding strategy (Table 2, Agenda Item F.2, Attachment 1, March 2024). While very low compared to other fisheries, there has been a very small amount of historical mortality of California quillback rockfish in the IFQ fishery, predominantly from bottom trawl vessels. Impacts to California quillback rockfish from the IFQ fishery under Alternative 4 would be the same as those described under Alternative 1. Possible management measures to restrict California quillback rockfish mortality in the IFQ fishery would also be the same across all HCR alternatives. Those are landing limits for non-IFQ species and groundfish conservation areas

Chapter 5. Non-Trawl: Commercial Fixed Gear:

Executive Summary

Chapter 5 contemplates the impacts of the harvest specifications in regard to groundfish fixed gear fishery management measures. Harvest specifications for shortspine thornyhead, canary rockfish, yelloweye, California copper, and California quillback rockfishes are expected to constrain fishery effort. Lower catch limits for shortspine thornyhead and canary rockfish could impede access to other stocks. Multiple harvest scenarios are investigated as means to reduce potential constraints to the targeted shortspine thornyhead fishery in the north are considered. Additionally, Multiple harvest scenarios are investigated as means to reduce potential constraints for canary rockfish are also considered, including reallocation, as discussed above in Chapter 1, § 2.6.

Yelloweye is a rebuilding stock and, while the non-trawl HG has increased overtime, remains low, which impacts access to shelf stocks. California quillback rockfish was declared overfished and will require a rebuilding plan. Management measures to reduce impact on California quillback rockfish may reduce access to areas shallower than 50 fms off the coast of California, thus reducing access to nearshore rockfish and other co-occurring stocks, e.g., lingcod. The biomass of California copper rockfish south of Point Conception (34°27′ N. lat) was found to be lower than expected in the most recent stock assessment. Management measures to reduce impact on this stock are under consideration. These measures include trip limit reductions to reduce the likelihood of exceeding harvest targets.

The 2025-26 Sablefish north of 36° N. lat ACL increases three-fold compared to No Action (2023). Two options with higher trip limits are analyzed for 2025 and 2026. Projected non-nearshore groundfish mortality from targeted sablefish trips N of 36° N lat. was modeled under three attainment scenarios – high, medium, low – the medium and low scenario. Under all three modeled attainment scenarios, shortspine thornyhead north of 34° 27′ N. lat is likely to exceed the non-trawl allocation. Aset-aside from the fixed gear allocation of sablefish south of 34°27′ N. lat. is under consideration for the recreational fishery in that area. This measure would reduce the allocation by 10 mt to the commercial fixed gear sector to account for recreational mortality. Multiple scenarios

This Chapter, under Alternative 1 proposes to create a consistent time-period for most trip limits. Converting monthly trip limits to bi-monthly trip limits. Additional trip limit modifications are considered for several stocks to address conservation concerns.

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1. No Action

The groundfish fixed gear fishery comprises two sectors, limited entry fixed gear (LEFG) and open access (OA) which are further differentiated as non-nearshore and nearshore. These sectors are described in the Groundfish SAFE. In brief, these sectors use gear that is affixed to the vessel or buoy via lines such as hook-and-line gear, bottom longline, or pot gear. Each sector has separate catch estimates and different predictive models for the sablefish targeted non-nearshore fisheries and nearshore fisheries

These sectors are monitored at-sea by the West Coast Groundfish Observer Program (WCGOP) and are required to carry vessel monitoring systems (VMS) when fishing groundfish in federal waters. Vessels are required to carry an observer when selected for coverage by the WCGOP. Data from observed trips is one of the primary sources of data used to calculate discard mortality for the LEFG and OA sectors. In general, LEFG, notably the primary sablefish tier fishery, have a higher coverage rate than do OA vessels. The LEFG sablefish endorsed fishery had a median coverage rate of 27 percent between 2002 and 2022, while the LE non-sablefish endorsed fishery had a median coverage rate of 5 percent between 2002 and 2022. The OA fixed gear fishery had a median coverage rate of 4 percent between 2003 and 2022 and the nearshore fishery had a median coverage rate of 6 percent between 2003 and 2022 (no coverage in 2002). (Somers et al. 2023a). Discard information for 2023 will not be available until September 2024.

LE and OA fixed gear trip limits apply across all depths within a given regulatory area. Most groundfish are managed collectively within the non-trawl allocations for the non-nearshore, nearshore, and recreational fisheries; however, specific harvest guidelines (HG) and shares from within the non-trawl allocation are used to manage select stocks, e.g., canary and yelloweye rockfishes. Below, separate sections discuss the biological and economic impacts for the non-nearshore (seaward of Non-Trawl RCA, Table) and nearshore (shoreward of the Non-Trawl RCA, Table) components of the LEFG and OA groundfish fisheries.

The non-trawl fixed gear groundfish regulations are found in detail at 660 Subpart E and Subpart F. In 2023, the sablefish stock was the primary target, in terms of volume and revenue, for both the non-nearshore LEFG and OA sectors. Since 2020, OA hook-and-line gear has been expanding; in 2022[1], overall effort, landings, and discards were at their highest level in the past ten years (Agenda Item G.8.a, Supplemental GMT Report 2, September 2023). This increase is likely due to a greater number of vessels using pole gear. Landings and discards in the OA sector are anticipated to continue increasing given the expanded fishing access to the Non-Trawl Rockfish Conservation Area (RCA) that went into effect at the beginning of 2023.

[1] 2022 is the most recent year the Groundfish Multiyear Mortality report provides total mortality. In 2023, the overall effort and landings in the OA sector continued to expand.

Table 1. Non-trawl Rockfish Conservation Area boundaries off the U.S. west coast.

Area	North of 46° 16′ N. lat.	46° 16' - 45°03.83′ N. lat.	45°03.83′ - 43° 00′ N. lat.	43° 00′ - 42° 00′ N. lat	42° - 40°10′ N. lat.	40°10′ - 38° 57′ N. lat.	38° 57′ - 34° 27′ N. lat.	South of 34° 27′ N. lat.[a]
Depth boundaries	shore - 100fm	30 fm - 100 fm	30 fm - 100	30 fm - 100 fm	30 fm - 100 fm	40 fm - 125 fm	50 fm - 125 fm	100 fm - 150 fm

a/includes areas around the Channel islands.

Notable 2023 Inseason Adjustments

In September 2023, inseason adjustments (Agenda Item G.8.a, Supplemental GMT Report 5, September 2023) were adopted by the Council to reduce impacts to California quillback rockfish, as the 2023 annual catch targets (ACT) for both north and south of 40° 10′ N. lat. were exceeded. The Council adopted a measure to prohibit retention of quillback rockfish in all commercial fisheries (i.e., 0 lbs. trip limit). Further actions were adopted to reduce quillback rockfish impacts off California as well. Based on new information from the 2022 Groundfish Multiyear Mortality report (Somers et al, 2023a) the Council prohibited landing minor nearshore rockfish, lingcod, and cabezon from 42° N. lat. to 34° 27′ N. lat. due discard mortality with quillback rockfish associated with the same gear deployment of these species. The Council reduced OA minor shelf rockfish trip limits by half but permitted fishing to occur with authorized non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3))). However, the LE shelf rockfish complex trip limits from 42° N. lat. to 34° 27′ N. were reduced to 0 lbs., as they were not authorized to use non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) to fish their trip limits until 2024.

1.1 Species of Concern

Yelloweye Rockfish

The Council manages yelloweye rockfish in each of the non-trawl sectors (i.e., non-trawl commercial, Washington recreational, Oregon recreational, and California recreational) to sector-specific Annual Catch Targets (ACTs). The Council primarily manages the non-trawl fisheries to the more conservative ACT, which is based on the SPR 70% from the 2018 yelloweye rockfish rebuilding plan. The higher HGs are based on a SPR 65% that is also the basis of the ACL and the trawl allocation, and provides management flexibility in case a non-trawl sector exceeds their ACT inseason. Total estimated mortality of yelloweye rockfish for 2023 from the non-trawl commercial fisheries (non-nearshore and nearshore) is projected to be approximately 20.3 mt. The Table 2 provides an estimate of projected total mortality of yelloweye rockfish for the non-trawl commercial fisheries based on the most current GEMM mortality projections (2003-2022). The non-trawl projection is projected to be within the non-trawl allocation based on the GEMM estimates from 2022. Yelloweye rockfish mortality increased from 2021 to 2022, which is mostly because OA fixed gear discards of yelloweye rockfish increased from a previous three year average of 0.19 mt to 10.3 mt. This may be largely driven by an increase in effort, particularly increased pole gear effort, which were observed to have higher yelloweye rockfish discard rates than traditional longline gear. Effort by line gears other than longline has been increasing in this fishery since 2020, while non-trawl area modifications did not go into effect until 2023, so this expanded effort was not due to any changes in non-trawl area management. Total 2022 fixed gear mortality was 13.35 mt. In 2023, it is likely that the discards will remain high if participation in the OA fixed

gear sector remains the same as 2022 or continues to increase given that inseason action did not go into effect until November 2023, which then limited gear types to non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) which according to the Amendment 32 analysis has a minimal impact on yelloweye rockfish.

Table 2. No Action – Yelloweye rockfish catches (mt) for the non-trawl commercial fixed gear fishery between 2017 and 2022 and the 2023 catch projections. Data Groundfish Estimated Multiyear Mortality(GEMM) report

Year	Non-Trawl Projection (mt)	Source	Non-trawl commercial HG (mt)	Non-Trawl Allocation (mt)
2017	5.61	GEMM	2.9	13.1
2018	3.86	GEMM	2.64	12.85
2019	11.7	GEMM	8	38.57
2020	6.86	GEMM	8.3	39.49
2021	6.94	GEMM	6.2	37.86
2022	20.3	GEMM	6.3	38.78
2023	20.3	GMT Projections	8.4	50.88

Quillback Rockfish off California

The results of the 2021 length-based data moderate stock assessment for quillback rockfish off California (Agenda Item G.5, Attachment 10, June 2021) indicated the stock is below the minimum stock size threshold (MSST) of 25 percent of unfished spawning output, i.e., overfished. Historically, the typical management response for an overfished species is to prohibit retention. However, due to the Research and Data Needs section in the length-based data moderate stock assessment for quillback rockfish off California, the Council determined it essential to permit minimal retention of quillback rockfish in the California Nearshore Fishery for the purposes of continuing the collection of fishery-dependent data, specifically biological data (Council Transcripts Agenda Item E.5 November 2021, Agenda Item E.8 March 2022, Agenda Item F.4 April 2022, and Agenda Item F.4.a Supplemental GMT Report 4 April 2022). For 2023, the Council permitted a sub-trip limit of 75 lb. per two month period, which resulted in 0.25 mt and 0.24 mt landings (Table 3) of quillback rockfish in the area 42° - 40° 10′ N. lat. and south of 40° 10′ N. lat. respectively. Similar to the increase in yelloweye rockfish discards mentioned above, the OA fixed gear sector encountered and discarded quillback rockfish in 2022 at a much higher rate according to WCGOP. In 2022, OA fixed gear discards of quillback rockfish increased from a previous three year average of 0.1 mt to 6.9 mt coastwide.

Although quillback rockfish landings were under the Annual Catch Limit (ACL) in September 2023, the Council took inseason action (see Agenda Item G.8.a, Supplemental GMT Report 2, September 2023) to reduce quillback rockfish mortality off California given that: (1) the California quillback rockfish 2023 ACT for both north and south of 40° 10' N. lat. were exceeded when recreational and commercial mortality estimates were combined, (2) the most recent data from the GEMM (Agenda Item G.1.b, NWFSC Report 2, September 2023) and California Department of Fish and Wildlife (CDFW) Reports (see Agenda Item G.8.a, Supplemental CDFW Report 2, September 2023) show notable mortality from both the commercial and recreational groundfish

sectors, and (3) quillback rockfish off California was designated as its own stock under the proposed Amendment 31 (88 FR 57400).

Table 3. No Action – 2023 California quillback rockfish non-trawl commercial fixed gear mortality. Data Source: GMT015 Final Specifications, PacFIN data pull 1/9/2024.

Stock	Area	Landing (mt)	ACL Contri. (mt)	OFL Contr. (mt)
California QUILLBACK ROCKFISH	42° - 40° 10' N. lat.	0.25	0.9	1.0
	South of 40° 10' N. lat.	0.24	0.9	1.1

The estimated end of year economic ex-vessel revenue is show in Table 4

Table 4. 2018-2023 Ex-vessel revenue from nearshore landings excluding quillback rockfish from 42° N. lat. to 36° N. lat. Data: PacFIN

	2018	2019	2020	2021	2022	2023
42° - 36° N. lat.	$1,047,870	$1,195,907	$938,452	$1,245,102	$1,708,732	$1,156,036

1.2 Nearshore Fishery Sector

The nearshore fishery refers to the portion of the fixed gear fishery which occurs shoreward of the Non-Trawl RCA. Off of Oregon and California this area includes portions of state waters that are fished by non-trawl vessels. North of the Washington-Oregon border, the Non-Trawl RCA extends from 100 fathoms to the state waters boundary (3 nm). In addition, Washington has a state prohibition on commercial groundfish fishing in state waters. Combined, this means that Washington does not have a commercial nearshore fishery in its federal or state waters. The majority of vessels participating in nearshore commercial fisheries do not hold federal limited entry permits. California and Oregon restrict participation in the nearshore groundfish fishery by requiring a state limited entry permit to take nearshore groundfish species. Detailed descriptions of these permits can be found in the 2023-24 harvest specifications and management measures process (Informational Report 2, September 2022). While these fisheries are considered federal OA fisheries, participation is limited by the states. In Oregon, more conservative state quotas than those specified in Federal regulations exist for most nearshore species, and state trip limits apply in these cases. State trip limits continue to be designed to stay within federal nearshore species quotas while providing a year-round opportunity, if possible. Table 5 contains actual 2023 nearshore fishery landings without projected mortality.

Historically, federal nearshore commercial groundfish fishery management measures are typically stratified north and south of 40° 10′ N. lat. Management measures for some stocks are stratified north and south of 42° N. lat. and others stratified south of 34° 27′ N. lat. (e.g., lingcod, California scorpionfish, etc.). However, in the September 2023 inseason action (Agenda Item G.8.a, Supplemental GMT Report 5, September 2023), a finer scale stratification of trip limits was created as a result of the quillback rockfish potential ACL exceedance. Specifically, stocks associated with quillback rockfish off California north of 40° 10′ N. lat. were subdivided at 42° N. lat., as the quillback rockfish stocks off of Oregon and Washington were not at risk of exceeding catch limits. With the expansion of markets south of 40° 10′ N. lat. and the continued strength of the nearshore live fish market in 2023, the nearshore sector increased to over 1 million dollars in ex-vessel revenue. (Table 11).

Table 5. No Action. 2023 nearshore landings based on 2023 regulations. Source: PacFIN data pull 1/7/2024. "-" indicates there were zero landings in the specified area.

Stock	Area	Actual Landings (mt)	By Area			
			OR Total (mt)	CA Total (mt)	40°10'-42° N lat. (mt)	S. of 40°10' N. lat. (mt)
Black/blue/deacon rockfish	OR	118.8	118.8	-	-	-
--Black rockfish	OR	101.9	101.9	-	-	-
--Blue/deacon rockfish	OR	16.19	16.19	-	-	-
Black rockfish	CA	34.1	-	34.1	26.5	7.7
Bocaccio	S. 40°10' N. lat.	6.9	-	6.9	-	6.9
Cabezon/ Kelp greenling	OR	33.5	33.5	-	-	-
--Cabezon	OR	20	20	-	-	-
--Kelp Greenling	OR	13.5	13.5	-	-	-
Cabezon	CA	25.7	-	25.7	3.0	22.7
Canary Rockfish	OR & CA	10.5	2.5	8	0.6	7.4
Kelp greenling	CA	1.5	-	1.5	0.2	1.3
Lingcod	N. 40°10' N. lat.	77.4	73.6	3.8	3.8	-
Lingcod	S. 40°10' N. lat.	17.6	-	17.6	-	17.6
California scorpionfish	S. 40°10' N. lat.	2.6	-	2.6	-	2.6
Nearshore Rockfish N. a/	N. 40°10' N. lat.	20.7	13.8	6.9	6.9	-
Nearshore Rockfish S.	S. 40°10' N. lat.	116.0	-	116.0	-	116.0
--Shallow Nearshore Rockfish b/		51.6	-	5.16	-	51.6
--Deeper Nearshore Rockfish c/		64.4	-	64.4	-	64.4

a/ Nearshore Rockfish north of 40°10' N. lat. consists of black-and-yellow rockfish, blue rockfish, China rockfish, gopher rockfish, grass rockfish, kelp rockfish, brown rockfish, olive rockfish, copper rockfish, treefish, calico rockfish, and quillback rockfish.

b/ Shallow Nearshore Rockfish consists of black-and-yellow rockfish, China rockfish, gopher rockfish, grass rockfish, and kelp rockfish south of 40°10' N. lat. These species are part of the Nearshore Rockfish complex north of 40°10' N. lat.

c/ In this table, Deeper Nearshore Rockfish consists of blue rockfish, brown rockfish, calico rockfish, copper rockfish, olive rockfish, quillback rockfish, and treefish south of 40°10' N. lat. These species are part of the Nearshore Rockfish complex north of 40°10' N. lat. However, for trip limits south of 40°10' N lat, black rockfish are included in Deeper Nearshore Rockfish.

1.2.1 Copper Rockfish off California

Under the No Action alternative, the harvest control rule (HCR) for copper rockfish off California applied a P* of 0.45 and the 40-10 rule to the ACL because the results of the 2021 length-based data moderate assessment (Agenda Item G.5, Attachment 6 and Attachment 7, June 2021) indicated the portion of the stock off California, south of 34° 27′ N. lat., was in the precautionary zone. As a precautionary measure, the Council began reducing mortality of copper rockfish off

California at the start of 2022 by setting statewide sub-trip limits of 75 lbs. per two months within the Minor Nearshore Rockfish and Deeper Nearshore Rockfish trip limits (86 FR 72863, December 23, 2021). As a result in 2023, copper rockfish landings were below the ACL contribution in each region (Table 6). Although the non-trawl commercial landings did not exceed the tracking limits, similar to the increase in discards of yelloweye and quillback rockfishes mentioned above, the OA fixed gear sector encountered and discarded copper rockfish at a higher rate according to the GEMM (NWFSC, 2023). In 2022, OA fixed gear discards of copper rockfish increased from a previous three year average of 0.1 mt to 4.4 mt coastwide (NWFSC, 2023). The increase in discards did not exceed any of the regional ACL contributions to the nearshore complex. However, the 2023 ACT south of 34° 27′ N. lat. was exceeded when recreational and commercial mortality estimates were combined.

Table 6. No Action – California copper rockfish non-trawl commercial fixed gear fishery in 2023. Data Source: GMT015 Final Specifications, PacFIN data pull 1/9/2024.

Stock	Area	Landing (mt)	ACL Contribution (mt)	OFL Contribution (mt)
Copper Rockfish	42° - 40° 10’ N. lat.	0.67	6.9	8.0
	40° 10’ - 34° 27’ N. lat.	1.3	74.7	85.4
	South of 34° 27’ N. lat.	0.45	9.93	23

1.3 Non-Nearshore Fishery Sector

The non-nearshore fishery describes the portion of the LE and OA fisheries targeting non-nearshore species, primarily sablefish but there has been an expanding non-nearshore non-sablefish fishery targeting shelf species and lingcod. Starting on January 1, 2023, as part of the 2023-24 harvest specifications and management measures package, non-bottom contact hook-and-line gear was allowed within the non-trawl RCA (Table). Participants could access midwater rockfish species within the non-trawl RCA using two non-bottom contact hook-and-line gear types (50 CFR 660.330(b)(3)) under OA trip limits. This action signified the first time in over 20 years that participants of the non-trawl sector were allowed to fish within the non-trawl RCA and became very important in light of the restrictions that were placed on California participants under September and November inseason actions due to quillback rockfish.

Table 11 summarizes the coastwide commercial fixed gear groundfish landings (mt) for the LE and OA fisheries in 2023 compared to the non-trawl allocation. Commercial discards and recreational catch are not included in Table 11 but nonetheless contribute to the non-trawl allocation. Among all nearshore and non-nearshore stocks, sablefish is the primary target, in terms of volume and revenue, for both the LE and OA sectors. Therefore, the table breaks apart sablefish directed (non-nearshore sablefish) and non-sablefish directed (non-nearshore non-sablefish) to provide a more detailed assessment of the fishery’s contribution to each non-trawl allocation. The non-nearshore non-sablefish sector has been expanding in effort, area, and landings in the last few years, as participants have found direct consumer markets after the COVID-19 pandemic. Specifically, landings in this sector have increased for lingcod and shelf species, including canary and widow rockfish. The non-sablefish non-nearshore sector mortality for canary rockfish has increased from less than one metric ton ten years ago to an average of 13.5 mt post-COVID (NWFSC, 2023). Bocaccio rockfish, chilipepper rockfish, widow rockfish, and other shelf rockfish

species exhibit a similar trajectory that is likely to increase with the removal of the Cowcod Conservation Area (CCA) and the ability for LE and OA to fish inside the Non-Trawl RCA with non-bottom contact gear. As a result of directed, non-sablefish markets expanding south of 40°10' N. lat., minor nearshore and minor shelf rockfish are now a major contributor in ex-vessel revenue. In 2023, both complexes increased to over 1 million dollars in ex-vessel revenue. Individual shelf species broken out on the trip limit table like lingcod, canary rockfish, widow rockfish, chilipepper rockfish, and bocaccio rockfish, collectively bring an additional $750,000 in ex-vessel revenue to the non-sablefish directed groundfish fish sectors (Table 11).

1.3.1 Sablefish

Sablefish is managed with a coastwide OFL and ABC (P* 0.45), but has separate ACLs for the two different management areas (north of 36° N. lat. and south of 36° N. lat). The ACLs are set by taking the coastwide ABC and apportioning it to each management area based on the 5-year rolling average of the area-specific biomass estimates from the bottom trawl survey. The fishery comprises the LE north of 36° N. lat (LEN) and LE south of 36° N. lat (LES) sectors and OA north of 36° N. lat (OAN) and OA south of 36° N. lat (OAS) sectors. Table 7 summarizes the sablefish landings by sector and area to their respective landings targets (i.e., the landings-only portion of the sector-specific catch share after discard mortality is accounted for). Sablefish north of 36° N. lat. attainment is generally high, though 2023 attainment may have been reduced due to market restrictions (i.e., processors not buying prices too low to go out to fish) late in the year[2].

Table 7. No Action. Round weight landings of sablefish in metric tons (mt) for the 2023 year in the fixed gear fishery.

Sector	Landings (mts)	Landings Target (mt)	% Attainment of Target	Ex-vessel Revenue (2023)
LEN	229.5	417	56%	$1,070,941
LES	175.1	763	23%	$1,042,171
OAN	451.6	687	66%	$2,360,853
OAS	17.7	553	3%	$103,378
PRI	1,813.1	2,365	77%	$6,804,308

Sablefish North of 36° N latitude

The No Action sablefish allocations are shown in Table 8, and Table 9. The northern non-nearshore sablefish fisheries include the primary fishery (tier) and the (LEN and OAN daily trip limit fisheries [DTL]). The No Action (2023) tier 1-3 limits for the primary fishery are shown in Table 8. The northern DTL fisheries are managed with sector-specific landings targets (Table 8) and trip limits that are established each biennium to optimize utilization of the landings targets but are commonly adjusted inseason as price and participation vary. Trip limits for other stocks may also be adjusted inseason to achieve conservation and/or management goals. In 2023, LEN is

[2] Personal communication with GAP members at September and November 2023 Council meetings.

estimated to have taken 56 percent of the LEN landings target and OAN is estimated to have taken 66 percent of the OAN landings target (Table 7).

Table 8. No Action - 2023 limited entry sablefish FMP allocation amounts north of 36° N. lat. Data source: PacFIN APEX Report GMT015 - Final Specifications

Year	Non-Tribal Com. HG (mt)	LE Share (mt)	LE FG Share (mt) a/			Landings Target (mt) b/			Estimated Tier Limits (lbs.) b/c/		
			LE FG	Pri. Tier	LE FGD TL	LE FG	Pri. Tier	LE FG DTL	Tier 1	Tier 2	Tier 3
2023	7,600	6885	2,892	2,458	434	2,782	2,365	417	72,904	33,138	18,936

a/ Shares include anticipated discard mortality.
b/ The limited entry fixed gear landings target is the catch share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2022. In the limited entry fixed gear sector, 19 percent of the sablefish caught are assumed to be discarded with a 20 percent mortality rate.
c/ Ratio of limits between the tiers is approximately 1:1.75:3.85 for Tier 3:Tier 2:Tier 1, respectively.

Table 9. No Action - 2023 OA FMP sablefish allocation amounts north of 36° N. lat. Data source: PacFIN APEX Report GMT015 - Final Specifications

Year	OA Catch Share (mt) a/	OA Landings Target (mt) b/
2023	714	687

a/ Shares include anticipated discard mortality.
b/ The OA landings target is the OA share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2022. In the OA sector, 19 percent of the sablefish caught were anticipated to be discarded with a 20 percent mortality rate.

Sablefish South of 36° N latitude

The 2023 sablefish south non-trawl allocation, shares, and landings targets are shown in Table 10 LES and OAS trip limits are established each biennium. Historically, attainment is low in the southern sectors, and 2023 was no exception. In 2023, LES is estimated to have taken 23 percent of the LEFG landings target and OAS is estimated to have taken 3 percent of the OA landings target Table 7.

Table 10. No Action - 2023 sablefish allocations in metric tons (mt) south of 36° N. lat. Additional recreational (Rec) set-aside is shown due to changes that may happen in Alternative 1. Data source: PacFIN APEX Report GMT015 - Final Specifications.

Year	Commercial HG (mt)	Non-Trawl Allocation (mt)	Rec. Set-Aside (mt)	LE FG Total Catch Share (mt) a/	OA Total Catch Share (mt) a/	LE FG Landed Catch Target (mt) b/	OA Landed Catch Target (mt) b/
2023	2,311	1,340	0	777	563	763	553

a/ Shares include anticipated discard mortality.
b/ The limited entry and open access fixed gear catch shares are reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2022. In the limited entry fixed gear sector, 7 percent of the sablefish caught were anticipated to be discarded, with a 20 percent mortality rate.

Table 11. No Action. Coastwide commercial fixed gear groundfish landings in metric tons (mt) and ex-vessel revenue in dollars ($) for the limited entry (LE) and open access (OA) fisheries in 2023 compared to the non-trawl allocation. Data Source: GMT015 Final Specifications, PacFIN data pull 1/9/2024.

Stock/Stock Complex	Management Area	Nearshore Directed Groundfish (mt)		Non-Nearshore Non-Sablefish (mt)		Non-Nearshore Sablefish (mt)		Total (mt)	Total Ex-vessel Revenue	Non-Trawl Allocation (mt) a/
		LE	OA	LE	OA	LE	OA			
Arrowtooth Flounder	Coastwide	--	--	--	0.1	0.6	1.4	2.0	$436	826.9
Big Skate	Coastwide		0.0	0.1	0.3	4.6	4.1	9.1	$6,252	63.0
Bocaccio Rockfish	S. of 40° 10’ N. lat.	1.8	3.3	4.2	34.5	1.5	1.3	46.6	$235,461	1,093.5
California Scorpionfish b/	Coastwide	2.5	--	--	--	--	--	2.5	$33,668	258.4
Canary Rockfish	Coastwide	2.2	6.9	1.4	11.1	4.6	1.6	27.8	$148,827	336.6
Chilipepper Rockfish	S. of 40° 10’ N. lat.	1.2	1.6	2.3	19.5	4.3	2.2	31.1	$136,448	521.3
Cowcod Rockfish	S. of 40° 10’ N. lat.	--	--	--	--	--	--	0.0	$0	44.1
Darkblotched Rockfish	Coastwide	--	--	0.3	0.0	1.9	0.4	2.7	$5,683	38.1
Dover Sole	Coastwide	--	0.0	0.0	0.0	0.7	0.2	0.9	$1,637	2,420.1
English Sole	Coastwide	--	--	--	--	--	--	0.0	$0	437.9
Lingcod	N. of 40° 10’ N. lat.	2.3	77.8	2.0	37.9	37.8	6.7	164.5	$966,640	2,254.1
Lingcod	S. of 40° 10’ N. lat.	1.3	13.9	1.1	7.5	1.2	0.8	25.8	$195,865	426.3
Longnose Skate	Coastwide	0.0	0.0	0.0	0.5	32.3	9.9	42.8	$31,418	145.7
Longspine Thornyhead	N. of 34° 27’ N. lat.	--	--	0.0	--	2.5	0.3	2.7	$10,063	112.1
Pacific Cod	Coastwide	--	--	--	--	0.7	--	0.7	$549	54.7
Pacific Whiting	Coastwide	--	--	--	--	--	--	0.0	$298	0.0
Pacific Ocean Perch	N. of 40° 10’ N. lat.	--	0.0	--	--	0.1	0.0	0.2	$367	171.4
Pacific Spiny Dogfish b/	Coastwide	0.0	0.1	--	0.0	0.0	0.5	0.7	$945	1,101.5

Stock/Stock Complex	Management Area	Nearshore Directed Groundfish (mt)		Non-Nearshore Non-Sablefish (mt)		Non-Nearshore Sablefish (mt)		Total (mt)	Total Ex-vessel Revenue	Non-Trawl Allocation (mt) a/
		LE	OA	LE	OA	LE	OA			
Petrale Sole	Coastwide	0.0	0.0	0.0	0.7	3.3	0.3	4.3	$10,827	30.0
Shortspine Thornyhead	N. of 34° 27' N. lat.	--	0.0	0.9	0.0	27.1	3.0	31.0	$493,571	64.0
Shortspine Thornyhead	S. of 34° 27' N. lat.	--	--	2.2	--	26.0	0.9	29.1	$666,407	662.3
Splitnose Rockfish	S. of 40° 10' N. lat.	--	--	--	0.0	0.0	--	0.0	$150	78.7
Starry Flounder	Coastwide	0.0	0.0	--	0.0	--	--	0.1	$276	171.9
Widow Rockfish	Coastwide	0.4	1.3	0.0	3.4	0.1	0.3	5.5	$24,583	400.0
Yellowtail Rockfish	N. of 40° 10' N. lat.	0.2	1.4	--	3.9	0.3	0.0	5.9	$19,567	556.6
Shelf rockfish c/	N. of 40° 10' N. lat.	0.1	3.5	0.0	1.8	5.1	1.1	11.7	$51,172	482.4
Shelf rockfish	S. of 40° 10' N. lat.	15.0	15.8	21.8	74.5	5.0	0.4	132.5	$1,027,052	1,173.2
Slope rockfish c/	N. of 40° 10' N. lat.	0.2	0.4	2.0	0.9	31.0	3.5	38.1	$82,622	280.2
Slope rockfish c/	S. of 40° 10' N. lat.	0.0	0.0	1.2	7.9	16.8	4.7	30.7	$149,558	245.0
Nearshore rockfish b/, c/	N. of 40° 10' N. lat.	0.5	17.1	--	--	--	--	17.6	$195,316	93.0
Nearshore rockfish b/, c/	S. of 40° 10' N. lat.	4.8	74.6	--	--	--	--	79.5	$1,243,178	882.46
Other Fish b/	Coastwide	0.1	1.4	--	0.1	0.0	--	1.6	$23,715	201.76
Other flatfish c/	Coastwide	0.0	0.0	0.0	2.3	--	0.0	2.4	$23,147	464.1
Ecosystem component species c/d/	Coastwide	0.0	0.0	0.1	0.1	17.2	9.2	26.7	$21,329	-

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.

b/ Fishery Harvest Guideline.

c/ Values contain unspeciated specimens from the "NA" ACL_CODE in PacFin.

d/ The majority if this mortality is unspecified grenadier

2. Alternative 1

Under Alternative 1, default HCRs would be implemented for the 2025-26 biennium, and principle management measures for the LEFG and OA fisheries that differ from No Action (2023) are detailed below. For reference, under Alternative 1 (default HCR), the non-nearshore LEFG and OA impacts historically have been driven by the sablefish ACLs of which the default HCR is ACL=ABC, P*=0.45. However, since 2017 there has been a growing non-nearshore midwater rockfish fishery. Management measures implemented in 2023 increased access to the non-trawl RCA (as outlined under No Action). With Amendment 32 (88 FR 83830; January 1, 2024), that opportunity was expanded to use LEFG trip limits to catch midwater rockfish species. Additionally, the non-bottom contact jig gear was amended to be able to use natural or artificial bait and changed the distance requirement between the last hook and the weight from 50 feet to 30 feet, and the non-trawl seaward RCA boundary was moved shoreward to 75 fathoms (Table 12**).** The nearshore fishery is driven by non-sablefish species, specifically the live rockfish fishery.

Table 12. Boundaries of the Non-Trawl RCA as of January 1, 2024, when Amendment 32 went through.

Area	North of 46° 16' N. lat.	46° 16' - 42° 00'' N. lat.	42° 00' – 36° 00' N. lat.	36° 00' - 34° 27' N. lat	South of 34° 27' N. lat.[a]
Depth boundaries	Shoreward EEZ - 100fm	30 fm - 75 fm	Shoreward EEZ - 75 fm	50 fm - 75 fm	100 fm - 150 fm

a/includes areas around islands and banks.

All fixed gear impacts will be discussed in relation to species of concern (i.e., yelloweye rockfish, the California quillback rockfish, and the California copper rockfish). Additional discussion will be provided in this section for the following species that were assessed this cycle:

1. California quillback rockfish ACL<ABC SPR 0.55, P*0.45
2. Shortspine thornyhead ACL<ABC P*0.40, 40-10 HCR applied
3. Canary rockfish ACL<ABC P*0.45, 40-10 HCR applied
4. Rex sole ACL=ABC P*0.40
5. Dover sole ACL=50,000 mt

2.1 Impact (Groundfish Mortality)- Species of Concern

2.1.1 Yelloweye Rockfish

Yelloweye rockfish is under a rebuilding plan. Principle management measures for yelloweye rockfish are described under No Action. In brief, the commercial and recreational sectors have sector-specific HGs and ACTs for yelloweye rockfish (Table 13). Retention of yelloweye rockfish is prohibited in commercial, as well as recreational, non-trawl fisheries. Each non-trawl commercial and the three state recreational fisheries have separate HGs, ACTs, and shares for yelloweye rockfish that are considered soft-caps federally (i.e., can be exceeded without prompting automatic federal actions), but are the reference points used by the Council to manage this rebuilding stock. Yelloweye rockfish will remain a prohibited species. Management measures described under No Action are expected to not change in 2025-26 biennium.

There are two management measures that may have a minimal impact on yelloweye rockfish and both are in the non-nearshore non-sablefish sectors. As discussed above, Amendment 32 will allow for the use of non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) with the Non-Trawl RCA for targeting midwater stocks with both LE and OA trip limits. This action also opened the Non-Trawl RCA to all fishing seaward of 75 fathoms. Further action in California (from 42° to 36° N. lat.) to mitigate quillback rockfish encounters will concentrate effort within these areas fishing this gear. However, analysis in Amendment 32 indicates fishing within the Non-Trawl RCA with non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) is not likely to increase yelloweye rockfish mortality within the Non-Trawl RCA compared to No Action; therefore, the non-nearshore mortality projections are for the sablefish targeted fishery exclusively (Table 14). These two actions in California will limit much of the OA fleet to this gear only and also mitigate for that big yelloweye rockfish discard number in 2022 with hook-and-line gear that was bottom contact.

Impacts to yelloweye rockfish are estimated using two models, the nearshore model and the non-nearshore model for targeted sablefish trips. In Chapter 5 §2.4, the high attainment (or model that uses full landings targets of sablefish) scenario was found to be unrealistic, therefore it is not shown below in Table 13. Instead, we present low and medium attainment which accounts for the current expectation that sablefish catches could be the same as No Action (low attainment), or could be the average ACL of 2023-2026, which would represent a doubling of landings (medium attainment). Projections for the commercial non-trawl sector range from 3.96 to 6.42 mt, which are unlikely to exceed either the HG or the ACT (Table 13;Table 14**)**.

Table 13. Status Quo harvest guidelines and annual catch targets in 2025-26 for yelloweye rockfish. Status quo shares of the non-trawl allocation are also shown.

Sector	SQ Share of the Non-Trawl Allocation %	2025 HG (mt)	2026 HG (mt)	Reduction factor from HG to ACT a	2025 ACT (mt)	2026 ACT (mt)
Commercial Non-trawl	21%	8.5	8.7		6.7	6.8
WA Rec.	26%	10.5	10.7		8.3	8.4
OR Rec.	23%	9.3	9.5		7.3	7.4
California Rec.	30%	12.2	12.4		9.5	9.7
Total (non-trawl allocation)	**100%**	**40.5**	**41.2**		**31.8**	**32.3**

Table 14. Projection values for 2025 compared to the HG and ACT for yelloweye rockfish.

	Fixed Gear Non-nearshore Mortality Projection (mt)		Commercial Nearshore Mortality Projection (mt)	Commercial Non-trawl Projection range (mt)	Commercial Non-Trawl ACT (mt)	Commercial Non-Trawl HG (mt)
	Low attainment scenario	Medium attainment scenario				
Yelloweye rockfish	2.19	4.65	1.77	3.96-6.42	6.7	8.5

2.1.2 California Quillback Rockfish

Quillback rockfish is predominantly caught in non-trawl fisheries. The default HCR for California quillback rockfish is ABC<ACL, SPR 0.55, P* .45, translating into a California HG of 1.16 mt and 1.47 mt for 2025-26, respectively. These amounts are both lower than the 2023 No Action HG of 1.8 mt. Noting that under No Action, the stock is managed under the nearshore rockfish complexes. For 2025-26 and beyond, it is anticipated that California quillback rockfish will be managed as a single stock to facilitate rebuilding.

The nearshore model used to estimate mortality of nearshore species including quillback rockfish was designed to calculate nearshore mortality of yelloweye rockfish. However, due to the recent actions taken to protect quillback rockfish, the model no longer provides an accurate projection of the quillback rockfish mortality off of California. Similarly, the non-nearshore model uses sablefish directed trips and assigns mortality of other species based on the West Coast Observer Program data, but the model was not designed to and cannot account for the effort shift designed to prevent interactions with quillback rockfish, and therefore, is no longer an accurate projection of quillback rockfish mortality off of California.

Due to the modeling difficulties with amounts this low and the uncertainty related effect of management measures adopted for 2024, a quantitative approach to understanding the mortality of California quillback rockfish for 2025-26 cannot be accomplished. The management measures adopted for 2024 were designed to reduce commercial fixed gear impacts to as close to zero as possible. The HG for 2024 is 1.83 mt. The 2025-26 HGs are 0.67 mt and 0.46 mt, respectively, lower than the 2024 HG. If the 2024 management measures are successful at keeping the fishery within the HG, which is higher than both the 2025 and 2026 HGs, it is logical that they will work to reduce impacts on this stock for the next biennium.

2.1.3 California Quillback Rockfish Management

Since this species cooccurs with other nearshore rockfish and management measures cannot be designed to be exclusive to restricting California quillback rockfish, management measures must be applied the whole of the nearshore rockfish complex to ensure reduced impacts. The management measures for 2025-26 are the same as proposed for 2024. Those measures are detailed, and analyzed, in Agenda Item E.9.a, Supplemental GMT Report 1, November 2023 and established under 88 FR 83354. These measures stem from analysis conducted by the GMT in September 2023, which was centered on reduction of impacts to California quillback rockfish for

the remainder of 2023 (Agenda Item G.8.a, Supplemental GMT Report 2, September 2023 and Agenda Item G.8.a, Supplemental GMT Report 5, September 2023) The impacts disclosed in Agenda Item E.9.a, Supplemental GMT Report 1, November 2023 and 88 FR 83354 are expected to be the same for 2025-26 biennium and these aforementioned reports are incorporated by reference.

Quillback rockfish are a demersal (bottom) dwelling species most commonly encountered between 21 and 50 fathoms in non-trawl commercial fisheries (see Table 7 of Agenda Item G.8.a, Supplemental GMT Report 2). The use of gear types that fish in the water column (above the bottom), it is logical that impacts to demersal species should be reduced, though potentially not entirely eliminated. The gear types that comport to this concept include non-bottom contact stationary vertical jig gear (50 CFR 660.330(b)(3)(i)) and non-bottom contact groundfish troll gear (50 CFR 660.330(b)(3)(ii)), which include requirements for gear to be fished off the bottom (i.e., away from quillback rockfish). See Agenda Item E.9.a, Supplemental GMT Report 1, November 2023 for further analysis of non-bottom contact gear's ability to reduce quillback rockfish mortality. Additionally, prevention of bottom contact non-trawl fishing in areas with the higher biomass of California quillback rockfish should concomitantly reduce impacts. Therefore, a key facet to these measures are that the shoreward boundary of the RCA from 42° N. lat. to 36° N. lat. is to be established as the inner boundary of the Exclusive Economic Zone (*i.e.*, the state boundary line). a key facet of this management measure package is to restrict access to these waters,

In brief, in order to the proposed management measures reduce California quillback rockfish impacts are shown in Table 43.

Table 15. Alternative 1: 2025-26 proposed limited entry (LE) and open access (OA) trip limits for federal waters between 42°N. lat. to 36 N. lat.:

Stock/Stock Complex	Sector	Management Measure
California Quillback Rockfish	LE and OA	0 lbs. per two months.
Nearshore Rockfish Complex	LE and OA	0 lbs per two months
Cabezon	LE and OA	0 lbs per two months
Lingcod	LE and OA	0 lbs per two months shoreward of seaward boundary Non-Trawl RCA from 42° to 36° N. lat
Other Flatfish	LE and OA	0 lbs per two months shoreward of seaward boundary Non-Trawl RCA from 42° to 36° N. lat
Shelf Rockfish a/	LEN	800 lbs per month
	LES	6,000 lbs per month
	OAN	600 lbs per month
	OAS	3,000 lbs per month

a/ legal non-bottom contact hook-and-line gear are allowed in the non-trawl RCA (50 CFR 660.330(b)(3))

This action, paired with California state action, is expected to reduce encounters of quillback rockfish relative to 2023 and earlier. Specifically, California enacted emergency regulation which prohibits all commercial groundfish fishing shoreward of the EEZ, other than nearshore participants fishing with a state issued permit landing nearshore species inside of 20 fm between 42° N. lat. to 36° N. lat., and prohibits retention of quillback rockfish statewide. Data indicates

quillback rockfish encounters in the area south of 36° N. lat. to the U.S./Mexico border are rare, suggesting fishing pressure in this area presents a low risk to quillback rockfish conservation concerns. The actions described in detail above, paired with reducing trip limits to zero pounds per period of co-occurring species, are designed to prevent exceeding the Alternative 1 harvest specifications for California quillback rockfish./

2.2 Impact (Groundfish Mortality)- Other Species

2.2.1 California Copper Rockfish

Copper rockfish was designated as two stocks, one north of and one south of 42° N. lat., under the Amendment 31 (A31) process (PFMC, 2023). Under the Alternative 1, default HCR, the 2025-26 HCR for copper rockfish off California applies a P* of 0.45 and the 40-10 rule. The California stock was estimated to be below the management target of 40 percent of unfished spawning output (Monk et al., 2023; Wetzel et al., 2023). At the November 2023 meeting, the Council recommended establishing a recreational ACT for copper rockfish south of 34° 27′ N. lat. as part of the management measures for 2025-26. This recommendation, in part, was based on concerns around localized depletion south of 34° 27′ N. lat.

Recreational mortality is the driver of non-trawl copper rockfish mortality south of 34° 27′ N. lat. (Table 16) . Therefore, in response to the localized depletion of copper rockfish south of 34° 27′ N. lat., the GMT analyzed the establishing of an ACT for recreational copper rockfish south of 34° 27′ N. lat. as part of the management measures for 2025-26 (Chapter 1 §2.3.3).

Based on the information provided in Table 16, it is apparent that the statewide sub trip limits of 75 lbs. per 2 months within the Minor Nearshore Rockfish and Deeper Nearshore Rockfish trip limits for 2025-26 would be sufficient to remain under harvest targets while providing opportunity for the recreational sector to persist. The sub trip limit has been effective in reducing the commercial fixed gear mortality of 1.2-1.5 mt, well below the HG of 15.8 mt. The remaining 14.3 mt can be taken by the recreational sector. A change in fishing behavior for nearshore participants is not expected south of 34° 27′ N. lat. as the proposed actions to protect quillback rockfish are not being considered south of 36° N. lat., and participation in the nearshore fishery is limited by a state deeper nearshore permit.

Table 16. Copper rockfish recreational and commercial fixed gear total mortality in metric tons (mt) south of 34° 27′ N. lat. Commercial discards south of 34° 27′ N. lat. were apportioned as a ratio of landings in PacFIN applied to the GEMM discard mortality for each year and sector.

Fishery Sector	2018 (mt)	2019 (mt)	2020 (mt)	2021 (mt)	2022 (mt)	2023[a/] (mt)	2025-26 Projection (mt) c/	2025 Sub-ACT (mt)
Commercial Fixed Gear	5.0	5.7	6.6	4.6	1.5	1.2	1.02-1.5	15.8
Recreational	96.2	74.9	32.7	19.5	18.6	18.1	b/	

a/ discard mortality from 2022 was used as a proxy for 2023.
b/ see recreational section.
c/1.02 derived from the S of 36° N. lat. nearshore model (high = 2022 value). 1.5 derived from high since the sub-trip limit

2.3 Impact (Groundfish Mortality)-: Projected Nearshore Groundfish Mortality

Projected total mortality shown in Table 17 are based on landings from the past two years and WCGOP observations for the last twenty years. In order to model 2025 and 2026 nearshore mortality (which uses past years to project mortality), landings are modified to full or increased attainment of the state landings targets, and any changes to LEFG and OA trip limits north and south of 40° 10′ N. lat. Due to the actions to limit quillback rockfish mortality off of California, landings of several species in the nearshore fishery south of 42° N. lat. were reduced to zero including quillback rockfish, cabezon, other flatfish, and lingcod. Additionally, the southern nearshore model was broken out into two sections from 40° 10′ N. to 36° N. lat. and south of 36° N. lat. In the two areas from 42° to 36° N. lat. landings of all nearshore species were confined seaward of 20 fm consistent with California state action to limit participation in the nearshore to limited entry permits from shore to 20 fm.

Table 17. Nearshore projections for the 2025-26 years. Model attempts to account for changes that will happen in the nearshore fishery in California and full attainment of black rockfish in Oregon.

Stock	Area	Total Mortality (mt)	By Area for 2025-2026				
			OR (mt)	CA (mt)	42°-40°10' N. lat. (mt)	40°10'-36° N. lat. (mt)	S. of 36° N. lat. (mt)
Black/blue/deacon rockfish	OR	99.0	99.0	-	-	-	-
--Black rockfish		83.7	83.7	-	-	-	-
--Blue/deacon rockfish		15.3	15.3	-	-	-	-
Black rockfish	CA	35.4	-	35.4	26.6	8.2	0.7
Bocaccio	S. 40°10' N. lat.	5.4	-	5.4	-	0	5.4
Cabezon/Kelp Greenling	OR	45.4	45.4	-	-	-	-
--Cabezon		25.2	25.2	-	-	-	-
--Kelp Greenling		20.2	20.2	-	-	-	-
Cabezon	CA	25.6	-	25.6	3.1	7.9	14.6
Canary Rockfish	OR & CA	8.5	3.2	5.4	0.1	3.1	2.1
Kelp greenling	CA	3.7	-	3.7	0.2	3.0	0.6
Lingcod	N. 40°10' N. lat.	75.4	75.4	0	0	-	-
Lingcod	S. 40°10' N. lat.	7.9	-	7.9	-	0	7.9
California scorpionfish	S. 40°10' N. lat.	2.8	-	2.8	-	0	2.8
Nearshore Rockfish N. a/	N. 40°10' N. lat.	18.0	11.1	6.9	6.9	-	-
Nearshore Rockfish S. a/	S. 40°10' N. lat.	105.3	-	105.3	-	46.3	59.0
--Shallow Nearshore Rockfish b/		55.3	-	55.3	-	22.7	32.6
--Deeper Nearshore Rockfish c/		50.0	-	50.0	-	23.6	26.4

a/ Nearshore Rockfish totals consists of impacts to black-and-yellow, CA and WA blue/deacon, China, gopher, grass, kelp, brown, olive, copper, treefish, calico, and quillback rockfish south of 42° N. lat. North of 42° N (OR blue and deacon rockfish are in a complex with Oregon black rockfish).

b/ Shallow Nearshore Rockfish consists of impacts to black-and-yellow rockfish, China rockfish, gopher rockfish, grass rockfish, and kelp rockfish south of 40°10' N. lat. These species are part of the Nearshore Rockfish complex north of 40°10' N. lat.

c/ Deeper Nearshore Rockfish consists of impacts to blue rockfish, brown rockfish, calico rockfish, copper rockfish, olive rockfish, quillback rockfish, and treefish south of 40°10' N. lat. These species are part of the Nearshore Rockfish complex north of 40°10' N. lat.

2.3.1 Sablefish North of 36° N. Lat.

The Alternative 1 sablefish allocations and trip limits are shown in Table 18 and Table 19. Due to the sablefish limited update assessment that was done in 2023 (Agenda Item G.2, Attachment 16, September 2023), the increase in ACL from No Action (2023) is approximately a three-fold increase (Figure) which results in a range of trip limit options for the Council's consideration. Due to the large increase in ACL in 2025-26, the current market conditions and input from the Groundfish Advisory Subpanel (GAP), the likelihood of attainment that is much higher than that of No Action is not anticipated.

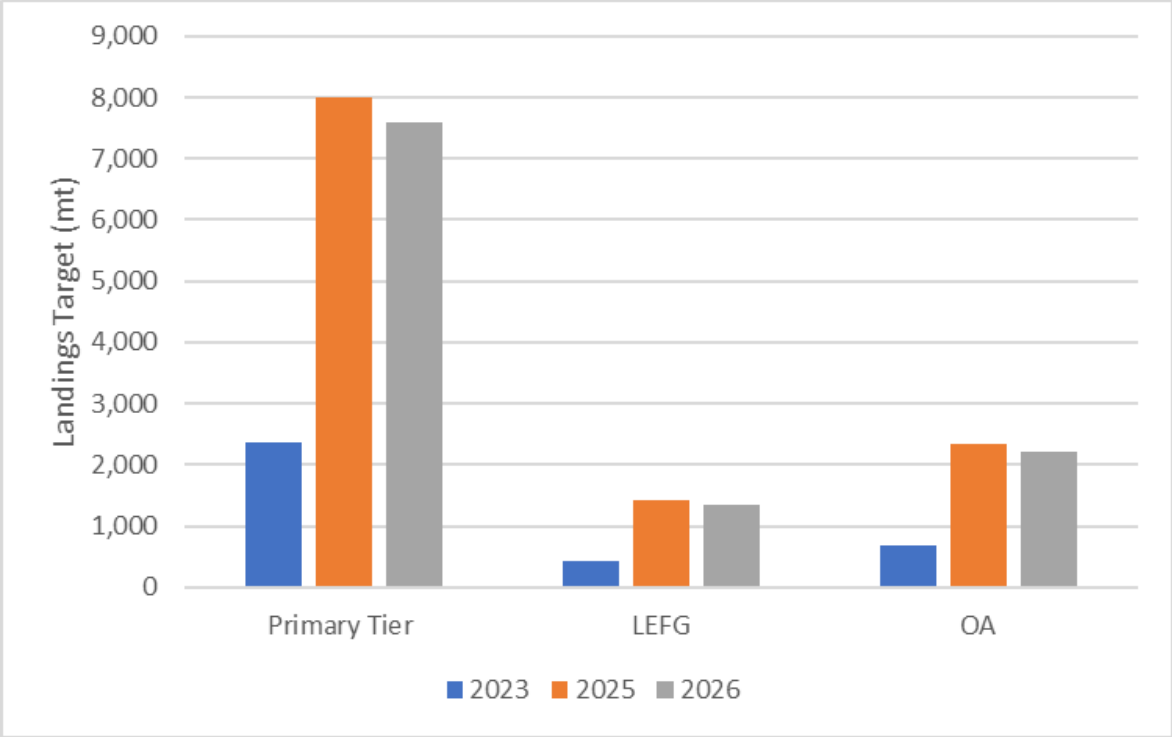

Figure 1. Landings targets in metric tons (mt) for the primary tier, LEFG, and OA trip limit fisheries for 2025 and 2026 that show the magnitude of the difference compared to No Action (2023).

In 2025-26, the increase in tier limits for the primary tier fishery is also likely to reduce the effort into the trip limit fishery. Even the tier 3 permit limit is above 60,000 lbs., which is approximately 82 percent of the No Action tier 1 limit. Given that, there will likely be more limited entry participants who are just fishing against their tier limits or IFQ limits (in the case of gear switchers) and less participation within the trip limit fishery for sablefish. Therefore, the model likely will overestimate attainment in the limited entry DTL fishery during the 2025-2026 seasons or for the duration of high limits with current market conditions. Of the 100 primary tier 3 permits that are associated with vessels, 51 vessels have only one tier 3 permit registered to their vessel and of those vessels only 19 attained their full permit in 2023 and only 3 more attained greater than 90 percent. This demonstrates that around 19 vessels are most likely to fish in the DTL sector in 2025-26, because tier 3 permits have the lowest limits, and sablefish targeting vessels typically tend to fish in the DTL fishery only after fully attaining their tier limits. However, with the increase in the tier 3 permit level in 2025, it is reasonable to expect that fewer vessels will reach full attainment of their primary tier permit (less than 19).

Table 18. Alternative 1 - Limited entry sablefish FMP allocations of sablefish north of 36° N. lat., based on the default harvest control rule of a P* of 0.45. Data source: PacFIN APEX Report GMT012 - Draft Annual N. Sablefish Specifications.

Year	Non-Tribal Com. HG (mt)	LE Share (mt)	LE FG Share (mt) a/			Landings Target (mt) b/			Estimated Tier Limits (lbs.) b/ c/		
			LE FG	Pri. Tier	LE FG DTL	LE FG	Pri. Tier	LE FG DTL	Tier 1	Tier 2	Tier 3
2025	25,730	23,311	9,791	8,322	1,469	9,419	8,006	1,413	246,824	112,193	64,110
2026	24,425	22,129	9,294	7,900	1,394	8,941	7,600	1,341	234,312	106,506	60,860

a/ Shares include anticipated discard mortality.
b/The limited entry fixed gear share is the limited entry total share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2022. For the 2025-2026 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be discarded with a 20 percent mortality rate.
c/Ratio of limits between the tiers is approximately 1:1.75:3.85 for Tier 3:Tier 2:Tier 1, respectively.

Table 19. Alternative 1. Open access FMP allocations of sablefish north of 36° N. lat., based on the default harvest control rule of a P* of 0.45. Data source: PacFIN APEX Report GMT012 - Draft Annual N. Sablefish Specifications.

Year	OA Share (mt) a/	OA Landings Target (mt) b/
2025	2,419	2,327
2026	2,296	2,209

a/ Shares include anticipated discard mortality.
b/ The OA Landed Catch Share is the OA share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2022. For the 2025-2026 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be discarded with a 20 percent mortality rate.

Given the increase in ACL for the 2025-26 years (Table 18 and Table 19), the trip limit models were adjusted so that the attainment would exceed 90 percent of the target under the average price scenario ($2-$2.50). The average price scenario is based on the average of 2022 and 2023 but still at historical lows for this fishery. In order to attain greater than 90 percent of the LEN target, trip limits would have to be set at 22,500 lbs. per week and 45,000 lbs. per two month period, which is projected to attain 92 percent of the landings target. In order to have a projected attainment of 94 percent, OAN trips would have to be increased to 11,500 lbs. per week and 23,000 lbs. per two months. Both of these trip limits would potentially increase attainment, however, multiple public testimonies to the Council indicate that the markets for sablefish are so poor that this increase would cause a flooding of the market that might lead to more processor level closures, lower price per pound, and the inability to move product. Outside influences on the fishery could restrict the fleet from being able to fully utilize the resource, both in terms of yield and marketability, which would not meet FMP Goal 3 and Objective 9 in regards to achieving maximum biological yield and fostering full utilization in terms of processing and harvesting. Therefore, trip limits that were proposed in November 2023 were analyzed as a starting point with the understanding that if conditions become more favorable to fishing for greater quantities and increased profitability, inseason action can be taken to increase trip limits later in the year (Table 20 and Table 21).

Table 20. Default HCR projections for limited entry fixed gear sablefish north of 36º N. lat. (1/3/24 model run)

Option	Trip Limit	Projected Landings (rd. wt. mt.) under Two Price Scenarios		2025			2026		
				Landings Target (mt)	Attainment		Landings Target (mt)	Attainment	
		Low	Avg.		Low	Avg.		Low	Avg.
Option 1 Status Quo a/	4,500 lbs./week, not to exceed 9,000 lbs./2 months	242	286	1,413	17%	20%	1,341	18%	21%
Option 2	5,500 lbs./week not to exceed 11,000 lbs./2 months	290	342		21%	24%		22%	26%
Option 3	9,000 lbs./week not to exceed 18,000 lbs./2 months	457	539		32%	38%		34%	40%

a/ [period 1, 2024 trip limits]

Table 21. Default HCR projections for open access sablefish north of 36º N. lat. (1/3/24 model run) a/ [period 1, 2024 trip limits]

Option	Trip Limit	Projected Landings (rd. wt. mt.) under Two Price Scenarios		2025			2026		
				Landings Target (mt)	Attainment		Landings Target (mt)	Attainment	
		Low	Avg.		Low	Avg.		Low	Avg.
Option 1 Status Quo/	3,000 lbs./week, not to exceed 6,000 lbs./2 months	589	644	2,327	25%	28%	2,209	27%	29%
Option 2	3,250 lbs./week not to exceed 6,500 lbs./2 months	631	690		27%	30%		29%	31%
Option 3	4,000 lbs./week not to exceed 8,000 lbs./2 months	756	826		32%	35%		34%	37%

2.4 Impact (Groundfish Mortality)-: Projected Non-nearshore Groundfish Mortality from Targeted Sablefish trips N of 36° N lat.

The following tables show the projected incidental harvest of groundfish species caught in the sablefish fishery. The non-nearshore model historically uses the incidental harvest ratios from past years combined to project incidental harvest values based on full attainment of the fixed gear shares of sablefish north of 36° N. lat. During this harvest specifications cycle, 2012-2022 mortality data was used as the input years. However, due to the large increase in sablefish ACLs in 2025-26, current market conditions, and input from the GAP, the values using full attainment of the LEFG and OA shares are unlikely to occur. The incidental harvest values in Table 22 and Table 23 represent the upper bounds of what could happen if conditions and markets improve drastically. In this high attainment scenario, some of the values within are concerning when compared to the fishery HG or non-trawl allocation, because the model is more than tripling the values that the incidental harvest ratios are being applied to. Darkblotched rockfish is projected to be close to the non-trawl allocation in this high attainment scenario, because of the high attainment in other sectors; therefore, alternative attainment scenarios (outlined below) were examined. Pacific spiny dogfish does not have a non-trawl allocation but the projection is over half of the Fishery HG. Given the results of the 2021 stock assessment (Gertseva et al, 2021) Pacific spiny dogfish attainment is being closely watched by managers. Noting the concern, alternative attainment scenarios for this stock were investigated . Three species or complexes are projected to exceed the non-trawl allocation based on this high attainment scenario, that of longnose skate, minor slope rockfish north of 40° 10′ N. lat. and shortspine thornyhead north of 34° 27′ N. lat. and have been further investigated using the different scenarios outlined below.

Table 22. Alternative 1. Projected non-nearshore groundfish mortality from targeted sablefish for the limited entry (LE) and open access (OA)fixed gear fisheries north of 36° N. lat. (in mt) for 2025 compared to the non-trawl allocation (excluding proposed routine adjustments). Bolded stock/stock complex indicates a value that exceeds or is close to the non-trawl allocation. Projections are based on a sablefish Alternative 1 default harvest control rule of P* of 0.45.

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	Fishery HG (mt)	Non-Trawl Allocation a/ (mt)
Arrowtooth flounder	180.86	26.76	207.62	-	454.9
Big skate	27.58	4.13	31.71	-	58.2
Black rockfish (California)	0.00	0.00	0.00	232.7	-
Black rockfish (Washington)	0.00	0.00	0.00	226.4	-
Black/blue/deacon rockfish (Oregon)	0.02	0.00	0.03	421.7	-
Bocaccio rockfish (South of 40°10' N. lat.)	1.67	0.38	2.04	-	1,020
Cabezon (California)	0.00	0.00	0.00	161.4	-
Cabezon/kelp greenling (Oregon)	0.00	0.00	0.00	176.2	-
Canary rockfish	4.00	0.60	4.59	-	140.8
Chilipepper rockfish (South of 40°10' N. lat.)	2.66	0.58	3.24	-	697

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	Fishery HG (mt)	Non-Trawl Allocation a/ (mt)
Cowcod rockfish (South of 40°10' N. lat.)	0.01	0.00	0.01	-	42.8
Darkblotched rockfish	**22.41**	**3.50**	**25.90**	**-**	**36.5**
Dover sole	24.82	4.50	29.31	-	2,420.8
Ecosystem component species	261.81	55.51	317.32	-	--
English sole	0.19	0.03	0.21	-	433.5
Lingcod (North of 40°10' N. lat.)	78.86	9.60	88.46	-	1,842.4
Lingcod (South of 40°10' N. lat.)	10.59	5.21	15.80	-	453.7
Longnose skate	**356.61**	**56.75**	**413.36**	**-**	**136.5**
Longspine thornyhead (North of 34°27' N. lat.)	7.56	1.52	9.07	-	100
Minor nearshore rockfish (North of 40°10' N. lat.)	0.24	0.04	0.27	84.9	-
Minor nearshore rockfish (South of 40°10' N. lat.)	0.02	0.00	0.03	1056.5	-
Minor shelf rockfish (North of 40°10' N. lat.)	21.47	3.18	24.65	-	527.6
Minor shelf rockfish (South of 40°10' N. lat.)	0.71	0.16	0.87	-	1,262.5
Minor slope rockfish (North of 40°10' N. lat.)	**441.94**	**65.11**	**507.05**	**-**	**271.7**
Minor slope rockfish (South of 40°10' N. lat.)	115.28	26.64	141.91	-	249.4
Mixed thornyheads	1.26	0.26	1.52	-	--
Other flatfish	1.18	0.18	1.36	-	713.7
Other groundfish	0.00	0.00	0.00	-	--
Other rockfish	0.34	0.07	0.42	-	--
Pacific cod	7.30	1.09	8.39	-	54.9
Pacific hake	3.80	0.57	4.37	-	-
Pacific ocean perch (North of 40°10' N. lat.)	1.56	0.23	1.79	-	159.1
Pacific spiny dogfish	**546.67**	**82.18**	**628.85**	**1,037.4**	-
Petrale sole	13.52	2.02	15.54	-	30.0
Shortspine thornyhead (North of 34°27' N. lat.)	**161.53**	**29.23**	**190.76**	**-**	**21.6**
Splitnose rockfish (South of 40°10' N. lat.)	0.06	0.01	0.08	-	74.7
Starry flounder	0.05	0.01	0.05	-	187.7

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	Fishery HG (mt)	Non-Trawl Allocation a/ (mt)
Widow rockfish	1.41	0.21	1.63	-	400.0*
Yellowtail rockfish (North of 40°10' N. lat.)	4.80	0.72	5.52	-	625.9

* This non-trawl/trawl allocation is subject to change based on Council decision, Option 1: Status Quo:400;Option 2: 300 mt; Option 3:200 mt

Table 23. Alternative 1. Projected non-nearshore groundfish mortality from targeted sablefish for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2026 compared to the non-trawl allocation (excluding proposed routine adjustments). Bolded stock/stock complex indicates a value that exceeds or is close to the non-trawl allocation. Projections are based on a sablefish alternative 1 default harvest control rule of P* of 0.45.

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	Fishery HG (mt)	Non-Trawl Allocation a/ (mt)
Arrowtooth flounder	171.69	7.63	179.32	-	356.6
Big skate	26.18	1.18	27.36	-	56.4
Black rockfish (California)	0.00	0.00	0.00	234.7	-
Black rockfish (Washington)	0.00	0.00	0.00	222.4	-
Black/blue/deacon rockfish (Oregon)	0.02	0.00	0.02	426.5	-
Bocaccio rockfish (South of 40°10' N. lat.)	1.58	0.11	1.69	-	1,012.1
Cabezon (California)	0.00	0.00	0.00	154.4	-
Cabezon/kelp greenling (Oregon)	0.00	0.00	0.00	173.2	-
Canary rockfish	3.79	0.17	3.97	-	141.2
Chilipepper rockfish (South of 40°10' N. lat.)	2.52	0.17	2.69	-	653.8
Cowcod rockfish (South of 40°10' N. lat.)	0.01	0.00	0.01	-	41.5
Darkblotched rockfish	**21.27**	**1.00**	**22.27**	**-**	**35.4**
Dover sole	23.56	1.28	24.84	-	2,420.8
Ecosystem component species	248.53	15.83	264.36	--	--
English sole	0.18	0.01	0.18	-	430.2
Lingcod (North of 40°10' N. lat.)	74.86	2.74	77.60	-	1,789.1
Lingcod (South of 40°10' N. lat.)	10.05	1.49	11.54	-	469.9
Longnose skate	**338.52**	**16.18**	**354.70**	**-**	**132.8**
Longspine thornyhead (North of 34°27' N. lat.)	7.17	0.43	7.61	-	95.4
Minor nearshore rockfish (North of 40°10' N. lat.)	0.23	0.01	0.24	-	83

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	Fishery HG (mt)	Non-Trawl Allocation a/ (mt)
Minor nearshore rockfish (South of 40°10' N. lat.)	0.02	0.00	0.02	-	1,056.5
Minor shelf rockfish (North of 40°10' N. lat.)	20.38	0.91	21.28	-	522.3
Minor shelf rockfish (South of 40°10' N. lat.)	0.68	0.04	0.72	-	1,260.5
Minor slope rockfish (North of 40°10' N. lat.)	**419.52**	**18.56**	**438.09**	**-**	**266.4**
Minor slope rockfish (South of 40°10' N. lat.)	109.43	7.59	117.03	-	248.3
Mixed thornyheads	1.20	0.07	1.27	–	--
Other flatfish	1.12	0.05	1.17	-	656.4
Other groundfish	0.00	0.00	0.00	-	--
Other rockfish	0.33	0.02	0.35	-	--
Pacific cod	6.93	0.31	7.24	-	54.9
Pacific hake	3.61	0.16	3.77	-	-
Pacific ocean perch (North of 40°10' N. lat.)	1.48	0.07	1.54	-	153.7
Pacific spiny dogfish	**518.94**	**23.43**	**542.38**	**994.4**	**-**
Petrale sole	12.84	0.58	13.41	-	30.0
Shortspine thornyhead (North of 34°27' N. lat.)	**153.34**	**8.33**	**161.67**	**-**	**21.7**
Splitnose rockfish (South of 40°10' N. lat.)	0.06	0.00	0.06	-	72.7
Starry flounder	0.04	0.00	0.05	-	187.7
Widow rockfish	1.34	0.06	1.40	-	400.0*
Yellowtail rockfish (North of 40°10' N. lat.)	4.56	0.20	4.76	-	599.7

* This non-trawl/trawl allocation is subject to change based on Council decision, Option 1: Status Quo:400;Option 2: 300 mt; Option 3:200 mt

To address whether there is a risk of a harvest specification being exceeded, a range of scenarios that are more likely than full 2025-26 ACL attainment are provided. Different ACL scenarios as proxies for low and medium attainment of the 2025-26 ACLs were also modeled.

- **High Attainment Scenario:** The Non-nearshore modeled projections for the full ACL values and therefore the full fixed gear sablefish N. of 36° N. lat. share attainment. Full results seen in Table 24.
- **Medium Attainment Scenario:** This scenario uses the ACL proxy of 18,048 mt, which is the average ACL of 2023-2026 to model for incidental harvest within the sablefish fishery.

This results in a limited entry fixed gear share of 8,489 mt and an open access share of 1,518 mt.

- **Low Attainment Scenario:** The 2023 ACL N of 36° N. lat. represents a low attainment scenario (given that the model models the resulting limited entry and open access fixed gear share (of 3,993 mt and 714 mt, respectively). The current 2023 mortality estimates in the PacFIN scorecard as of 12/20/2024 are 2,039.3 mt and 493.1 mt, respectively. This estimate uses landings data and a three year moving average of discards. The 2023 ACL was used, because even though this is a low scenario in terms of the 2025-2026 ACLs, it represents the highest harvest limits have been since 2011.

Table 24. The values in this table are only for the 2025 incidental harvest numbers using 3 different scenarios based on different ACLs as a proxy for high, medium and low attainment of the 2025 ACL. Gray cells indicate values that are over the non-trawl allocation for 2025. Source: Non-nearshore model, PacFin data pull 1/8/2024.

	Fixed Gear Mortality Projection (mt)			Landings in 2023: No Action (mt)	Fishery HG 2025 (mt)	Non-Trawl Allocation 2025 a/ (mt)
	High attainment scenario	Medium attainment scenario	Low attainment scenario			
Darkblotched rockfish	25.90	16.38	7.71	2.69	-	36.5
Longnose skate	413.36	261.42	122.98	40.22	-	136.5
Minor slope rockfish (North of 40°10' N. lat.)	507.05	320.52	150.79	28.12	-	271.7
Pacific spiny dogfish	628.85	397.56	187.03	0.59	1,037.4	-
Petrale Sole	15.54	9.83	4.62	4.2	-	30
Shortspine thornyhead (North of 34°27' N. lat.)	190.76	120.74	56.80	30.86	-	21.6

If the attainment of sablefish is similar to No Action (2023) in future years (low attainment scenario), the incidental harvest of longnose skate and minor slope rockfish will likely be within the non-trawl allocation and no further action will be needed (Table 24). Catch will be monitored closely to determine if inseason action would need to be taken to reduce either trawl or non-trawl trip limits. The allocation structure of trawl/non-trawl for petrale sole is being investigated under §2.8 as values from the recreational fishery have increased steeply in the last year under No Action

management measures. It is unlikely that, for fixed gear, Alternative 1 will be much different than the No Action landings and the low attainment projection. However, the GMT can monitor and trip limits can be adjusted if the non-trawl allocation is at risk. Under every modeled attainment scenario, shortspine thornyhead north of 34° 27′ N. lat is likely to exceed the non-trawl allocation (Table 24), indicating trip limit adjustments may need to occur (see §2.6.1)

2.4.1 Sablefish South of 36° N. Lat.

Sablefish south of 36° N. lat. has historically been under attained, public testimony has noted that under attainment is most likely due to lack of infrastructure and the potential to easily flood the market. There has been reluctance to increase the southern DTL limits for those reasons (public testimony and personal communication with GAP members). There has been a declining number of vessels over the years, which might be driven by the declines in sablefish price as well as declines in infrastructure. Current trip limits are 2,500 lb. per week for the LES sector and 2,000 lb. per week, not to exceed 6,000 lb. per two months in the OAS sector.

Table 25 shows the breakdown of the sablefish allocation in the area south of 36° N. lat.; notably, there is a new recreational set-aside that comes out of the non-trawl allocation producing a non-trawl harvest guideline. The recreational set-aside will be discussed below. The constraints outlined above are likely to continue to prevent maximum attainment. Due to the low participation, the models that were once used to predict fleetwide LES and OAS sector landings are no longer viable and increased participation beyond what is estimated for 2023 (No Action) is not anticipated. Therefore, the No Action landings should suffice for a prediction. However, t a maximum landings scenario in the LES fishery (number of vessels operating under No Action multiplied by the No Action trip limit) was calculated too. The LES sector's 19 vessels could potentially land a maximum of 1,120 mt, or 36 percent of the 2025 landings target (3,127 mt). This accounts for the same participation under the No Action scenario. In 2023, only 8 vessels operating in the OA sector landed sablefish, and if all 8 vessels fully landed their limits, the OAS sector could land a maximum of 131 mt or 10 percent of the 2025 landed catch target (1,340 mt).

Table 25. Alternative 1 - Short-term sablefish allocations south of 36° N. lat. for the non-trawl sector, based on the default harvest control rule of a P* of 0.45. Limited entry and open access catch shares under the No Action sharing alternative (70 percent to limited entry; 30 percent to open access).

Year	Non-Tribal Com. HG (mt)	Non-Trawl Alloc. (mt)	Rec. Set-Aside (mt)	Non-Trawl HG (mt)	LE FG Share (mt)	Directed OA Share (mt)	LE FG Landings Target (mt) a/	Directed OA Landings Target (mt) a/
2025	7,830	4,541	10	4,531	3,172	1,359	3,127	1,340
2026	7,433	4,311	10	4,301	3,011	1,290	2,969	1,272

a/ The limited entry and open access fixed gear total catch shares are reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2022. For the 2025-2026 Harvest Specification cycle, 7 percent of the sablefish caught were anticipated to be discarded with a 20 percent mortality rate.

2.4.2 Recreational Sablefish Set-Aside South of 36° N. Lat.

The Council is considering establishing a sablefish south of 36° N. lat. recreational off-the-top set aside. Currently, there is no set-aside and based on the discussion found at (Chapter 5 §2.4.2), the Council is precluded from establishing a recreational off-the-top set-side per the framework of Amendment 21 (A21). In order to establish an off-the-top deduction, revisions to A21 allocations, specific to sablefish south of 36° N. lat., would likely need to be reconsidered. However, an alternative pathway is available for the Council to consider (SEE FMP §6.3.2.3) to establish a recreational set-aside for sablefish south of 36° N. lat. by instead deducting the set-aside from the non-trawl allocation.

Indications are that more recreational anglers are interested in targeting sablefish due to other groundfish restrictions south of 36° N. lat (Agenda Item E.7.a, Supplemental GMT Report 2, November 2023, hereafter GMT Report 2). Additionally, the Cowcod Conservation Area (CCA) reopened per Amendment 32, which, anecdotally, is an area where commercial sablefish targeting occurred pre-CCA. Reopening this area may provide additional recreational opportunity in the next biennium and, given the current constraints of recreational fishing in California, may result in increased recreational sablefish retention.

The Council adopted the GMT-recommended (Agenda Item E.7.a, Supplemental GMT Report 2, November 2023) 10 mt sablefish south of 36° N. lat. set-aside as the off-the-top deduction and not as a non-trawl deduction. However, given the new information, the Council could reconsider this amount as this measure would now strictly impact the non-trawl sector south of 36° N. lat. In developing Agenda Item E.7.a, Supplemental GMT Report 2, November 2023, the GMT considered two options for a sablefish south of 36° N. lat. recreational set-aside (Table 26) –status quo 0 mt (Option 1) and 10 mt (Option 2).

Table 26. Sablefish south of 36° N. lat set-aside options considered by the Council considering the 2025-26 non-trawl harvest guideline (HG) and the resulting percentage deduction based on the options.

Options	Proposed Amount (mt)	Percent (%) of non-trawl HG	Non-trawl HG (mt) 2025	Non-trawl HG (mt) 2026
Option 1: Status Quo	0	0	4,541	4,431
Option 2: GMT recommendation	10	0.2%	4,531	4,421

Option 2 would reduce the o non-trawl allocation south of 36° N. lat by approximately 0.2 percent for 2025-26, respectively. Option 2 was recommended by the GMT in November 2023 (Agenda Item E.7.a, Supplemental GMT Report 2, November 2023). In terms of non-trawl, limited entry is allocated 70 percent of the non-trawl HG, and open access is allocated the remaining 30 percent. Table 27 shows the LEFG and OA shares as reduced by the proposed non-trawl sector set-asides Option 1 represents the status quo of a zero mt set-aside. Option 2 would designate a set-aside at 10 mt or 0.2 percent of the non-trawl allocation.

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Table 27. 2025-26 sablefish south of 36° N. lat non-trawl set-aside options and resulting deductions to the limited entry fixed gear (LEFG) and open access (OA) shares when non-trawl status quo allocations (70 percent LEFG, 30 percent OA) are calculated. Values rounded to nearest whole metric ton (mt)

Option	Set-aside (mt)	Non-trawl HG (mt) 2025/26	LEFG allocation [70%] (mt) 2025/26	LEFG reduction (mt)	OA allocation [30 %] (mt) 2025/26	OA reduction (mt)
Option 1: Status Quo	0	4,541 /4,431	3,179 /3,102	0	1,362 /1,329	0
Option 2: GMT recommendation	10	4,531 /4,421	3,172 /3,095	-7	1,359 /1,326	-3

As shown in Table 28, The LEFG and OA allocations are not reduced under Option 1, as this Option is status quo. Under Option 2, the LEFG sector allocation is approximately seven mt less than status quo; whereas, the OA sector allocation is three mt less than status quo. Since 2015, non-trawl fishery attainment for sablefish south of 36° N. lat., as shown in Table 28, has averaged 29.7 percent. Overall, attainment has decreased since 2015, noting between 2015 and 2023, attainment has dropped over 30 percent. The reason behind this drop is not clear, however anecdotal evidence suggest lack of market and processing facilities in this area may be correlated

Table 28. Non-trawl harvest guideline (HG) compared to non-trawl fishery sablefish south of 36 N. lat. mortality. (sources: HG from GMT0016 Apex report and fishery mortality from GEMM)

	2015 (mt)	2016 (mt)	2017 (mt)	2018 (mt)	2019 (mt)	2020 (mt)	2021 (mt)	2022 (mt)	2023 (mt) a/
Non-Trawl HG	994.1	1,087.5	1,124.6	1,124.6	1,115.8	1,176.1	1,085.5	1,033.3	1,340.2
LEFG	488.9	566.8	405.5	430.5	432.5	256.5	172.3	182.8	160.4
OA	32.8	24.1	25.0	21.8	13.3	6.4	0.6	2.3	21.8
Fishery Mortality	521.7	590.8	430.5	452.3	445.7	262.8	172.9	185.1	182.2
Percent (%) Attained	52.5%	54.3%	38.7%	40.2%	39.4%	22.4%	15.9%	17.9%	13.6%

a/Data from 12/12/2023, does not include any discard mortality.

2.5 Impact (Groundfish Mortality)-: Projected Non-nearshore Groundfish Mortality from targeted sablefish trips S of 36° N lat.

There is no non-nearshore model to project incidental harvest mortality in sablefish trips south of 36° N lat., and due to the limited markets and infrastructure, it is reasonable to expect that sablefish attainment and therefore incidental harvest species will be similar to the No Action landings.

Rex Sole

Over the past twenty years of observer coverage, less than 1 mt of rex sole has been landed in the groundfish fixed gear sectors, the highest landing being in 2012 of 0.3 mt. The fixed gear fishery currently operates such that rex sole is not commonly caught, and therefore the impacts are

expected to be minimal on rex sole landings, and this stock will not be discussed further under this alternative.

Shortspine thornyhead N. and S. of 34° 27′ N. Lat.
Under Alternative 1, the HCR would be to apply P*0.40 ACL < ABC with the 40-10 harvest control rule applied, which would yield ACL values of 711 mt and 713 mt for 2025 and 2026, respectively. Shortspine thornyhead coastwide are managed with Amendment-21 trawl/non-trawl allocations, which allocates the north of 34° 27′ N. lat. fishery HG by 95 percent to the trawl sector and 5 percent to non-trawl. Amendment 21 allocates 50 mt of the south of 34°27′ N. lat. fishery HG to trawl and the rest to non-trawl. In November 2023, the Council adopted a method for apportionment of shortspine thornyhead ACLs to the areas north and south of 34° 27′ N. lat. using a 5-year rolling average area-based biomass estimates from the NMFS Northwest Fisheries Science Center West Coast Groundfish Bottom Trawl (WCGBT) survey data (Table 29).

Table 29. 2025-26 Harvest specifications allocations amount for shortspine thornyhead with a P*0.40.

North 34° 27′ N. lat.							
Year	**ACL (mt)**	**Set-aside (mt)**	**HG (mt)**	**Trawl Allocation (mt)**	**At-sea Set-aside (mt)[a/]**	**IFQ Allocation (mt)**	**Non-trawl Allocation (mt)**
2025	502	70	432	410	70	340	22
2026	503	70	433	412	70	342	22
South 34° 27′ N. lat.							
Year	**ACL (mt)**	**Set-aside (mt)**	**HG (mt)**	**Trawl Allocation (mt)**	**At-sea Set-aside (mt)**	**IFQ Allocation (mt)**	**Non-trawl Allocation (mt)**
2025	209	2	207	50	N/A	50	157
2026	210	2	208	50	N/A	50	158

a/This is the status quo at-sea set aside of 70 mt that may change based on Council action, the other options are 50 and 100 mt, however, that change only impacts the IFQ allocation.

The shortspine thornyhead fixed gear fishery changed after the implementation of Amendment 21, 13 years ago. The analysis for Amendment 21 did not consider shortspine thornyhead as a target species in the area north of 34° 27′ N. lat., whereas now, the shortspine thornyhead fishery has substantially grown so that they are a highly sought after fish and often have an average price per pound that exceeds the sablefish price (see analysis as part of the limited entry fixed gear follow on actions Agenda Item H.4 June 2023 Attachment 1 scoping document and Table 30) This was especially true in 2023 when at the end of the year (period 6) the price for sablefish dipped below $2 per pound, a historic decadal low sablefish price. South of 40° 10′ N. lat., there is a live fish market for shortspine thornyhead, which drives the price higher than in other areas of the coast and leads to more landings. For those in the LE fleet that fish for sablefish, shortspine thornyhead is used as an important part of their portfolio and often allows for participants to move sablefish when the price is low by pairing with the high value shortspine thornyhead (personal

communication with GAP members). In 2023, the total commercial non-trawl ex-vessel revenue south of 34° 27′ N. lat. was $666,407 from 27.3 mt compared to the ex-vessel revenue north of 34° 27′ N. lat. of $493,571 from 27.9 mt indicating different markets. Impacts to the shortspine thornyhead fishery are likely to only occur in the Northern management area (north of 34° 27′ N. lat.), because in order to keep catch below the area specific ACL, lower trip limits would need to be put in place under the non-trawl allocation. If the fishery operates as it did in 2023, with the same proportion of catch between areas, at the same average price per pound (Table 30), this reduction could cause potential loss of income from shortspine thornyhead sales of $82,490, 74 percent of which would be potentially lost to the participants operating in between 34° 27′ and 40° 10′ N. lat. This potential loss does not account for any loss of income that comes from not being able to also sell sablefish.

Table 30. Using the 2023 limited entry fixed gear landings and ex-vessel revenue, average prices per pound (lbs.) compared to the 2025 non-trawl allocation and potential distribution of landings. Source: PacFin data pull 12/28/2023

Area of Fishing	Average 2023 price per pound	Sum of 2023 landings (lbs.)	Sum of 2023 landings (mt)	2025 Non-trawl allocation (mt)	2025 Potential distribution of landings (mt)
North of 42° N. lat.	$0.60	13,195.0	6.0	22	4.7
In between 42° and 40° 10′ N. lat.	$3.00	2,732.0	1.2		0.9
In between 40° 10′ and 34° 27′ N. lat.	$8.20	45,566.8	20.7		16.3
South of 34° 27′ N. lat.	$10.20	60,134.0	27.3	152	

The non-nearshore projection model uses sablefish targeted trips to predict future landings for north of 36° N. lat. Under all scenarios outlined in Table 24, shortspine thornyhead is projected to exceed the non-trawl allocation, which indicates that more avoidance of shortspine thornyhead will need to occur within the sablefish fishery. Given the results from the 2023 assessment and the ACL decrease starting in 2025, the shortspine thornyhead fishery will be negatively impacted north of 34° 27′ N. lat. Table 31 shows that the total mortality since 2018 has been higher than the 2025 non-trawl allocation north of 34° 27′ N. lat. According to members of the GAP, shortspine thornyhead are usually harder to find, so when targeting shortspine thornyhead as part of a vessel's portfolio, that vessel would usually catch sablefish incidentally whereas, when targeting sablefish, a vessel can avoid shortspine thornyhead. However, as outlined above in the live fish fishery between 40° 10′ - 34° 27′ N. lat., the 22 mt area specific ACL is likely to provide minimal opportunity for fishermen to use high value shortspine thornyhead to move sablefish into the market (deals that require that the buyer also buys sablefish when buying the shortspine thornyhead target).

Table 31. Table showing shortspine thornyhead and mixed thornyhead mortality since 2018, as well as landings from 2023. Source: GEMM, PacFIN data pull 1/10/2024.

Year	Mortality Type	Shortspine thornyhead (North of 34°27' N. lat.)	Non-trawl Allocation (North of 34°27' N. lat.)	Percent Attainment (%) (North of 34°27' N. lat.)	Shortspine thornyhead (South of 34°27' N. lat.)	Non-trawl Allocation (South of 34°27' N. lat.)	Percent Attainment (%) (South of 34°27' N. lat.)
2018	Landings (mt)	57.2	82.0	82%	108.0	805.7	14%
	Discard Mortality (mt)	9.7			2.8		
2019	Landings (mt)	45.8	81.0	62%	80.2	838.8	10%
	Discard Mortality (mt)	4.5			3.2		
2020	Landings (mt)	31.9	80.2	42%	50.3	831.8	6%
	Discard Mortality (mt)	1.6			1.4		
2021	Landings (mt)	32.1	67.5	51%	39.9	748.8	5%
	Discard Mortality (mt)	2.6			0.7		
2022	Landings (mt)	25.6	65.7	41%	32.5	680.3	5%
	Discard Mortality (mt)	1.5			0.0		
Average 2018 - 2022	Landings (mt)	38.5			62.2		
	Discard Mortality (mt)	4.0			1.6		
2023	Landings (mt)	31.0	64.0	51%	29.1	662.7	5%
	3 year average discard mortality	1.9			1.8		

Shortspine thornyhead does not have discard mortality rates applied; therefore, in order to protect from exceedance of the non-trawl allocation, encounters must be limited. Under the current allocation structure and management line at 34° 27′ N. lat. for shortspine thornyhead, the current non-trawl allocation of 22 mt in 2025 will require trip limits to be reduced.

Table 32 shows various options that will reduce the projected mortality. Of the options considered, all are projected to exceed the 2025 non-trawl allocation, with the lowest projection having the lower range of 100.5 percent of the non-trawl allocation. That would reduce the current trip limits in the limited entry fishery from 2,500 lbs. per two months as a high to 350 lbs. per two months. This change would potentially reduce value to the limited entry participants between 40° 10′ N. lat. to 34° 27′ N. lat. from a potential $374,209 to potentially $247,665. This value does not account for the constraint that this reduction will also have on the marketability of sablefish in that area, nor whether the value of the 350 lbs. per two months will generate enough profit to offset the cost of the trips to target shortspine thornyhead

Table 32. Shortspine thornyhead trip limit options north of 34° 27′ N. lat. with a P* of 0.40.

Option	Sector	Trip Limit	Landing Projection (mt)	Est. Total Landings (mt)	Est. Discard Mortality Range: Min. and Max 2018-2022 Values (mt)	Est. Total Mortality Range (mt)	% of the 2025 Non-trawl Allocation N. of 34º 27′ (mt)
Status Quo: Option 1	OAN	50 lbs./ month for all periods	0.8	31	1.5-9.7 *Average: 4.0*	32.5-40.7 Average: 35.0	148%-185% Average: 159%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	50 lbs./month for all periods	2.3				
	LEN	2,000 lbs./2 months for periods 1-3	7.2				
		2,500 lbs./2 months for periods 4-6					
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	2,000 lbs./2 months for periods 1-3	20.7				
		2,500 lbs./2 months for periods 4-6					
Option 2	OAN	50 lbs./2 months for all periods	0.3	28.1	1.5-9.7 *Average: 4.0*	29.9 mt-37.8 Average: 32.1	136%-172% Average: 146%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	50 lbs./2 months for all periods	0.6				

Option	Sector	Trip Limit	Landing Projection (mt)	Est. Total Landings (mt)	Est. Discard Mortality Range: Min. and Max 2018-2022 Values (mt)	Est. Total Mortality Range (mt)	% of the 2025 Non-trawl Allocation N. of 34º 27′ (mt)
	LEN	1,500 lbs./ 2 months for all periods	6.6				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	1,500 lbs./ 2 months for all periods	20.6				
Option 3	OAN	40 lbs./2 months for all periods	0.3	25.8	1.5-9.7 *Average: 4.0*	27.3-35.5 Average: 29.8	124%-161% Average: 135%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	40 lbs./2 months for all periods	0.5				
	LEN	750 lbs./2 months for all periods	6.2				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	750 lbs./2 months for all periods	18.8				
Option 4	OAN	Option 3	0.3	23.1	1.5-9.7 *Average: 4.0*	24.6-32.8 Average: 27.1	112%-129% Average: 123%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	Option 3	0.5				
	LEN	500 lbs./2 months for all periods	5.9				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	500 lbs./2 months for all periods	16.4				
Option 5	OAN	Option 3	0.3	19.7	1.5-9.7 *Average: 4.0*	21.2-29.4 Average: 23.7	100.5%-134% Average: 108%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	Option 3	0.5				
	LEN	350 lbs./2 months for all periods	5.2				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	350 lbs./2 months for all periods	13.7				

2.6 Trip Limits:

2.6.1 Shortspine Thornyhead

Mechanisms to change the allocations from trawl to non-trawl are more involved than the two-year allocation since they were outlined in the initial rationalization of the trawl IFQ program. This program review is anticipated to start in 2024, and a holistic review of all those allocations could inform all potential adjustments (see Agenda Item E.7.a., Supplemental GMT Report 3, November 2023). However, the Council could also consider making shortspine thornyhead into a species that can be managed in two-year allocations during the harvest specifications and new management measures cycle (which would take effect in the 2027-28 cycle). There is currently no mechanism to share metric tons in a one-time fashion or longer-term above or below the management line. An option to implement a one-time transfer of unused or under attained shortspine thornyhead from the south to the north to allow for higher trip limits was explored; however, the current management structure of area specific ACLs prevents that option. Unused fish cannot be transferred across area specific ACLs, because there is no mechanism in regulation to increase an area specific ACL. In March, the GMT presented multiple pathways to alleviate constraints on the shortspine thornyhead fishery north of 34° 27′ N. lat. (Agenda Item F.7.a, GMT Report 3, March 2024). That analysis was expanded by the GMT, taking into account Council and GAP recommendations and is provided as New Management Measure 9D.

2.6.2 Canary Rockfish

Under Alternative 1, the canary rockfish default HCR applies a P* of 0.45 with the ACL<ABC due to the 40-10 HCR, would yield 571 and 573 mt ACLs for 2025 and 2026, respectively. These ACL values are less than the average total mortality from 2020-2022. Since 2017 (i.e., the first biennium in which canary rockfish harvest specifications were based on the rebuilt stock), canary rockfish has been targeted and mortality has increased in the non-nearshore sector. Starting in 2024, there will be new opportunities within the Non-Trawl Rockfish Conservation Area (RCA) that will increase areas to target midwater shelf species. On top of that new opportunity, California fisheries are likely to be heavily restricted to only allow for the use of non-bottom contact hook-and-line gear (50 CFR 660.330(b)(3)) to harvest shelf species and reduce the impacts to quillback rockfish. Both of these management measures concentrate effort to harvest shelf stocks, and are likely to become constrained by the ACLs for canary rockfish. In anticipation of this potential constraint, in November 2023, Council took action to decrease canary rockfish trip limits for the OA and LE fleets; therefore, alternative trip were not analyzed.

Limited Entry Fixed Gear Trip Limits For Canary Rockfish:

- LEN: North of 40° 10′ N. lat.
  - 3,000 lbs. per 2 months for all periods
- LES: South of 40° 10′ N. lat.
  - 3,500 lbs. per 2 months for all periods

Open Access Trip Limits For Canary Rockfish:

- OAN: North of 40° 10′ N. lat.
  - 1,000 lbs. per 2 months for all periods

- OAS: South of 40° 10′ N. lat.
    - 1,500 lbs. per 2 months for all periods

A holistic analysis of canary rockfish allocation structures that does have bearing on the fixed gear attainment (Chapter 1 §2.6) was explored. Any additional changes to trip limits are unlikely but cannot be analyzed until the Council selects an allocation option.

2.6.3 Dover Sole

This option of 50,000 mt ACL for 2025-26 for Dover sole is an untenable option as discussed in Agenda Item E.5.a Supplemental GMT Report 2 November 2023. In the past ten years there has been an average of 5.13 mt of Dover sole total mortality within the fixed gear LE and OA sectors (Table 33). The majority of that catch was from hook-and-line (i.e., longline in the sablefish fishery). Using the non-nearshore model that projects mortality only from targeted sablefish trips, the projection for 2025 is between 8.73 and 30.13 mt, using different ACLs in the non-nearshore model as a proxy for attainment. Even with the increase that is projected with the increased sablefish North ACLs, Dover sole has historically been under-attained, and it is likely that the fixed gear mortality will not exceed the non-trawl allocation.

Table 33. Projected fixed gear mortality in metric tons (mt) for Dover sole compared to the non-trawl allocation.

	Fixed Gear Mortality Projection (mt)			Non-Trawl Allocation a/ (mt)
	High attainment scenario	**Medium attainment scenario**	**Low attainment scenario**	
Dover sole	29	19	9	2,421

a/ derived from 50,000 mt ACL, which is likely untenable as the ACL is higher than ABC

2.6.4 Lingcod North and South of 42° N. lat.

Increases to the lingcod north of 42° N. lat. limits were not explored for the reasons outlined in Supplemental GMT Report 1 in November 2023. Notably, because of the nature of the projection models, as they do not project impacts of effort shifts or new entrants. Therefore, data from the increased trip limits in September 2023 and for the 2024 year are needed to inform future decision making.

While investigating the potential to turn monthly limits into bimonthly limits (see section below), we uncovered that doing so would make the OAN and LEN trip limits equal, so therefore the Council could consider decreasing the OAN trip limit (see below for options). In general, because limited entry is inherently a closed class and therefore effort is limited, trip limits have usually been maintained at a higher number than the OA fleet. In addition, the OA fishery is hard to quantify and there are an unlimited number of participants (see NMFS Reports from March 2023 and November 2023). Given the uncertainty around effort shifts to target lingcod north of 42° N. lat. and because of action that is being taken in California, the Council may wish to reduce down the OAN trip limit from being equal to the limited entry limit which would happen when you double it to turn monthly into bimonthly (Option 2). Therefore, Option 3 (OAN fishery of 9,000 lbs. per 2 months)was added to the range for analysis.

Limited Entry Fixed Gear Trip Limit Options:

LEN: North of 42° 00′ N. lat.

- **Option 1 Status Quo** 11,000 lbs. per 2 months for all periods

LEN: 42° 00′ N. lat. - 40° 10′ N. lat

- **Option 1 Status Quo** per 2 months seaward of the non-trawl RCA; 0 lbs. period 2 months inside the non-trawl RCA for all periods

LES: 40° 10′ N. lat. - 36° 00′ N. lat.

- **Option 1 Status Quo** 1,600 lbs. per 2 months seaward of the non-trawl RCA; 0 lbs. per 2 months inside the non-trawl RCA for all periods

LES: South of 36° 00′ N. lat.

- **Option 1 Status Quo** 1,600 lbs. per 2 months for all periods

Open Access Fixed Gear Trip Limit Options:

OAN: North of 42° 00′ N. lat.

- **Option 1 Status Quo:** 5,500 lbs. per month for all periods
- **Option 2:** 11,000 lbs. per 2 months for all periods
- **Option 3:** 9,000 lbs. per 2 months for all periods

OAN: 42° 00′ N. lat. - 40° 10′ N. lat.

- **Option 1 Status Quo:** 1,000 lbs. per month seaward of the non-trawl RCA; 0 lbs. per month inside the non-trawl RCA for all periods
- **Option 2:** 2,000 lbs. per 2 months seaward of the non-trawl RCA; 0 lbs. per 2 months inside the non-trawl RCA for all periods

OAS: 40° 10′ N. lat. - 36° 00′ N. lat.

- **Option 1 Status Quo**: 700 lbs. per month seaward of the non-trawl RCA; 0 lbs. per month inside the non-trawl RCA for all periods
- **Option 2:** 1,400 lbs. per 2 months seaward of the non-trawl RCA; 0 lbs. per 2 months inside the non-trawl RCA for all periods

OAS: South of 36° 00′ N. lat.

- **Option 1 Status Quo**: 700 lbs. per month for all periods
- **Option 2:** 1,400 lbs. per 2 months for all periods

Similar to lingcod north of 42° N. lat., adjustments to lingcod south of 40° 10′ N. lat. limits were not explored. Although the harvest limits are dropping in 2025 the average mortality in the non-trawl sectors from 2020-2022 was 58 percent of the 2025 non-trawl allocation, only 8 percent of which came from the commercial fixed gear sector (Table 34). Due to reduced fishing opportunity from 42° to 36° N. lat., non-trawl mortality exceeding the non-trawl allocation is not expected.

Table 34. GEMM reported total mortality in metric tons (mt) from 2020-2022 compared to the 2025 lingcod south of 40° 10′ N. lat. non-trawl allocation.

Sector	2020 (mt)	2021 (mt)	2022 (mt)	2025 Non-Trawl Allocation (mt)
Commercial Fixed Gear	31.1	38.0	42.2	441.8
Recreational	199.6	227.5	225.7	
Total	230.7	265.5	267.9	

2.7 Trip Limits for Other Species

The GAP requested investigation into changing commercial trip limit tables so there is consistency between all trip limit tables. Bi-monthly trip limits were explored as they allow for greater operational flexibility, and are used for select stocks/stock complexes in both LE and OA sector at present. This change is administrative in nature, and should minimize regulatory complexity. Simply put, monthly limits will be doubled and as long as there is a difference between OA and LE limits that will be the only option presented to the Council. Below are the listed species or species groups that will be affected by this change.

One possible negative effect that this will have will be that it will extend the time that the crossover provision (50 CFR 660.60(h)(7)(ii)) restricts a LE vessel to the lower OA trip limit, if for some reason a participant decided to use OA gear. This possibility has decreased post-Amendment 32 when participants fishing in the Non-trawl RCA with non-bottom contact gear can now harvest the LE trip limits. Additionally, neither the LE Sablefish south of 36° N. lat. trip limits nor the Pacific whiting are being considered here due to complexity in those fisheries. In the course of the over-winter analysis, s inconsistency with prohibited species in the trip limit tables was noted, therefore Option 2, which would change the quillback rockfish trip limit for all tables to CLOSED, is recommended. This would replace the quillback rockfish: Option 1 status quo trip limit of 0 lbs. per 2 months.

2.7.1 Slope Rockfish Complex & Darkblotched rockfish

Limited Entry Fixed Gear Trip Limit Options:

LEN

- **Option 1 Status Quo** 8,000 lbs. per 2 months for all periods

LES

- **Option 1 Status Quo** 40,000 lbs. per 2 months, of which no more than 6,000 lbs. may be blackgill rockfish for all periods

Open Access Trip Limit Options:

OAN

- **Option 1 Status Quo**: 2,000 lbs. per month for all periods
- **Option 2:** 4,000 lbs. per 2 months for all periods

OAS

- **Option 1 Status Quo:** 10,000 lbs. per 2 months, of which no more than 2,500 lbs. may be blackgill rockfish for all periods

2.7.2 Splitnose Rockfish

Limited Entry Fixed Gear Limit Options

LEN

- Included in the trip limits for Minor Slope Rockfish

LES

- **Option 1 Status Quo**: 40,000 lbs. per 2 months for all periods

Open Access Trip Limit Options

OAN

- Included in the trip limits for Minor Slope Rockfish

OAS

- **Option 1 Status Quo**: 200 lbs. per month for all periods
- **Option 2:** 400 lbs. per 2 months for all periods

2.7.3 Pacific ocean perch

Limited Entry Fixed Gear Trip Limit Options:

LEN

- **Option 1 Status Quo** 3,600 lbs. per 2 months for all periods

LES

- Included in the trip limits for Minor Slope Rockfish

Open Access Trip Limit Options:

OAN

- **Option 1 Status Quo:** 100 lbs. per month for all periods
- **Option 2**: 200 lbs. per 2 months for all periods

OAS

- Included in the trip limits for Minor Slope Rockfish

2.7.4 Longspine Thornyhead

Limited Entry Fixed Gear Trip Limit Options:

LEN

- **Option 1 Status Quo** 10,000 lbs. per 2 months for all periods

LES

- **Option 1 Status Quo** 10,000 lbs. per 2 months for all periods

Open Access Trip Limit Options:

OAN

- **Option 1 Status Quo** 50 lbs per month for all periods
- **Option 2:** 100 lbs. per 2 months for all periods

OAS: 40° 10′ N. lat - 34° 27′ N. lat

- **Option 1 Status Quo**: 50 lbs. per month for all periods
- **Option 2:** 100 lbs. per 2 months for all periods

OAS: South of 34° 27′ N. lat

- **Option 1 Status Quo**: Shortspine thornyhead and longspine thornyhead 100 lb/day, no more than 1,000 lb/ 2 months
- **Option 2:** Longspine thornyhead 100 lb/day, no more than 1,000 lb/ 2 months

~~**2.7.5 Shortspine Thornyhead South of 34° 27′ N. lat:** [1]~~

~~**Limited Entry Fixed Gear Trip Limit Options:**~~

~~LEN~~

- ~~**Option 1 Status Quo** 2,000 lbs. per 2 months for periods 1-3, 2,500 lbs per 2 month periods 4-6~~

~~LES: 40° 10′ N. lat - 34° 27′ N. lat~~

- ~~**Option 1 Status Quo** 2,000 lbs. per 2 months for periods 1-3, 2,500 lbs per 2 month periods 4-6~~

~~LES: South of 34° 27′ N. lat~~

- ~~**Option 1 Status Quo** 3,000 lbs. per 2 months for all periods~~

~~**Open Access Trip Limit Options:**~~

~~OAN~~

- ~~**Option 1 Status Quo** 50 lbs per month for all periods~~
- ~~**Option 2:** 100 lbs. per 2 months for all periods~~

~~OAS: 40° 10′ N. lat - 34° 27′ N. lat~~

- ~~**Option 1 Status Quo** 50 lbs. per month for all periods~~
- ~~**Option 2:** 100 lbs. per 2 months for all periods~~

~~OAS: South of 34° 27′ N. lat~~

- ~~**Option 1 Status Quo**: Shortspine thornyhead and longspine thornyhead 100 lb/day, no more than 1,000 lb/ 2 months~~
- ~~**Option 2:** Shortspine thornyhead 100 lb/day, no more than 1,000 lb/ 2 months~~

2.7.6 Dover sole, Arrowtooth Flounder, Petrale Sole, English Sole, & Starry Flounder

Limited Entry Fixed Gear Trip Limit Options:

LEN

- **Option 1 Status Quo**: 10,000 lbs. per month for all periods

[1] These shortspine trip limits are struck out and left for future reference only. They are no longer applicable after the Council selected new management measure 9d.

- **Option 2:** 20,000 lbs. per 2 months for all periods

LES
- **Option 1 Status Quo** 10,000 lbs. per month for all periods
- **Option 2:** 20,000 lbs. per 2 months for all periods

Open Access Trip Limit Options

OAN
- **Option 1 Status Quo** 5,000 lbs. per month for all periods
- **Option 2:** 10,000 lbs. per 2 months for all periods

OAS
- **Option 1 Status Quo** 5,000 lbs. per month for all periods
- **Option 2:** 10,000 lbs. per 2 months for all periods

2.7.7 Other Flatfish

Limited Entry Fixed Gear Trip Limit Options:

LEN: North of 42° 00′ N. lat.
- **Option 1 Status Quo** 10,000 lbs. per month for all periods
- **Option 2:** 20,000 lbs. per 2 months for all periods

LEN: 42° 00′ N. lat. - 40° 10′ N. lat.
- **Option 1 Status Quo** 10,000 lbs. per month seaward of the non-trawl RCA; 0 lbs. per month inside the non-trawl RCA for all periods
- **Option 2:** 20,000 lbs. per 2 months seaward of the non-trawl RCA; 0 lbs. per 2 months inside the non-trawl RCA for all periods

LES: 40° 10′ N. lat. - 36° 00′ N. lat.
- **Option 1 Status Quo** 10,000 lbs. per month seaward of the non-trawl RCA; 0 lbs. per month inside the non-trawl RCA for all periods
- **Option 2:** 20,000 lbs. per 2 months seaward of the non-trawl RCA; 0 lbs. per 2 months inside the non-trawl RCA for all periods

LES: South of 36° 00′ N. lat.
- **Option 1 Status Quo** 10,000 lbs, per month for all periods
- **Option 2:** 20,000 lbs. per 2 months for all periods

Open Access Trip Limit Options

OAN: North of 42° 00′ N. lat.
- **Option 1 Status Quo** 5,000 lbs. per month for all periods
- **Option 2:** 10,000 lbs. per 2 months for all periods

OAN: 42° 00′ N. lat. - 40° 10′ N. lat.
- **Option 1 Status Quo**: 5,000 lbs. per month seaward of the non-trawl RCA; 0 lbs. per month inside the non-trawl RCA for all periods

- **Option 2:** 10,000 lbs. per 2 months seaward of the non-trawl RCA; 0 lbs. per 2 months inside the non-trawl RCA for all periods

OAS: 40° 10′ N. lat. - 36° 00′ N. lat.
- **Option 1 Status Quo** 5,000 lbs. per month seaward of the non-trawl RCA; 0 lbs. per month inside the non-trawl RCA for all periods
- **Option 2:** 10,000 lbs. per 2 months seaward of the non-trawl RCA; 0 lbs. per 2 months inside the non-trawl RCA for all periods

OAS: South of 36° 00′ N. lat.
- **Option 1 Status Quo** 5,000 lbs. per month for all periods
- **Option 2:** 10,000 lbs, per 2 months for all periods

2.7.8 Pacific Whiting

Limited Entry Fixed Gear Trip Limit Options:

LEN
- **Option 1 Status Quo** 10,000 lbs. per trip for all periods

LES
- **Option 1 Status Quo** 10,000 lbs. per trip for all periods

Open Access Trip Limit Options

OAN
- **Option 1 Status Quo** 300 lbs. per month for all periods
- **Option 2:** 600 lbs, per 2 months for all periods

OAS
- **Option 1 Status Quo** 300 lbs. per month for all periods
- **Option 2:** 600 lbs. per 2 months for all periods

2.7.9 Shelf Rockfish Complex

Limited Entry Fixed Gear Trip Limit Options:

LEN
- **Option 1 Status Quo** 800 lbs. per month for all periods
- **Option 2:** 1,600 lbs. per 2 months for all periods

LES: 40° 10′ N. la.t - 34° 27′ N. lat.
- **Option 1 Status Quo** 6,000 lbs, per 2 months, of which no more than 500 lbs. may be vermilion for all periods

LES: South of 34° 27′ N. lat.
- **Option 1 Status Quo** 6,000 lbs. per 2 months, of which no more than 3,000 lbs. may be vermilion for all periods

Open Access Trip Limit Options

OAN: North of 42° 00′ N. lat.

- **Option 1 Status Quo**: 800 lbs. per month for all periods
- **Option 2:** 1,600 lbs. per 2 months for all periods

OAN: 42° 00′ N. lat. - 40° 10′ N. lat.

- **Option 1 Status Quo** 600 lbs. per month for all periods
- **Option 2:** 1,200 lbs. per 2 months for all periods

OAS: 40° 10′ N. lat. - 36° N. lat.

- **Option 1 Status Quo** 3,000 lbs. per 2 months, of which no more than 300 lbs. may be vermilion/sunset rockfish for all periods

LES: 36°N. lat. - 34° 27′ N. lat.

- **Option 1 Status Quo** 8,000 lbs, per 2 months, of which no more than 500 lbs. may be vermilion for all periods

OAS: South of 34° 27′ N. lat

- **Option 1 Status Quo** 3,000 lbs. per 2 months, of which no more than 900 lbs. may be vermilion/sunset rockfish for all periods

2.7.10 Yellowtail Rockfish

Limited Entry Fixed Gear Trip Limit Options:

LEN

- **Option 1 Status Quo** 1: 3,000 lbs. per month for all periods
- **Option 2:** 6,000 lbs. per 2 months for all periods

LES

- Included in the trip limits for Shelf Rockfish Complex

Open Access Trip Limit Options

OAN

- **Option 1 Status Quo** 1,500 lbs, per month for all periods
- **Option 2:** 3,000 lbs. per 2 months for all periods

OAS

- Included in the trip limits for Shelf Rockfish Complex

3. Alternative 2

All fixed gear impacts will be discussed in relation to quillback rockfish in California. The majority of the U.S. west coast stocks would be managed under the default harvest control rule, additional discussion will be provided in this section for the following species that were assessed this cycle:

1. California quillback rockfish: ABC Rule
2. Shortspine thornyhead ACL<ABC P*0.45, 40-10 HCR applied
3. Rex sole ACL=ABC P*0.45
4. Dover sole ACL=ABC P*0.45

However, shortspine thornyhead is the only stock in that list that will have impacts on the fixed gear sectors. As discussed in the Alternative 1 section for rex sole and Dover sole, the harvest of these two species are very minimal for the fixed gear sectors and therefore there is no true difference in Alternative 1 and Alternative 2 for those two stocks for the fixed gear sectors.

3.1 Impact (Groundfish Mortality)- Species of Concern

3.1.1 California Quillback Rockfish

Under Alternative 2, the California quillback rockfish the ABC Rule from the California quillback rockfish rebuilding analysis (Tables 4 and 5, Agenda Item E.2, Attachment 1) are analyzed. The ABC rule, post off-the-top, translates into 2025-26 HGs for 1.2 mt and 1.4 mt, respectively. Comparatively, these values are 0.04 mt and 0.03 mt higher than Alternative 1 (Table 35)

Table 35. Alternative 2: Comparison of Alternative 1 and Alternative 2 harvest guidelines for California quillback rockfish in 2025-26.

	Alt 1 HG(mt)	Alt 2 HG (mt)	Difference (mt) Alt 2 to Alt 1
2025	1.16	1.2	+0.04
2026	1.37	1.4.	+0.03

The differences between Alternative 1 and Alternative 2 are negligible and likely well within the confidence intervals of fishery monitoring programs. The overall goal for California quillback rockfish in the next biennium is to reduce as much impact to the stock as practicable Given the low difference between Alternative 1 and Alternative 2, the management measures under Alternative 2 are the same as under Alternative 1. The impacts and measures are detailed under Section 2.1.2

3.2 Impact (Groundfish Mortality)-: Other Species

3.2.1 Shortspine thornyhead N. and S. of 34° 27′ N. lat.

The Alternative 2 shortspine thornyhead allocations are shown in Table 36. The same apportionment method is also applied and described under Alternative 1. The trip limit options under Alternative 2 will not change from Alternative 1, but the percent attainment does (Table 37).

Table 36. Alternative 2. Harvest specifications allocations amount for shortspine thornyhead with a P*0.45.

North of 34° 27′ N. lat							
Year	**ACL (mt)**	**Set-aside (mt)**	**HG (mt)**	**Trawl Allocation (mt)**	**At-sea Set-aside a/(mt)**	**IFQ Allocation (mt)**	**Non-trawl Allocation (mt)**
2025	576	70	506	481	70	411	25
2026	582	70	512	486	70	416	26
South of 34° 27′ N. lat							
Year	**ACL (mt)**	**Set-aside (mt)**	**HG (mt)**	**Trawl Allocation (mt)**	**At-sea Set-aside (mt)**	**IFQ Allocation (mt)**	**Non-trawl Allocation (mt)**
2025	240	2	238	50	0	50	188
2026	242	2	240	50	0	50	190

a/Amount based on a status quo at-sea set aside of 70 mt that may change based on Council action, the other options are 50 and 100 mt, however, that change only impacts the IFQ allocation

.

Table 37. Alternative 2. Shortspine thornyhead trip limit options for North of 34° 27′ N. lat. trip limit options under Alternative 2 P* 0.45.

Option	Sector	Trip Limit	Landing Projection (mt)	Est. Total Landings (mt)	Est. Discard Mortality Range Min. and Max 2018-2022 Values (mt)	Est. Total Mortality Range (mt)	% of the 2025 Non-trawl Allocation N. of 34º 27′ (25 mt)
Status Quo: Option 1	OAN	50 lb/ month for all periods	0.8	31	1.5-9.7 *Average: 4.0*	32.5-40.7 Average: 35.0	130%-163% Average: 140%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	50 lb/month for all periods	2.3				
	LEN	2,000 lb/2 months for periods 1-3	7.2				
		2,500 lb/2 months for periods 4-6					
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	2,000 lb/2 months for periods 1-3	20.7				
		2,500 lb/2 months for periods 4-6					
Option 2	OAN	50 lb/2 months for all periods	0.3	28.1	1.5-9.7 *Average: 4.0*	29.9 mt-37.8 Average: 32.1	120%-151% Average: 128%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	50 lb/2 months for all periods	0.6				
	LEN	1,500 lb/ 2 months for all periods	6.6				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	1,500 lb/ 2 months for all periods	20.6				

Option	Sector	Trip Limit	Landing Projection (mt)	Est. Total Landings (mt)	Est. Discard Mortality Range Min. and Max 2018-2022 Values (mt)	Est. Total Mortality Range (mt)	% of the 2025 Non-trawl Allocation N. of 34º 27′ (25 mt)
Option 3	OAN	40 lb/2 months for all periods	0.3	25.8	1.5-9.7 *Average: 4.0*	27.3-35.5 Average: 29.8	109%-142% Average:119%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	40 lb/2 months for all periods	0.5				
	LEN	750 lb/2 months for all periods	6.2				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	750 lb/2 months for all periods	18.8				
Option 4	OAN	Option 2	0.3	23.1	1.5-9.7 *Average: 4.0*	24.6-32.8 Average: 27.1	98%-131% Average: 108%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	Option 2	0.5				
	LEN	500 lb/2 months for all periods	5.9				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	500 lb/2 months for all periods	16.4				
Option 5	OAN	Option 2	0.3	19.7	1.5-9.7 *Average: 4.0*	21.2-29.4 Average: 23.7	85%-118% Average: 95%
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	Option 2	0.5				
	LEN	350 lb/2 months for all periods	5.2				
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	350 lb/2 months for all periods	13.7				

4. Alternative 3

Under Alternative 3, the only alternative HCR considered is for California quillback rockfish.

1. Quillback Rockfish: OFL 8.41, ABC:ACL 5.06

4.1 Impact (Groundfish Mortality)- Species of Concern

4.1.1 California Quillback Rockfish

Under Alternative 3, the HGs based on an ACL 5.06 mt (Agenda Item E.2.a, Supplemental CDFW Report 2), is 4.96 mt. The Council did not clarify if this value was to be applied to 2026; however, the analysis assumes it would be in order to facilitate a complete impact assessment. An HG of 4.96 mt represents the upper range of 2025 harvest specifications.

As shown in Table 38. The Alternative 3 2025-26 California quillback rockfish HGs are approximately 3.8mt and 3.6 mt higher than the Alternative 1 and Alternative 2 HGs — noting there is a negligible difference between the Alternative 1 and Alternative 2 HG.

Table 38. Alternative 3: Comparison of Alternative 1 and Alternative 2 harvest guidelines for California quillback rockfish in 2025-26.

	Alt 1 HG(mt)	Alt 2 HG (mt)	Alt. 3 HG (mt)	Difference (mt) Alt 3 to Alt 1	Difference (mt) Alt 3 to Alt 2
2025	1.16	1.2	4.96	+3.8	+3.76
2026	1.37	1.4.	4.96	+3.59	+3.56

The GMT was tasked to provide removal (i.e., mortality) assumptions for the current harvest specification cycle (i.e., removals for 2023-24) by the Council (Agenda Item E.2.a Supplemental GMT Report 1 November 2023). The removal projection for 2024 was made under the assumption that there would be no retention of quillback rockfish in 2024. The GMT did not make any assumptions as to other fishery changes. To this end the GMT quillback rockfish mortality projections from the nearshore sector was 1.75 mt prior to any area management, gear restrictions, or reduction to trip limits of co-occurring species.

The GMT predicted OA fixed gear discards to be 5.32 mt which initiated the need for area management, gear restrictions, and reduction to trip limits of co-occurring species, all of which were taken as part of the inseason actions in 2023 listed above in the No Action and Alternative 1 section of this document. Based on previous GMT reports (Agenda Item G.8.a Supplemental GMT Report 2 September 2023, Agenda Item G.8.a Supplemental GMT Report 5 September 2023, Agenda Item E.2.a Supplemental GMT Report 1 November 2023, and Agenda Item E.9.a Supplemental GMT Report 1 November 2023) the GMT indicated that the prohibition of quillback rockfish statewide, moving the shoreward boundary of the Non-Trawl RCA to the state boundary line from 42° N. lat. to 36° N. lat., and the prohibition of lingcod/other flatfish shoreward of the seaward boundary of the NT-RCA from 42° to 36° N. lat would effectively reduce quillback

rockfish OA discards and allow the nearshore fishery to persist as it were at the start of 2023 with the expectation of prohibiting the retention of quillback rockfish.

Noting the difference in 5.06 mt to the projected nearshore mortality of 1.75 mt (likely high as it does not account for the changes to the Non-Trawl RCA) could also allow for the recreational sector to persist with the remaining 3.31 mt and allow California more opportunity for nearshore state permitted participants in federal and state waters. By allowing the nearshore to operate as it were in 2022 the action would generate $1,708,732 lost ex-vessel revenue to the inseason action taken in 2023 (Table 39).

Table 39. 2018-2023 Ex-vessel revenue from nearshore landings excluding quillback rockfish from 42° N. lat. to 36° N. lat. Data: PacFIN

	2018	2019	2020	2021	2022	2023
42° - 36° N. lat.	$1,047,870	$1,195,907	$938,452	$1,245,102	$1,708,732	$1,156,036

5. Alternative 4

To reach zero fishing mortality for quillback rockfish (F = 0) in the commercial fixed gear sector, the majority of non-trawl trip limits would need to either be reduced or scaled to 0. Additionally, the EEZ off of California would need large area restrictions. As mentioned above quillback rockfish are targeted in the nearshore fishery by participants who possess a state limited entry deeper nearshore permit. However, quillback rockfish are incidentally caught while targeting other species using fixed gear and must be discarded at sea. The GMT has written extensively on the catch of this stock off of California in multiple reports, which are incorporated by reference and summarized, as appropriate below (Agenda Item G.8.a, Supplemental GMT Report 2, September 2023, Agenda Item G.8.a, Supplemental GMT Report 5, September 2023, Agenda Item E.9.a, Supplemental GMT Report 1, November 2023).

Quillback rockfish are a demersal nearshore rockfish primarily found off California between 42° N. lat. and 36° N. lat. in depth ranging from 20fm to 50fm but can be encountered in any depths shoreward of 75fm to the intertidal (Love et al, 2002; Agenda Item E.9.a, Supplemental GMT Report 1, November 2023). Due to targeting, discards, and the range of the species, the following trip limits and area closures may reduce commercial fixed gear mortality of quillback rockfish close to 0. However, due to the uncertainty surrounding the life history and environmental factors F = 0 is unlikely. Further, this stock is incidentally caught in non-groundfish fisheries as well as in trawl fisheries, which adds additional weight to the unlikelihood of an F=0 rebuilding strategy. One other issue is these trip limits would apply only in the EEZ. California would need trip limits of comparable levels to ensure F=0 in state waters. It is important to note, regardless of where the stock is caught or by what gear, all catch counts against the ACL. Given the intertidal nature of this stock, it could be caught from shore as well.

The Council adopted a series of trip limit modifications for 2024 in March 2024 (Agenda Item which were designed to reduce impact on this stock north of 37°07′ N. lat. While these measures may ultimately prove useful in reducing catch of California quillback, they were not contemplated for a F= 0 scenario. In order to achieve an F=0, areas shoreward of the deepest depth suspected for quillback rockfish off of California would need to be closed to groundfish fishing for all gear types. Data show in Agenda Item G.8.a, Supplemental GMT Report 2, September 2023, Agenda Item G.8.a, Supplemental GMT Report 5, September 2023 indicates this depth is around 75 fm. However, these fish have been found at depths up to 150 fm (Love et al, 2002; Miller and Lea, 1972), though notably these records are from off of Alaska. Therefore, the 75fm depth line is an estimate, it is likely due to the uncertainty of the depth range of this stock off of California that deeper depth restrictions may need to be considered

To attempt an F=0 scenario and given the potential range of California quillback, a conservative approach to trip limits would need to be made. Under Alternative 4, groundfish trip limit changes 42° N. lat. and 36° N. lat. shoreward of 75fm for both LE and OA would need to be reduced to 0 lbs per trip period. Additionally, there would be no gear exemptions as non-bottom contact gear reduces impacts to demersal species like quillback rockfish but does not eliminate mortality. These

actions would need to be concurrent with actions in state waters to reduce mortality close to F = 0.

Trip Limit Reductions from 42° N. lat. and 36° N. lat. shoreward of 75fm for both LE and OA.

Minor shelf rockfish
- Reduce trip limits to 0 lbs./ 2 months

Widow rockfish
- Reduce trip limits to 0 lbs./ 2 months

Yellowtail rockfish
- Reduce trip limits to 0 lbs./ 2 months

Canary rockfish
- Reduce trip limits to 0 lbs./ 2 months

Yelloweye rockfish
- Reduce trip limits to 0 lbs./ 2 months

Greenling
- Reduce trip limits to 0 lbs./ 2 months

Chilipepper
- Reduce trip limits to 0 lbs./ 2 months

Bocaccio
- Reduce trip limits to 0 lbs./ 2 months

Lingcod
- Reduce trip limits to 0 lbs./ 2 months

Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder
- Reduce trip limits to 0 lbs./ month

Other Flatfish
- Reduce trip limits to 0 lbs./ 2 month

Minor Nearshore Rockfish (deeper and shallow)
- Reduce trip limits to 0 lbs./ 2 months

Cabezon
- Reduce trip limits to 0 lbs./ 2 months

Quillback Rockfish
- Maintain the prohibition on retention of quillback rockfish in Federal waters off California in all commercial groundfish fisheries for 2024.

The cost of eliminating fixed gear nearshore, shelf, and lingcod from 42° N. lat. and 36° N. lat. shoreward of 75fm for both LE and OA as defined in the trip limits above would have detrimental economic impacts for 21 ports, and 216 vessels which could be a loss in seven hundred thousand pounds and $2.4 million in ex-vessel revenue per year if we assume fishing under the 2022 fishing season structure. Over the rebuilding timeline of Ttarget of 2045 that would be a total of $50.4 million in lost ex-vessel revenue. This economic loss does not take into account the loss of that

revenue to the communities, nor does it take into account the devaluation of any permits that would not be able to be used. The only opportunity remaining would be on the slope which could experience localized depletion as the effort will be concentrated on those species. Even if these drastic measures were adopted by the Council further closures of other federally and non-federally managed fisheries would need to be considered which have contributed de minimis quillback rockfish mortality in the past (see § Chapter 1, §5.2). These may include directed Pacific halibut, LE sablefish, catch share bottom trawl, research, incidental, hake, California halibut, and pink shrimp. The rebuilding plan to follow will describe in detail the economic impact but in summary the closures listed above to reduce fishing mortality to near zero would effectively eliminate all California fisheries where quillback rockfish are known to exist.

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Chapter 6. Washington Recreational Fisheries

Executive Summary

The Washington recreational fishery consists of vessel-based private and charter, and a small shore-based sectors. Primary catch controls include season dates, depth closures, daily limits, and GCAs. The recreational season opens the second Saturday in March and closes the third Saturday in October. The aggregate groundfish bag limit is nine fish per day which includes sub-limits of seven rockfish, two lingcod, and one cabezon plus five additional flatfish species, not including Pacific halibut, which may be retained in addition to the nine groundfish daily limit. Yelloweye rockfish is the only rebuilding species caught in the Washington recreational fishery.

Management measures implemented in the previous biennial cycle (2023-2024) for vermilion rockfish, copper rockfish, and quillback rockfish will persist for the 2025-2026 management cycle to keep catch within state specific HGs. Retention of these species will again be prohibited May 1 through July 31. As a management measure, the partial season closure balances the need to keep fishery catch from exceeding the state specific HG with the need for data to inform stock assessments; because Washington does not have a nearshore commercial fishery, the recreational fishery is the sole source of fishery dependent data.

Canary rockfish management presents a new constraint compared to 2023-2024. Under No Action (2023), without additional measures, the projected mortality for 2025 for canary rockfish is expected to exceed the state recreational HG of 17.3. Alternative 1 Default HCR evaluates projected canary rockfish mortality under a range of sub-bag limit (within the seven rockfish daily limit) options. Although access to canary rockfish was eased slowly in Washington once the stock was declared rebuilt in 2016, catch data suggest anglers were targeting canary in recent years. Options that included temporal (e.g., month) prohibitions on canary rockfish retention solely or in combination with sub-bag limits were also evaluated. Existing area-based restrictions are maintained under both the No Action (2023) Alternative and Alternative 1 Default HCR. However, to reduce retention of canary rockfish, new area-based recreational fishing closures used in conjunction with or as alternate tools to bag limits may be contemplated during the remainder of the 2025-2026 harvest specifications process.

Impacts to species other than canary rockfish depend on the management measure(s) implemented. For example, sub-bag limits on canary rockfish may increase retention of other species like yellowtail rockfish or black rockfish, whereas area closures could limit access to not only canary rockfish but also yellowtail rockfish and lingcod. Inseason action or mid-biennial regulation changes may be necessary if actual mortality exceeds projections even with a sub-bag limit or area/depth closure/restriction. Washington's management and regulatory processes can react quickly through emergency changes to state regulations if inseason catch reports indicate that recreational harvests risk exceeding ACLs, HGs, or ACTs

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1. No Action

The Washington recreational fishery is comprised of vessel-based private and charter, and a smaller shore-based sectors. Primary target species include rockfish, mainly black rockfish and yellowtail rockfish and lingcod. Pacific halibut anglers also impact recreational groundfish species, including yelloweye rockfish and canary rockfish. Primary catch controls include season dates, depth closures, daily limits, and GCAs, including Yelloweye Rockfish Conservation Areas (YRCAs). Yelloweye rockfish is the only rebuilding stock caught in the Washington recreational fishery. The purpose of the YRCA depth restrictions on the recreational fishery has been to direct fishing effort to shallower areas where yelloweye rockfish encounters and mortality of discarded fish are lower. YRCAs are the main management measures for reducing catches of this stock. Under the No Action (2023), Washington recreational fishery ACLs include a 66 mt ACL for yelloweye rockfish, with management to an associated HG of 9.8 mt and an ACT of 7.68 mt (Table .

In addition to reducing encounters with yelloweye rockfish, there has been a parallel need to shift catch away from some nearshore and shelf rockfish species (i.e., copper, quillback, and vermilion rockfishes) and black rockfish to ensure recreational catch does not exceed Washington state specific HGs. Management measures implemented in previous biennia to reduce impacts on nearshore rockfish, including relaxed depth and area restrictions were successfully used to shift groundfish effort away from the nearshore. The No Action (2023) alternative would maintain deepwater fishing opportunity. The 2023 yelloweye rockfish HG was sufficient to balance these competing needs.

The West Coast states coordinate to track and manage catches of Nearshore Rockfish north of 40°10′N. lat. If harvest levels in Washington approach 75 percent of the state-specific HG the state of Washington will consult with the other West Coast states and determine if inseason action is needed. In the event inseason action is needed, WDFW will make changes through state regulation.

Table 1. No Action (2023) – Washington Recreational. Harvest guidelines (HG) in metric tons (mt) for the Washington recreational fisheries in 2023.

Species	2023 HG (mt)
Canary Rockfish	41.4
YELLOWEYE ROCKFISH	9.8 (7.68 ACT)
Black Rockfish	271.8
Nearshore Rockfish Complex	18.3
Washington Cabezon/Kelp Greenling Complex	17.8

1.1 Groundfish Seasons and Area Restrictions

1.1.1 Season Structure

Washington Department of Fish and Wildlife (WDFW) manages the Washington recreational fishery by four areas as shown in Figure . To achieve management objectives, each area may be

managed under different seasons (either by month or species) and depth restrictions. Under No Action (2023), the Washington recreational season is open from the second Saturday in March through the third Saturday in October. Table 2 summarizes key features of the Washington recreational regulations under No Action (2023).[1] Depth restrictions are the primary tool used to keep recreational mortality of yelloweye rockfish within specified ACTs. Yelloweye rockfish abundance and incidence is higher on the north coast (Marine Areas 3 and 4) compared to the south coast (Marine Areas 1 and 2). Thus, restrictions on the north coast constrain anglers to shallower water whereas on the south coast fishing deeper is allowed because there the incidental catch of yelloweye rockfish is lower.

North Coast (Marine Areas 3 and 4)
The retention of groundfish is prohibited seaward of a line approximating 20 fathoms from June 1 through July 31, except lingcod, Pacific cod, sablefish, bocaccio rockfish, silvergray rockfish, canary rockfish, widow rockfish, and yellowtail rockfish, may be retained seaward of 20 fathoms on days that Pacific halibut fishing is open. In addition, yellowtail rockfish and widow rockfish retention are allowed seaward of 20 fathoms in July (Table 2).

South Coast (Marine Area 2)
The retention of lingcod is prohibited seaward of 30 fathoms from May 1 through May 31, except lingcod retention is allowed on days open to the all-depth Pacific halibut fishery. Fishing for, retention, or possession of lingcod is prohibited in deepwater areas seaward of a line extending from 47° 31.70' N. latitude, 124° 45.00' W. longitude to 46° 38.17' N. latitude, 124° 30.00' W. longitude except on days open to the Pacific halibut fishery and from June 1 through 15 and September 1 through 30 (Table 2).

Columbia River (Marine Area 1)
Retention of sablefish, flatfish other than Pacific halibut, Pacific cod, yellowtail rockfish, widow rockfish, canary rockfish, redstripe rockfish, greenstriped rockfish, silvergray rockfish, chilipepper rockfish, boccaccio, blue/deacon rockfish, and lingcod north of the Washington – Oregon border is allowed with Pacific halibut onboard during the Pacific halibut fishery. Additionally, fishing for, retention, or possession of lingcod in deepwater areas seaward of a line extending from 46° 38.17' N. latitude, 124° 21.00' W. longitude to 46° 33.00' N. latitude, 124° 21.00' W. longitude is prohibited except from June 1 through June 15 and September 1 through September 30 (*Table 2

[1] March 8, through October 18, 2025 and March 14 through October 17, 2026.

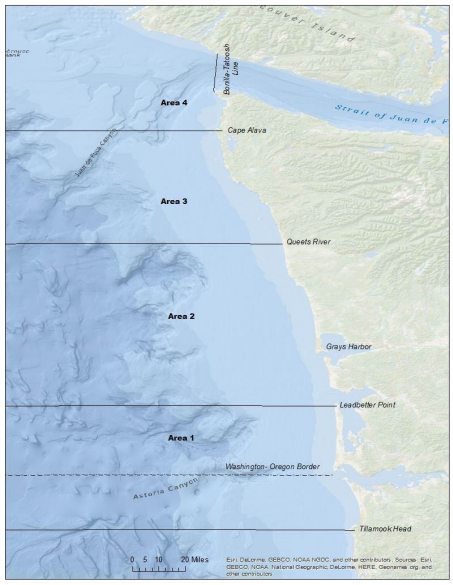

Figure 1. No Action (2023) – Washington Recreational Management Areas.

1.1.2 Area Restrictions

See Season Structure section for details of lingcod restrictions the South Coast and Columbia River marine areas (Figure). Fishing for, retention, or possession of groundfish and Pacific halibut is prohibited in the C-shaped YRCA to protect yelloweye rockfish (Figure 2).

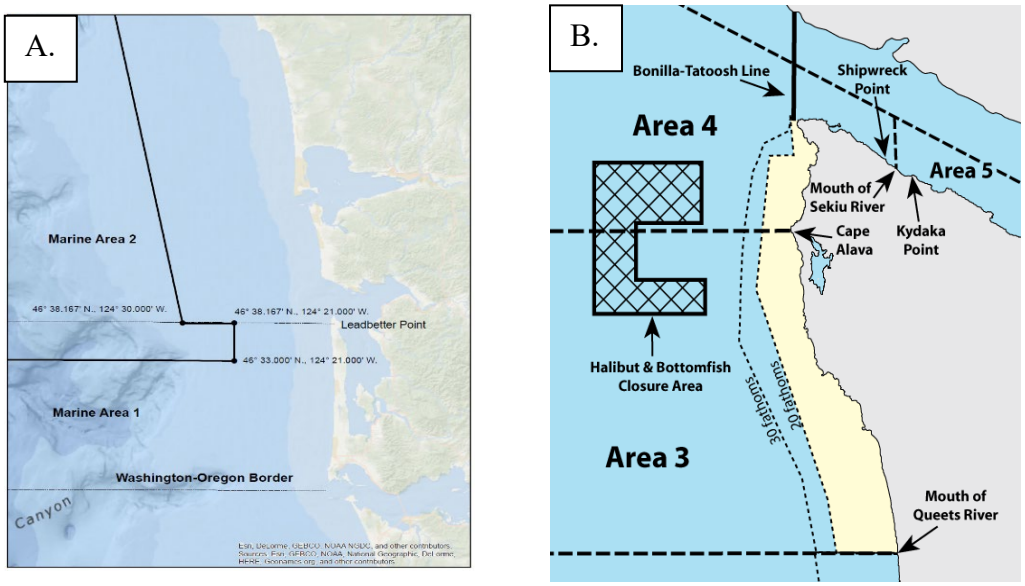

Figure 2. No Action (2023) – Washington recreational area restrictions. Lingcod depth restrictions, South Coast (Marine area 2) and Columbia River (Marine area 1). B. No Action (2023) – Washington recreational area restrictions. C-Shaped YRCA, North Coast (Marine areas 3 and 4).

1.1.3 Groundfish Daily Limits

Under No Action (2023), the recreational groundfish bag limit is nine fish per day. Of the nine recreational groundfish allowed to be landed per day, sub-bag limits of seven rockfish, two lingcod, and one cabezon apply in Marine Areas 1-4. Five flatfish, not including Pacific halibut, can be retained in addition to the nine groundfish daily limit. Retention of yelloweye rockfish is prohibited. Retention of copper, quillback, and vermilion rockfishes is prohibited May 1 through July 31.

Quillback and copper rockfishes are managed in the Nearshore Rockfish Complex north of 40° 10' N. lat. and vermilion rockfish is managed in the Shelf Rockfish Complex north of 40° 10' N. lat. Under No Action (2023) all three stocks will be managed to species and state specific HGs. The objective of setting species-specific HGs within the Complex is to reduce total mortality in relation to the best scientific information available in current stock assessments. The purpose of the state specific HGs is to buffer against exceeding Complex ACLs.

Table 2. No Action – Washington Recreational seasons and groundfish retention restrictions.

Marine Area	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3 & 4 (N. Coast)	BF Closed		BF Open a/			BF Open < 20 fm a/ b/c/		BF Open			BF Closed	
2 (S. Coast)	BF Closed		BF Open d/e/								BF Closed	
1 (Col. River)	BF Closed		BF Open f/ g/								BF Closed	

a/ Retention of copper, quillback, and vermilion rockfishes prohibited May 1 through July 31.

b/ Retention of lingcod, Pacific cod, sablefish, bocaccio, silvergray rockfish, canary rockfish, widow rockfish, and yellowtail rockfish allowed >20 fm on days when Pacific halibut is open June 1 through July 31.

c/ Retention of yellowtail and widow rockfishes is allowed >20 fm in July.

d/ From May 1 through May 31 lingcod retention prohibited >30 fathoms except on days that the primary Pacific halibut season is open.

e/ When lingcod is open, retention is prohibited seaward of a line drawn from Queets River (47°31.70' N. Lat. 124°45.00' W. Lon.) to Leadbetter Point (46° 38.17' N. Lat. 124°30.00' W. Lon.), except on days open to the primary Pacific halibut fishery and June 1 – 15 and September 1 - 30.

f/ Retention of sablefish, Pacific cod, flatfish (other than halibut), yellowtail, widow, canary, redstripe, greenstriped, silvergray, chilipepper, bocaccio, and blue/deacon rockfishes allowed during the all-depth Pacific halibut fishery. Lingcod retention is only allowed with halibut on board north of the WA-OR border.

g/ Retention of lingcod is prohibited seaward of a line drawn from Leadbetter Point (46° 38.17' N. Lat., 124°21.00' W. Lon.) to 46° 33.00' N. Lat., 124°21.00' W. Lon. year round except lingcod retention is allowed from June 1 - June 15 and Sept 1 - Sept 30.

1.1.4 Inseason Management Response

The precision of recreational groundfish catch estimates or projections based on previous seasons are influenced by factors such as the duration and success of salmon, Pacific halibut, and albacore seasons, weather, and any other unforeseen factors. However, WDFW has an effective and thorough monitoring system through the Ocean Sampling Program (OSP) which produces bottomfish estimates by marine area monthly with a one-month lag time. Further Washington's management and regulatory processes can react quickly to the need for additional depth

restrictions, area closures, groundfish retention restrictions, or changes to seasons through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished species or non-overfished species are exceeding pre-season projections to the point where HGs, ACTs, or ACLs are at risk of being exceeded.

In 2023, no inseason action was taken to keep catch within state specific HGs. No species exceeded state specific HGs under No Action (2023) except vermilion rockfish.

1.2 Impact (Groundfish Mortality)

Final mortality estimates for overfished and non-overfished species under No Action (2023) are summarized in Table 3. The estimates presented in Table 3 reflect final 2023 total mortality through the end of the season. Fishing effort under No Action (2023) was similar to 2021 and 2022 and indicates perhaps further stabilizing following the impact of the COVID-19 pandemic.

The final 2023 yelloweye rockfish mortality estimate of 4.3 mt compared to a state HG of 10.4 mt. (Washington also manages yelloweye to an ACT of 7.8 mt) is consistent with the cautious approach to achieving the twin objectives of protecting yelloweye rockfish and expanding deepwater opportunity. The final canary rockfish estimate for 2023 indicates that anglers have transitioned to fishing strategies that incorporate or target canary rockfish, particularly on the south coast (Marine Area 2) when accessing deepwater lingcod, although total mortality (22.1 mt) fell well below the 2023 harvest guideline (41.4 mt). This signifies that anglers are comfortable retaining canary rockfish after more than fifteen years during which retention was either prohibited or limited by small daily sub-bag limits (i.e., one canary rockfish in 2017 and two canary rockfish in 2018) and access limited by previously closed YRCAs (i.e., South Coast YRCA and Westport Offshore YRCA) or depth restrictions (e.g., 30 fm closure line). Under No Action (2023) the Pacific halibut season continued to be significantly longer compared to pre-pandemic years (2020-2021) spanning parts or fully the months of May, June, August, and September depending on the coastal area. As a consequence, 44 percent of canary rockfish mortality occurred during halibut and halibut/salmon trip types compared to 40 percent in 2019 when the halibut season spanned May and June. These two trip types also accounted for 60 percent of yelloweye rockfish mortality compared to 55 percent in 2019.

Under No Action (2023), the estimated mortality for copper rockfish (1.4 mt) and quillback rockfish (1.7 mt) were below their respective HGs of 1.9 mt and 2.2 mt. The total mortality for vermilion rockfish, 0.87 mt, exceeded the harvest limit set at 0.7 mt. An analysis of catch shows that 28 percent of the season total was caught in May or the first month non-retention rules were in effect. In response, WDFW increased angler outreach to reduce vermilion rockfish catch. The outreach efforts resulted in reducing retention of vermilion rockfish in June to approximately half of the May catch. Overall, the majority of vermilion rockfish (88 percent) were caught in Marine areas 3 and 4, with 47 percent caught on Pacific halibut and salmon/halibut combination trips.

Table 3. No Action – Washington recreational mortality estimates (mt) for 2023. Source: RecFIN, March 2023

Stock	2023 Estimated Mortality (mt)
Canary Rockfish	22.1
YELLOWEYE ROCKFISH	4.3

Stock	2023 Estimated Mortality (mt)
Black Rockfish	158.6
Lingcod	186.9
Nearshore Rockfish	5.6
Yellowtail Rockfish	88.1
Vermilion Rockfish	0.87
WA Cabezon/Kelp Greenling	9.9
Cabezon	8.7
Kelp Greenling	1.2

2. Alternative 1

The primary driver of management of Washington recreational fisheries in 2025 and 2026 will be the state specific HGs for canary rockfish. Tools to structure recreational seasons such that fishing mortality of canary rockfish does not exceed harvest limits may include partial season or monthly closures similar to the non-retention of copper rockfish, quillback rockfish, and vermilion rockfish in May, June, July, sub-bag limits within the rockfish daily bag limit, or closure of previously established RCAs or other depth based restrictions. Under Alternative 1, a non-exhaustive range of management measure options to reduce total canary rockfish mortality while maintaining the general recreational season structure has been explored. WDFW has not yet completed its public process and may identify additional options for consideration. Otherwise, recreational opportunity will continue to be structured through depth restrictions to reduce encounters with yelloweye rockfish, allow access to other species such as lingcod and yellowtail rockfish (targets of the deepwater fishery), and ease pressure on black rockfish.

Under Alternative 1, yelloweye rockfish would be managed to a 56 mt ACL in 2025 and a 57 mt ACL in 2025. The Washington recreational yelloweye rockfish HG would be 10.8 mt in 2025 and 11.0 mt in 2026 and the fishery managed to an ACT of 8.5 and 8.6 mt in 2025 and 2026, respectively (Table 4). Component species of the Nearshore Rockfish N of 40° 10′ N. lat. complex will be managed to their state-specific HGs.

Under Alternative 1, potential increases to sablefish north of 36° N lat. recreational set asides in 2025 and 2026 will make more sablefish available to the Washington recreational fishery. Total mortality estimates from the Washington recreational fishery are not available for this species at present. Historical and current WDFW catch estimation procedures do not produce a species-specific total mortality estimate for sablefish but instead this species is categorized and reported as Unidentified Fish in RecFIN. However, sablefish have been and are identified to species in dockside angler intercept interviews. An internal estimate of sablefish mortality for 2023 is 7.3 mt (using the ratio of sablefish to total unidentified from the interview data applied to the expanded total mortality as reported in RecFIN). The WDFW Ocean Sampling Program has begun revising estimation procedures to produce estimates to species which will support generating catch projections in the future

The West Coast states coordinate to track and manage catches of Nearshore Rockfish north of 40°10′ N. latitude (Table 4). If harvest levels in Washington approach 75 percent of the state-specific HG for species within the Nearshore Rockfish North 40°10′ N. latitude HG complex, the state of Washington will consult with the other West Coast states and determine if inseason action is needed. In the event inseason action is needed, WDFW will make changes through state regulation.

Table 4. Alternative 1 – Washington Recreational. Harvest guidelines (HG) in metric tons (mt) for the Washington recreational fisheries.

Species	HG (mt)	
	2025	**2026**
Canary Rockfish	17.3	17.4
Black Rockfish	226.0	222.6
YELLOWEYE ROCKFISH	10.8 (ACT = 8.5)	11.0 (ACT = 8.6)
Nearshore Rockfish North of 40° 10′ N. lat.	17.5	17.1
WA Cabezon/Kelp Greenling	17.4	14.7
WA Vermilion Rockfish North of 40° 10′ N. lat.	0.60	0.58

2.1 Groundfish Seasons and Area Restrictions

2.1.1 Season Structure

Same as No Action (2023), except for canary rockfish retention allowances.

North Coast (Marine Areas 3 and 4)
Groundfish retention allowances or restrictions are the same as under No Action (2023) except for canary rockfish.

South Coast (Marine Area 2)
Groundfish retention allowances or restrictions are the same as under No Action (2023) except for canary rockfish.

Columbia River (Marine Area 1)
Groundfish retention allowances or restrictions are the same as under No Action (2023) except for canary rockfish.

2.1.2 Area Restrictions

Under Alternative 1, area restrictions would be the same as under No Action (2023) for the C-shaped YRCA (Figure 1), i.e., fishing for, retention, or possession of groundfish and Pacific halibut is prohibited to protect yelloweye rockfish.

In contrast with No Action (2023), implementing additional RCAs may be contemplated to ensure harvest specifications are not exceeded. This may include repurposing two established YRCAs to address canary rockfish (i.e., Southcoast YRCA and Westport Offshore YRCA) or identification or evaluation of other areas.

2.1.3 Groundfish Bag Limits

Under Alternative 1, the recreational groundfish bag limit is nine fish per day. Of the nine recreational groundfish allowed to be landed per day, sub limits of seven rockfish, two lingcod, and one cabezon apply in Marine Areas 1-4. Five additional flatfish , not including Pacific halibut, can be retained in addition to the nine groundfish daily limit. Retention of yelloweye rockfish is prohibited. Retention of copper, quillback and vermilion rockfishes is prohibited May 1 through July 31. Alternative 1, compared to No Action, maintains the same daily limit structure except for

canary rockfish. WDFW is considering management measures including sub-bag limits for canary rockfish.

2.2 Management Measures Under Consideration

Management measures are intended to make progress toward reducing catch of copper, quillback, vermilion, and canary rockfishes acknowledging new information from recent stock assessments but that also allow for retention, to varying degrees, in order to maintain an important data flow for future stock assessments and provide stability to Washington recreational fisheries.

Under Alternative 1, Alternative 1, the canary rockfish HG is 17.3 mt for 2025 and 17.4 mt for 2026. Initial analysis during the harvest specification process compared these HGs to a preliminary projected mortality of 29.6 mt under No Action (2023) or status quo management measures. This projected mortality is the average of final canary rockfish total mortality in 2022 (37.1 mt) and 2023 (22.1 mt). Likewise, the preliminary canary rockfish mortality under each sub-bag option is also an average of 2022 and 2023. Following further analysis and in consideration of stakeholder input during Council and Washington public meetings, going forward, evaluation of management options are compared to 22.1 mt as status quo. This change reflects the expectation that fishery dynamics in 2025 and 2026 are more likely to resemble 2023. In contrast, the projected status quo mortality (29.6 mt) assumed a scenario in which catch was not static but increased in the next biennia. Thus, the final projections for options developed here assume similar groundfish fishery and season dynamics in 2023 will persist in the next biennium although these cannot account for factors such as salmon seasons, Pacific halibut seasons, weather, economic drivers, changes in angler target strategies and catch rates.

2.2.1 Option 1. Sub-bag Limit and Retention Restrictions

Under Alternative 1, sub-bag limit options for canary rockfish were analyzed to reduce total mortality to the state-specific preliminary HG of 17 mt. Without additional measures, projected mortality for 2025-2026 for this species is expected to exceed the state recreational HG. A range of sub-bag limits for canary rockfish were analyzed from a one to a six fish sub-bag limit (Table 5). For each sub-bag limit, Table 5 presents both the preliminary estimate of status quo projected catch (29.6 mt) and the final estimate of status quo projected catch (22.1 mt) and the corresponding estimates of mortality. In addition, a range of options prohibiting retention by month as well as options that combined sub-bag limits and partial season closures that serve as proxies for depth restrictions were applied to both the preliminary status quo and final status quo projected catch estimates for evaluation (Table 6).

Considering only the final projected mortality (22.1 mt) for status quo, the sub-bag options range from a 5 percent reduction with a 6-fish sub-bag limit for canary rockfish to 71 percent reduction with a 1-canary rockfish sub-bag limit (Table 5). In 2022, approximately 84 percent of the annual total mortality can be attributed to rockfish bag limits of five, six or seven canary rockfish taken by 28 percent of recreational anglers. In 2023, approximately 71 percent of the year's total mortality can be attributed to bag limits of five, six, or seven canary rockfish taken by 26 percent of recreational anglers. This angling behavior is consistent with management measures implemented in prior biennia during which depth restrictions and YRCAs were incrementally relaxed and/or removed. As noted above, depth restrictions and the area closures were the primary tools used to minimize encounters with yelloweye rockfish and canary rockfish. These changes

opened deepwater fishing opportunities to target lingcod, yellowtail rockfish, and canary rockfish; total mortality for all three species increased from 2021 through 2023 (Table 7). The sub-bag limit analysis assumes angler behavior will change in response to a decrease in the number of canary rockfish that could be retained daily. If, contrary to stakeholder input, angler targeting of canary rockfish expands to a greater percentage of participants (that is more than one-quarter to one-third of effort) or otherwise there continues to be targeting of canary rockfish at sub-bag limits below six fish (or lower) then the projected savings may be less than estimated under the final analysis using 22.1 mt status quo catch projection.

Projected mortality under the options that prohibit canary retention by month(s) is reduced by 61 percent (prohibiting retention May 1 – July 31) to 32 percent (June only) compared to No Action (2023) projected mortality (i.e., 22.1 mt; Table 5). Options that combine a sub-bag limit and restricted retention by month and/or fishery reduced projected mortality to a lesser extent compared to No Action (2023).

Table 5. Preliminary projected mortality (mt) for analyzed canary rockfish under a range of sub-bag limit sub-options for the Washington recreational fishery under Alternative 1.

Sub-bag Options	Projected Mortality (mt)	Final analysis Projected Mortality (mt)
7 (Status Quo)	29.6	22.1
6	27.5	20.9
5	24.4	18.8
4	20.7	16.4
3	16.6	13.5
2	12.2	10.2
1	7.1	6.4

Table 6. Preliminary projected mortality (mt) for canary rockfish under a non-exhaustive range of options prohibiting retention by month(s) or in combination with a sub-bag limit for the Washington recreational fishery under Alternative 1.

Non-retention by Month and Sub-bag Options	Preliminary Projected Mortality (mt)	Final Projected Mortality (mt)	Description
Prohibit canary retention May 1 - July 31	12.4	**22.1**	Aligns with Copper, Quillback, Vermilion non-retention
Allow canary rockfish retention through June 30, close to retention if needed through inseason action	16.7	8.6	Open with full canary rockfish retention, track landings, close by emergency regulation, most challenging due to lag in receiving catch estimates
Prohibit canary rockfish retention, August 1-October 31	18.8	13.6	Aligns with late season Pacific halibut (and salmon if open) to reduce retention in these fisheries

Non-retention by Month and Sub-bag Options	Preliminary Projected Mortality (mt)	Final Projected Mortality (mt)	Description
Prohibit canary rockfish retention, June 1- June 30	20.2	14.3	Closes peak month
2-Canary rockfish sub-bag limit, May 1-31	26.1	15.0	Small sub-bag limit, May only
2-Canary sub-bag limit only on days open to Pacific Halibut, May 1-31	27.1	19.1	Small sub-bag limit, on Pacific halibut days in May only
Close September and October	22.9	17.44	Closes end of season
Close June and September for Deepwater Lingcod	13.7	10.49	Proxy for depth restriction

Table 7. Washington recreational total mortality (mt) of lingcod, yellowtail rockfish, and canary rockfish, 2021-2023.

Year/Species	2021	2022	2023
Lingcod	173.4	158.9	186.9
Yellowtail rockfish	61.5	68.6	88.1
Canary rockfish	39.5	37.1	22.1

2.2.2 Inseason Management Response

Washington's inseason management response process under Alternative 1 is the same as described under No Action (2023).

2.3 Impact (Groundfish Mortality)

Projected mortality for overfished and non-overfished species under the No Action (2023) Alternative are summarized in Table 8. If necessary, state emergency regulations and inseason action can be taken to address higher than anticipated impacts.

In the past, low yelloweye rockfish HGs drove the need for restrictive management measures such as depth restrictions. Higher ACLs, HGs and ACTs for yelloweye rockfish from 2019 through 2023 have allowed depth restrictions to be eased and this increased access to healthy, deepwater stocks like lingcod and canary rockfish. Management measures analyzed under Alternative 1 for 2025 and 2026 reflect new information regarding canary rockfish and are focused on options that reduce total mortality.

Under Alternative 1, the projected mortality analysis for canary rockfish in 2025 and 2026 uses the catch from 2023 to estimate mortality. Should angling behavior and fishery dynamics differ or shift substantially such that early season mortality is higher than anticipated, management measures implemented at the outset of the season may not reduce impacts to canary rockfish as expected. If determined in sufficient time, inseason actions can be taken to address this situation.

Alternatively, management measures may curb harvest or influence angler behavior such that canary rockfish mortality is less than expected. WDFW examination of canary rockfish recreational data by angler trip type and management marine area demonstrated that catch was highly dominated by the charter vessel sector (Agenda Item F.5.a WDFW Supplemental Report 1, March 2024). Charter operations may experience disproportionate reductions in effort if potential customers are dissuaded from booking trips based on a perception of reduced value resulting from lowered sub-bag limits or other management measures.

2.3.1 All Marine Areas (1 – 4)

Canary rockfish estimated mortality under Alternative 1 is projected at 22.1 mt. However, this estimate is consistent with No Action (2023) management measures. As discussed above (in New Management Measures), WDFW is investigating a canary rockfish sub-bag limit, and/or area closures, and/or depth restrictions to lower anticipated total mortality. Impacts to other species depend on the management measure(s) implemented. For example, sub-bag limits on canary rockfish may increase retention of other species like yellowtail rockfish or black rockfish, noting that the Washington black rockfish will see HGs in 2025 and 2026 (226 and 223 mt, respectively) decrease 16-18 percent compared to the 2024 HG (271 mt). Area closures could limit access to not only canary rockfish but also healthy stocks of yellowtail rockfish and lingcod. Inseason action or mid-biennial regulation changes may be necessary if actual mortality exceeds projections even with a sub-bag limit or area/depth closure/restriction.

Table 8. Projected Mortality (mt) for the Washington Recreational fishery, 2025- 2026.

Stock	2025-2026 Projected Catch (mt)	2025 HG	2026 HG
Canary Rockfish	22.1	17.3	17.4
YELLOWEYE ROCKFISH	4.3	10.4 (ACT = 8.2)	10.6 (ACT = 8.3)
Black Rockfish	158.6	226.0	222.6
Nearshore Rockfish North of 40° 10′ N. lat.	5.6	17.0	16.5
Vermilion Rockfish	0.9	0.6	0.6
Washington Cabezon/Kelp Greenling	9.9	17.4	14.7

3. Alternative 2

Under Alternative 2, alternative HCRs are considered for California quillback rockfish, shortspine thornyhead, and Dover sole. The Washington recreational fisheries either does not impact those species (i.e., California quillback rockfish) or encounters them rarely (i.e., shortspine thornyhead and Dover sole). Therefore, Under Alternative 2, the fishery would operate under the same ACLs and associated Washington recreational HGs and ACTs and the same management approach as Alternative 1 .

4. Alternative 3

The Washington recreational fisheries neither encounters nor impacts. California quillback rockfish) Therefore, Under Alternative 2, the fishery would operate under the same ACLs and associated Washington recreational HGs and ACTs and the same management approach as Alternative 1 .

5. Alternative 4

The Washington recreational fisheries neither encounters nor impacts. California quillback rockfish) Therefore, Under Alternative 2, the fishery would operate under the same ACLs and associated Washington recreational HGs and ACTs and the same management approach as Alternative

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Chapter 7. Oregon Recreational Fishery

Executive Summary

Groundfish mortality impacts were analyzed for the 2025-26 Oregon recreational fishery. Under all alternatives, the Oregon recreational fishery would be open year-round at all-depths with the following bag limits: 10 for general marine fish, three for lingcod, 25 for flatfish (other than Pacific halibut), and 12 for longleader gear species. Mortality estimates include groundfish caught on bottomfish fishing trips, as well as all other fishing trips (Pacific halibut, salmon, etc.). The key differences in the harvest specifications alternatives that impact the Oregon recreational fishery are the ACL contribution of black rockfish to the Oregon black/blue/deacon rockfish complex and the canary rockfish ACL allocated to the Oregon recreational fishery.

The state-specified Oregon recreational share of the black rockfish ACL contribution to the complex ACL is projected to be exceeded under Alternative 1. This finding will necessitate decreasing the marine fish bag limit inseason, or in state rule, to reduce impacts to stay within the state-specified share, depending on how the state commercial nearshore catch is proceeding towards that sector's share.

The Oregon recreational share of the canary rockfish coastwide non-trawl HG is projected to be exceeded, under Alternative 1. Unlike black rockfish, canary rockfish are caught in both the longleader and traditional bottomfish fisheries. To stay within the canary rockfish Oregon recreational fishery HG, establishing a sub-bag limit for canary rockfish in the longleader fishery and/or a reduction to the marine fish bag limit inseason, or in state rule, may be necessary to reduce impacts and stay within the Oregon recreational HG.

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1. No Action

Major sectors within the Oregon recreational fishery include bottomfish (groundfish), salmon, Pacific halibut and albacore fisheries. Primary groundfish target species include black rockfish, lingcod and yellowtail rockfish. Primary catch controls for the Oregon recreational fishery are season dates, depth closures, bag limits, and GCAs (including YRCAs), all of which are tools used to keep catch within state-specific quotas and Federal HGs/ACLs. The values shown in the analysis for all alternatives are the shares based on 2024 recreational and commercial sharing percentages in Oregon State Regulations (OAR 635-039-0090).

1.1 No Action Management Measures

The No Action management measures during 2023 were all taken through state regulations and adopted by the OFWC or done inseason through the state process. Bag limit changes include increasing the longleader (see longleader fishery section below) bag limit from a 10-fish bag limit per day to 15 on March 1, and decreasing the bag limit back down to 10-fish per angler on September 5, in response to canary rockfish impacts approaching the Oregon harvest guideline. Other state regulations that are more conservative than federal regulations include a marine daily bag limit of five (instead of 10) and a limit of two lingcod per angler (instead of three). Oregon specific recreational management measures are detailed within the OAR 635-039-0090 and are incorporated by reference.

1.2 Groundfish Seasons and Restrictions

1.2.1 Season Structure

The Oregon recreational groundfish fishery was open at all depths year-round with no depth restrictions in place. Beginning in 2023, the seasonal depth restriction was removed, and the recreational fishery has been open at all depths year-round. Prior to 2023, the seasonal depth restriction had been slowly phased out since 2017. In 2022 it was open year-round except for July and August and in 2021 the depth restriction was in place from June through August (in state regulations) when fishing was only allowed shoreward of 40 fathoms, as defined by waypoints in regulation at 50 CFR 660.71. Closing the fishery deeper than 40 fathoms during the summer months, the period of highest angler effort and yelloweye rockfish encounters, mitigated mortality of yelloweye rockfish. However, shallow depth restrictions increased encounters, and associated mortality impacts, with black rockfish, cabezon and nearshore rockfish complex species

1.2.2 Groundfish Bag limits

- 10 for marine fish, three for lingcod,
- 25 for flatfish (other than Pacific halibut), and
- 12 for longleader gear species.
- Retention of quillback rockfish has been prohibited.
- Cabezon retention is prohibited from January through June, with a sub-bag limit of 1-fish daily beginning July 1.

Longleader Fishery

The longleader gear (Holloway Gear) was approved for use in the Oregon recreational fishery by the Council in 2016 and implemented in federal regulations in 2018[1] (660.351, 660.360(c)(2)(1)(B), and 660.360(c)(2)(iii)(B)). The regulation allows the use of the gear outside of the 40-fathom regulatory line April through September. Longleader, or Holloway Gear, is designed to fish off the bottom, in the water column to target prolific midwater rockfish stocks, while avoiding yelloweye rockfish, a rebuilding stock. The gear requires no more than three hooks, at least 30 feet between the sinker on the bottom and the lowest hook, and a non-compressible float above the hooks (NMFS 2018). The term "longleader" denotes the unusual lengths of line (< 30 feet) between the lowest hook and the weight deployed on rod and reel sportfishing gear.

The gear is also legal gear in areas and times open to sport bottomfish in Oregon. It is also prohibited to combine a longleader gear trip with a "regular" bottomfish trip. Retention was also limited to 10 species of midwater rockfish in state regulation; and retention of lingcod was specifically prohibited. All of these regulations were put into place to limit interactions with yelloweye rockfish.it: The longleader bag limit for rockfish was increased in federal regulations from 10 to 15-fish per angler on January 26, 2023. On March 1, 2023, the new 15-fish bag limit was approved in state regulations and remained at 15-fish per angler until reducing the bag limit back down to 10 fish on September 5, 2023, to keep from exceeding the canary rockfish HG. During the November 2023 Council meeting, Council recommended decreasing the recreational longleader bag limit in federal regulations from 15 to 12-fish per angler (88 FR 83354).

1.2.3 Size Limits

The Oregon recreational fishery has two size limit restrictions in place for groundfish species. Lingcod have a minimum size limit of 22 inches, and cabezon have a minimum size of 16 inches.

Pacific Halibut Seasons

In response to higher Pacific halibut (halibut) quotas since 2019, days open for anglers to target halibut offshore have increased. In 2018 the Central Oregon Coast subarea was open at all-depth halibut fishing for a total of 20 days, for 2023 this number increased to 165 days. The additional days for anglers to fish offshore for halibut (or bottomfish) is one of the contributing factors that has led to an increase of petrale sole and sablefish caught by anglers in recent years (Table 2)

1.3 Inseason Management Response

The west coast states are responsible for tracking and managing catches of species in the Nearshore Rockfish complex north of 40°10' N. lat. A state-specific HG, also called a share, is calculated for each of the component stocks. This HG is not a federal regulation but is under state regulation. The state-specific HG is used by the states to track impacts of the recreational fishery on its estimated contribution to the complex. Within state regulations, determined by the Oregon Fish and Wildlife Commission (OFWC), the Oregon nearshore rockfish component stock HG is further divided for the state commercial and recreational fisheries. If harvest levels in Oregon approach 75 percent of the state-specific informal HG (Table), the state of Oregon will consult with the other west coast states to determine whether inseason action is needed.

[1] https://www.govinfo.gov/content/pkg/FR-2018-03-29/pdf/2018-06316.pdf

Oregon has a robust port-based monitoring program through the Ocean Recreational Boater Survey[2] (ORBS) which allows the ODFW to closely monitor groundfish mortality inseason. The ORBS program is designed to support timely inseason management. Groundfish estimates are made monthly, with preliminary estimates available within 10 days of the end of the month. Final estimates are made monthly on a month lag. However, for key species such as black rockfish and cabezon, preliminary, and sometimes raw, data is examined weekly allowing ODFW to make any necessary inseason adjustments in a timely manner.

In the event inseason action is needed to stay within Oregon recreational HGs or shares, the state of Oregon would take action through state process and regulation which can be done in a timelier manner (one to three days) than through the Council process. Any inseason action taken by the state would be more restrictive than what is in the federal regulations, to keep mortality within the Oregon recreational limits. Inseason updates would be provided to the Council at the September and November meetings, inseason action is most likely to occur during the high effort summer months between the June and September meetings.

The state can take inseason action to reduce impact on groundfish when applicable. Inseason management tools, designed to mitigate mortality, include bag limits (including sub-bag limits and non-retention), size limits, and time, area, depth, and gear restrictions. These management options are the primary inseason tools for keeping total impacts within the Oregon recreational sector-specific harvest targets for groundfish. The inseason action is dependent upon the timing to determine the need.

In the event of a recreational groundfish fishery closure due to attainment of Federal or state HGs for the more nearshore rockfish species such as black rockfish, as in 2004 and 2017, flatfish fisheries will remain open to provide some opportunity to anglers. Further, specific gear and depth restrictions (i.e., longleader gear) may be implemented in the event that midwater rockfish fishing remains open during a nearshore rockfish closure.

[2] https://www.dfw.state.or.us/mrp/salmon/docs/ORBS_Design.pdf

1.4 Impacts (Groundfish Mortality)

The estimated total recreational fishery mortality in 2023 is provided as at the complex level in Table , and to the species level in Table 2. The nearshore rockfish complex exceeded the recreational state-specific share of 15.8 mt by 0.5 mt. No inseason changes were necessary as the nearshore commercial fishery was tracking below their state-specific share of 16.6 mt, thus the Oregon HG was not exceeded. The No Action Oregon recreational estimated mortality for stocks with HGs or state quotas shown in Table

Table 1. No Action. Oregon recreational Federal harvest guidelines (HG) or state quotas under the No Action (mt), estimated total mortality (mt), and percent attainment for 2023. Source: RecFIN

Stock	HG or State Quota	Estimated Total Mortality	Percent Attainment
Oregon Black/Blue/Deacon Rockfish Complex [a/]	457.9	346.5	75.7%
Canary Rockfish [b/]	62.3	56.9	91.3%
Oregon Cabezon/Greenlings Complex [c/]	51.4	34.6	67.3%
Nearshore Rockfish Complex North of 40°10' N Lat. [d/]	15.8	16.3	103.2%
YELLOWEYE ROCKFISH [b/]	7.0	4.0	57.1%

a/ The state process in Oregon establishes the commercial and recreational quotas for black, blue, and deacon rockfish. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations.
b/ Federal HG are established for canary rockfish and yelloweye rockfish and should be included in Federal regulation.
c/ Includes kelp and other greenlings. Kelp greenling accounts for over 99 percent of the landings. The state process in Oregon establishes the commercial and recreational quotas for greenlings and cabezon. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations.
d/ Blue and deacon rockfish are not part of the nearshore rockfish complex in Oregon, they are part of a complex with black rockfish. The state process in Oregon establishes commercial and recreational quotas for nearshore rockfish complex species. The Oregon federal HG is 32.4 mt, of which the recreational fishery is allocated 15.8 mt through state regulations.

Table 2. No Action 2018-2023 mortality, in metric tons, of the most common landed species in the Oregon recreational fishery, including black rockfish, lingcod and species caught in the longleader fishery. This table represents recent mortality under similar season structure and bag limits to what will be in place under No Action.

Species	2018	2019	2020	2021	2022	2023	Average
Oregon Black/Blue/Deacon Rockfish [a/]	306.7	337.5	355.1	358.4	432.8	346.5	356.2
Black Rockfish	293.0	319.3	334.7	339.3	408.8	312.5	334.6
Blue/Deacon Rockfish	13.7	18.4	20.5	19.2	23.9	34.0	21.6
Lingcod north of 40° 10′ N lat.	215.6	164.8	165.2	147.5	196.4	190.2	180.0
Nearshore Rockfish north of 40° 10′ N lat.	21.6	18.5	12.6	10.9	14.2	16.3	15.7
Quillback Rockfish	9.5	8.5	5.4	4.6	4.0	4.9	6.2
Copper Rockfish	9.4	7.3	4.8	4.2	6.5	7.5	6.6

Species	2018	2019	2020	2021	2022	2023	Average
China Rockfish	2.6	2.5	2.1	1.8	3.1	3.3	2.6
Brown Rockfish	0.0	0.1	0.2	0.1	0.3	0.4	0.2
Grass Rockfish	0.0	0.1	0.0	0.0	0.1	0.1	0.1
Oregon Cabezon/Greenling [a/]	35.3	37.5	36.2	33.8	40.4	34.6	36.3
Cabezon	13.8	16.4	14.4	12.1	17.2	12.9	14.5
Kelp Greenling	21.6	21.1	21.7	21.6	23.2	21.7	21.8
Canary Rockfish	43.6	38.7	60.6	39.9	55.7	56.9	49.2
Widow Rockfish	7.4	5.3	5.8	3.5	4.2	8.2	5.7
Yellowtail Rockfish north of 40° 10′ N lat.	35.6	30.4	38.4	27.9	51.7	83.2	44.5
Vermilion Rockfish [b/]	9.2	9.3	8.9	5.9	5.9	4.1	7.2
YELLOWEYE ROCKFISH	4.0	5.0	6.0	3.3	5.2	4.0	4.6
Petrale Sole	2.6	2.5	4.1	2.5	3.9	4.5	3.4
Sablefish north of 36° N lat.	2.2	2.1	4.0	1.0	1.9	4.6	2.6

a/ New complex beginning 2019.
b/ Part of the Shelf Rockfish complex north of 40° 10′ N lat.

A key component when estimating projected mortality is incorporating total angler trips into the projection model. Since 2015, the recreational fishery has averaged over 100,000 bottomfish angler trips per year, with an estimated peak of 116,633 in 2022 (Table 3). Under No Action, bottomfish angler trips are expected to remain at or above 100,000 angler trips per year.

Table 3 Oregon estimated bottomfish angler trips by year and mode (charter vs private) along with estimated longleader angler trips, 2014-2023. Source: RecFIN

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average
Charter Angler Trips	41,544	50,635	49,900	51,714	55,014	49,891	41,075	52,013	51,464	46,796	49,005
Private Angler Trips	35,824	57,913	46,397	51,334	54,754	50,226	62,350	47,497	65,169	55,170	52,664
Long-leader Trips [a/]	NA	NA	NA	NA	5,090	2,690	2,818	2,520	4,588	5,919	3,936
Total	77,365	108,551	96,305	103,050	109,770	100,117	103,425	99,510	116,633	101,966	101,669

a/ Additional analysis necessary to estimate longleader angler trips. Longleader trips are included within the bottomfish trip type for RecFIN and MORG estimates

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2. Alternative 1

Alternative 1 describes and analyzes the impacts from default HCR ACLs. Under those defaults, the Oregon recreational HGs or presumed state quotas are those presented in Table 4. As described under the No Action, the primary catch controls for the Oregon recreational fishery are season dates, depth closures, bag limits, and GCAs, including YRCAs.

The west coast states are responsible for tracking and managing catches of nearshore rockfish north of 40°10' N. lat., as described in Chapter 1 §1.5.7. The Oregon black/blue/deacon rockfish complex ACL, and associated presumed state-specified HG for the recreational fishery decreases from 457.9 mt in 2023 to 325.9 mt in 2025 and 329.5 in 2024 (Table and Table 4). For yelloweye rockfish, the Federal HG increases from 7.0 mt in 2023 to 7.4 mt in 2025 and 7.6 mt 2026, as the yelloweye rockfish HG continues to increase, restrictions implemented into the fishery to avoid yelloweye rockfish have been removed. Therefore, Oregon black/blue/deacon rockfish and nearshore rockfish will be the constraining species that drive the Oregon recreational fishery in terms of the season structure and bag limits. The HGs for Oregon recreational fisheries for the nearshore rockfish complex and black rockfish would be state-specified shares and not established in Federal regulations (Table 4). In the event inseason action is needed to keep mortality of these complexes the state manages within the values in Table 4, the state of Oregon would take action through state regulation (OAR 635-039-0090) via authority through ORS 506.755 Fisheries Conservation Zones. Inseason updates would be provided by ODFW to the Council at the September and November meetings to provide information on how the fishery is progressing and impacts are tracking compared to the state specific HGs. The highest effort and catch months are the summer months, which fall in between the June and September Council meetings.

Table 4. Alternative 1. Oregon recreational Federal harvest guidelines (HG) in metric tons (mt), or state quotas under the Alternative 1 (mt).

Stock	2023 HG (mt)	2025 HG (Percent of 2023)	2026 HG (Percent of 2023)
Oregon Black/Blue/Deacon Rockfish Complex [a/]	457.9	325.9 (71%)	329.5 (72%)
Canary Rockfish [b/]	65.1	26.0 (40%)	26.1 (40%)
Oregon Cabezon/Greenling Complex [c/]	51.4	49.2 (96%)	48.6 (95%)
Nearshore Rockfish Complex North of 40°10' N. lat. [d/]	15.8	14.6 (92%)	14.3 (91%)
YELLOWEYE ROCKFISH	7.0	7.4 (106%)	7.6 (109%)

a/ The state process in Oregon establishes the commercial and recreational quotas for black, blue, and deacon rockfishes. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations.

b/ Federal HGs are established for canary and yelloweye rockfish and should be included in Federal regulation

c/ Includes kelp and other greenlings. Kelp greenling accounts for over 99 percent of the landings. The state process in Oregon establishes the commercial and recreational shares for the cabezon/greenling OR Complex. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations

.d/ Blue and deacon rockfish are not part of the nearshore rockfish north complex in Oregon, they are part of a complex with black rockfish. The state process in Oregon establishes commercial and recreational quotas for nearshore rockfish complex species. The values are the recreational share based on the 2023 recreational and commercial sharing percentages in Oregon state regulations.

2.1 Groundfish Seasons and Restrictions

2.1.1 Season Structure

Under Alternative 1, the Oregon recreational groundfish fishery season and depth restrictions would be the same as described under No Action with the exceptions noted in Table 5. Given the higher yelloweye rockfish HG, the season structure and bag limit (Table 5) for 2025-2026 are designed to balance impacts to black and nearshore rockfish species while staying within their respective HGs, along with the yelloweye rockfish HG. Projected mortality of yelloweye rockfish is within the Federal HGs, therefore the seasonal depth restriction remains unnecessary.

Table 5. Alternative 1 – Oregon recreational groundfish season structure and bag limits under Alternative 1. Bold indicates changes from No Action.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bottomfish Season	Open all depths											
Marine Bag Limit [a/]	Ten (10)											
Longleader Bag Limit [b/]	**Twelve (12); sub-bag of five canary rockfish**											
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [c/]	Twenty-Five (25)											
Sablefish Bag Limit	**Ten (10)**											

a/ Marine bag limit is 10 fish per day and includes all groundfish species other than lingcod, salmon, steelhead, Pacific halibut, flatfish, surfperch, sturgeon, striped bass, pelagic tuna, and mackerel species, and bait fish such as herring, anchovy, sardine, and smelt; of which no more than one may be cabezon.
b/ Longleader fishing must take place seaward of the 40-fathom regulatory line with the following rockfish allowed for retention: blue, bocaccio, canary, chilipepper, deacon, greenstriped, redstripe, silvergray, widow, and yellowtail rockfishes.
c/ Flounders, soles, sanddabs, turbots, and halibuts except Pacific halibut.

2.1.2 Groundfish Bag Limits

For Alternative 1, two changes to the federal bag limits, shown in Table 5 in bold font, 1) adjustments to longleader fishery bag limit and 2) a new bag limit for sablefish.

Longleader fishery: The longleader bag limit would be 12-rockfish per angler, which is the same as under No Action. However, due to the reduction in the canary rockfish recreational HG, Alternative 1 includes a change from No Action. Under Alternative 1, a sub-bag of five canary rockfish per angler is considered a necessary reduction to mitigate the decrease in the coastwide ACL for canary rockfish. The Oregon recreational fishery had an allocation of 62.3 mt of canary rockfish in 2023 (Table); however, the recreational allocations in 2025 and 2026 are expected to be 26.0 and 26.1 mt, respectively. A further reduction may be necessary inseason to stay within the Oregon recreational HG of canary rockfish.

Sablefish: Under Alternative 1, establishing a separate recreational sablefish bag limit from the general marine fish bag limit is considered. Sablefish encounters and catches have increased in all

sectors (including the Oregon recreational fishery) as larger recruitment classes of sablefish have entered into the different fisheries. Sablefish are not a targeted species in the recreational fishery, averaging 2.6 mt of total mortality annually since 2018 (Table 2), though they are encountered during offshore Pacific halibut fishing trips and/or offshore longleader trips.

Recreational anglers off Oregon are allowed to retain sablefish during a longleader trip. However, under current regulation (see No Action) the sablefish bag limit is part of the general marine bag limit (no more than 10), which is smaller than the longleader bag limit (12). Sablefish, at present, must count as part of the 12-fish longleader bag limit. Removing sablefish from the marine bag and creating a new sablefish bag limit of 10 avoids regulatory complexity as anglers would then be allowed to retain 10 sablefish in addition to the 12-fish longleader bag limit. Additionally, a 10-fish sablefish bag limit allows anglers to retain more sablefish in conjunction with the longleader bag limit. This measure will likely decrease regulatory discards and provide an additional opportunity for recreational anglers that fish offshore. There is no quantifiable change in projected total mortality of sablefish with a 10-fish bag limit, as sablefish are not encountered often in the recreational fishery.

2.1.3 Size Limits

Same as No Action.

Pacific Halibut Seasons

Same as No Action.

Inseason Management Response

The same inseason response as described under No Action. Oregon state regulations will be put in place to avoid exceeding state quotas or HGs, as appropriate.

2.2 Impact (Groundfish Mortality)

The annual projected mortality presented in Table 5 is a point estimate generated by the Model of Oregon Recreational Groundfish (MORG), the Oregon recreational model approved by the SSC, given the season structure and bag limits detailed above. The point estimate indicates that the expected actual value has a 50 percent chance of being over the projected value, and a 50 percent chance of being under the projected value. Inseason changes will be implemented when necessary to keep impacts below the state-specified HG.

The Oregon black/blue/deacon rockfish complex will be the most influential in terms of setting the season structure. The marine daily bag limit has been as low as four and as high as 10 in state regulations since 2018 to allow anglers the opportunity to harvest bottomfish without exceeding state-specified HGs. Modeling of the proposed season structure (Table 5) estimates total impacts for the complex to be within the state-specified Oregon recreational HG for the complex. However, the black rockfish mortality is estimated to be above the state-specified black rockfish share of the black rockfish contribution to the complex (299.5 mt mortality; 317.9 mt share; Table 6).

Midwater longleader recreational groundfish fishing is designed to target midwater species (yellowtail and widow rockfish), while avoiding or minimizing interactions with overfished rockfish species and encouraging anglers to fish offshore to disperse angling from the nearshore

reefs. Interest in the longleader fishery has increased since its inception, with an estimated new high of 5,911 longleader trips in 2023, likely in response to the 15-fish longleader bag limit put in place for much of 2023 (Table 7). Table 6 includes estimates of projected mortality of bottomfish from all recreational fishing trip types, including the longleader trips.

Table 6. Alternative 1 – Oregon Recreational. 2025 Projected Mortality (mt) and associated HG (mt) of Oregon recreational species under Alternative 1. Projections modeled with a four-fish marine bag in state rule.

Stock	2025 Projected Mortality (mt)	2025 HG (mt)
YELLOWEYE ROCKFISH	5.6	7.2
Black/Blue/Deacon Rockfish OR [a/]	317.9	325.9
Cabezon/Greenlings [b/]	39.4	49.2
Lingcod North of 40° 10' N Lat.	208.1	-
Nearshore Rockfish North of 40° 10' N. lat.	12.0	14.6
Canary Rockfish [c/]	48.0	26.0
Yellowtail Rockfish	83.5	-
Widow Rockfish	11.3	-
Sablefish north of 36° N. lat.	4.0	-

a/ Black rockfish = 299.5, blue/deacon rockfish = 18.4 mt
b/ Includes kelp and other greenlings
c/ Canary rockfish sub-bag of 5 in the longleader fishery
"-" indicates no specified Oregon recreational HG (part of the Non-Trawl allocation)

2.3 Management Measures

Two management measures were analyzed for the Oregon recreational fisheries: incorporating a new sub-bag limit for canary rockfish in the longleader gear fishery and providing additional opportunity for anglers to harvest sablefish.

Longleader

Incorporating a sub-bag limit for canary rockfish in the longleader gear fishery will likely not cause any increase or decrease to the number of longleader angler trips, as the bag limit will remain at 12 (higher than the 10-fish bag limit that was in place for the 2023-2024 harvest specifications, though lower than the 15-fish bag limit approved inseason for 2023). This measure may increase canary rockfish discard, and increase impacts on yellowtail and widow rockfishes. Ideally, if anglers are encountering canary rockfish, they will move to avoid them. The longleader fishery peaked in 2023, with an estimated 5,919 angler trips (Table 7).

Table 7. Annual number of angler trips for traditional bottomfish, longleader, and all-depth Pacific halibut targeted trips in Oregon.

Year	Traditional Bottomfish Trips	Longleader Trips [a/]	All-Depth Halibut Trips	Total
2014	77,365	N/A	12,517	89,882
2015	108,551		14,870	123,421
2016	96,305		16,963	113,268
2017	103,050		16,445	119,495
2018	105,194	5,090	15,468	125,752
2019	97,966	2,690	12,992	113,648
2020	101,019	2,818	15,274	119,111
2021	97,807	2,520	9,677	110,004
2022	113,411	4,588	15,992	133,991
2023[/]	96,047	5,919	17,951	119,917
10-yr AVG.	99,482	3,936	14,815	118,233

a/ Additional analysis necessary to estimate longleader angler trips. Longleader trips are included within the bottomfish trip type for RecFIN and MORG estimates.

2.3.1 Impact to Groundfish and Salmon Species

Since its inception in 2018, the longleader gear fishery has caught primarily midwater rockfish species, as intended with very little bycatch Table 8 and Table 9). Yellowtail, widow, and canary rockfishes are the three main species caught and account for 96 to 99 percent of the longleader rockfish landed annually. Yelloweye rockfish accounted for less than one percent of total fish encountered each year (0.1 to 0.6 percent in 2018-2023). Canary rockfish accounted for an average of 20 percent of total fish encountered since 2018, with a low of 15.5 percent in 2023. A sub-bag of five (or fewer) canary rockfish may not lower the encounter rate, but it will lower total mortality and encourage anglers to fish farther offshore or on different reefs.

Table 8. Total number of landed and released of the twenty most common species, plus Chinook and coho, from only longleader gear trips in 2018-2020.

Species	2018		2019		2020	
	Landed	Released	Landed	Released	Landed	Released
YELLOWEYE ROCKFISH	-	31	7	84	-	54
Yellowtail Rockfish*	20,993	169	9,663	294	8,694	193
Widow Rockfish*	6,298	34	3,092	19	2,424	19
Canary Rockfish*	6,032	33	3,768	9	5,594	24
Blue Rockfish*	-	52	-	-	3	-
Bocaccio*	362	4	263	5	35	-
Chilipepper Rockfish*	-	-	32	26	4	4
Deacon Rockfish*	7	72	309	19	76	9
Greenstriped Rockfish*	25	63	7	40	2	6
Redstripe Rockfish*	24	242	33	17	4	4
Silvergray Rockfish*	30	-	13	-	49	-
Black Rockfish	-	26	21	10	-	4
Quillback Rockfish	4	-	3	-	-	15
Rockfish Unid	27	10		58	-	-
Albacore Tuna	60	-	192	-	158	-
Jack Mackerel	5	13	50	-	-	-
Lingcod	-	45	14	55	-	51
Pacific Mackerel	53	64	26	-	4	4
Pacific Whiting	0	176	38	-	3	12
Sablefish	66	15	-	5	-	-
Chinook Salmon	10	2	-	-	4	-
Coho Salmon	3	10	-	13	-	-

* Longleader species
"-" Indicates no catch

Table 9. Total number of landed and released fish of the twenty most common species, plus Chinook and coho salmon, from only longleader gear trips in 2021-2023 (2023 data through October).

Species	2021		2022		2023	
	Landed	Released	Landed	Released	Landed	Released
YELLOWEYE ROCKFISH	4	35	6	153	-	306
Yellowtail Rockfish*	7,191	230	17,576	557	41,286	476
Widow Rockfish*	1,747	9	2,005	57	5,738	35
Canary Rockfish*	3,750	58	6,051	20	8,760	4
Blue Rockfish*	-	14	10	9	5	-
Bocaccio*	36	-	58	10	131	9
Chilipepper Rockfish*	13	-	-	2	-	6
Deacon Rockfish*	-	-	206	15	283	9
Greenstriped Rockfish*	3	4	4	22	-	10
Redstripe Rockfish*	3	-	17	-	67	-
Silvergray Rockfish*	80	-	5	-	146	-
Black Rockfish	-	-	-	-	89	-
Quillback Rockfish	-	15	-	21	4	48
Rockfish Unid	-	-	-	-	-	-
Albacore Tuna	200	-	123	-	92	-
Jack Mackerel	17	-	3	8	59	-
Lingcod	-	33	-	19	21	60
Pacific Mackerel	61	-	11	-	-	-
Pacific Whiting	-	-	-	-	-	-
Sablefish	-	87	9	-	-	-
Chinook Salmon	-	-	-	6	-	8
Coho Salmon	2	94	-	6	8	19

* Longleader species
"-" Indicates no catch

Yelloweye Rockfish

Over the six years that the longleader gear fishery has been allowed, the encounter rate of yelloweye rockfish has averaged out at 0.06 fish per bottomfish and halibut angler trip (Figure 1); this means that on average there would be one yelloweye rockfish encountered every 16 bottomfish angler trips. The yelloweye rockfish encounter rate peaked at 0.08 fish per bottomfish angler trip in 2020, before dropping down to the lowest (0.05 yelloweye per angler) over the six-year period in 2021. In 2017, the year prior to the longleader fishery being implemented year-round, the encounter rate of yelloweye rockfish was also 0.06 per bottomfish angler trip.

Chinook and Coho Salmon

Similar to yelloweye rockfish, both coho and Chinook salmon encounter rates have not changed in response to the implementation of the longleader fishery. Coho salmon encounter rate remains at about 0.003 fish per trip, and Chinook salmon encounter rate remains at 0.001 fish per angler (Figure).

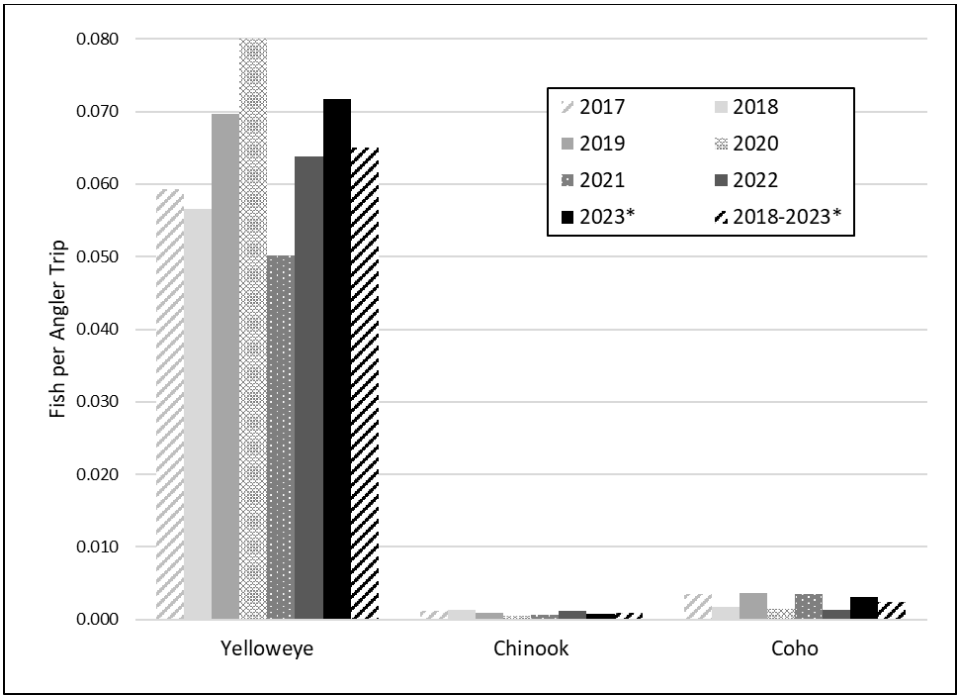

Figure 1. Angler catch-rate of yelloweye rockfish, Chinook salmon, and coho salmon on Oregon bottomfish and Pacific halibut trips, 2017-2023 (data for 2023 is through October).

Sablefish

Anglers encounter sablefish during offshore fishing trips (i.e., Pacific halibut), though many then discard the sablefish. Since 2018, 4,882 sablefish have been landed from recreational anglers off Oregon and a reported 2,267 have been discarded at sea (Table 10). As anglers do not currently target sablefish, there is no quantifiable change in projected total mortality of sablefish with a 10-fish bag limit, as sablefish are not encountered often in the recreational fishery. However, as nearshore fishing opportunities become more restrictive due to recent stock assessments, anglers might find some relief in offshore fishing opportunities. If sablefish is removed from the marine bag limit, and granted a 10-fish bag limit, anglers would have the opportunity to harvest 10 sablefish in addition to the 12-fish longleader rockfish or in addition to the marine bag limit (10-fish in federal regulations). Additionally, if sablefish is removed from the marine bag limit, enforcement and regulation language could be simplified as anglers would no longer have to account for sablefish and reduce the longleader species count to be in compliance with the regulations.

Table 10. Total number of sablefish landed and released during recreational fishing trips off Oregon 2018-2023. Source: RecFIN

Year	Harvested	Discarded at Sea
2018	941	328
2019	837	423
2020	1,231	272
2021	352	162
2022	590	880
2023	931	319
Total	4,882	2,384

3. Alternative 2

Under Alternative 2, alternative HCRs are considered for California quillback rockfish, shortspine thornyhead, and Dover sole. The Oregon recreational fisheries either does not impact those species (i.e., California quillback rockfish) or encounters them rarely (i.e., shortspine thornyhead and Dover sole). Therefore, Under Alternative 2, the fishery would operate under the same ACLs and associated Oregon recreational HGs and ACTs and the same management approach as Alternative 1 .

4. Alternative 3

The Oregon recreational fisheries neither encounters nor impacts. California quillback rockfish) Therefore, Under Alternative 2, the fishery would operate under the same ACLs and associated Oregon recreational HGs and ACTs and the same management approach as Alternative 1

5. Alternative 4

The Oregon recreational fisheries neither encounters nor impacts. California quillback rockfish) Therefore, Under Alternative 2, the fishery would operate under the same ACLs and associated Oregon recreational HGs and ACTs and the same management approach as Alternative 1

Chapter 8. California Recreational Fishery

Executive Summary

Recreational fishing opportunities in California waters are expected to be reduced in 2025 and 2026 in response to an overfished declaration for quillback and to a new full stock assessment for copper rockfish indicating severe declines in California waters (Agenda Item F.2, Attachment2, March 2024). Yelloweye rockfish will continue to constrain fishing opportunities in the recreational fishery. Harvest specifications for California quillback rockfish are expected to be the main limitation for the recreational fishery, especially north of Point Conception. Copper rockfish are expected to constrain the fishery south of Pt. Conception.

A suite of management measures were explored to keep impacts within harvest specifications. Management measure options to reduce quillback and copper rockfish mortality include changes in bag limits. An offshore fishery, which only allows fishing seaward of a RCA boundary line (a.k.a. offshore only fishery) has proven to be an effective tool to minimize impacts to quillback rockfish while providing opportunity to harvest healthy shelf and slope rockfish (Agenda Item E.3.a, Supplemental CDFW Report 1, November 2023). Modifications to season structure or bag limits could apply statewide or in select Management Areas and range from No Action (2023) to no retention of copper rockfish and offshore only fisheries could be used to shift effort away from nearshore waters onto shelf and slope waters.

The options under consideration were designed to maximize the Council's logistical flexibility and are intended to be available for use during the 2025-26 biennial cycle or through routine inseason management adjustments if warranted mid-biennium. The options could apply statewide or in select Management Areas and be combined to create a suite of management measures to take steps to achieve harvest specifications. A different suite of season structure and bag limit options may be chosen for each Management Area to meet needs stemming from biogeographic differences in species distribution, expected angler effort and the needs of fishing communities in each Management Area. If options are combined when choosing preferred season structures, expected impacts for constraining species (quillback, copper, and yelloweye rockfish) should be combined to generate an expectation of total mortality.

There is increased uncertainty with impact projections for offshore fisheries, especially for yelloweye rockfish and cowcod. A robust inseason tracking and monitoring program by CDFW, which has proven successful in prior years to keep impacts within limits, will continue to be used in 2025 and 2026 to further offset uncertainty in model projections and reduce the risk of exceeding harvest specifications.

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1. No Action

No Action (2023) represents the harvest specifications and management measures established for 2023. No Action (2023) is largely used as a comparative tool between the previous cycle and the upcoming 2025-26 biennial cycle. The California recreational groundfish fishery is primarily prosecuted with hook and line gear. Primary groundfish target species include lingcod, nearshore rockfish and shelf rockfish. Primary catch controls for the CA recreational fishery are season dates, depth closures, bag limits, and GCAs (including YRCAs), all of which are tools used to keep catch within state-specific quotas and Federal HGs/ACLs. These items are detailed below. Additionally, California manages recreational fisheries within five districts (Figure 1). California recreational fishery HGs are dispersed to the fishery as either a shared component of the non-trawl HG or are specified as a HG under the non-trawl HG (e.g., bocaccio south of 40° 10' N. lat., canary rockfish, and yelloweye rockfish). The No Action (2023), fishery HGs specific to the California recreational sector are shown in (Table).

Model projections used to calculate fishery impacts for the five recreational groundfish management areas incorporate the RecFIN estimates from 2017 through 2019 and January 2021 through October 2021 recreational fishery was used as the base years, with post-model adjustments to incorporate catch data from the 2022 and 2023 fisheries. Impacts of the COVID-19 pandemic in 2020 resulted in incomplete catch estimates for the year and these data are not included in model projections. Major inseason action changes to bag limits and season structures related to projected overages of the quillback rockfish OFLs north and south of 40° 10' N latitude occurred in 2023. These inseason actions are discussed in Area Restrictions and Bag Limit Sections.

Table 1. No Action (2023) – 2023 California-specific recreational harvest guidelines (HG) and shares in metric tons (mt) .

Stock	2023/ California Recreational HGs/shares (mt)
Bocaccio South of 40º10' N lat.	755.6
Canary rockfish	116.7
Cowcod South of 40º10' N. lat.	22.0
Yelloweye rockfish	11.6

1.1 Groundfish Seasons and Area Restrictions

1.1.1 Groundfish Management Areas

Under No Action (2023) the California recreational fishery is managed by five management areas bounded north and south by lines of latitude. The management areas, north to south are Northern, Mendocino, San Francisco, Central, and Southern (Figure 1).

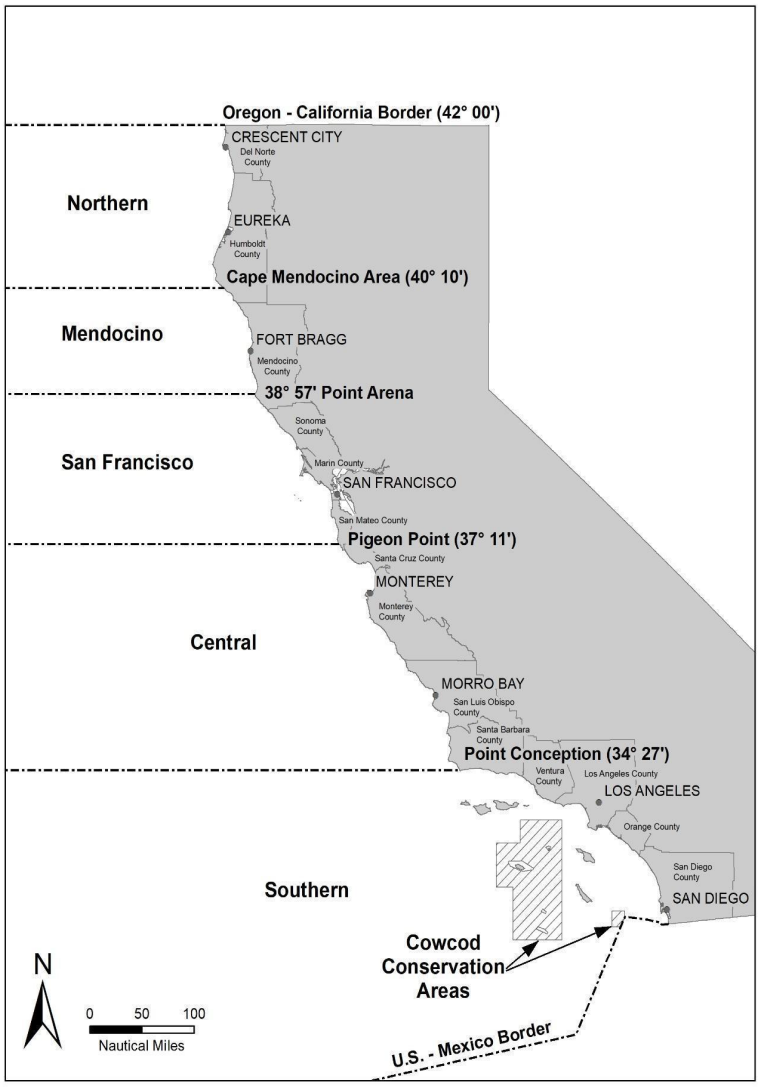

Figure 1. No Action (2023). Recreational Groundfish Management Areas in California.

1.1.2 Season Structure

Under No Action, the California season structure and depth constraints for the five groundfish management areas off California (Figure 1) are detailed in Table 2. Table 2 shows the original 2023 season structure as adopted by the Council.

Table 2. No Action (2023). 2023 California recreational groundfish season structure before inseason actions.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Oct 15 All Depth					Oct 16- Dec 31 Closed		
Mendocino	Closed				May 15 – Jul 15 > 50 fm		Jul 16- Dec 31 All Depth					
San Francisco	Closed				May 15 – Jul 15 > 50 fm		Jul 16- Dec 31 All Depth					
Central	Closed				May 1 - Sep 30 All Depth					Oct 1- Dec 31 >50 fm		
Southern	Closed			Apr 1- Sep 15 All Depth						Sep 16- Dec 31 > 50 fm		

The 2023 recreational fishery started with the management measures specified in final action (PFMC 2023-2024 Harvest Specifications and Management Measures) for the 2023-24 harvest specifications and management measures; however, due to concerns over quillback rockfish off of California, the Council adopted regulatory modifications to reduce impacts on that stock at the September 2023 Council meeting. Those measures are specified in Agenda Item G.8.a Supplemental GMT Report 2, September 2023. Additionally, California implemented numerous inseason actions in state waters prior to Council inseason actions to reduce impacts on quillback rockfish. As discussed in Agenda Item G.8.a CDFW Report 1, September 2023 and CDFW Report 2, mortality of quillback rockfish statewide was tracking close to the federally set harvest limits, and CDFW issued a press release to prohibit retention of quillback rockfish in the recreational and commercial fisheries effective August 7, 2023. Despite this first action encounters in the recreational fishery continued, and at increased frequency.

Based on data available through August 6, 2023, it was determined quillback mortality for the area north of 40°10' N. lat. had been met, and CDFW issued a press release announcing the closure of the nearshore fishery for the Northern GMA (OR/CA border to 40°10' N. lat.) effective August 21 to shift angling opportunity/effort to the 'offshore only' fishery (seaward of the 50 fathom RCA boundary line) to limit encounters with quillback rockfish. Recreational fishery data available through August 13, 2023 for the area south of 40°10' N. lat. indicated a sudden increase in encounters of quillback rockfish for the week of August 7-13 that doubled the projected catch, and it was determined the harvest limit was likely to have been met. CDFW issued a press release on August 21 announcing the same action that was taken in the Northern GMA to close of the nearshore fishery for the Mendocino GMA (40°10' N. lat. – 38° 57.5' N. lat.), San Francisco GMA (38° 57.5' N. lat. - 37°11' N. lat.), and Central GMA (37°11' N. lat. - 34°27' N. lat.), effective September 1. This action did not apply to the Southern GMA as quillback rockfish are rarely caught south of Point Conception.

Table 3 shows the realized 2023 season structure after inseason actions.

Table 3. 2023. No Action (2023) California recreational groundfish season structure after inseason actions.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – Aug 20 All Depth				Aug 21- Oct 15 > 50fm		Oct 16- Dec 31 Closed	
Mendocino	Closed				May 15 – Jul 15 > 50 fm		Jul 16- Aug 31 All Depth		Sep 1- Dec 31 > 50 fm			
San Francisco	Closed				May 15 – Jul 15 > 50 fm		Jul 16- Aug 31 All Depth		Sep 1- Dec 31 > 50 fm			
Central	Closed				May 1 - Aug 31 All Depth				Sep 1- Dec 31 > 50 fm			
Southern	Closed			Apr 1- Sep 15 All Depth							Sep 16- Dec 31 > 50 fm	

1.1.3 Area Restrictions

Rockfish Conservation Areas

Rockfish Conservation Areas (RCAs) are one of the primary management tools used to restrict catch of overfished or sensitive species coastwide. In the California recreational fishery, RCA depth boundaries vary by management area and generally prohibit fishing for most groundfish species seaward of the designated depths during the months open to recreational groundfish fishing (Table 3). However, recreational fishing for Other Flatfish[1], petrale sole, starry flounder, Other Groundfish[2], California scorpionfish and leopard shark are permitted within the RCA (at all depths) year-round.

Cowcod Conservation Area Removal & New Groundfish Exclusion Areas

The Cowcod Conservation Areas (CCAs) were established in 2001 (Figure 2) to protect cowcod, which had been declared overfished. As part of Amendment 32 (A32), which took effect in 2024, the Council removed CCA restrictions for all non-trawl groundfish sectors and established new Groundfish Exclusion Areas (GEA; defined at § 660.11) within the former CCA to protect sensitive areas (e.g., coral habitat) off the Pacific Coast. Additionally, A32 established new RCA boundary lines around the Channel Islands and banks located within the former CCA. Specifically, the Council recommended that coordinates be defined in the regulations for the 50, 60, 75, 100, 125, and 150 fm lines around Santa Barbara Island, San Nicolas Island, Cortes Bank, and Tanner Bank, and the 150 fm (274 m) line around Osborn Bank and the area of the former Eastern CCA (Figure 2). All RCA lines can be used for area management moving forward. The RCA lines within the former CCA will mirror the RCA lines along the mainland coast within the Southern Management Area (Agenda Item E.9.a Supplemental GMT Report 2, November 2023).

[1] Other Flatfish includes butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, and sand sole

[2] Other Groundfish includes soupfin shark, Dover sole, English sole, arrowtooth flounder, spiny dogfish, skates, ratfish, grenadiers, finescale codling, pacific cod, pacific whiting, sablefish, and thornyheads

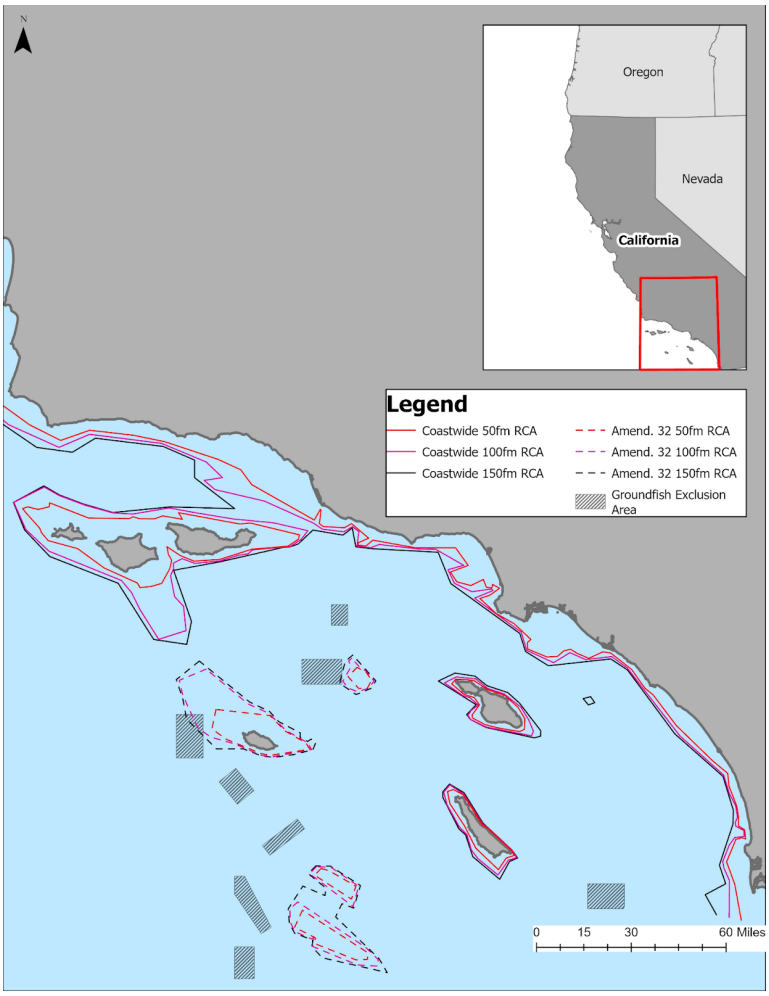

Figure 2. No Action (2023). Southern California Bight showing RCA lines currently in regulation (solid lines), new RCA lines (dashed lines) and Groundfish Exclusion Areas (dashed polygons) that will be created as part of Amendment 32 (Agenda Item E.9.a, Supplemental GMT Report 2, November 2023).

Yelloweye Rockfish Conservation Areas

Four YRCAs apply to recreational groundfish fisheries in California (2009-2010 FEIS; 50 CFR 660.60(c)(3)) located in the general areas of Point St. George, South Reef, Reading Rock, and Point Delgada and the waypoints are specified in federal regulation at §660.70, subpart C. Federal regulations allow inseason implementation of YRCAs as needed. YRCAs have never been activated in California but could be utilized in the event that yelloweye impacts are projected to exceed the HG inseason.

1.1.4 Groundfish Bag Limits, Gear Limits and Size Limits

Bag Limits

Under No Action, a statewide 10 fish rockfish, cabezon and greenling (RCG) complex bag limit would remain in place. In 2023 the quillback rockfish sub bag limit was changed from 1 fish to 0 fish (no retention) through inseason action (CDFW press release) effective August 7, 2023 for the remainder of the year. Retention of bronzespotted rockfish, quillback rockfish, cowcod, and yelloweye rockfish are prohibited. Cowcod was declared rebuilt in 2019; however, the results of

the 2019 stock assessment (Dick and He, 2019) indicated the population cannot sustain retention in the fishery at this time. Given the high volume of angler effort in Southern California, allowing any retention of cowcod would likely result in over exploitation of the species in a matter of days.

Catch tracking in 2023 indicated the vermilion rockfish ACL contribution to the minor shelf complex south of 40º 10' N lat. would be exceeded despite implementation of a four fish sub-bag limit during the 2022 fishing season. Results of a full stock assessment for copper rockfish off California (Agenda Item G.2 Attachment 1 and Attachment 2, September 2023) suggested the stock was depleted south of Pt. Conception (34° 27' N. lat., Santa Barbara County).

Under No Action (2023) species subject to sub-bag limits within the overall 10-fish RCG bag limit are as follows:

- Vermilion rockfish - 4 fish
- Copper rockfish – 1 fish
- Quillback rockfish – 0 fish[3]

The following state-wide bag limits also apply in state regulations only and are outside of the 10-fish RCG bag limit:

- Leopard shark - 3 fish;
- Soupfin shark - 1 fish.

Unless otherwise specified, there is a general bag limit of 20 finfish, of which no more than 10 fish can be of any one species. Pacific sanddab, petrale sole, and starry flounder are exempt from the general finfish bag limit; retention of these species is unlimited.

The following minimum size limits apply to California recreational fisheries:

Cabezon- 15 inches, total length;
Kelp greenling and all greenlings of the genus Hexagrammos- 12 inches, total length;
Leopard shark- 36 inches, total length (state regulations only).

Gear restrictions apply to all species within the RCG Complex. No more than one line and two hooks may be used to take or possess species within the complex. Note that regulations specific to lingcod are described below.

Lingcod Seasons, Bag Limits, Hook Limits, and Size Limits

Under No Action (2023), the lingcod season structure is aligned with the RCG complex in each management area. The lingcod bag limit in all management areas is 2 fish. The minimum size limit is 22 inches total length. The same RCG Complex gear restrictions apply for lingcod (i.e., no more than one line and two hooks).

[3] At the beginning of 2023, a one fish sub-bag limit was in effect for quillback rockfish. The bag limit was reduced to 0 for reasons described above.

California Scorpionfish Seasons, Bag Limits, and Size Limits

Under No Action (2023), the season length for California scorpionfish is open year-round at all depths south of 40º10' N lat. In all areas, the bag limit is 5 fish with a minimum size of 10 inches total length. The same RCG Complex gear restrictions apply for California scorpionfish (i.e., no more than one line and two hooks).

Pacific Halibut Seasons

Anglers fishing for Pacific halibut may retain groundfish on the same trip, but must abide by all applicable groundfish regulations, and those impacts are accounted for within the California recreational groundfish fishery impacts. The recreational Pacific halibut fishery in waters off California occurs primarily from the Oregon/California border to Point Arena (Mendocino County). This fishery north of Point Arena is structured to provide recreational fishing opportunities between May 1 and November 15, and the fishery south of Point Arena is structured to provide recreational opportunities between May 1 and December 31; season dates are not guaranteed and the fisheries may close early due to attainment of the area specific harvest limit. Annual fishery dates are established preseason by NMFS based on the annual quota and projected catch. The daily bag and possession limit is one fish, with no minimum size limit. No depth restrictions apply to the recreational Pacific halibut fishery off California.

Other Recreational Fisheries

Recreational fisheries for non-groundfish species occur statewide or in certain portions of the state. Many of these fisheries are state managed. Anglers fishing for these other recreational fisheries may retain groundfish on the same trip but must abide by all applicable groundfish regulations. The groundfish impacts that occur in the non-groundfish recreational fisheries are accounted for within the California recreational groundfish fishery impacts. These fisheries include the ocean salmon fishery, the California halibut fishery, the kelp/ barred sand/spotted sand bass (*Paralabrax* spp.), white seabass (*Atractoscion nobilis*), and yellowtail (*Seriola dorsalis*). With the exception of the ocean salmon fishery, these fisheries remain open year round.

1.2 Inseason Management Response

CDFW tracks recreational groundfish mortality on a weekly and/or monthly basis to ensure that mortality remains within allowable limits. Several rockfish species of concern are tracked on a weekly basis using preliminary California Recreational Fisheries Survey (CRFS) field reports. In 2023 the species tracked weekly included black rockfish, quillback rockfish, copper rockfish and yelloweye rockfish. Preliminary CRFS reports are converted into an Anticipated Catch Value (ACV) in metric tons using catch and effort data from previous years. Weekly ACV data are used as "proxy" values to approximate catch during the five-to-eight-week lag time between when data are collected and CRFS catch estimates become available. To date, ACVs have been an effective and reliable tool to closely monitor recreational inseason mortality on a weekly basis.

For actions outside of a Council meeting, the Regional Administrator, NMFS West Coast Region, after consultation with the Chairman of the Council and the Fishery Director of the CDFW, or their designees, is authorized to modify the following designated routine management measures for black rockfish, canary rockfish, and yelloweye rockfish in California: For commercial fisheries (specific to black rockfish), 1) trip landing and frequency limits; and 2) depth-based management

measures. For recreational fisheries, including all species aforementioned 1) bag limits; 2) time/area closures; and 3) depth-based management. Any modifications may be made only after NMFS has determined that a federal harvest limit for black rockfish, canary rockfish, or yelloweye rockfish in California has been attained or is projected to be attained prior to the first day of the next Council meeting. Modifications may only be used to restrict catch of black rockfish, canary rockfish, or yelloweye rockfish in California. However, given the mixed nature of the fishery, there may be impacts to other species.

1.3 Impact (Groundfish Mortality)

Table 4 provides projected mortality in the California recreational fishery for 2023. Data are from preliminary 2023 CRFS estimates (see Agenda Item F.8.a, Supplemental CDFW Report 1, March 2024 for additional information).

Table 4. No Action (2023) mortality in the California recreational fishery for 2023 relative to the California specific recreational shares and non-trawl harvest guideline (HG) estimates are preliminary. Dash indicates no HG. (Source CRFS)

Stock	Projected Recreational Mortality (mt)	California Recreational HG 2023 (mt)	Non-Trawl HG 2023[a] (mt)
Bocaccio S of 40º10' N lat.	256.6	755.6	1093.5
Canary rockfish	73.7	116.7	351.6
Cowcod S of 40º10' N lat.	8.6	22	44.1
Yelloweye rockfish	9.6	11.6	50.9
Black rockfish	113.7	-	332.1
CA Cabezon	9.5	-	180.4
California scorpionfish	117.2	-	258.4
CA Kelp greenling	2.1	-	92.5 [b/]
Lingcod north of 40º10' N lat. [c/]	33.1	-	2254.1
Lingcod south of 40º10' N lat.	168.5	-	426.3
Widow rockfish	11.3	-	400
Nearshore rockfish N of 40º10' N lat. [d]	12.7 [e]	-	89.7
Copper rockfish 42°-40°10' N. lat.	3.7	-	6.9 [b/]
Quillback rockfish 42°-40°10' N. lat.	1.5	-	0.91 [b/]
Nearshore rockfish S of 40º10' N lat.	196.7 [f]	-	882.5
Copper rockfish S. 40°10' N. lat	37.5	-	84.61 [b/]
Quillback rockfish S. 40°10' N. lat	0.8	-	0.89 [b/]
Shelf rockfish south of 40º10' N lat.	3.5		482.4
Vermilion rockfish S. of 40°10' N. lat.	3.4		3.4 [b/]
Shelf rockfish south of 40º10' N lat.	726.6 [g]	-	1,173.2
Vermilion rockfish S. of 40°10' N. lat.	295.2	-	281.29 [b/]
Petrale sole	21.4	-	30

Stock	Projected Recreational Mortality (mt)	California Recreational HG 2023 (mt)	Non-Trawl HG 2023[a] (mt)
Starry flounder	0.15	-	171.9

a/ Includes non-nearshore, nearshore, and recreational.
b/ ACL contribution to complex -CA kelp greenling is managed under the other fish complex (not shown)
c/ Projected impacts include only the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.
d/ Not an official non-trawl allocation in regulation, but rather the sum of the WA, OR, CA state HGs that are managed to by the states as to not exceed the ACL when also factoring in minor IOA, tribal, EFP, research, and trawl impacts. The CA fishery HG is 39.6/ 39.9 mt is shared between the recreational and commercial non trawl sectors.
e/ Projected impacts within the Nearshore rockfish N of 40º10' N. lat. for quillback and copper rockfish are 1.5 mt and 3.7 mt, respectively. The species-specific contributions to the California fishery HG are 0.91 mt for quillback rockfish and 7.9 mt for copper rockfish and are shared between the recreational and commercial non-trawl sectors.
f/ Projected impacts within the Nearshore rockfish S of 40º10' N. lat. for quillback and copper rockfish are 0.8 mt and 37.5 mt, respectively. The species-specific ACL contributions to the non-trawl allocation are 0.88 mt for quillback rockfish and 84.6 for copper rockfish, and are shared between the recreational and commercial non-trawl sectors.
g/ Projected vermilion rockfish impacts within the Minor Shelf rockfish S of 40º10' N lat. are 295.2 mt. The vermilion rockfish ACL contribution is 281.3 mt, and is shared between the recreational and commercial non-trawl sectors.

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2. Alternative 1

Under Alternative 1, the default harvest control rules (HCR) are used to generate the 2025-26 harvest specifications. Additionally, Alternative 1 considers the ABC Rule rebuilding strategy for quillback rockfish (Rebuilding Analysis for Quillback Rockfish). The California recreational fishery does not encounter shortspine thornyhead or rex sole and rarely encountered Dover sole[1]; therefore, impacts to these stocks will not be analyzed under Alternative 1.

Under Alternative 1, the recreational fishery would be managed with a combination of bag and size limits, season structure and area-based measures as detailed under No Action. Considerations are given to modifying sub-bag limits for selected stocks (e.g., canary, copper, vermilion rockfishes) as described below. Additionally, in response to the localized depletion of copper rockfish south of 34°27' N. lat. identified in the 2023 full stock assessment (Monk et al, 2023; Wetzel et al, 2023) the Council recommended establishing a recreational ACT for copper rockfish south of 34°27' N. lat. as part of the management measures for 2025 and 2026. Analysis of the recreational ACT options can be found Chapter 1 §2.3.3.

The Council is considering a 10 mt sablefish south of 36° N. lat. recreational set-aside under Alternative 1 as recommended by the GMT (Agenda Item E.7.a Supplemental GMT Report 2, November 2023). The analysis for this measure is found at Chapter 5 §2.4.2, though summarized here. Based on recent catches and the removal of many non-trawl RCA restrictions, interest in targeting sablefish by recreational anglers is likely to increase. In the past, recreational catch of sablefish south of 36° N. lat. has been attributed to the non-trawl allocation. While the proposed set-aside would reduce the total non-trawl allocation, the set-aside could facilitate improved catch accounting

Of particular note, the Council is considering removing quillback rockfish from the nearshore rockfish complexes and managing it as a separate stock off the coast of California under Alternative 1. This represents a change from No Action, where quillback rockfish was managed as part of the minor nearshore rockfish complex, both north and south of 40°10' N. lat. Under Alternative 1 the quillback rockfish OFL would be 1.52 mt , ABC:ACL of 1.26 mt, with a HG of 1.16 mt Options analyzed under Alternative 1 use this quillback rockfish ABC as the basis for season structures and are presented in the impact tables below. As described under No Action (2023) there were large-scale changes to California seasons structures and bag limits for quillback rockfish in 2023. Large-scale changes to the fisheries limit the precision of the Recfish model which is discussed in the California Recreational Model Description (Appendix B). It should be noted, the quillback HG is shared between the commercial non-trawl sector and the recreational fishery.

For the 2025-26 biennium the canary rockfish ACL will see a 59.9% decrease due to updated stock assessment results. The California recreational HG for 2025-26 is 46.7 mt and 46.9 mt, respectively. Canary rockfish catch in 2023 was 73.7 mt. While anticipated season changes in 2025-26 to the recreational depths and seasons lengths, related primarily to quillback rockfish,

[1] RecFIN data for the last 10 years was examined to verify this statement.

may have a different impact on canary rockfish than was observed in 2023, it is reasonable to assume that if the 2025-26 seasons have a substantial offshore only fishery there would be similar harvest of canary rockfish in 2025-26 as there was in 2023 (73.7 mt). This would result in California exceeding the canary rockfish recreational HG in 2025-26 (46.7 mt and 46.9 mt) by roughly 27 mt if 73.7 mt of harvest seen in 2023 is "typical" of offshore recreational fisheries in California.

Most groundfish harvest guidelines are shared between the commercial non-trawl sector and the recreational sector. Shares (formal/informal) for the California recreational fishery are shown in Table 5. The non-trawl HG for Cowcod will be 42.6 mt and 41.7 mt in 2025 and 2026, respectively.

The lingcod south of 40°10' N. lat. non-trawl-allocation under Alternative 1 results in a total of 441.8 mt and 456.9 mt in 2025 and 2026, respectively. There is no formal recreational share of the non-trawl-allocation.

Additionally, the No Action (2023) quillback rockfish ACT, as described in Chapter 1 §2.3.2, would remain in place under Alternative 1. The California state specific ACT would equal 1.16 mt for 2025 and 1.37 mt in 2026.

For yelloweye rockfish the CA recreational HG is 12.2 mt and 12.4 mt for 2025 and 2026. As described under baseline for 2023-2024, continued precautionary depth-based management measures remain in place to ensure fishery sectors do not exceed harvest limits.

Table 5. Alternative 1. California Recreational: 2025-26 harvest guidelines (mt) to the non-trawl sector and recreational specific harvest guidelines (HG) for (mt).

Stock	Non-Trawl HG (mt)	Recreational Fishery HG (mt)
Bocaccio South of 40º10' N. lat.	1020/1012.1	705.2/708.3
Canary rockfish	140.8/141.2	46.7/46.9
Cowcod South of 40º10' N. lat.	42.8/41.5	20.85
Yelloweye rockfish	40.6/41.2	12.2/12.4

2.1 Groundfish Seasons and Area Restrictions

2.1.1 Season Structure and Area Restriction Overview

Four potential California Season Structure Options are described below, it should be noted these are under preliminary consideration at present. Each Option could be chosen as a standalone season structure or combined with other Options for each Management Area and month of the year to take steps to achieve but not exceed specifications and harvest targets. Under all Season Structure Options considered, the shore-based and spear fishing season exemption continues. While the goal is to set Management Measures pre-season that are designed to meet management goals, the Options analyzed could also be used through the routine inseason management measures adjustment process.

Option 1 below is presented as a starting point to facilitate discussions for the 2025-26 biennial process. Option 2 and 3 below are presented to show the anticipated impacts of a full closure of

all groundfish fisheries (Option 2) and a fully opened groundfish fishery with no area restrictions and year round fishing (Option 3). Options 2 and 3 represent the full spectrum of season structure and area restrictions that will inform the Preliminary Preferred Alternative once it is developed. Option 4 represents the inseason changes for 2024 the Council approved. Option 4 is analyzed so regulations used in 2024 can continue in the 2025-26 biennial process if selected by the Council

2.1.2 Area Restrictions

Under Alternative 1, the area restrictions are largely the same as described under the No Action (2023) alternative; however, different RCA lines and season start and end dates vary by Option.

Option 1

Option 1 considers times and months where recreational fishing will be authorized shoreward of the CA state waters 20 fm boundary line and months where fishing will occur seaward of the 50 fm boundary line. For fisheries north of 36º 00' N. lat., Option 1 analyzes months where fishing will be authorized shoreward of the CA state waters 20 fm boundary line and months for fishing will occur seaward of the 50 fm boundary line. The primary purpose of excluding anglers between 20-50 fm is to limit impacts on quillback rockfish, which primarily occur in these depths. For fisheries south of 36º N. lat., the primary purpose of excluding anglers between 20-50 fm is to limit impacts on copper rockfish, which primarily occur in these depths (Table 6).

Of further note relevant to the season structure, CDFW is currently developing a 20 fm boundary line for California state waters that will be utilized under Option 1. The 20 fm RCA line for California waters is analyzed below and will be available for both the biennial season setting process or for use through routine inseason management measure adjustments.

Table 6. Alternative 1. Option 1: California recreational groundfish season structure with depth restrictions excluding fish in the 20-50 fm depth range to minimize impacts on quillback and copper rockfishes.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 1 – July 31 < 20			Aug 1 - Dec 31 > 50 fm				
Mendocino	Closed				May 1 – July 31 < 20			Aug 1 - Dec 31 > 50 fm				
San Francisco	Closed				May 1 – July 31 < 20			Aug 1 - Dec 31 > 50 fm				
Central – N °36	Closed				May 1 – July 31 < 20			Aug 1 - Dec 31 > 50 fm				
Central – S °36	Closed		Mar 1 - Aug 31 < 20 fm						Sep 1 - Dec 31 > 50 fm			
Southern	Closed		Mar 1 - Aug 31 < 20 fm						Sep 1 - Dec 31 > 50 fm			

Option 2

Season structure Option 2 explores complete closure of the boat-based fishery. Fishing would be prohibited year-round in all depths in any or all of the five management areas. (Table 7).

Table 7. Alternative 1. Option 2: California recreational groundfish season closed year-round for all depths in the five management areas.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Jan 1 – Dec 31; Closed all depths											
Mendocino	Jan 1 – Dec 31; Closed all depths											
San Francisco	Jan 1 – Dec 31; Closed all depths											
Central	Jan 1 – Dec 31; Closed all depths											
Southern	Jan 1 – Dec 31; Closed all depths											

Option 3

Season Structure Option 3 examines a recreational groundfish fishery that would be structured to be open year-round in all depths in the five management areas (Table 8).

Table 8. Alternative 1. California recreational groundfish season open year-round with no depth restrictions.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Jan 1 – Dec 31; Open all depths											
Mendocino	Jan 1 – Dec 31; Open all depths											
San Francisco	Jan 1 – Dec 31; Open all depths											
Central	Jan 1 – Dec 31; Open all depths											
Southern	Jan 1 – Dec 31; Open all depths											

Option 4

Season Structure Option 4 examines the 2024 inseason changes (Agenda Item F.8.a CDFW Supplemental Report 2, March 2024) applied to the recreational groundfish fishery in the five management areas (Table 9).

Table 9. Alternative 1. California 2024 recreational groundfish season, inseason change approved in March

Management Area	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Northern	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Mendocino	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
San Francisco	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Central – N 36°	Closed			>50fm	<20fm					>50fm	<20fm	>50fm
Central – S 36°	Closed			All Depth			<50fm			>50fm		
Southern	Closed			All Depth			<50fm			>50fm		

2.1.3 Groundfish Bag Limits, Gear Limits and Size Limits

Under Alternative 1, bag limits, size limits, and gear restrictions for most stocks are the same as described under No Action (2023), with exceptions noted below. The overall RCG complex bag limit, the species within the RCG bag limit and sub-bag limits for any species within the RCG bag limit can be changed as part of the 2025-2026 biennial process or through inseason actions to meet but not exceed federal harvest limits.

2.1.4 Bag Limits

As of this writing (2/20/2024), no new sub-bag limits are proposed, however, modifications to sub-bag limits for quillback rockfish, copper rockfish, vermilion/sunset rockfish, and canary rockfish are being considered as a mechanism to reduce mortality for these stocks. The impact tables below examine sub-bag limit reductions for quillback rockfish (no retention), copper rockfish, and vermilion/sunset rockfish for use in 2025-26. As reference, CDFW analyzed quillback rockfish, copper rockfish, canary rockfish, and vermilion/sunset rockfish sub-bag limits with a range from 10-fish to 0-fish (no retention) within the 10-fish RCG bag limit for use in combination with any of the Season Structure Options considered above both pre-season or for use through routine inseason management measure adjustments (see Agenda Item E.7.a, Supplemental CDFW Report 2, November 2021 and impact tables below for detail).

Quillback Rockfish

All Options under Alternatives 1, 2, 3, and 4 considers a no retention (0-fish sub bag limit) for quillback rockfish off of California in 2025-26 to minimize impacts to this stock. Impacts to quillback rockfish with no- retention can be found in the impact tables under each option.

Copper Rockfish

CDFW anticipates continuing with the 1 fish copper rockfish sub-bag limit in 2025-26 to minimize impacts to the stock, as it has proven an effective tool to limit copper rockfish catch. The 1-fish sub-bag limit has been in effect since the 2022 fishing season to reduce total statewide copper rockfish mortality (see Agenda Item E.7.a, Supplemental CDFW Report 2, November 2021). Per a recommendation from the GAP (Agenda Item G.6.a Supplemental GAP Report 1, September 2023) a 0-fish (no-retention) copper rockfish bag limit south of 34°27' N. lat. was analyzed and included in the impact tables (Table 16, Table 17 and Table 21) below for all Options and in Table 10 for convenience. The 0 fish sub bag limit may be used south of 34°27' N lat. for 2025-26 or for inseason actions.

Table 10. Alternative 1. Preliminary projected mortality (mt) for copper rockfish under a range of sub-bag limit sub-options for the California recreational fishery south of 34°27' N. lat. under Alternative 1 compared to the total annual catch limit contribution to the nearshore rockfish complex south of 40°10′ N. lat (ACL contribution).

Sub-bag Options	Option 1 Projected Mortality (mt)	Option 2 Projected Mortality (mt)	Option 3 Projected Mortality (mt)	Option 4 Projected Mortality (mt	2025/26 ACL Contribution (mt)
1 (Status Quo)	34.5	Full season closure	173.8	48.03	125/126.4
0	27.9		142.5	37.6	

Canary Rockfish

A recreational canary rockfish sub bag limit of 5 fish and a sub bag limit of 1 fish is analyzed under each option in the impact (Table 16, Table 17 and Table 21) below for all Options and in Table 11 for convenience. The sub-bag limit range of 10 fish (status quo) to 1 fish will allow for any canary rockfish sub-bag limit between 10 fish and 1 fish to be adopted s for 2025-26 or for inseason action. The California recreational HG for 2025-26 is 46.7 mt and 46.9 mt, respectively, which is a 59.9 percent reduction from No Action (2023). Canary rockfish mortality in 2023 was 73.7 mt. With changes to California fishing season structure 2025-26, related primarily to quillback rockfish, it is reasonable to assume that additional restrictions to canary rockfish catch may be needed in 2025-26. However, the changes to seasons and depths proposed in some season structure options may reduce canary rockfish impacts to the point where a bag limit may not be necessary

Table 11. Alternative 1. Preliminary projected mortality (mt) for canary rockfish under a range of sub-bag limit sub-options for the California recreational fishery under Alternative 1.

Sub-bag Options	Option 1 Projected Mortality (mt)	Option 2 Projected Mortality (mt)	Option 3 Projected Mortality (mt)	Option 4 Projected Mortality (mt)	California Recreational HG 2025/26 (mt)
10 (Status Quo)	32.6	Full season closure	144.3	31.6	46.7/ 46.9
5	32.1		143.5	31.3	
1	21.9		121.3	27.0	

Vermilion/Sunset Rockfish

Vermilion/sunset rockfish is managed as part of the minor shelf rockfish complex both north and south of 40°10’ N. lat. Preliminary estimates for commercial and recreational fisheries combined indicate the vermilion/sunset ACL contribution to the Shelf Rockfish Complex south of 40°10' N. lat. has been exceeded in 2023. Therefore, to reduce the likelihood of exceeding the ACL contribution in the 2025-26 biennium, Alternative 1 analyzes a vermilion sub-bag limit to the recreational fishery of 4 fish (status quo), 3 fish and 2 fish under each option in the impact tables (Table 16, Table 17 and Table 21) for all options and in Table 13 for convenience. Season length and depth modifications to protect quillback and copper rockfish may limit vermilion rockfish impacts, negating the need for further sub-bag limit reductions. However, the additional sub-bag limit options have been analyzed for 2025-26 biennium and/or for inseason actions.

Additionally, to help align the potential for sub-bag limits north and south of 40°10′ N. lat., vermilion bag limits north of 40°10′ N. lat. were explored and available in Table 13. The potential of a bag limit both north and south of 40°10′ N. lat. was to provide was consistency within enforcement across all groundfish management areas. The 2024 recreational season as adopted through inseason action only defined a vermillion sub bag limit for 2 fish south of 40°10′ N. lat. In 2024 a vermilion sub bag limit of 4 fish north of 40°10′ N. lat. and a vermilion rockfish sub bag limit of 2 fish south of 40°10′ N. lat. creates an inconsistency across different management areas. This inconsistency is difficult to enforce, creates outreach and education issues and may result in economic harm in the form of citations to anglers who are unfamiliar with the differential bag

limits. The Council may wish to align the vermilion rockfish sub bag limit across California in the 2025-26 biennium.

Table 12. Alternative 1. Preliminary projected mortality (mt) for vermilion rockfish under a range of sub-bag limit sub-options for the California recreational fishery under Alternative 1 compared to the total annual catch limit contribution to the shelf rockfish complex south of 40°10′ N. lat (ACL contribution).

Sub-bag Options	Option 1 Projected Mortality (mt)	Option 2 Projected Mortality (mt)	Option 3 Projected Mortality (mt)	Option 4 Projected Mortality (mt)	2025/26 ACL Contribution (mt) (mt)
4 (Status Quo)	3.6	Full season closure	7.9	7.4	6.2/6.2
3	3.6		7.8	7.4	
2	3.5		7.6	7.2	

Table 13. Alternative 1. Preliminary projected mortality (mt) for vermilion rockfish under a range of sub-bag limit sub-options for the California recreational fishery under Alternative 1 compared to the total annual catch limit contribution to the shelf rockfish complex north of 40°10′ N. lat (ACL contribution).

Sub-bag Options	Option 1 Projected Mortality (mt)	Option 2 Projected Mortality (mt)	Option 3 Projected Mortality (mt)	Option 4 Projected Mortality (mt)	2025/26 ACL Contribution (mt) (mt)
4 (Status Quo)	126.8	Full season closure	350	243.5	274.3/ 271.5
3	120.5		290	238.0	
2	109.7		270	195.4	

Lingcod Seasons, Bag Limits, Hook Limits, and Size Limits

Same as described under No Action

California Scorpionfish Seasons, Bag Limits, and Size Limits

Same as described under No Action (2023) for Seasons and Bag Limits. See size limits section below for additional information related to the proposed repeal of the minimum size limit of 10 inches total length.

Pacific Halibut Seasons

Same as described under No Action.

Other Recreational Fisheries

Same as described under No Action.

2.1.5 Size limits

A request was received from California recreational anglers to remove the Cabezon, greenling (50 CFR 660.360(c)(3)(ii)(C), California Code of Regulations Title 14 Section 28.28(c), 14 CCR §28.29(c)), and California Scorpionfish size limit (50 CFR 660.360(c)(3)(v)(C), 14 CCR §28.54(c)). Current Federal Code of Regulations and California Code of Regulations (CCR) for filleting of fish aboard vessels creates logistical burdens to Commercial Passenger Fishing Vessel (CPFV) operators. Cabezon, greenling, and California scorpionfish are commonly captured along

with rockfish on recreational trips. Size limit restrictions and fillet regulations prevent CPFV operators and recreational anglers from filleting all species aboard the vessel at sea since, regulations requiring fish with a size limit, but no fillet length requirements must be landed whole (50 CFR 660.360(c)(3)(ii)(D), 14 CCR §27.65(b)). This process increases time and cost as anglers need to wait to fillet certain species when they return to port. Under federal and state regulation (50 CFR 660.360(c)(3)(ii)(D), 14 CCR §27.65(b)), rockfish are not restricted by filleting prohibitions, greenling and cabezon are limited and cannot be filleted at sea. California scorpionfish requires a minimum of 5 inches, each fillet bearing intact a one-inch square patch of skin (50 CFR 660.360(c)(3)(v)(D), 14 CCR §27.65(b)(9)).

The original rationale for implementing size limits for cabezon, California scorpionfish, and greenling are no longer necessary. The size limit regulations for cabezon and greenling were implemented as part of an emergency action commercially in 1999, and recreationally in 2000, over concerns for life history and increased potential for overharvest from expanding fisheries Agenda Item G.1 Supplemental GMT Report 1, March 2020). Monitored CPFV data from 1992-1995, and size frequency information collected from recreational and commercial data, indicated that immature greenling and cabezon were being caught in both fisheries. The recreational regulations for the minimum size limits in 2000 were intended to provide at least 50% of adult females of each species to be able to spawn at least once. In 2000, California scorpionfish fillet size limits were repealed and a size limit was established instead to eliminate a loophole in regulations that had been designed to protect sub-adult and young-adult lingcod.

These size limits were established as part of an emergency action which were needed at the time; however, these are no longer necessary as we have not come close to exceeding federal harvest limits. Recreational and commercial catch estimates have consistently been well under harvest limits (Table 14 displaying recreational catch estimates in metric tons for 2017-2019, 2021 - 2023). From 2017-2023, average yearly catch estimates for cabezon were 26.03 mt, for California scorpionfish 112.37 mt. and 5.46 mt for greenlings (Hexagrammos). All individual yearly catch estimates, and averaged estimates track well below previous and current harvest limits (Table 4). Under all season structure options for 2025-2026 biennial season, cabezon, kelp greenling, and California scorpionfish are expected to stay below harvest limits. CDFW recommends the size limit regulations for Cabezon, greenling and California scorpionfish should be repealed. The rationale for the implementation of the size limits is no longer necessary and is causing an unnecessary burden on the fishing industry for groundfish species consistently well under their harvest limits.

Table 14. Alternative 1. California recreational catch estimates showing total mortality in metric tons (mt), of California scorpionfish, cabezon, kelp greenling and all greenlings of the genus Hexagrammos from 2017-2019, 2021-2023, compared to 2025/26 Non-Trawl harvest guideline (HG). Recreational catch estimates were obtained 2/20/24, data through 2017 - 2023. Data for 2020 was not used due to sampling impacts from Covid-19. The total catch estimates for kelp greenling and all greenlings of the genus Hexagrammos are reported under Greenlings.

Groundfish Species	2017 (mt)	2018 (mt)	2019 (mt)	2021 (mt)	2022 (mt)	2023 (mt)	Average (mt)	Non-Trawl HG 2025/26 (mt)
Cabezon	31.42	29.35	23.17	23.90	38.81	9.5	26.03	161.2/154.5

California Scorpionfish	81.12	98.88	121.08	125.75	130.18	117.2	112.37	242/236
Greenlings (Hexagrammos)	12.07	5.27	3.19	4.57	5.53	2.1	5.46	92.5/92.5

2.2 Inseason Management Response

Under Alternative 1, the same inseason response as described under No Action (2023) apply.

2.3 New Management Measures

There are a few new management measures considered for 2025-2026 that would affect participants in the California recreational fisheries. These include provisions on continuous transit, allow anglers to retrieve non-groundfish fishing gear (ex: crab pots, hoop nets, squid dip nets, etc.) with groundfish aboard and the requirement to have a descending device aboard all recreational vessels targeting groundfish. Detailed analysis of the new management measures can be found in Chapter 9: New Management Measures

2.4 Impact (Groundfish Mortality)

The California recreational groundfish season structure and projected mortality under No Action (2023) were based on CDFW's RecFISH model (Appendix B). Model projections were calculated for the five recreational groundfish management areas using updated RecFIN estimates from 2017 through 2019 and January 2021 through October 2021, with post-model adjustments to incorporate catch data from the 2022 and 2023 fisheries. Impacts of the COVID-19 pandemic in 2020 resulted in incomplete catch estimates for that year and these data are not included in model projections. The model assumes that fishing behavior during the historic period will be representative of the current fishery. However, many changes have occurred in the fishery which has likely affected behavior and distribution of fishing effort. It is also assumed the fishing behavior during the historic period and current fishery will be representative of fishing behavior under proposed management measures. If large changes to management measures are made to the fishery, substantial changes to angler behavior may occur, which the model cannot accurately predict. Uncertainty in model projections are offset by proposed changes to management measures (described under Season Structure Options 1 through 4 under this alternative) and inseason catch tracking and monitoring efforts (described under No Action (2023) alternative) designed to keep mortality within harvest specifications.

Descriptions of expected impacts and changes to the fishery under Season Structure Options are discussed below. Each Option could be chosen as a standalone season structure or combined with other Options for each Management Area and month. If Options are combined when choosing preferred season structures, expected impacts should be combined to generate an expectation of total mortality.

Under all Season Structure Options considered, limited mortality for select species (e.g., black rockfish, gopher rockfish, kelp rockfish, cabezon, kelp greenling, and lingcod) currently targeted by shore-based and spearfishing anglers will occur. However, this mortality is expected to be low. Based on a review of CRFS data, quillback rockfish and yelloweye rockfish mortality in the shore-based and spearfish fisheries have been zero. The projected mortality for these two species are

expected to remain at zero. The statewide projected impacts to copper rockfish from shore and spear modes are less than 2 mt with a 1-fish sub-bag limit.

2023 petrale sole mortality (21.0 mt) in the California recreational fishery increased substantially compared to 2021 (3.5 mt) and 2022 (5.1 mt). This increased catch resulted in exceeding the petrale sole non-trawl sector HG (30 mt) by 0.23 mt. The biggest change between 2023 and previous years is the introduction of the offshore-only groundfish fishery and the absence of no salmon fishing, with the offshore-only groundfish fishing (seaward of the 50 fm RCA line) likely driving the bulk of the additional recreational petrale catch. Any California recreational season structure Options proposed in Alternative 1 and Alternative 2 which has significant offshore fishing likely will result in similar petrale sole mortality as seen in 2023 (21 mt CA rec, 30.23 mt non-trawl HG) and could cause the non-trawl petrale sole HG (30 mt) to be exceeded. However, a small overage of the petrale sole non-trawl sector HG (30 mt) likely would not cause an overage in the fishery HG (1,976 mt) and would not exceed the ACL (2,354 mt) for the stock in 2025. An informational report on petrale sole mortality will be presented to the Council at the March meeting to get further guidance on proposals to reallocate the trawl/ non-trawl share for 2025-26 or to monitor the petrale sole fisheries close and look at potential reallocation in the 2027-28 biennium (§2.8). Large-scale changes to the fisheries limit the precision of the California Recreational Model. For this reason, petrale sole are not shown in impact tables below as our ability to model projected impacts is limited with the substantial changes to fishing seasons lengths and depths that were seen in 2023.

2.4.1 Impacts of Rockfish Mortality in Non-Groundfish Fisheries

Mortality of groundfish occurs in non-groundfish fisheries in California and includes but is not limited to California sheephead, ocean whitefish, yellowtail, white seabass, California halibut, Pacific halibut, sandbasses, and ocean salmon. An estimate of groundfish bycatch in non-groundfish is not available as the CRFS program does not generate estimates of bycatch in species-specific target fisheries. Estimates are made at the trip type level, and trip types are generalized as bottomfish, salmon, HMS, and inshore. A review of CRFS sample data from 2015 through present shows some encounters with quillback and copper rockfish occur in non-groundfish fisheries, but formal catch estimates of total mortality are unavailable. Using the average annual number of sampled quillback and copper rockfish reported in non-rockfish fisheries from 2015 through October 2021, the ACV process as described in the No Action (2023) Inseason Management Response section was applied to generate potential minimum projected mortality of quillback and copper rockfish in non-rockfish fisheries. These projected mortality values are not catch estimates. It is assumed these data underrepresent actual bycatch of quillback and copper rockfishes in non-rockfish fisheries as the analysis did not include information from combo trips where anglers targeted non-rockfish and rockfish on the same trip. Most trips where rockfish are caught are combo trips, especially in the Southern Management Area.

On average a minimum of 0.2 mt of quillback rockfish could be expected as bycatch from anglers targeting lingcod, with at least some trace amounts of quillback rockfish in the Pacific halibut and California halibut fisheries. At least 8.5 mt of copper rockfish bycatch occurs annually in non-RCG fisheries in California (Table 15), of which two thirds occur in fisheries in the Southern Management Area. Actual bycatch of quillback and copper rockfish in these non-rockfish fisheries is expected to be substantially higher than the projected minimum value but cannot currently be

quantified. Even if there was a complete closure of all groundfish fisheries (Option 2) there would still be trace amounts of quillback and copper rockfish catch in other non-groundfish fisheries.

Table 15. Alternative 1. Projected minimum average annual catch of copper rockfish statewide in non-RCG target fisheries. Data are from CRFS/CDFW.

Target fishery	Copper rockfish bycatch (mt)
Yellowtail	2.2
Lingcod	1.6
California halibut	1.5
White seabass	1.5
Ocean whitefish	0.8
Salmon	0.6
Sandbasses	0.4
California scorpionfish	0.1
California sheephead	0.1

Option 1

Under Option 1 projected mortality for 2025-2026 shows that catch will be less than under the No Action (2023) mortality for most species (Table 16). Projected mortality for all species under Option 1 remains within limits for all species. Quillback rockfish is the primary species limiting opportunity in California recreational fisheries north of 36º N lat. and copper rockfish is the primary species limiting recreational fisheries south of 36º N lat. A copper rockfish recreational ACT was proposed for 2025-26 (Chapter 1 §2.3.3). The currently analyzed recreational ACT of 15.8 mt for copper rockfish may require further limitations to season dates and bag limits south of 34°27' N lat. if adopted. Option 1 is presented as a starting point to facilitate discussions for the 2025-26 biennial process. Alterations to the seasons structure of Option 1 may allow for limited expanded opportunity while meeting but not exceeding federal harvest limits.

Numbers presented in Table 16 show California recreational impacts using surface release mortality rates to account for discarded fish for most species. Projected mortality for most species is likely a conservative estimate as some fish will be released with descending devices. For quillback rockfish and the copper rockfish 0-fish bag south of 34°27' N. lat, only, the projected mortality assumes prohibition, high compliance with non-retention and use of descending devices when discarding. All other rockfish species mortality presented assume surface release of all discarded fish. If descending devices become required in the future and their rate of utilization for all rockfish species increases, projected mortality presented for the other rockfish species will be further reduced.

Table 16. Alternative 1. Option 1: 2025-26 projected mortality in the California recreational fishery compared to the California recreational specific harvest guideline (HG) and/or the non-trawl HG. Values in parenthesis indicate bag limits other than status quo and resulting projected mortality. Dash indicates no value established in regulation. Data are from CDFW.

Stock	Projected Recreational Mortality 2025/26 (mt)	California Recreational HG 2025/26 (mt)	Non-Trawl HG 2025/26 [a] (mt)
Canary rockfish (5-fish bag)[1-fish bag]	32.6(32.1)[21.9]	46.7/46.9	140.8/141.2
Cowcod	3.9	20.85	42.6/41.7
Yelloweye rockfish	5.6	12.2/12.4	40.5/41.20
Quillback rockfish	0.7	-	1.16/ 1.37
Black rockfish	70.7	-	222.3/234.7
Lingcod north. of 40°10' N. lat. [b/]	28.3	-	1,842.4/,1789.1
Lingcod south of 40°10' N. lat.	142.2	-	441.8/456.9
Nearshore Rockfish N. of 40°10' N. lat. [c/]	7.8	-	84.8/83.0
Copper rockfish N. of 40°10' N. lat.	*3.1*	-	6.8/6.75
Nearshore Rockfish S of 40°10' N. lat.[d]	283(276)	-	931.4/930.1
Copper rockfish south of 40°10' N. lat.(0-fish bag south of 34°27' N. lat)	*34.5(27.9)*	-	125.1/126.3
Shelf rockfish south of 40º10' N lat.[d]	300(294)[283]	-	1263.1/1260.6
Vermilion rockfish south of 40°10' N. lat. (3-fish bag)[2-fish bag]	126.8(120.5)[109.7]	-	274.3/ 271.5[d]
Squarespot rockfish south of 40°10' N. lat.	5	-	5.39/ 5.9[d]

a/ Includes non-nearshore, nearshore, and recreational.
b/ Projected impacts include only the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.
c/ Not an official non-trawl allocation in regulation, but rather the sum of the WA, OR, CA state HGs that are managed to by the states so as to not exceed the ACL when also factoring in minor IOA, tribal, EFP, research, and trawl impacts. The CA fishery HG is 39.4/39 mt is shared between the recreational and commercial non trawl sectors.
d/ The species-specific contributions to the non-trawl allocation are shared between the recreational and commercial non-trawl sectors.

Option 2

Season Structure Option 2 results in closure of the boat-based groundfish fishery and projected total mortality for the directed recreational groundfish boat-based fishery would be zero. Groundfish encounters would occur in non-groundfish targeted fisheries, including ocean salmon, kelp/calico bass, California halibut, Pacific barracuda, yellowtail, and white seabass. Under No Action, impacts in these non-groundfish fisheries are included in the projected groundfish fishery total mortality. Under Season Structure Option 2 the boat-based fishery is closed but these other fisheries continue to operate and some bycatch of federal groundfish occurs. Regulatory discarding of these species would result. See Impacts of Rockfish Mortality in Non-Groundfish Fisheries above for more information.

It is unknown how sport fishery operations and angler effort would shift under Season Structure Option 2. Bycatch of groundfish could increase if there is increased effort in the non-groundfish fisheries with groundfish bycatch but impacts are expected to be less than under No Action. The potential for increased effort in the shore-based and spear fisheries could result in increased mortality of groundfish in these modes, including copper rockfish, compared to No Action. However, CDFW expects the increase in groundfish mortality to be minor from shore-based and spear fishing due to relatively low CPUE and low release mortality associated with these fisheries.

Option 3

Mortality projections (Table 17) under Season Structure Option 3 are the highest of the Options presented, and exceed No Action (2023) projections for many stocks due to the additional season length and access to deeper depths (assuming this Option is adopted year round in all five Management Areas). Projected mortality of canary rockfish, under a 10 fish bag limit (144.3 mt), 5 fish sub-bag limit (143.5 mt), would exceed the recreational HG and non-trawl allocations. Although projected mortality of canary rockfish under a 1 fish sub-bag limit (121.3 mt) would not exceed the non-trawl allocation, it would still exceed the California recreational HG. Projected mortality of yelloweye rockfish (20.0 mt), quillback rockfish (16.0 mt), vermilion/sunset rockfish south of 40°10' N. lat. (350 mt) under projected options (including a 3-bag and 2-bag sub limit resulting in 290 mt and 270 mt), vermilion/sunset rockfish north of 40°10' N. lat. (7.9 mt) under projected options (including a 3-bag and 2-bag sub limit resulting in 7.8 mt and 7.6 mt), and copper rockfish south of 40°10' N/ lat. (173.8 mt) under both projected options (including 0-bag limit, 142.5 mt), are projected to exceed harvest limits. Under Option 3, black rockfish and lingcod south of 40°10' N. lat. are projected to exceed harvest limits if implemented for the full year and the ACL contribution of squarespot rockfish to the shelf rockfish complex south of 40°10' N. lat. is likely to be exceeded. While cowcod, lingcod north of 40°10' N. lat., and minor nearshore and shelf complexes are projected to remain within harvest limits under this Option, greater uncertainty with the model results exist and catch could be higher. If Season Structure Option 3 is applied for less than the full year (zero up to 11 months of the year), impacts would be lower.

Table 17. Alternative 1. Option 3: 2025-26 Projected mortality in the California recreational fishery compared to the California recreational specific harvest guideline (HG) and/or the non-trawl HG. Values in parenthesis indicate bag limits other than status quo and resulting projected mortality. Data are from CDFW.

Stock	Projected Recreational Mortality 2025/26 (mt)	California Recreational HG 2025/26 (mt)	Non-Trawl HG 2025/26 [a] (mt)
Canary rockfish (5-fish bag)[1-fish bag]	144.3(143.5)[121.3]	46.7/46.9	140.8/141.2
Cowcod	10.9	20.85	42.6/41.7
Yelloweye rockfish	20.0	12.2/12.4	40.5/41.20
Quillback rockfish	16.0	-	1.16/ 1.37
Black rockfish	400.0	-	222.3/234.7
Lingcod N. of 40°10' N. lat. [b/]	55.0	-	1,842.4/,1789.1
Lingcod south of 40°10' N. lat.	515.5	-	441.8/456.9

Stock	Projected Recreational Mortality 2025/26 (mt)	California Recreational HG 2025/26 (mt)	Non-Trawl HG 2025/26 [a] (mt)
Nearshore Rockfish north of 40°10' N. lat. [c/]	25.0	-	84.8/83.0
Copper rockfish N. of 40°10' N. lat.	6.0	-	6.8/6.75
Nearshore Rockfish south of 40°10' N. lat.[d]	828.6(797.3)	-	931.4/930.1
Copper rockfish south of 40°10' N. lat.(0-fish bag south of 34°27' N. lat.)	173.8(142.5)	-	125.1/126.3
Minor Shelf rockfish S of 40º10' N lat.[d]	900(840)[820]	-	1263.1/1260.6
Vermilion rockfish south of 40°10' N. lat.(3-fish bag)[2-fish bag]	350(290)[270]	-	274.3/ 271.5[d]
Squarespot rockfish south of 40°10' N. lat.	30	-	5.39/ 5.9[d]

a/ Includes non-nearshore, nearshore, and recreational.
b/ Projected impacts include only the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.
c/ Not an official non-trawl allocation in regulation, but rather the sum of the WA, OR, CA state HGs that are managed to by the states so as to not exceed the ACL when also factoring in minor IOA, tribal, EFP, research, and trawl impacts. The CA fishery HG is 39.4/39 mt is shared between the recreational and commercial non trawl sectors.
d/ The species-specific contributions to the non-trawl allocation are shared between the recreational and commercial non-trawl sectors.

Option 4

Under Option 4 projected mortality for 2025-2026 catch for select constraining groundfish species is expected to stay within limits. CDFW report under Agenda Item F.8.a Supplemental CDFW Report 2, March 2024 summarized the seasons and impacts for option 4 under CA-Rec Option 2 in the CDFW report. Within the 2024 inseason action, a 2-fish sub-bag limit was established for vermilion rockfish south of 40°10' N lat., which is expected to be carried into the 2025-26 biennial season. Additionally, CDFW analyzed vermilion rockfish sub-bag limit north of 40°10' N lat. of status quo 4-,3-,2- fish is also examined within the report.

Under Option 4, projected mortality of yelloweye rockfish (2.5 mt), quillback rockfish north of 40°10' N lat.(0.51 mt), quillback rockfish south of 40°10' N lat.(0.66 mt), and copper rockfish south of 40°10' N lat. (48.03 mt) are projected to stay within harvest limits. Projected mortality of vermilion/sunset rockfish south of 40°10' N. lat., under a 4 fish bag limit (243.5 mt) and 3 fish sub-bag limit (238.0 mt), would exceed the recreational HG and non-trawl allocations. Projected mortality of vermilion/sunset rockfish south of 40°10' N. lat. under a 2 fish sub-bag limit (195.4 mt) is projected to be under the recreational HG and non-trawl allocations. Projected mortality of vermilion/sunset rockfish north of 40°10' N. lat. (7.9 mt) under projected options (including a 3-bag and 2-bag sub limit resulting in 7.8 mt and 7.6 mt

3. Alternative 2

Under Alternative 2, default harvest control rules apply to all stocks except shortspine thornyhead, rex sole, and Dover sole which have alternative HCRs. However, the CA recreational fishery has no impact on these stocks and are not analyzed. The key stock analyzed under Alternative 2 is California quillback rockfish. Under Alternative 2, 2025-26 harvest specifications are calculated under the ABC rule, resulting in an OFL =1.52, ABC:ACL of 1.3, and HG of 1.2mt in 2025 and OFL =1.77 mt, ABC:ACL=1.5 mt, and HG of 1.4 mt in 2026 (Table 18). No retention (0 fish bag limit) of quillback rockfish will be allowed under Alternative 2. It should be noted, the quillback HG is shared between the commercial non-trawl sector and the recreational fishery.

Table 18. Alternative 2: Comparison of Alternative 1 and Alternative 2 harvest guidelines for California quillback rockfish in 2025-26.

	Alt 1 HG (mt)	Alt 2 HG (mt)	Difference (mt) Alt 2 to Alt 1
2025	1.16	1.2	+0.04
2026	1.37	1.4.	+0.03

3.1 Groundfish Seasons and Area Restrictions

3.1.1 Season Structure

The difference between Alternative 1 and Alternative 2 California quillback harvest specifications is negligible. Under Alternative 2, the ABC:ACLs are equivalent to Alternative 1. The 2025-26 HGs, however, differ. The Alternative 2 2025-26 HGs are 0.04 mt and 0.03 mt higher than Alternative 1. Due to the negligible harvest specification differences, modeling to determine a discernible difference between the two alternatives was not possible. Therefore, the season structures under Alternative 2 are the same as under Alternative 1.

3.1.2 Area Restrictions

Same as described under the No Action (2023) alternative however different RCA lines vary by Option

3.1.3 Groundfish Bag Limits Gear Limits and Size Limits

Same as described under No Action (2023).

Lingcod Seasons, Bag Limits, Hook Limits, and Size Limits

Same as described under No Action (2023).

California Scorpionfish Seasons, Bag Limits, and Size Limits

Same as described under No Action (2023).

Pacific Halibut Seasons

Same as described under the No Action (2023).

Other Recreational Fisheries

Same as described under No Action

3.2 Inseason Management Response

Same as inseason management response as described under No Action (2023).

3.3 New Management Measures

Same as described under Alternative 1.

3.4 Impact (Groundfish Mortality)

Projected mortality under Alternative 2 is the same as described under Alternative 1, dependent upon which Options for season structure and changes to sub-bag limits are chosen. To the degree that fishing behavior, encounter rates, and availability of other target opportunities differ from prior years, actual mortality may be higher or lower than projections. Projected mortality for most species under Option 1 and 4 remain within limits with bag limits imposed for some species. California quillback mortality is expected to be the same as under Alternative 1.

Option 1

Same as described under Alternative 1

Option 2

Same as described under Alternative 1.

Option 3

Same as described under Alternative 1

Option 4

Same as described under Alternative 1

4. Alternative 3

Under Alternative 3, default harvest control rules apply to stocks except shortspine thornyhead, rex sole, and Dover sole which have alternative HCRs. However, the CA recreational fishery has no impact on these stocks and are not analyzed. The key stock analyzed under Alternative 3 is quillback rockfish off California which will have an OFL of 8.41 mt, ACL of 5.06 mt, and an HG of 4.96 mt for at least 2025, however, to facilitate a full analysis, Alternative 3 is assumed to have the same harvest specifications for 2025-26. No retention (0 fish bag limit) of quillback rockfish will be allowed under Alternative 3.

As shown in Table 19. The Alternative 3 2025-26 California quillback rockfish HGs are approximately 3.8mt and 3.6 mt higher than the Alternative 1 and Alternative 2 HGs — noting there is a negligible difference between the Alternative 1 and Alternative 2 HG.

Table 19. Alternative 3: Comparison of Alternative 1 and Alternative 2 harvest guidelines for California quillback rockfish in 2025-26.

	Alt 1 HG (mt)	Alt 2 HG (mt)	Alt. 3 HG (mt)	Difference (mt) Alt 3 to Alt 1	Difference (mt) Alt 3 to Alt 2
2025	1.16	1.2	4.96	+3.8	+3.76
2026	1.37	1.4.	4.96	+3.59	+3.56

4.1 Groundfish Seasons and Area Restrictions

4.1.1 Season Structure

Option 1

Under 5.3 mt ACL for the California quillback rockfish with no retention in the recreational fishery would mean quillback rockfish was no longer the limiting stock north of 36° N. lat. Therefore, season depths that were specific to quillback rockfish could be liberalized and the stocks which historically constrained the fishery in the north such as yelloweye rockfish would be the primary driver of the season structure. Option 1 considers times and months where recreational fishing will be authorized shoreward of the 30 fm RCA line in the north of 36° N. lat. South of 36° N. lat. fishing would occur shoreward of the 20 fm RCA line at the start of the seasons and then switch to seaward of the 50 fm RCA line for the remainder of the year. For fisheries south of 36º N. lat. the primary purpose of excluding anglers between 20-50 fm is to limit impacts on copper rockfish, which primarily occur in these depths. Table 20 shows the proposed season structure.

Table 20. Option 1 showing months where recreational fishing will be authorized shoreward of the 30 fm RCA line in the north of 36° N. lat. South of 36° N. lat. fishing would occur shoreward of the 20 fm RCA line at the start of the seasons and then switch to seaward of the 50 fm RCA line for the remainder of the year.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 1 – Dec 31 < 30 fm							
Mendocino	Closed				May 1 – Dec 31 < 30 fm							
San Francisco	Closed				May 1 – Dec 31 < 30 fm							
Central – N °36	Closed				May 1 – Dec 31 < 30 fm							
Central – S °36	Closed		Mar 1 - Aug 31 < 20 fm						Sep 1 - Dec 31 > 50 fm			
Southern	Closed		Mar 1 - Aug 31 < 20 fm						Sep 1 - Dec 31 > 50 fm			

Option 2

Same as described under Alternative 1.

Option 3

Same as described under Alternative 1.

4.1.2 Area Restrictions

Same as described under the No Action (2023) alternative however different RCA lines vary by Option

4.1.3 Groundfish Bag Limits Gear Limits and Size Limits

Same as described under No Action (2023).

Lingcod Seasons, Bag Limits, Hook Limits, and Size Limits

Same as described under No Action (2023).

California Scorpionfish Seasons, Bag Limits, and Size Limits

Same as described under No Action (2023).

Pacific Halibut Seasons

Same as described under the No Action (2023).

Other Recreational Fisheries

Same as described under No Action

4.2 Inseason Management Response

Same as inseason management response as described under No Action (2023).

4.3 New Management Measures

Same as described under Alternative 1.

4.4 Impact (Groundfish Mortality)

Projected mortality under Alternative 3 is the same as described under Alternative 1, dependent upon which Options for season structure and changes to sub-bag limits are chosen. To the degree that fishing behavior, encounter rates, and availability of other target opportunities differ from prior years, actual mortality may be higher or lower than projections.

Option 1

Under Option 1 projected mortality for 2025-2026 shows that catch will be similar to recent historical seasons structures prior to 2023. Projected mortality for most species under Option 1 remain within limits with bag limits imposed for some species. If quillback rockfish is no longer the limiting factor the next most constraining stock historically have been yelloweye rockfish followed by canary rockfish. The purpose of this option was specifically to investigate a season structure that would remain under the projected mortality for quillback rockfish with an OFL of 8.41 mt, ACL of 5.06 mt., and HG of 4.96 mt. Other species may be constraining under this option as analyzed in the Table 21 below. Any remaining quillback rockfish allocation could also be utilized in commercial fisheries and likely would be used to allow additional nearshore opportunity. Under Option 1 as shown, canary rockfish would be a constraining species but would be under the status quo recreational HG with a 1 fish bag limit. A copper rockfish recreational ACT was proposed for 2025-26 (Chapter 1 §2.3.3). The currently analyzed recreational ACT of 15.8 mt for copper rockfish may require further limitations to season dates and bag limits south of 34°27' N lat. if adopted. Cowcod and yelloweye rockfish mortality is projected to remain within harvest limits under this Option. However, greater uncertainty with the model results exists and catch could be higher than projected. If Season Structure Option 1 is applied for less than the full year (zero up to 11 months of the year), impacts would be lower.

Alternative 3 would allow for greater nearshore opportunity north of 36º N lat. which would allow for increased effort for anglers with smaller watercrafts and kayakers. Kayakers and other anglers whose watercraft prohibit participation in offshore only fisheries have been disproportionately impacted by recent fishery restrictions needed to keep quillback rockfish under extremely low OFL and ACLs analyzed in Alternative 1. Compared to nearshore trips, Charter boat operators have anecdotal reported a lower number of anglers per trip during offshore only fisheries, which fish seaward of 50 fm or 300 ft. Many anglers are not physically able to reel up heavier weights required to fish deep along with the weight of the catch from 300 plus feet multiple times as is needed in offshore fisheries. The physical ability to fish in these deeper depths limits fishery participants to only those who are physically able and largely excludes children and elderly anglers from participating in offshore only fisheries. Alternative 2 would allow for all boat based recreational anglers north of 36º N lat. to participate in the fishery equally per National Standard 4.

Additionally, nearshore fishing is safer than offshore fishing since fishing occurs closer to land. If something goes wrong with a watercraft there are typically more vessels in the area if assistance is needed. Coastguard or other first responder response time is considerably less and there are typically more geological features than can provide cover from inclement weather. Allowing more nearshore fishing opportunities would promote the safety of human life at sea per National Standard 10.

Table 21 show California recreational impacts using surface release mortality rates to account for discarded fish for most species. Projected mortality for most species is likely a conservative estimate as some fish will be released with descending devices. For quillback rockfish and for the copper rockfish 0-fish bag south of 34°27' N. lat, only, the projected mortality assumes prohibition, high compliance with non-retention and a high rate of descending devices used when discarding. All other rockfish species mortality presented assume surface release of all discarded fish. If descending devices become required in the future and their rate of utilization for all rockfish species increases, projected mortality presented for the other rockfish species will be further reduced.

Table 21. Option 1: Projected mortality in the California recreational fishery in 2025-2026. Values in parenthesis indicate bag limits other than status quo and resulting projected mortality. Data are from CDFW.

Stock	Projected Recreational Mortality 2025/26 (mt)	California Recreational HG 2025/26 (mt)	Non-Trawl Allocation or HG 2025/26 [a] (mt)
Canary rockfish	53.2(54.9)[44.7]	46.7/46.9	140.8/141.2
Cowcod	3.3	-	42.8/41.5
Yelloweye rockfish	4.3	12.2/12.4	40.5/41.2
Quillback rockfish	2.3	-	4.96/ 4.96
Black rockfish	94.6	-	223.6/234.7
Lingcod N. of 40°10' N. lat. [b]/	37.2	-	1842.4/1789.1
Lingcod south of 40°10' N. lat.	272.1	-	441.8/456.9
Nearshore Rockfish N. of 40°10' N. lat. [c]/	13.8	-	88/86
Copper rockfish N. of 40°10' N. lat.	*2.9*	-	6.8/6.75
Nearshore Rockfish S of 40°10' N. lat.[d]	558.6	-	929.3/928.1/
Copper rockfish S of 40°10' N. lat.	*84.4(72.7)*	-	125/126.4
Minor Shelf rockfish S of 40º10' N lat.[d]	310.0(300.2)[268.6]	-	1262.5/1260.6
Vermilion rockfish south of 40°10' N. lat.	271.6(261.8)[230.2]	-	274.3/ 271.5[d]
Squarespot rockfish south of 40°10' N. lat.	5.0	-	5.39/ 5.9[d]

a/ Includes non-nearshore, nearshore, and recreational.
b/ Projected impacts include only the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.
c/ Not an official non-trawl allocation in regulation, but rather the sum of the WA, OR, CA state HGs that are managed to by the states so as to not exceed the ACL when also factoring in minor IOA, tribal, EFP, research, and trawl impacts. The CA fishery HG is 39.4/39 mt is shared between the recreational and commercial non trawl sectors.
d/ The species-specific contributions to the non-trawl allocation are shared between the recreational and commercial non-trawl sectors.

Option 2

Same as described under Alternative 1.

Option 3

Same as described under Alternative 1

Option 4

Same as described under Alternative 1

5. Alternative 4

Alternative 4 considers a rebuilding strategy of F=0 for the federally defined quillback rockfish stock off California. Under this alternative the objective is for zero fishery related mortality (F=0) for the quillback rockfish stock as defined off California. Option 4 is provided in support of the upcoming rebuilding plan for quillback rockfish. In order to achieve no impacts to quillback rockfish, groundfish season structures would be as described under Alternative 1 Option 2, requiring a full-closure within all five Groundfish Management Areas. A recent GMT report (Agenda Item F.8.a Supplemental GMT Report 1 March 2024) presented recreational quillback rockfish mortality across the state between 2005-2023 and shows minor quillback rockfish mortality even in the southernmost portion of California (Table 1 for the GMT report quoted below). Even with full recreational season closures, impacts to quillback would still occur in non-groundfish targeted fisheries, including ocean salmon, kelp/calico bass, California halibut, Pacific halibut, Pacific barracuda, yellowtail, and white seabass as trace amounts of quillback have been seen as bycatch in these fisheries. Many of these fisheries are state managed and outside of Council and NMFS jurisdiction.

Table 22. The recreational catch of quillback rockfish in metric tons (mt) from 2005-2023 and 2018-2022 by California Recreational Fisheries Survey (CRFS) district in California and the percent of total catch by district. The catch data from 2023 are incomplete. Districts in italics are located south of 37° 07′ N. lat. Source: RecFIN

CRFS District	2005-23		2018-22	
	Catch (mt)	Percent by District	Catch (mt)	Percent by District
Redwood (Humboldt County, Except Shelter Cover Area, And Del Norte County)	51.7	38.3%	19.7	40.0%
Wine (Mendocino County And Shelter Cove Area In Humboldt County)	26.3	19.5%	13.5	27.4%
Bay Area (Sonoma, Marin, Solano, Napa, Contra Costa, Alameda, Santa Clara, San Mateo, San Francisco Counties)	54.3	40.3%	14.9	30.2%
Central (San Luis Obispo, Monterey and Santa Cruz Counties)	*2.3*	1.7%	1.2	2.4%
Channel (Santa Barbara and Ventura)	*0.0*	0.0%	0.0	0.0%
South (San Diego, Orange and Los Angeles Counties)[a/]	*0.3*	0.2%/	0.0	0.0%

5.1 Groundfish Seasons and Area Restrictions

5.1.1 Season Structure

Under Alternative 4, season structure is the same as described under Alternative 1, Option 2 (2023). No impacts are allowed within the Alternative 4 scenario, resulting in full closure within all 5 Groundfish Management Areas. Shorebased and diving/ spearfishing exceptions could still be authorized as there have been zero reported quillback rockfish encountered in these fisheries. The shorebased and diving/ spearfishing fisheries are likely the only recreational fisheries which could be authorized under F=0.

Option 1

Same as described under Alternative 1, Option 2.

5.1.2 Area Restrictions

Under Alternative 4, area restrictions are the same as described under Alternative 1, Option 2 (2023). No impacts are allowed within the Alternative 4 scenario, resulting in full closure within all 5 Groundfish Management Areas

Option 1

Same as described under Alternative 1, Option 2.

5.2 Groundfish Bag Limits Gear Limits and Size Limits

Same as described under Alternative 1, Option 2.

Lingcod Seasons, Bag Limits, Hook Limits, and Size Limits

Season closed. Bag limit and size reduced to zero.

California Scorpionfish Seasons, Bag Limits, and Size Limits

Same as described under No Action (2023). Effort in the California scorpionfish fishery only occurs south of 36°00' N lat. Quillback rockfish encounters only occur in waters north of 36°00' N lat.. The California scorpionfish season is able to remain open due to the location of the CA scorpionfish fishery having no crossover into quillback habitat, no impact on quillback rockfish.

Pacific Halibut Seasons

Season closed. Bag limit and size reduced to zero.

Other Recreational Fisheries

Under Alternative 4 (F=0) all boat based fisheries with incidental bycatch of groundfish as described under No Action (2023) would need to be closed to eliminate potential impacts on quillback rockfish. Many of these fisheries are state managed and outside of Council and NMFS jurisdiction

5.3 Inseason Management Response

Under Alternative 4, season closures would be the same as described under Option 1 Alternative 2. Inseason management response would not be required under Alternative 4, the scenario holding all available restrictions in place to prevent any potential impact to quillback.

5.4 New Management Measures

Under Alternative 4, season closures would be the same as described under Option 1 Alternative 2. New management measures would not be required under Alternative 4, the scenario holding all available restrictions in place to prevent any potential impact to quillback.

5.5 Impact on Rockfish Mortality in Non-Groundfish Fisheries (Groundfish Mortality)

Alternative 4 is different from other alternatives, requiring absolutely no impact on quillback mortality (F=0). F=0 requires a season structure as described under Alternative 1, Option 2. Even with the closure of the boat-based groundfish fishery and projected total mortality for the directed recreational groundfish boat-based fishery would be zero, groundfish encounters would still occur in non-groundfish targeted fisheries and quillback rockfish would still be impacted. Groundfish encounters would likely occur in non-groundfish targeted fisheries, including ocean salmon, kelp/calico bass, California halibut, Pacific Halibut, Pacific barracuda, yellowtail, and white seabass. Many of these fisheries operate under state jurisdiction with the Council and NMFS having no jurisdiction or control over the management of state fisheries.

Under a complete groundfish closure as described in Alternative 1, Option 2 the boat-based fishery is closed but these other fisheries would continue to operate and some bycatch of federal groundfish would occur. Regulatory discarding of groundfish species could result in impacts to quillback rockfish. It is unknown how sport fishery operations and angler effort would shift under Season Structure Option 2. Bycatch of groundfish could increase if there is increased effort in the non-groundfish fisheries with groundfish bycatch but impacts are expected to be less than under No Action. See Alternative 1, Option 2 impacts above for more information.

Based on this analysis F=0 for quillback rockfish is not achievable as it would require a complete closure of any and all commercial and recreational fishing in California State and Federal waters, with the possible exception of shorebased and diving/ spearfishing. Since the Council does not have jurisdiction over state managed fisheries and California waters F=0 is unachievable. Additionally, the widespread spread socioeconomic impact to coastal communities would be immense, difficult to calculate, and would likely be upwards of a billion dollars in fisheries species review along with tourism and other downstream impacts on local communities. Economic impacts of recreational fisheries off California found “The three-year average for 2010 to 2012 finds the total economic impact/contribution from recreational fishing in California sanctuaries to be $213.1 million in output, $129.0 million in value-added, $74.6 million in income and more than 1,370 jobs”(Economic Impact of the Recreational Fisheries on Local County Economies in California’s National Marine Sanctuary 2010, 2011 and 2012).CDFW Marine Regions by the numbers document for 2023, shows commercial ex-vessel value alone was $160,829,414. This is just ex-vessel value and does not take into account additional downstream economic benefits to California and the Nation. This is not a robust socioeconomic analysis but demonstrates the significant impact F=0 quillback rockfish season as describe in Alternative 4 would have on the nation and California specifically.

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Chapter 9: New Management Measures

Executive Summary

This chapter considers six new management measures for addition into the 2025-26 biennial process. The first would create an open access registration/permit program designed to improve understanding of the directed open access fixed gear fishery as well as improve WCGOP observer coverage in this fleet. The second measure would update the discard and retention requirements to the electronic monitoring regulations and vessel monitoring plan. The third measure would modify federal continuous transit provisions for California recreational vessels. These modifications would allow recreational vessels to anchor overnight and/or stop to fish for non-groundfish species inside the seasonal Recreational RCA. The fourth measure would create a coastwide descending device requirement in the EEZ (*i.e.*, 3-200 nm offshore), thus creating regulatory consistency between state and federal waters across all three states. The fifth measure would update the scientific name of Pacific sand lance and the common name of Pacific spiny dogfish in federal regulation.

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9A: Open Access Registration/Permit Program

Background

This measure would require vessels that fish in the directed OA groundfish sector (defined at § 660.11 under "Open Access fishery") to complete a registration process and obtain a federal permit. This measure was recommended to the Council by NMFS under Agenda Item E.7.a, NMFS Report 1, November 2023, which is incorporated by reference.

Purpose and Need

The purpose of this new management measure is to better track and account for participation in the directed OA sector, thus enabling fishery managers to better account for impacts to the fishery. At present, the only way to identify participants is via landing receipts and declarations. The lack of an OA registry has created ongoing challenges with: 1) developing management measures for the OA fishery; 2) communicating new regulations with the OA sector, and; 3) WCGOP's ability to accurately estimate mortality and fishing effort.

Additionally, the Council and NMFS would like the ability to target certain components of the directed OA fishery for monitoring by WCGOP. NMFS indicated that it would be able to more specifically tailor observer coverage in the directed OA sector with more advance notice of potential participation. This registry could, therefore, potentially improve WCGOP observer coverage in this fishery which would likely lead to improvements in mortality estimates for the sector. For example, the Council's decision in November 2023 caused a shift in directed OA effort to "12E" non-bottom hook-and-line gear types (non-bottom contact stationary vertical jig and groundfish troll - specified at § 660.330(b)(3)) off of California to reduce impacts to quillback rockfish. There is a need to understand if this recommendation is achieving its intended goal or if additional measures are necessary.

Options

Two options are being considered for this management measure.

Option 1: Status quo (no Federal open access registration/permit requirement)

Option 2: Federal Open Access Registration/Permit Requirement

Option 1 would maintain the status quo, which is no requirement for vessels participating in the directed OA fishery to register for and obtain a federal permit from NMFS.

Option 2 would require vessels that fish in the directed OA sector to register for and obtain a federal permit from NMFS. The number of allowable permits would not be capped (*i.e.*, this would not be a limited entry program). NMFS is currently exploring possibilities for rolling permit applications and issuance versus standard application/renewal timeframes and expect to report back on that exploration at a future meeting. The registration process would likely require vessels to indicate their gear type, *e.g.*, bins such as pot, longline, stationary vertical jig gear, groundfish troll gear, other hook-and-line gear, etc., aligning with declarations and the groundfish non-trawl

logbook. Based on declarations in 2023, this would capture approximately 246 vessels (based on declaration data obtained from OLE on 1/23/2024).

Impact Analysis

Option 1 would not have any impact on target species, non-target species, protected species, or habitat. Option 1 would sustain the current challenges of communicating with the directed open access fleet and analyzing impacts from their fishing activities. This may consequently cause confusion among the fleet about new regulations (*e.g.*, the non-trawl logbook) and delays in forthcoming updates to fishery regulations (*e.g.*, it may take longer to lift fishery restrictions, such as removing the rest of the Non-Trawl RCA in the event that analysis of potential fishing impacts can't be adequately determined).

Option 2 is administrative in nature, and therefore would not have any adverse impact on target species, non-target species, protected species, or habitat. Option 2 would allow the Council and NMFS to better identify and communicate with directed open access fishery participants. This would be particularly helpful currently when numerous regulations pertaining to the open access fishery are changing rapidly (*e.g.*, Non-Trawl RCA changes, gear specification changes, new reporting requirements such as the non-trawl logbook). Option 2 would also likely provide for better inseason tracking of activity in this sector.

Option 2 would create a socioeconomic impact on directed open access fishermen. All permits issued by NMFS carry an administrative cost, per the requirements for user fees based on the provision of a service. These costs vary based on the administrative costs of receiving applications, reviewing applications and any associated required documentation, and issuing permits as a factor of the number of expected applications. Annual permit fees across West Coast fisheries currently range from $18 for the limited entry drift gillnet permit to $170 for the groundfish limited entry permit. NMFS expects the fee will be closer to the lower end of this range, as minimal documentation will be required for processing.

NMFS has committed to taking on the workload for development of this new management measure. NMFS will report back on timing and process for the registration/permit program at a future Council meeting. NMFS previously requested a broader version of this management measure which was placed on the workload prioritization list (see Agenda Item F.8.a, NMFS Report 1, March 2023), which would create a permit program for the entire open access fishery *i.e.*, for both the directed open access and incidental open access sectors. The scope of the management measure described in this analysis is only for the directed open access sector; the broader item remains on the workload list for future consideration.

9B. Update to Discard and Retention Requirements in the Electronic Monitoring Program

Background

This new management measure would update federal regulations pertaining to discard and retention requirements in the Electronic Monitoring (EM) program. At present, the discard species list at 50 CFR 660.604(p)(4)(i) does not include sablefish and rex sole; whereas, the Vessel Monitoring Plan (VMP) does list these stocks. Additionally, as currently written, the regulations are in conflict in regard to California halibut catch handling. The regulations require vessels to *discard* the non-IFQ species California halibut "except as allowed by state regulations" at 50 CFR 660.604(p)(4)(ii), but under 50 CFR 660.604(p)(4)(i), the vessel must *retain* this species.

An exempted fishing permit (EFP) designed to test EM to determine its efficacy for monitoring the groundfish trawl fishery and the at-sea Pacific whiting fishery in lieu of human observers has been ongoing since 2015. During the past eight years, the PSMFC has conducted video review analysis of EM. Improved catch handling from vessel crew, and the improved ability to reliably identify more species on camera from video reviewers over time has resulted in the allowable discards list to expand under the EFP. However, inadvertently, both sablefish and rex sole have been missing from the discard list. The addition of sablefish and rex sole to the existing list in regulations and removing California halibut from them will align current practices under the EFP toc o

Purpose and Need

The purpose of this new measure is to modify the discard species list for non-IFQ species to include sablefish and rex sole, and exclude California halibut. The need of this new measure is provide consistency across all media to ensure participants in the trawl IFQ fishery possess the correct information.

Options

Although this proposal was recommended as a new management measure, in discussions with NMFS this item should be considered as an administrative regulatory change rather than a management measure. The rationale is this item does not create or implement a new management measure, but rather modifies current regulation and does not create impacts beyond those analyzed in the EM Program EA.

Two options are being considered for this regulatory change.

Option 1: Status quo (no update to EM discard and retention requirements)

Option 2: Update EM discard and retention requirements in regulation to include sablefish and rex sole, and remove California halibut.

The Council also recommended scoping the possibility of removing the list entirely from Federal regulations, and locating/updating it in the VMP only. The EM Internal Group discussed the option to take the list out of Federal regulations and keep it only in the VMP, but decided it is necessary

to keep the list in regulations for enforcement reasons. Therefore, the GMT did not scope this option further.

Impact Analysis

Option 1 would maintain the status quo, which would mean that discard and retention requirements in regulation for sablefish, rex sole (50 CFR 660.604(p)(4)(i)), and California halibut (50 CFR 660.604(p)(4)(i)) are not modified. The regulations for retention and discard of these stocks would continue to be in conflict with the VMP. Option 1 would not have any impact on target species, non-target species, protected species, or habitat. Sablefish and rex sole would continue to be retained at-sea and landed at the processing plant. The sablefish and rex sole landed that would otherwise be discarded at sea are typically undersized and/or have little to no commercial value. This regulation imposes negative efficiency and economic impacts for fishermen and processors. Fishermen are required to retain fish that would otherwise be discarded, which takes up fish hold space on the vessel. The storage of these fish reduces space that would otherwise be available for stocks they are targeting or are of a size that is of low value, thus reducing overall economic benefits to the vessel from the trip. Processors are required to sort the catch. Sorting fish that could have been discarded reduces their efficiency by taking time that could be used in other processes, which is a negative economic impact to the processing plant. Additionally, fish that can't be retained by the plant would need to be disposed of shoreside, taking time and effort by the processor.

Option 2 would update discard and retention requirements in the aforementioned regulations to add sablefish and rex sole to the allowable non-IFQ discard list and delete California halibut from the non-IFQ discard list. Option 2 would also not have any impact on target species, non-target species, protected species, or habitat. Sablefish and rex sole would be discarded at sea and not brought back to port instead of being discarded shoreside or processed at low value. Changing this regulation to accurately reflect the VMP would benefit fishermen as it could free hold space for targeted stocks and increase the potential for increased economic benefits from landing fish wanted by the processor. The impacts to processors would also be positive because it would reduce the number of species and amount of fish required for sorting and discarding at the plant, creating more processing efficiency. Updating the retention requirements for California halibut would limit confusion by retaining the state regulation exemption for California halibut retention under 50 CFR 660.604(p)(4)(ii) and removing this species from the list at 50 CFR 660.604(p)(4)(i).

Recommended Regulatory Language

50 CFR 660.604(p)(4)(i) The vessel must retain IFQ species (as defined at § 660.140(c)), except for Arrowtooth flounder, English sole, Dover sole, deep sea sole, Pacific sanddab, Pacific whiting, lingcod, sablefish, rex sole, and starry flounder; must retain salmon and eulachon; and must retain the following non-IFQ species: Greenland turbot; slender sole; hybrid sole; c-o sole; bigmouth sole; fantail sole; hornyhead turbot; spotted turbot; ~~California halibut~~; northern rockfish; black rockfish; blue rockfish; shortbelly rockfish; olive rockfish; Puget Sound rockfish; semaphore rockfish; walleye pollock; slender codling; Pacific tom cod; with exceptions listed in paragraphs (p)(4)(i)(A) and (B) of this section.

~~9C. A Coastwide Rockfish Sorting Requirement for Processors~~

The Council eliminated this management measure from further evaluation at the April 2024 Council Meeting. It will be reconsidered at a later date.

~~Background~~

~~In November 2023, the Washington Department of Fish and Wildlife provided a report to the Pacific Fishery Management Council (Council) scoping the potential for a new management measure that would require species-specific sorting of rockfish in federal regulations (Agenda Item E.7.a, Supplemental WDFW Report 1, November 2023). At that meeting, the Council added this new management measure to the 2025-26 biennial management measures package for analysis. The following report outlines the Groundfish Management Team's (GMT) preliminary analysis and findings in preparation for a Preliminary Preferred Alternative (PPA) at the April Council meeting. Based on this report, the Council may want to consider narrowing the scope of this action or removing this new management measure from the 2025-26 biennial management measures package altogether. During our overwinter analysis, the GMT identified components of this new management measure that may warrant deeper discussions within and amongst state sampling programs as well as more opportunity to solicit input from buyers and processors than is afforded in the biennial management measures process.~~

~~Purpose and Need~~

~~This measure proposes to revise federal regulations to require species-specific sorting of rockfishes caught in non-tribal commercial fisheries, with the goal of achieving better catch accounting and improving dockside sampling efficiencies.~~

~~Species composition sampling is meant to provide accurate estimates of species-specific landings without needing to burden buyers with or rely on them for species identification. Many rockfish species are difficult to differentiate, and rockfish can be landed in large volumes. However, it now appears that an increasing number of buyers in some ports are sorting rockfish to species level on their own accord. Depending on the rockfish complex and the volume of landings, working with buyers to accurately sort to species may not involve more effort than it has taken to maintain valid market category[1] sorting. There may be some current rockfish complex sorting requirements for which species composition sampling is unnecessary and burdensome for dockside samplers, either because buyers already sort to species for that market category or because the rockfish complex is currently landed as a very small number of species in small volumes and can easily be sorted to species if required. In the case of the latter, dockside sampling staff and resources may be better applied elsewhere.~~

[1] "Market category" refers to the separate groups of species to which buyers are required to sort landings. Market categories can be individual species (e.g., Pacific ocean perch), or they can be a group of species. Market categories are often aligned with management complexes but with some exceptions (e.g., rougheye/blackspotted rockfish).

Potential Scope

Current federal regulations specify sorting requirements by directed groundfish sector, with separate area-specific requirements for each sector:

- Trawl (50 CFR 660.130(d))
- Limited entry fixed gear (LEFG; 50 CFR 660.230(c))
- Open access (OA; 50 CFR 660.330(c)(2))

The Council could revise sorting requirements for one, two, or all three of the directed groundfish sectors. In addition to the sector-specific sorting requirements, any species or species group for which there is a trip limit, size limit, quota, harvest guideline, Annual Catch Target (ACT), Annual Catch Limit (ACL), or Optimum Yield (OY) is required to be sorted to that species or species group level if the vessel fished or landed in an area during a time when such limit applied (50 CFR 660.12(a)(8)). For species or species groups for which sorting is required, buyers must sort to that species or species group immediately after offloading and prior to weighing or completing any sales of the landing.

The Council's November 2023 motion was specific to rockfish only, and therefore, the GMT's understanding of the Council's intent is that this action would not apply to the "Other fish" or "Other flatfish" complexes. There are three rockfish complexes for which federal regulations do not currently require sorting to species, with some exceptions. Those three complexes are the minor nearshore rockfish, minor slope rockfish, and minor shelf rockfish complexes, and all three are managed separately north and south of 40° 10′ N. lat. The Council could require federal species-specific sorting of one, two, or all three of these rockfish complexes. The Council could also require certain species in any of the three complexes be sorted to species while maintaining the complex-level sorting of the remaining species. The species in each rockfish management complex are shown in Table with italics to indicate species in the complex that are already required to be sorted to species. Three nearshore species and three slope species are currently required to be sorted to species north of 40° 10′ N. lat. Four nearshore species, four slope species, and two shelf species are currently required to be sorted to species south of 40° 10′ N. lat. Rougheye/blackspotted rockfish are required to be sorted together as a species group because they are considered "cryptic" species, which means they are too difficult to distinguish from each other to require species-level sorting.

Table 1. Species in the minor nearshore, minor slope, and minor shelf rockfish complexes north and south of 40° 10′ N. lat as defined at *50 CFR 660.11 "Groundfish"*. Italicized species are currently required to be sorted to species or species group (e.g., rougheye/blackspotted rockfish) below the complex for at least one directed groundfish sector.

North of 40° 10′ N. lat.		
Minor Nearshore Rockfish	**Minor Slope Rockfish**	**Minor Shelf Rockfish**
Black and yellow rockfish *Blue rockfish* Brown rockfish Calico rockfish China rockfish *Copper rockfish a/* Deacon rockfish Gopher rockfish Grass rockfish Kelp rockfish Olive rockfish *Quillback rockfish b/* Treefish	Aurora rockfish Bank rockfish Blackgill rockfish *Blackspotted rockfish* Redbanded rockfish *Rougheye rockfish* Sharpchin rockfish *Shortraker rockfish* Splitnose rockfish Yellowmouth rockfish	Bronzespotted rockfish Bocaccio Chameleon rockfish Chilipepper Cowcod Dusky rockfish Dwarf-red rockfish Flag rockfish Freckled rockfish Greenblotched rockfish Greenspotted rockfish Greenstriped rockfish Halfbanded rockfish Harlequin rockfish Honeycomb rockfish Mexican rockfish Pink rockfish Pinkrose rockfish Pygmy rockfish Redstripe rockfish Rosethorn rockfish Rosy rockfish Silvergray rockfish Speckled rockfish Squarespot rockfish Starry rockfish Stripetail rockfish Sunset rockfish Swordspine rockfish Tiger rockfish Vermilion rockfish
South of 40° 10′ N. lat.		
Minor Nearshore Rockfish	**Minor Slope Rockfish**	**Minor Shelf Rockfish**
Shallow nearshore: Black and yellow rockfish China rockfish Gopher rockfish Grass rockfish Kelp rockfish	Aurora rockfish Bank rockfish *Blackgill rockfish* *Blackspotted rockfish* Pacific ocean perch Redbanded rockfish	*Bronzespotted rockfish* Chameleon rockfish Dusky rockfish Dwarf-red rockfish Flag rockfish Freckled rockfish

South of 40° 10′ N. lat.		
Minor Nearshore Rockfish	**Minor Slope Rockfish**	**Minor Shelf Rockfish**
Deeper nearshore *cont.:*	*Rougheye rockfish*	Greenblotched rockfish
Black rockfish	Sharpchin rockfish	Greenspotted rockfish
Blue rockfish	*Shortraker rockfish*	Greenstriped rockfish
Brown rockfish	Yellowmouth rockfish	Halfbanded rockfish
Calico rockfish		Harlequin rockfish
Copper rockfish		Honeycomb rockfish
Deacon rockfish		Mexican rockfish
Olive rockfish		Pink rockfish
Quillback rockfish		Pinkrose rockfish
Treefish		Pygmy rockfish
		Redstripe rockfish
		Rosethorn rockfish
		Rosy rockfish
		Silvergray rockfish
		Speckled rockfish
		Squarespot rockfish
		Starry rockfish
		Stripetail rockfish
		Sunset rockfish
		Swordspine rockfish
		Tiger rockfish
		Vermilion rockfish
		Yellowtail rockfish

a/ only copper rockfish off California is required to be sorted to species in the LEFG and OA sectors.
b/ only quillback rockfish off California is required to be sorted to species in the LEFG and OA sectors.

Minor Nearshore Rockfish Complex

The states of Oregon and California currently require that all nearshore rockfish species be sorted to the species level through state rules. Washington does not, but only a total of 0.02 mt of commercial nearshore rockfish have been landed into Washington ports since 2016, and all 0.02 mt were quillback rockfish. Therefore, the GMT expects minimal impacts to buying operations and state sampling programs if the Council were to revise federal regulations to require that the nearshore rockfish complex be sorted to species in all three states.

Minor Slope Rockfish Complex

The following analysis uses PacFIN landings data and excludes species within the slope rockfish complex that are currently required to be sorted to species. The largest volume of slope rockfish is landed into Oregon ports, followed by California and Washington (Table 2). The vast majority of slope rockfish landings into Oregon and California are made by the trawl sector, followed by LEFG and OA. In Washington, the trawl sector lands the majority in some years, but in other years, the LEFG sector may land more slope rockfish. Between 2019 and 2022, no more than 1.5 mt of slope

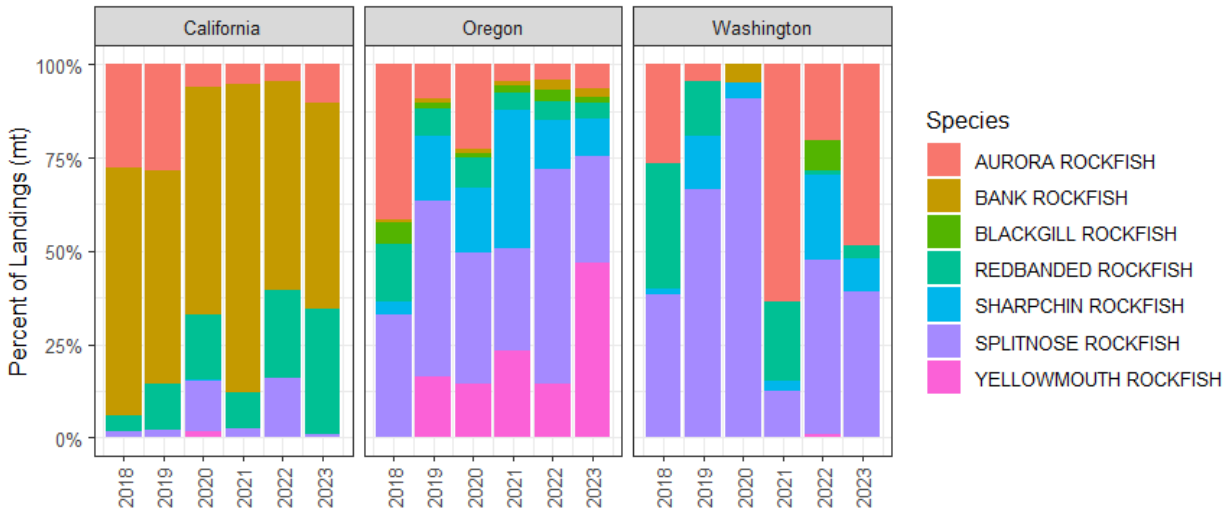
rockfish were landed by OA vessels into any one state annually. In 2023, 5.6 mt of slope rockfish were landed into California ports by OA vessels where the majority of OA activity tends to occur.

The trawl sector also lands the most diverse suite of slope rockfish species into all three states (Figure), compared to the LEFG and OA sectors. Oregon appears to receive the most diverse trawl landings of the three states, likely because Oregon also receives the largest volumes. In California, bank rockfish make up the largest proportion of total slope rockfish landings by both the trawl and OA sectors, but prior to 2020 the largest proportion of California landings in the OA sector was redbanded rockfish (Figure 3). In Washington, trawl landings of slope rockfish are largely composed of aurora rockfish and splitnose rockfish, but the proportion of those two species varies widely from year to year (Figure). In the LEFG and OA sectors, redbanded rockfish make up nearly all slope rockfish landings into Washington as well as the vast majority of landings into Oregon, along with up to ~40 percent yellowmouth rockfish landed by LEFG vessels into Oregon (Figure 2).

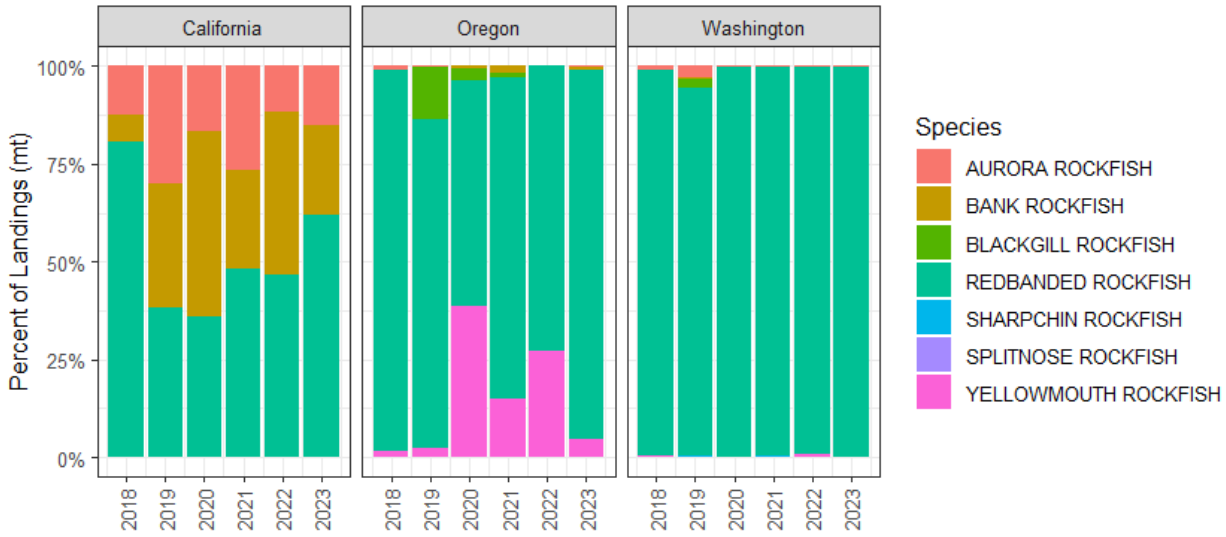
Table 2. Minor slope rockfish landings by state and directed commercial groundfish sector, 2019-2023. Data Source: PacFIN Comprehensive Fish Ticket Table

	Slope rockfish landings (mt) a/		
	California	Oregon	Washington
2019 Total	**49.8**	**161.5**	**46.4**
Trawl	46.4	155.3	39.0
LEFG	2.6	5.5	6.4
OA	0.8	0.7	1.0
2020 Total	**55.2**	**131.3**	**10**
Trawl	51.1	127.0	4.0
LEFG	2.6	3.4	5.0
OA	1.5	0.9	1.0
2021 Total	**52.5**	**175.2**	**16.2**
Trawl	47.3	167.8	11.9
LEFG	4.0	6.8	4.1
OA	1.2	0.6	0.2
2022 Total	**46.8**	**118.1**	**6.5**
Trawl	42.6	112.9	2.2
LEFG	3.4	5.2	4.0
OA	0.8	*	0.3
2023 Total	**21.5**	**87.9**	**14.2**
Trawl	12.2	77.0	8.0
LEFG	3.7	9.8	5.6
OA	5.6	1.1	0.6

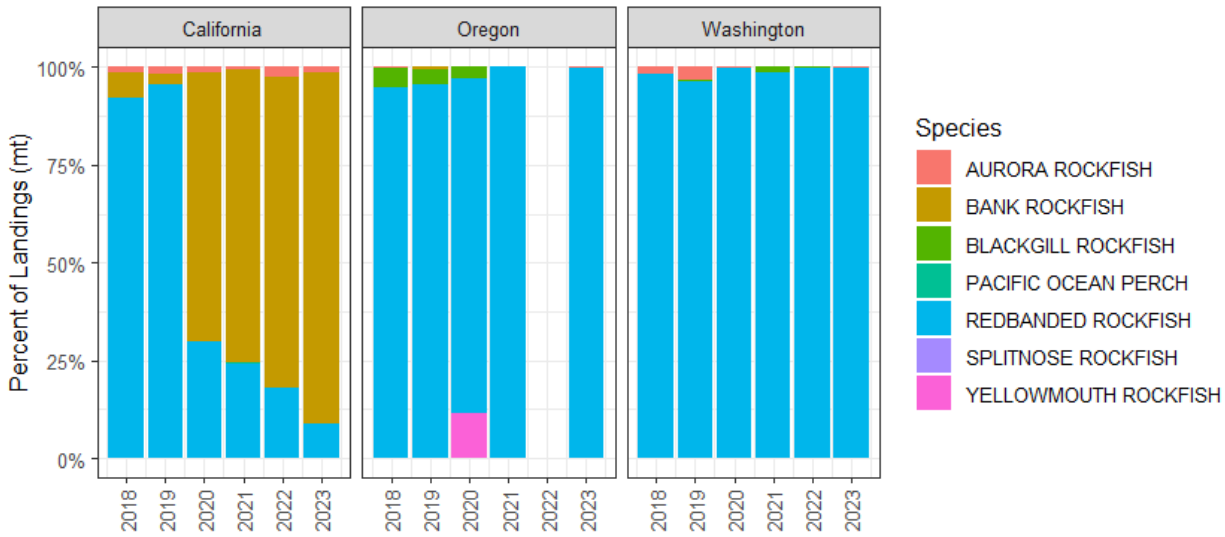
a/ Rougheye, blackspotted, shortraker, and blackgill (CA only) rockfishes were removed because they are currently required to be sorted to species.



~~**Figure 1. Trawl - Species proportions of slope rockfish landings in the trawl sector by state, 2018-2023. Rougheye, blackspotted, shortraker, and blackgill (CA only) rockfishes were removed because they are currently required to be sorted to species. Annual landings of a species where fewer than 3 vessels made landings in that year were also removed from the data before determining proportions. Data Source: PacFIN Comprehensive Fish Ticket Table**~~



~~**Figure 2. LEFG - Species proportions of slope rockfish landings in the LEFG sector by state, 2018-2023. Rougheye, blackspotted, shortraker, and blackgill (CA only) rockfishes were removed because they are currently required to be sorted to species. Annual landings of a species where fewer than 3 vessels made landings in that year were also removed from the data before determining proportions. Data Source: PacFIN Comprehensive Fish Ticket Table**~~



~~Figure 3. OA - Species proportions of slope rockfish landings in the OA sector by state, 2018-2023. Rougheye, blackspotted, shortraker, and blackgill (CA only) rockfishes were removed because they are currently required to be sorted to species. Annual landings of a species where fewer than 3 vessels made landings in that year were also removed from the data before determining proportions. Data Source: PacFIN Comprehensive Fish Ticket Table~~

~~Minor Shelf Rockfish Complex~~

~~Similar to the slope rockfish analysis, the following analysis of the shelf rockfish complex is conducted using PacFIN landings data and excludes species for which species-level sorting is already required. Compared to slope rockfish, landings of shelf rockfish tend to be relatively more diverse in species makeup across all three sectors and states, with the exception of trawl landings into California and OA landings into Washington. It is worth noting, however, that no more than 0.04 mt of OA shelf rockfish have been landed in Washington (Table 3). Figure 4 also indicates that trawl landings of shelf rockfish in California have been declining since at least 2019, possibly due to infrastructure losses, while OA landings increased from 2019-2021. With anticipated management measure changes in 2025-26 related to quillback rockfish off California, it is possible that OA shelf rockfish landings in California will continue to increase along with LEFG. Trawl landings of shelf rockfish have decreased in Washington, from 127 mt in 2019 down to 10 mt in 2023. The decrease in Washington trawl landings was most precipitous in 2020, possibly due to the COVID-19 pandemic.~~

~~In terms of species diversity, Oregon trawl landings of shelf rockfish appear to be the most diverse while California trawl landings appear to be the least diverse, with more than 85 percent of trawl shelf rockfish landings in California composed of bocaccio and chilipepper rockfish north of 40° 10′ N (Figure 4). In most years since 2018, OA shelf rockfish landings in California are made up of more than 50 percent yellowtail rockfish south of 40° 10′ N. lat, followed by greenspotted rockfish (Figure 6). Yellowtail rockfish south of 40° 10′ N. lat. also made up 84 percent of California LEFG landings in 2020, or 9.4 mt of the 11.2 mt landed that year. Yellowtail rockfish is currently on the Council's preliminary preferred list of species to assess in 2025, and if assessed, a stock definition for yellowtail rockfish will need to be determined (Agenda Item F.3.a, Supplemental GMT Report 1, March 2024). Depending on the outcome of the stock definition and~~

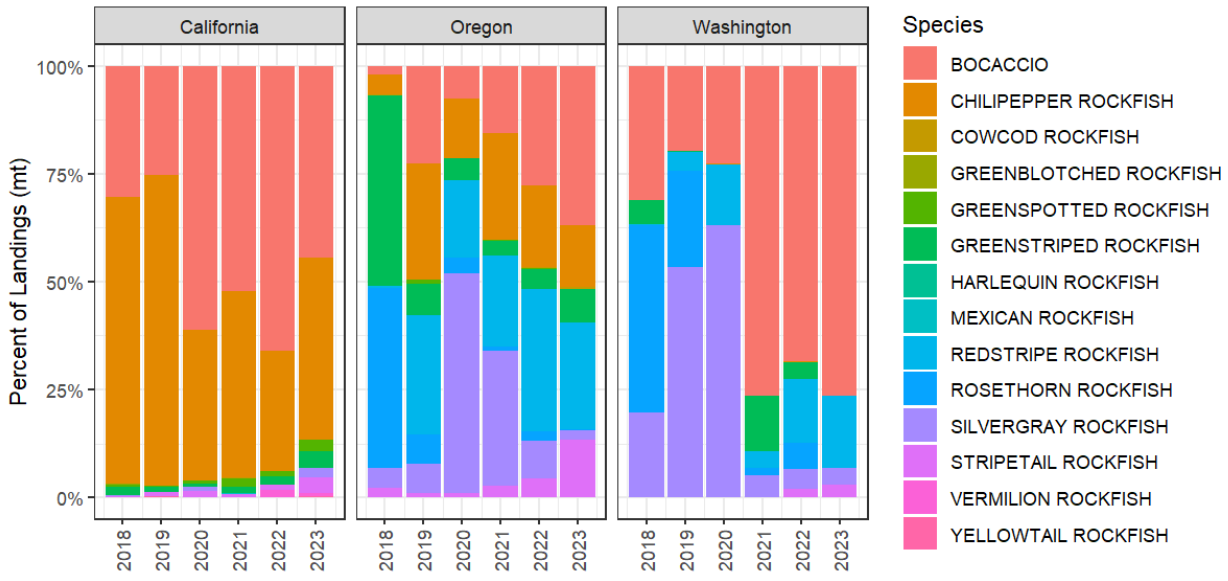
assessment process, it is possible that yellowtail rockfish could no longer be managed in the shelf rockfish complex south of 40° 10′ N. lat., because the population north of 40° 10′ N. lat. is not.

Since 2021, roughly 75 percent of total trawl shelf rockfish landings in Washington were made up of bocaccio (Figure 4). Prior to 2021, trawl shelf rockfish landings in Washington were predominantly silvergray and rosethorn rockfishes. The dominant shelf rockfish species from LEFG landings in Oregon has varied year-to-year, with up to 75 percent bocaccio in 2021 and 75 percent silvergray rockfish in 2023 (Figure 5) In Washington, the dominant LEFG species are relatively more consistent year-to-year, with the largest proportions of greenstriped and silvergray rockfishes since 2020.

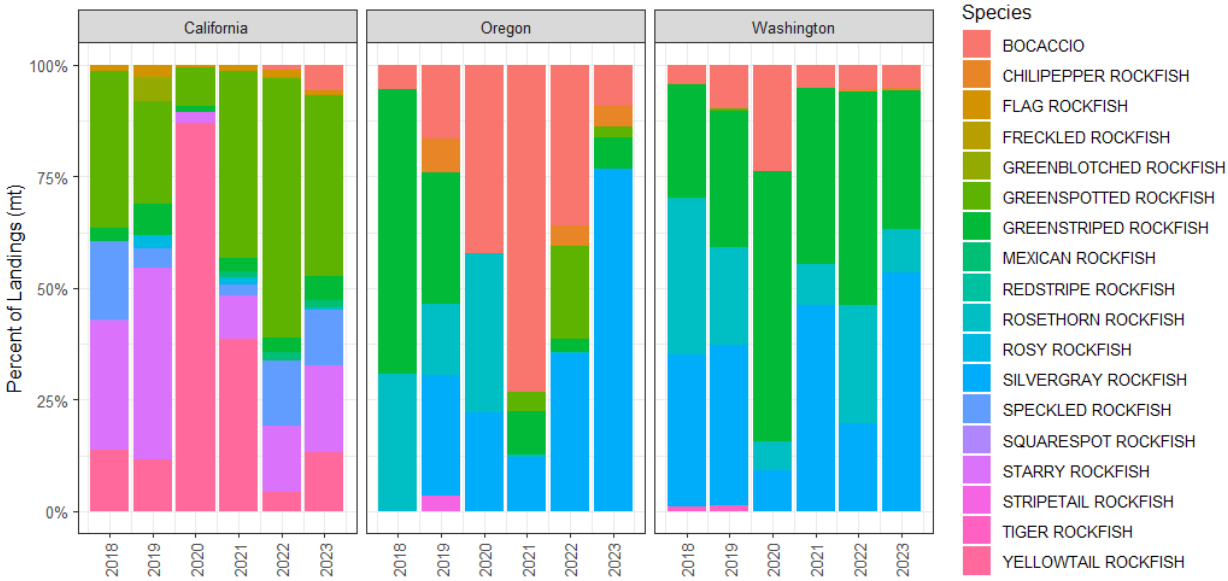
Table 3. Minor shelf rockfish landings by state and directed commercial groundfish sector, 2019-2023. Data Source: PacFIN Comprehensive Fish Ticket Table; *confidential data

	Shelf rockfish landings (mt) a/		
	California	**Oregon**	**Washington**
2019 Total	**256.9**	**127.4**	**127.04**
Trawl	247.3	126.8	126.7
LEFG	3.3	0.3	0.3
OA	6.3	0.3	0.04
2020 Total	**223.1**	**251.1**	**27.3**
Trawl	193.3	250.0	26.9
LEFG	11.2	0.2	0.4
OA	18.6	0.9	*
2021 Total	**154.3**	**187.4**	**18.23**
Trawl	125.7	185.4	18.0
LEFG	3.5	1.3	0.2
OA	25.1	0.7	0.03
2022 Total	**152.3**	**115.2**	**18.21**
Trawl	126.4	113.2	17.8
LEFG	3.9	1.8	0.4
OA	22.0	0.2	0.01
2023 Total	**123.3**	**133.2**	**10.53**
Trawl	93.8	128.1	10.1
LEFG	6.2	3.7	0.4
OA	23.3	1.4	0.03

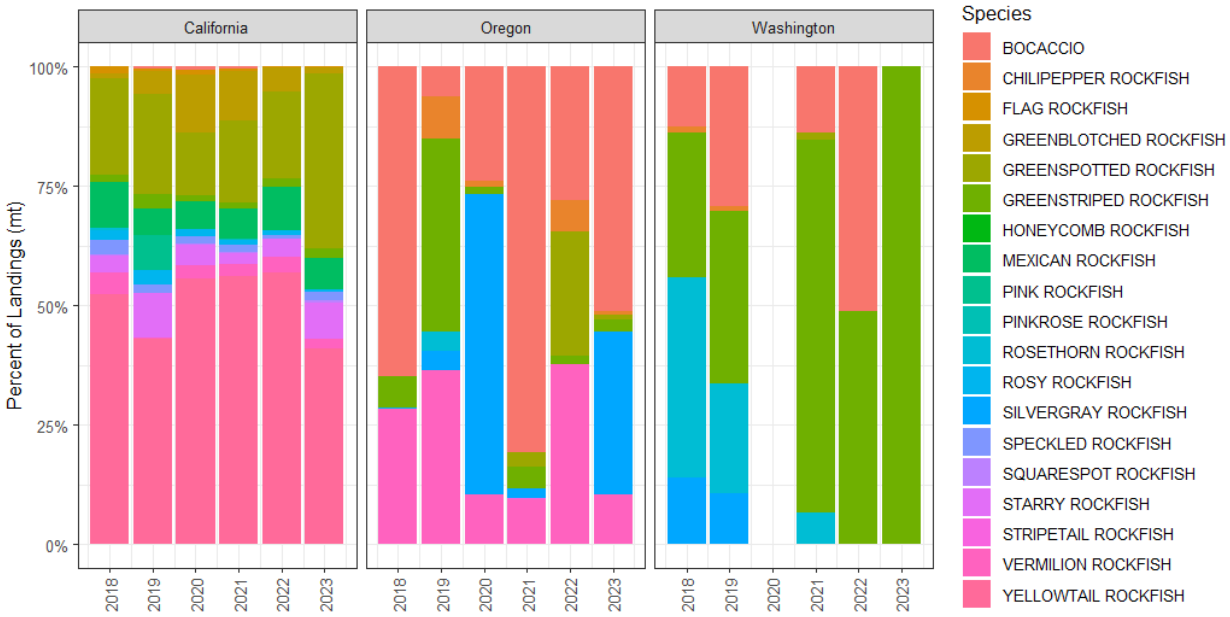
a/ For the trawl sector, bronzespotted rockfish south of 40° 10′ N. lat. was removed because they are already required to be sorted to species. For the LEFG and OA sectors, bronzespotted and vermilion rockfishes south of 40° 10′ N. lat. were removed for the same reason.



~~Figure 4. Trawl - Species proportions of shelf rockfish landings in the trawl sector by state, 2018-2023. Bronzespotted rockfish south of 40° 10′ N. lat. were removed because they are currently required to be sorted to species. Yellowtail rockfish included are only south of 40° 10′ N. lat., and bocaccio, chilipepper, and cowcod rockfishes included are only north of 40° 10′ N. lat. Annual landings of a species where fewer than 3 vessels made landings in that year were also removed from the data before determining proportions. Data Source: PacFIN Comprehensive Fish Ticket Table~~



~~Figure 5. LEFG - Species proportions of shelf rockfish landings in the LEFG sector by state, 2018-2023. Bronzespotted and vermilion rockfishes south of 40° 10′ N. lat. were removed because they are currently required to be sorted to species. Yellowtail rockfish included are only south of 40° 10′ N. lat., and bocaccio, chilipepper, and cowcod rockfishes included are only north of 40° 10′ N. lat. Annual landings of a species where fewer than 3 vessels made landings in that year were also removed from the data before determining proportions. Data Source: PacFIN Comprehensive Fish Ticket Table~~



~~Figure 6. OA – Species proportions of shelf rockfish landings in the OA sector by state, 2018-2023. Bronzespotted and vermilion rockfishes south of 40° 10′ N. lat. were removed because they are currently required to be sorted to species. Yellowtail rockfish included are only south of 40° 10′ N. lat., and bocaccio, chilipepper, and cowcod rockfishes included are only north of 40° 10′ N. lat. Annual landings of a species where fewer than 3 vessels made landings in that year were also removed from the data before determining proportions. Data Source: PacFIN Comprehensive Fish Ticket Table~~

~~Preliminary Impact Findings~~

~~Currently, there are minimal differences in sorting requirements between the three directed groundfish sectors, and introducing a large amount of inconsistencies across areas (north and south of 40° 10′ N. lat.) or sectors could create confusion among fishing industry participants, especially for those that participate in multiple sectors (e.g., gear switchers). Impacts from a federal requirement to sort rockfish to species in any of the three rockfish complexes will likely trend with landing volumes and species diversity. Higher volumes of more species will require more labor, totes, and space to sort to species. Low volume, low diversity landings will require less of all three. Because of this, impacts would vary across ports, and even across individual buyers in the same port. Additionally, the number and scale of buyer operations in a state would likely determine the amount of resources state sampling programs need to utilize in response to new sorting requirements. Compared to Washington and Oregon, California has a large number of small-scale buyers, which may require additional effort from California port samplers to educate buyers on new species sorting requirements and species identification.~~

~~As shown above, generally the greatest volume and diversity of landings comes from trawl landings of both slope and shelf rockfish complexes into Oregon. Unlike Washington and Oregon, trawl landings in California are almost entirely made up of two species. Shelf rockfish landings generally tend to be more diverse than slope rockfish landings for all three states, because there are simply a greater number of species in the shelf complex. LEFG and OA landings of slope rockfish tend to be the least diverse across all sector/complex groupings and are relatively low in volume for all three states. The degree of species diversity in these rockfish market categories may~~

~~also change as a result of re-assessing stock complexes in Phase 2 of defining stocks in the Pacific Coast Groundfish Fishery Management Plan. Some species may be removed from their current stock complexes as part of that process.~~

~~Commercial groundfish fishery landings are monitored by state sampling programs. The primary objectives of these programs are to provide estimates of the species compositions of landings (in weight of fish) and to provide information on biological characteristics, such as age, sex ratios, maturity stages, and length frequency. In addition, federally deployed catch monitors observe offloads in the individual fishing quota (IFQ) fishery to verify that landings match fish ticket records. Changes to current species sorting requirements will impact state sampling programs to varying degrees depending on the scope of the action and each state's particular program processes. The GMT consulted with Pacific States Marine Fisheries Commission regarding impacts to the federal IFQ catch monitoring program and learned that impacts would likely be minimal and easily addressed. However, minimizing impacts to the IFQ catch monitoring program hinges on state sampling programs making concerted efforts to educate buyers on species identification to ensure that buyers do not rely on catch monitors to do so, which is not their intended purpose.~~

~~Impacts to state sampling programs affect both data management and sampling procedures. States may need to create new species-specific codes where only complex codes have been defined. Otherwise, procedures do exist to sample and report single species market categories. Thus, state sampling programs would monitor species composition under species-specific sorting requirements to validate species identification, as is done for existing single species market categories. The impact to sampling workloads depends on the size of landing and/or the diversity of the catch. Landings where the catch is highly diverse may not be comparatively more difficult to sample if the numbers of fish comprising each species is low. In contrast, higher volume landings where catch is moderately or highly diverse would likely require more work to sample according to existing procedures. Additionally, port samplers may have a higher workload to educate buyers on species identification for whom the majority of their landings are from non-groundfish vessels (e.g., tuna, Dungeness crab), with minor amounts of groundfish landings, relative to buyers that regularly receive large amounts of groundfish. Increasing the workload associated with conducting species compositions could negatively impact the number of landings observed and/or collection of biological data. Sampling programs may also experience other logistical impacts depending on factors such as staffing levels and experience.~~

~~Similarly, buyers will be impacted to different degrees depending on the scope of the action, the fisheries they primarily receive deliveries from, current operational approaches, the experience of employees, the nature of their markets, and infrastructure. Like the sampling programs, buyer workloads could be impacted if extra labor is required to separate offloads by species. Buyers may also need to purchase or acquire more totes to accommodate the increased number of species. Further, some buyers may face space constraints.~~

~~Some buyers already sort to species in the slope or shelf rockfish complexes. Reasons vary for sorting beyond the legal requirement for rockfish market categories, i.e., "over-sorting." A few larger, long-established buyers have structured their operations around consistently sorting to species across fisheries fairly accurately. More typically, because rockfish can be particularly difficult to identify, the expectation is that fish species or species groups would not be cleanly~~

sorted. Dock crew turnover and the corresponding lack of species identification skills commonly influences the quality of sorting. Yet, dock crews have been observed to inadvertently sort to species simply because they can recognize differences among the species but are unable to identify the species and therefore do not understand which market category they belong to. Buyers are also increasingly sorting to species due to market factors, such as emerging direct to consumer markets for which certain species are easier to sell to consumers than others in the same market category. For example, smaller shelf rockfishes such as greenstriped and rosethorn rockfishes are known to be more palatable to consumers when sold as the whole fish.

Over-sorting also is not necessarily a consistent practice, and circumstances may affect over-sorting behavior. Where infrastructure is less protective, sorting beyond the legal requirement may be less likely in unfavorable weather conditions. Similarly, dealers may shift at times from over-sorting to sorting to the market category to meet market delivery deadlines. In contrast, under-sorting is more likely by buyers who purchase small volumes of fish, e.g., retail seafood businesses, by newer buying operations, and is more likely at those times of high dock crew turnover. Sorting quality may also suffer on high volume landing days.

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9D Removal of the Shortspine Thornyhead Management Line at 34°27′ N. lat.

Background

As a result of the 2023 stock assessment for shortspine thornyhead, which determined the coastwide stock to be in the precautionary zone, in September 2023 the GMT stated that, "the projected ABCs [Acceptable Biological Catch] using a P* of 0.45 are comparable to the GMT predicted catch projections for 2023 and 2024." (Agenda Item G.6.a, Supplemental GMT Report 1, September 2023). In November, the GMT stated, "...shortspine thornyhead may still become a constraining species to the groundfish fishery even under the highest P* available to the Council." (Agenda Item E.5.a, Supplemental GMT Report 2, November 2023). Under the status quo management structure, the trawl and non-trawl sector allocations north of 34° 27′ N. lat. would be affected by that Annual Catch Limit (ACL) reduction. However, south of 34° 27′ N. lat., only the non-trawl sector allocation would experience a reduction proportional to the ACL since there is a fixed value in the trawl sector (50 mt). In November 2023, the Groundfish Advisory Subpanel (GAP) and GMT both recommended that Amendment 21 formal allocations, including shortspine thornyhead, be reviewed as a part of the upcoming intersector allocation review process (Agenda Item E.7.a, Supplemental GAP Report 1, November 2023, Agenda Item E.7.a, Supplemental GMT Report 3, November 2023). However, during the overwinter analysis, an issue was uncovered that may be constraining to the prosecution of a targeted non-trawl fishery north of 34° 27′ N. lat.

The impacts of both alternative Harvest Control Rules (HCRs) for shortspine thornyhead under status quo management can be found within Chapters 3 through 5 of the Council Analytical Document (Agenda Item F.5, Attachment 2, April 2024). For the purposes of the analysis in this document, impacts to the various fisheries are based on the Alternative 2 HCR for shortspine thornyhead (P* 0.45) since that is the Council's Preliminary Preferred Alternative (PPA). Under the Alternative 2 HCR and status quo allocation scheme, the trawl Individual Fishing Quota (IFQ) allocations north of 34° 27′ N. lat. in 2025-26 are decreasing by roughly 65 percent compared to 2023 (Table) and would be lower than the fishery's typical annual catches prior to 2020; 2025-26 allocations could still constrain some vessels in the fishery even if the allocation is not fully attained. Bottom trawl vessels in the IFQ fishery, in particular, are likely to be impacted by limited shortspine thornyhead quota and may be required to modify their targeting behavior away from Dover sole and toward sablefish if shortspine thornyhead becomes a constraint, but the ability for markets to absorb additional sablefish landings may continue to be a limitation. Under the Alternative 2 HCR and status quo management measures, the non-trawl allocation south of 34° 27′ N. lat. in 2025-26 is decreasing by roughly 72 percent compared to 2023 and 66 percent north of 34° 27′ N. lat. The GMT realized that trip limits for the non-trawl sector north of 34° 27′ N. lat. would need to be reduced by 86 percent in the limited entry fixed gear (LEFG) sector and 20 percent in the open access (OA) sector to stay under the area-specific ACL, likely eliminating the ability of the non-trawl sector to prosecute a targeted fishery. The fishery south of 34° 27′ N. lat. will continue to be able to prosecute a targeted fishery. In this report, we focus on the impacts to the LEFG fleet since that specific fleet is targeting shortspine thornyhead for a higher price per pound.

Table 1. Status quo (SQ) shortspine thornyhead north of 34° 27′ N. lat. non-trawl allocation, trawl allocation, and subsequent at-sea set-aside and individual fishing quota (IFQ) allocation (under the trawl allocation), 2023-2026. The 2025 and 2026 amounts are based on the Council's Preliminary Preferred Alternative (PPA) harvest control rule (HCR) P* 0.45.

Year	Non-Trawl Allocation (mt)	Trawl Allocation (mt)	At-Sea Set-Aside (mt)	IFQ Allocation (mt)
2023	64	1,217	70	1,147
2024	62	1,187	70	1,117
2025 (SQ)	22	481	70	411
2026 (SQ)	26	486	70	416

As a result of the overwinter analysis, the GMT presented three different pathways for exploration to the Council in Agenda Item F.7.a, Supplemental GMT Report 3, March 2024. The GAP and the GMT discussed the issues around the decrease in shortspine thornyhead ACLs for the 2025-26 biennium. In Agenda Item F.7.a, Supplemental GAP Report 1, March 2024, the GAP agreed on and recommended including Pathway 2, removal of the management line at 34° 27′ N. lat., with modifications. Under Council discussion in March under F.7, the GMT was instructed "to prioritize pathway 2 as outlined in the GAP Report for analysis. No further analysis on other pathways." The GMT has analyzed Pathway 2 with the GAP modifications using the PPA HCR of P* 0.45. The GMT's understanding of the GAP-preferred method, including proposed modifications, are as follows:

- Remove the management line at 34° 27′ N. lat. and set a coastwide ACL.
- Set trawl/non-trawl allocations for 2025 at 64 percent trawl, 36 percent non-trawl, using the Amendment 20 (A-20) component rule for area recombinations, which requires the use of 2024 as the base year to determine future trawl/non-trawl allocations.
- For 2026 and beyond, change the trawl/non-trawl allocations to 71 percent of the coastwide fishery Harvest Guideline (HG) to trawl and 29 percent to non-trawl (GAP rationale: values would be the allocations if recombination was done in 2025 using the same calculations as below).
- Establish a non-trawl annual catch target (ACT) north of 34° 27′ N. lat. and/or trip limit adjustments to better align effort in the non-trawl sector with the estimated proportional biomass of shortspine thornyhead north and south of 34° 27′ N. lat. based on the Northwest Fisheries Science Center (NWFSC) West Coast Groundfish Bottom Trawl (WCGBT) survey data.

Current Management and Allocation Structure of Shortspine Thornyhead

Shortspine thornyhead was recently defined as a coastwide stock via Amendment 31 (88 FR 78677). Shortspine thornyhead's allocation structure is laid out in Amendment 21 to the Pacific Coast Groundfish Fishery Management Plan (FMP) (see page 64). It has a coastwide overfishing limit (OFL) and ABC (Table 2), and two area-specific ACLs and fishery HGs are set for north and south of 34° 27′ N. lat. The ACL apportionment method was historically based on the available data (2003-2012) from the NWFSC WCGBT survey at the time of the previous assessment conducted in 2013. However, the Council recently recommended that it be based on a recent five-year rolling average (Agenda Item E.5.a, Supplemental GMT Report 1, November 2023), aligning the methodology with how area-specific ACLs have been determined for sablefish. Both methods

have resulted in roughly 70 percent of the biomass estimated north of 34° 27′ N. lat. for the past five years (see Table from Agenda Item E.5.a, Supplemental GMT Report 1, November 2023). The allocation amounts for Alternative 1 and Alternative 2 (PPA) are shown in Sections §2.41 and §3.4.1 of the GMT Council Analytical Document (Agenda Item F.5, Attachment 2, April 2024), respectively. The allocation structure is repeated in Table 3 and Figure 1. The non-trawl fishery is managed via trip limits and the trawl fishery is managed via set-asides and tradable quota.

Table 2. Shortspine thornyhead coastwide OFL and ABC from the 2023 stock assessment.

Year	OFL	ABC
2025	940	821
2026	961	831

Table 3. Trawl/Non-trawl allocation structure for shortspine thornyhead under Amendment 21.

North of 34°27′ N. lat.			South of 34°27′ N. lat.	
Trawl	Non-trawl		Trawl	Non-trawl
95%	5%		50 mt	Remaining Yield

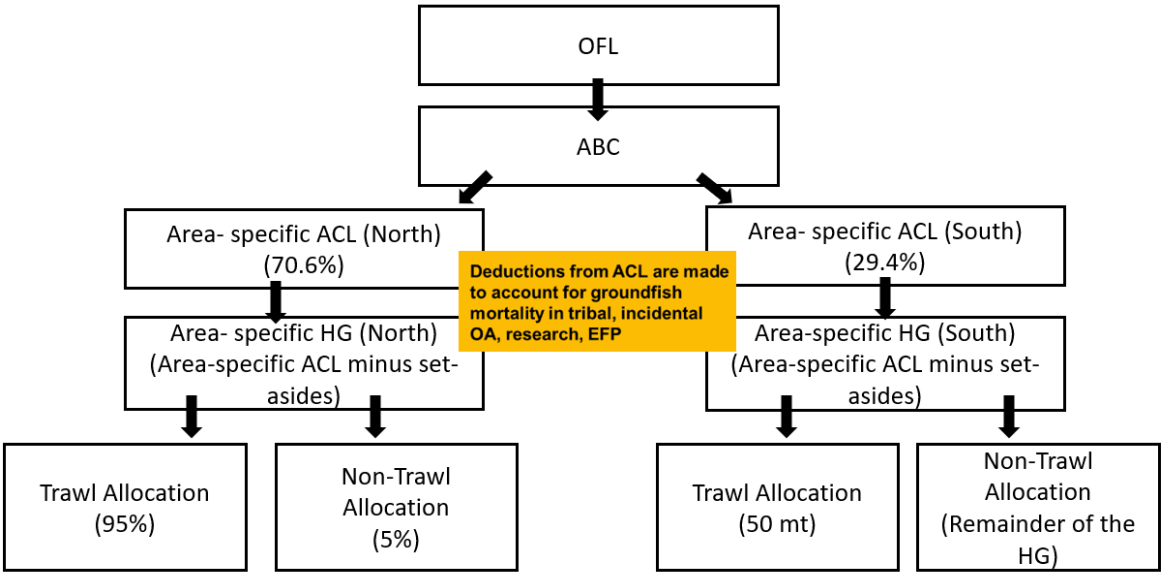


Figure 1. Status Quo Allocation Scheme under Amendment 21.

Mirroring the ACL management areas, shortspine thornyhead is managed with area-specific quota shares in the IFQ program north and south of 34° 27′ N. lat. As part of Amendment 20 (i.e., Trawl Rationalization), the Council chose this area-based management of shortspine thornyhead quota because at the time, there were separate area-based Optimum Yields. At the time, the GMT noted that "as data becomes available, area management within the [IFQ] program is expected to evolve and adapt," (Agenda Item F.3.f, Supplemental GMT Report, November 2008). At the November 2008 Council meeting, the GMT, GAP, Enforcement Consultants, and Groundfish Allocation Committee were generally in agreement that IFQ management areas should largely be designed to

address area-based biological or conservation concerns, recognizing that other factors may play a role on a species-by-species basis.

Purpose and Need of New Management Measure

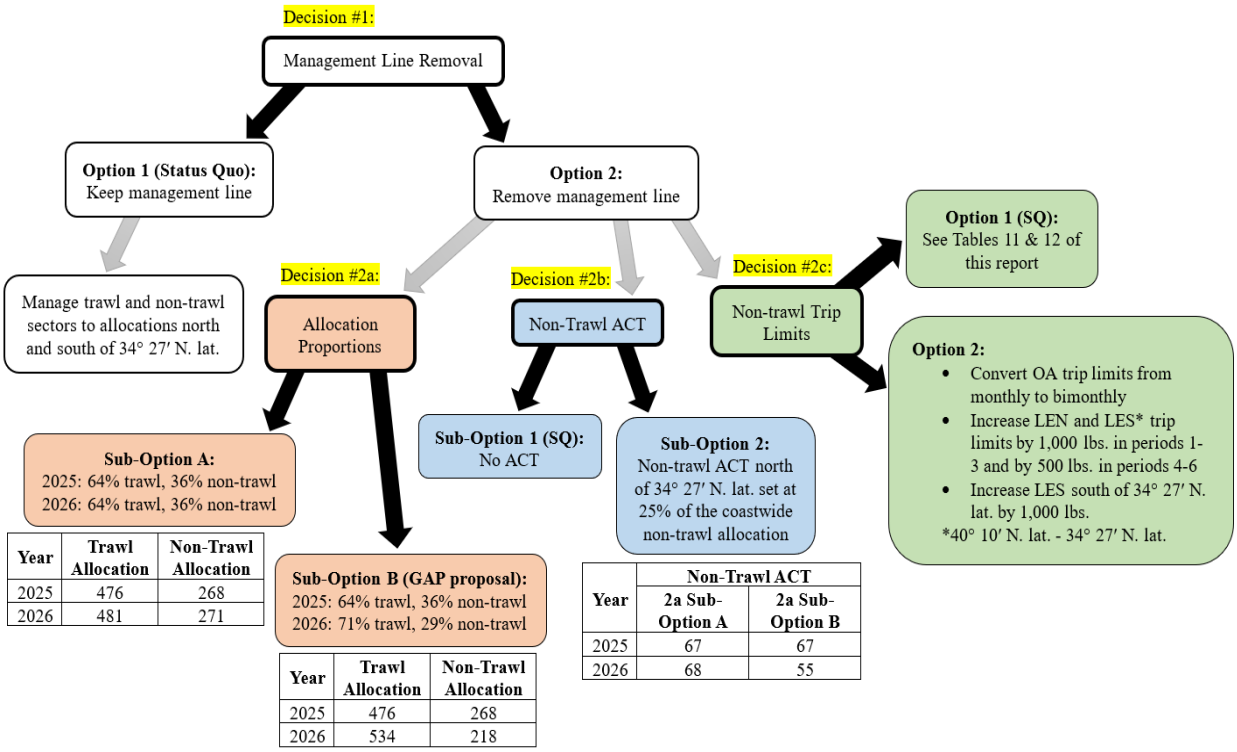
This action is needed because shortspine thornyhead allocation reductions in 2025-26 are expected to constrain fisheries, specifically by requiring substantial trip limit reductions to stay within the non-trawl allocation and potentially limiting targeting flexibilities of bottom trawl vessels. The purpose of this action would be to remove the management line at 34° 27′ N. lat. to alleviate allocation constraints, improve utilization of the coastwide stock, and protect non-trawl fisheries north of 34° 27′ N. lat. from potential collapse. Sub-options under this action to remove the management line are provided below that provide alternative options for allocating harvest across the coast to protect current fishery operations while also considering the distribution of the stock across the West Coast.

Options

Option 1 (Status Quo): Shortspine thornyhead continues to be managed with area-based ACLs north and south of 34° 27′ N. lat.

Option 2: The 34° 27′ N. lat. management line is removed for shortspine thornyhead, and coastwide ACLs and allocations are established.

Figure 2 shows the flow of decisions the Council would need to make associated with this action. If the Council chooses Option 2 (i.e., remove the management line), there are three additional decisions the Council will need to make which are 1) 2026 trawl/non-trawl allocation shares, 2) whether to establish a non-trawl ACT north of 34° 27′ N. lat., and 3) whether to modify non-trawl trip limits in response to a coastwide allocation. There are two options, including status quo, under each of the three additional decision points. If the Council chooses Option 1 (Status Quo) to keep the management line at 34° 27′ N. lat., no other decisions are necessary, and the Council would continue to manage the trawl and non-trawl sectors to area-based allocations north and south of 34° 27′ N. lat. with management measures currently outlined in the Council Analytical Document.



Year	Trawl Allocation	Non-Trawl Allocation
2025	476	268
2026	481	271

Year	Trawl Allocation	Non-Trawl Allocation
2025	476	268
2026	534	218

Year	Non-Trawl ACT	
	2a Sub-Option A	2a Sub-Option B
2025	67	67
2026	68	55

Figure 2. Decision tree for each decision point under this action. Under Decisions #2a and #2b, tables are included to provide numerical 2025-26 coastwide allocations (mt) and northern ACT (mt) under the options proposed, based on the Council's PPA HCR of P* 0.45. Gray arrows reflect steps from one decision point to the next decision, and black arrows reflect options under a specific decision.

Description of No Action

If the Council chooses Option 1, which would mean no action is taken to remove the management line, shortspine thornyhead would be managed with status quo area-based management measures north and south of 34° 27′ N. lat. Impacts from these status quo management measures are described in detail in the Council Analytical Document in Chapters 3 through 5, under Alternatives 1 (HCR of P* 0.40) and Alternative 2 (PPA HCR of P* 0.45).

Option 2: Removal of the Management Line at 34° 27′ N. lat.

Removal of the management line (Option 2) would set a coastwide ACL, combine off-the-top deductions and HGs, and coastwide trawl and non-trawl allocations based on proportions calculated using the previous year's area-combined allocations. This pathway would require amending the management structure for shortspine thornyhead in the Pacific Coast Groundfish FMP at Section 6.3.2.3 to set a coastwide ACL for shortspine thornyhead (as opposed to two separate area-specific ACLs north and south for the 2025-26 harvest specifications cycle and beyond). Under this proposal, the Council could choose to maintain shortspine thornyhead as an FMP-specified allocation (*i.e.*, the result of the allocation percentage outlined in the math above for the single stock coastwide) or make it a 2-year allocation stock. Although, the Council can revisit both at their discretion.

If the two ACLs were combined, NMFS would need to re-issue quota share (QS), as current QS holdings are assigned to either north or south of 34° 27' N. lat. and therefore QP can only be used within those specific areas. QP are issued annually based on QS holdings as a function of the annual shorebased IFQ allocation. Because the trawl/non-trawl allocation for shortspine thornyhead south of 34° 27' N lat. is based on a constant value for trawl and the remainder going to non-trawl, it is influenced by major fluctuations in the ACL for the area. More specifically, under the current allocation structure, an individual's QS holdings as a proportion of the overall ACL vary significantly between bienniums.

In order for NMFS to carry out an administrative recombination process, they would need to carry out the recombination 2024 based on current holdings, as a function of the current Shorebased IFQ allocations. Because QP holdings for 2025 are not yet legally owned by QS holders, NMFS will re-issue QS based on the IFQ account balances in December 2024 (i.e., when QP trading is frozen for the remainder of the year). The trawl recombination regulations at 50 CFR 660.140(c)(3)(vii)(A)(*2*) specify that, "A person holding QS or IBQ in the newly created area will receive the same amount of total QP or IBQ pounds as they would if the areas had not been combined." Since QS will be combined in December 2024, this means that the trawl/non-trawl proportions in 2024 will carry forward into 2025 and be applied to the coastwide HG. Using 2024 specifications and allocations as the base year, the following process (Figure 3) would need to occur for 2025 to result in a 64 percent trawl: 36 percent non-trawl split. However, the Council has the ability to choose the allocation structure for 2026. Sub-option B was proposed by the GAP in March 2024 (Agenda Item F.7.a, Supplemental GAP Report 1, March 2024). The reallocation decision proposed by the GAP is not required under the recombination process, their rationale was that the 71 percent trawl and 29 percent non-trawl split is what would have been calculated using the base year of 2025 instead of 2024.

Allocation decisions sub-options for 2026

Sub-option A: Maintain the 2024 base year allocation scheme of 64 percent trawl and 36 percent non-trawl sharing in 2026 and beyond.

Sub-option B: Change the allocation scheme to 71 percent trawl and 29 percent non-trawl starting in 2026.

Base Year (2024) Calculation for Pathway Two:

The area-based 2024 specifications and allocations are combined at each step to calculate the trawl and non-trawl percentages of the combined 2024 fishery HG, as follows:

Coastwide OFL = **3,162 mt**

Coastwide ABC = **2,030 mt**

Combined ACL: 1,328 mt (north of 34°27' N. lat.) + 702 mt (south of 34°27' N. lat.) **= 2,030 mt** (*i.e.*, equal to the ABC)

Combined off-the-top deductions: tribal set-aside (50 mt) + north research catch set-aside (10.48 mt) + north incidental open access set-aside (17.82 mt) + south research catch set-aside (0.71 mt) + south incidental open access set-aside (6 mt) = **85.01 mt**

Combined HG: ACL (2,030 mt) - off-the-top deductions (85.01 mt) **= 1,945 mt**

The result would be a combined ACL across both areas with combined off-the-top deductions and a combined HG. Recombination would be done using the 2024 base year HGs for the north and south. Allocation proportions would still be calculated based on separate north and south HGs for this one-time process because allocation percentages flow from the HG (see calculations below). Federal regulations provide a process to follow for area recombination in the trawl sector (see next section), which the National Marine Fisheries Service (NFMS) would follow when re-issuing trawl QS based on the new coastwide trawl allocation. Options for the non-trawl sector are discussed further below.

Amendment 20 Regulatory Process for Trawl Area Recombination

The "component rule" for Amendment 20 to the Pacific Coast Groundfish FMP (75 FR 78344; January 11, 2011) implemented the regulations at 50 CFR 660.140(c)(3)(vii)(A)(*2*), which provide a process to follow when two management areas are combined for an IFQ species. The regulations require that when re-combining two areas, the QS or individual bycatch quota (IBQ) held by individuals in each area will be adjusted proportionally such that: 1) the total QS or IBQ for the area sums to 100 percent, and 2) a person holding QS or IBQ in the newly created area will receive the same amount of total quota pounds (QP) or IBQ pounds as they would if the areas had not been recombined. Given these conditions, the new trawl allocation amount would be adjusted as follows:

Current Combined Trawl Allocation Formulas:
Trawl Allocation North of 34° 27' N. lat. = Harvest guideline North of 34° 27' N. lat. ***x*** *0.95 =* ***1,187 mt*** *in 2024*

Trawl Allocation South of 34° 27' N. lat. = ***50 mt*** *in 2024*

Sum of the Trawl Allocations N. and S. of 34° 27' N. lat. = Trawl Allocation North of 34° 27' N. lat. ***+*** *Trawl Allocation South of 34° 27' N. lat. =* ***1,237 mt*** *in 2024*

Proposed combined trawl allocation formula for future bienniums: 1,237 mt (2024 combined allocation) / 1,945 mt (sum of 2024 [base year] N. and S. HG) = **64 percent of future coastwide HG**

Table 4 shows the 10-year projected coastwide trawl allocations if the management line were removed (Option 2) compared to the status quo trawl allocations north and south of the management line if the Council chose Option 1. The sum of the status quo north and south allocations are not used in management and are only provided for comparison against the Option 2 coastwide allocation. QS would be proportionally re-calculated by NMFS based on the summed coastwide allocation.

Table 4. Trawl allocations projected for 2025-2034 under Option 1 (SQ) and Option 2 assuming 2025-26 off-the-top deductions in all future years. Under Option 2, the two allocation sub-options are shown. Sub-option A being 64 percent of the coastwide harvest guideline (HG) for all years. Sub-option 2, the coastwide trawl allocation has been calculated as 64 percent of the coastwide harvest guideline (HG) in 2025 and 71 percent for all other years. Also shown is the status quo method of calculating the trawl allocation to the north (N) and south (S) of 34° 27′ N. lat., with the sum of the area allocations for comparison only.

Year	Option 1 (SQ)					Option 2		
	HG N	HG S	SQ Trawl Allocation (mt) N	SQ Trawl Allocation (mt) S	Sum of SQ Trawl allocations N and S (mt)	HG (mt) coastwide	Sub-Option A Trawl Allocation (mt) Coastwide	Sub-Option B Trawl Allocation (mt) Coastwide
2025	506	238	481	50	531	744	476	476 a/
2026	512	240	486	50	536	752	481	534
2027	519	243	493	50	543	762	488	541
2028	525	246	499	50	549	771	493	547
2029	531	248	504	50	554	779	499	553
2030	536	251	510	50	560	787	504	559
2031	541	253	514	50	564	794	508	564
2032	546	254	518	50	568	800	512	568
2033	549	256	522	50	572	805	515	572
2034	553	258	526	50	576	811	519	576

a/ Calculated as 64 percent of the coastwide HG using the 2024 base year. All other years use the new allocation of 71 percent of the coastwide HG.

Options for Non-Trawl Adjustments

Although federal regulations provide a process for re-combining management areas for the trawl sector and proportionally adjusting QS holdings if a coastwide trawl allocation is created, this process of recombination for the non-trawl sector is not outlined in federal regulations, therefore the GMT proposes one way this could be accomplished. The non-trawl allocation could be established by the same recombination method as the trawl sector described above:

Current Non-Trawl Allocation Formulas:

Non-Trawl Allocation North of 34° 27' N. lat. = Harvest guideline North of 34° 27' N. lat. ***x*** *0.05 =* ***63 mt*** *in 2024*

Non-Trawl Allocation South of 34° 27' N. lat. = Harvest guideline South of 34° 27' N. lat. ***-*** *50 mt =* ***645 mt*** *in 2024*

Sum of the Non-Trawl allocations N. and S. of 34° 27' N. lat. = Non-Trawl Allocation North of 34° 27' N. lat. + Non-Trawl Allocation South of 34° 27' N. lat. = ***708 mt***

Proposed Non-trawl allocation for future bienniums: 708 mt (2024 allocation) / 1,947 mt (sum of 2024 N. and S. HGs) = **36 percent of coastwide HG**

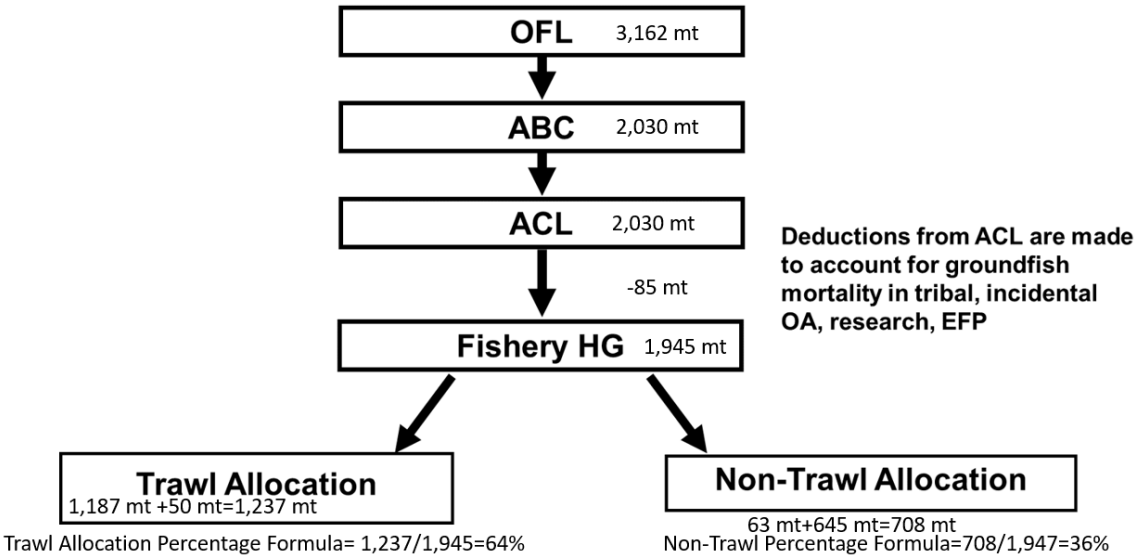


Figure 3. Schematic showing how the trawl/non-trawl allocation calculations are derived using 2024 as the base year.

For 2025, the 2024 base year calculation results in allocation shares of 64 percent trawl and 36 percent non-trawl (Figure 3). Figure 4shows the values associated with 2025. If the Council were to move forward with Option 2 with the GAP modification in 2026 (Sub-Option B), the 2026 allocation scheme would be an allocative decision separate from the area recombination method, where the future biennial allocations would be calculated as 71 percent trawl and 29 percent non-trawl (Figure 5). Table 5 shows what future non-trawl allocations could be under this allocation structure if off-the-top deductions remain the same as those proposed for 2025-26 (72 mt).

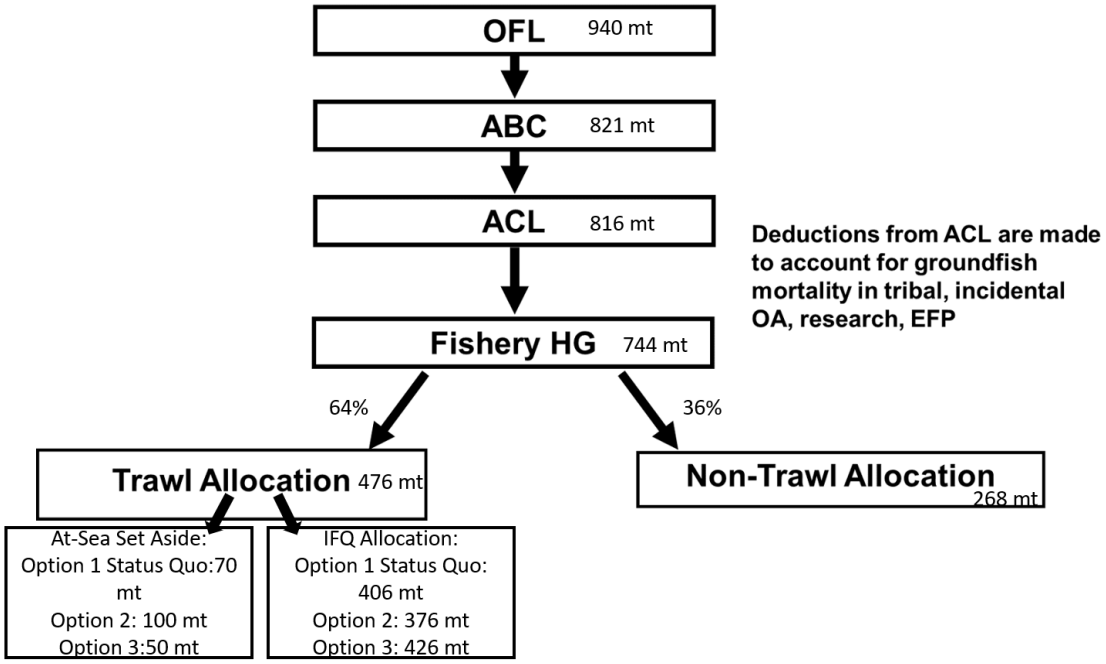


Figure 4. 2025 allocations (mt) based on P* 0.45 and the 2024 base year calculations.

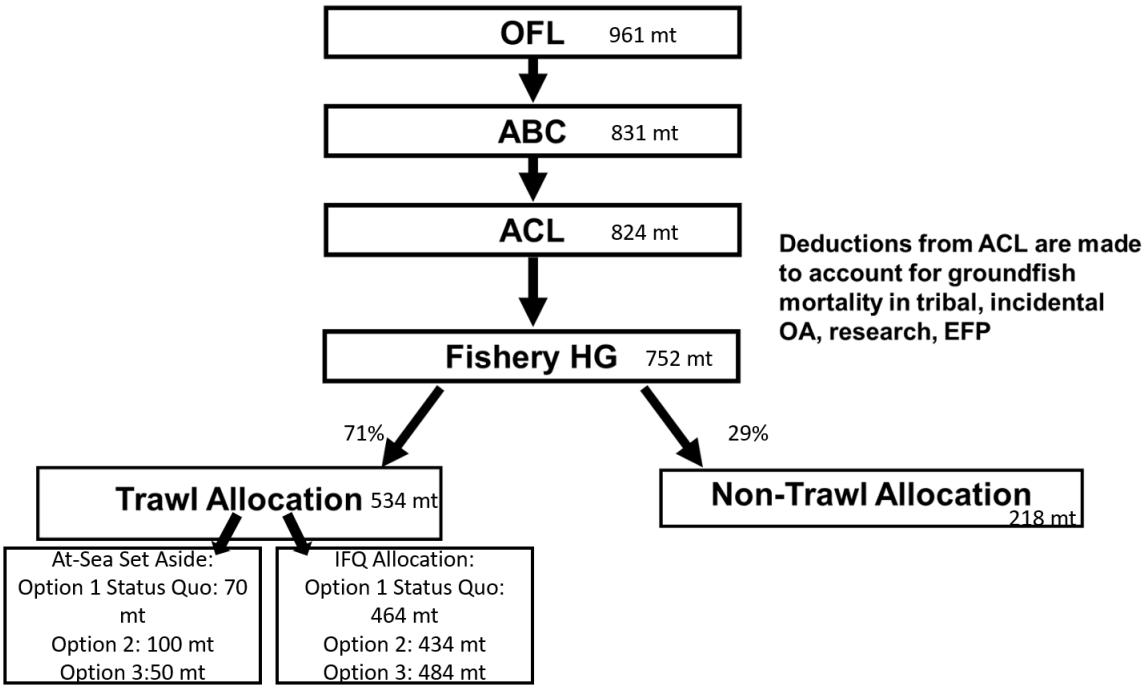


Figure 5. 2026 allocations under allocation Sub-option B (GAP modification) and using P* 0.45.Table 5. This table represents potential future allocations to the non-trawl fleet by area if the off-the-top deductions remain the same from 2025 onward (72 mt). Under Option 2, the two allocation sub-options are shown. Sub-option A being 36 percent of the coastwide harvest guideline (HG) for all years. Sub-option 2, the coastwide trawl allocation has been calculated as 36 percent of the coastwide harvest guideline (HG) in 2025 and 29 percent for all other years. Potential future trawl allocations are found in Table 4. Also shown is the status quo approach to calculating the non-trawl allocation to the North (N.) and South (S.) of 34° 27′ N. lat., with the sum of the area allocations for comparison only.

Year	Option 1 (SQ)					Option 2		
	HG N	HG S	SQ Trawl Allocation (mt) N	SQ Trawl Allocation (mt) S	Sum of SQ Trawl allocations N and S (mt)	HG (mt) coastwide	Sub-Option A Trawl Allocation (mt) Coastwide	Sub-Option B Trawl Allocation (mt) Coastwide
2025	506	238	25	188	213	744	268	268 a/
2026	512	240	26	190	216	752	271	218
2027	519	243	26	193	219	762	274	221
2028	525	246	26	196	222	771	278	224
2029	531	248	27	198	225	779	280	226
2030	536	251	27	201	227	787	283	228
2031	541	253	27	203	230	794	286	230
2032	546	254	27	204	232	800	288	232
2033	549	256	27	206	233	805	290	233
2034	553	258	28	208	235	811	292	235

a/ Calculated as 36 percent of the coastwide HG using the 2024 base year. All other years use the new allocation of 29 percent of the coastwide HG.

The GAP recommended analyzing "Option 2 with the establishment of non-trawl ACTs and/or trip limits to protect non-trawl fishermen south of 34° 27′ N. lat." Therefore, the GMT proposes the following ACT sub-options under Option 2 for the Council's consideration. Sub-option 2 is designed to distribute non-trawl effort based on the biomass if the Council removes the management line. The GMT proposes adopting an ACT for north of 34° 27′ N. lat. of 25 percent of the coastwide non-trawl allocation. The Council directed the GMT to analyze the GAP modification (sub-option 2 below), therefore, the GMT only analyzed sub-area trip limits (see non-trawl impact section) and not the coastwide trip limit option outlined in the scoping document in March 2023.

Sub-option 1: ***Coastwide non-trawl allocation*** set LEFG and OA trip limits according to the coastwide non-trawl allocation with no ACT.

Sub-option 2: ***Create a non-trawl ACT north of 34° 27′ N. lat.*** that is set at 25 percent of the coastwide non-trawl allocation.

An ACT of 25 percent was analyzed because it is expected to ensure the prosecution of the targeted non-trawl sector north of 34° 27′ N. lat. since the ACT is greater than the northern non-trawl sector's most recent five-year average mortality of 36 mt (ACT = 67 mt in 2025, 55 mt in 2026, if sub-option B is chosen) while allowing the southern sector to continue to prosecute the southern portion of shortspine thornyhead. The GMT proposes that if 25 percent of the non-trawl allocation is projected to be reached or exceeded by the north and the south has exceeded 50 percent of the non-trawl allocation, the GMT will alert the Council and evaluate the need for trip limit decreases in the north for Council consideration. If these criteria are not met, the GMT will continue to monitor and bring to the Council's attention when there is a risk to the ACL. *The GMT requests feedback on this proposal from the GAP and the Council.*

Impact Analysis

Biological/Environmental Impacts

The non-trawl fisheries operate from the U.S./Canada border to the U.S./Mexico border, but there are substantially different markets throughout that area. From 40° 10′ N. lat. to the Mexico border there are more market opportunities for shortspine thornyhead landed live which leads to a higher price per pound and a more targeted fishery within the limited entry non-trawl sector (see Table 30 in Council Analytical Document). This is distinctly different from the trawl sector, which is closed to bottom trawl fishing in most areas south of 34° 27′ N. lat. as well as processing restrictions for the at-sea fishery south of 42° N. lat. Removals from the trawl sector have been entirely from the area north of 34° 27′ N. lat. since 2017. The removal of the management line at 34° 27′ N. lat. (Option 2) would potentially concentrate fishing mortality in the north which could exceed the estimated proportional biomass north, based on the current five-year rolling average biomass estimates in each area based on data from the WCGBT survey, (70 percent) and south (30 percent) of the management line (Table 6).

Shortspine thornyhead is well observed by the WCGBT survey, which gives us more confidence in the proportional biomass. However, if there is seasonal latitudinal movement throughout the

year, the proportion of biomass by area observed by the fishery may differ from the survey estimates, whereas if there is seasonal seaward and shoreward movement, the survey is more likely to provide a more accurate estimate. Additionally, the northern estimate of shortspine thornyhead has increased roughly 5 percent since 2003 (Table 1 of Agenda Item E.5.a, Supplemental GMT Report 1, November 2023) and may continue to increase in the future, but to what extent and how quickly is unknown. The potential for this should be considered when establishing an allocation scheme that is based on proportional biomass estimates.

With the removal of the management line, future mortality is expected to be higher for the portion of the stock north of 34° 27′ N. lat., compared to if the management line remains, given the distribution of the trawl fishery off the coast and the ability to access a coastwide allocation for the non-trawl fishery. Hence, under the Option 2 sub-options, effort by area may depart from, and exceed, the current estimates of shortspine thornyhead biomass north of 34° 27′ N. lat. to varying degrees. However, it is unclear what potential risk this may pose to the coastwide stock. Specifically, if the Council chooses Option 2, allocation Sub-option A, and ACT Sub-option 2, up to 73 percent of coastwide mortality could occur north of 34° 27′ N. lat., whereas if the Council chooses Option 2, allocation Sub-option B, and ACT Sub-option 2, northern mortality could be up to 78 percent (Table 6). If the Council does not set an ACT but still removes the management line, there is a possibility that all mortality could occur north of 34° 27′ N. lat.

Based on this, the GMT poses the following questions for consideration that may inform the Council's risk tolerance to certain sub-options under Option 2 (management line removal) of this action. The team is unclear whether these questions can be definitively answered before final action is taken in June, but the team agreed that they are important to ask when considering how estimates of proportional biomass north and south of 34° 27′ N. lat. informs both the allocation and ACT decisions.

- *If mortality in the north exceeds the proportional biomass, what risk does this pose to the stock? Additionally, what is the risk to the stock if all mortality occurs north of 34° 27′ N. lat.?*
- *Is there a meaningful difference between northern mortality of 73 percent and 78 percent of coastwide mortality when northern biomass is estimated to be an average of 70.6 percent of the coastwide total from 2017 to 2022?*

If the management line is removed, trawl activity in the south is not expected to increase beyond potentially minimal amounts due to status quo bottom trawl area closures (e.g., bottom trawl Essential Fish Habitat Conservation Areas) south of the management line that would continue to limit bottom trawl opportunities in 2025-26. While there has been no IFQ catch of shortspine thornyhead south of 34° 27′ N. lat. since 2017, the Cowcod Conservation Areas (CCAs) off California were recently opened to fixed gear, which includes gear switchers in the IFQ fishery. Whether gear switching activity will increase south of 34° 27′ N. lat. as a result of this is unclear. The at-sea fishery, which uses midwater trawl gear, has caught as much as 244 mt of shortspine thornyhead in a single year (2022), but the at-sea fishery is prohibited from processing south of 42° N. lat.

ACT Modification

ACT Sub-option 2, which sets an ACT north of 34° 27′ N. lat. at 25 percent of the coastwide non-trawl allocation, slows the potential for concentration of effort in the north by as much as 19 percent which could prevent mortality from surpassing the estimated proportional biomass (Table 6). As discussed in detail below, there has not been any bottom trawl effort south of 34° 27′ N. lat. for many years, and therefore, all trawl mortality comes from the north of 34° 27′ N. lat. A non-trawl ACT north of 34° 27′ N. lat. is a tool that could be implemented to align effort to estimated proportional biomass while still meeting coastwide harvest targets. Without the ACT, and if there is an average level of fishing in the south, 92 percent of shortspine thornyhead mortality is likely to occur north of 34° 27′ N. lat.

Allocation Modification

The GAP modification to reallocate the trawl/non-trawl allocations in 2026 would increase the degree to which fishing mortality could surpass the current estimated northern biomass by increasing the potential northern mortality from 73 percent to 78 percent of coastwide mortality (Table 6), assuming the implementation of a non-trawl ACT in the north and that it is not exceeded. It is worth noting, however, that these percent estimates assume 100 percent of the trawl allocation will be attained. Only very few IFQ species allocations are over 90 percent attained and those are typically high-volume target species such as petrale sole and sablefish. Due to the nature of the tradable quota market, there is generally some underutilization of most IFQ species, even with lower allocations. Additionally, vessels in both the at-sea and IFQ fisheries are likely to avoid shortspine thornyhead more when the set-aside and quota availability become a constraint. ACT Sub-option 2 with allocation Sub-option A better aligns with the estimated proportional biomass by area by maintaining the possible percent of mortality north at 73 percent (Table 6). This highlights a bigger issue with all of our coastwide stocks, many of which do not have uniform effort throughout the whole range. Management of all groundfish stocks might benefit from a deeper discussion about using area-based biomass estimates to inform the spatial allocation of fishery effort.

Table 6. Proposed non-trawl ACT of 25 percent north of 34° 27′ N. lat. Shown are the coastwide harvest guideline (HG) and the trawl/non-trawl allocation under each sub-option. The possible northern mortality in mt is based on an assumption that 100 percent of the trawl allocation and 100 percent of the non-trawl ACT is attained, but under Sub-option 1, 64 mt is assumed to be harvested by the non-trawl fishery south of 34° 27′ N. lat. based on their recent five-year average mortality. The estimated percent of mortality north is the possible northern mortality divided by the coastwide HG. Across the last 5 years WCGBT survey observed approximately 70 percent of shortspine thornyhead biomass north of 34° 27′ N. lat.

Sub-option	Year	Coastwide HG (mt)	Coastwide Trawl Allocation (mt)	Coastwide Non-Trawl Allocation (mt)	Proposed North Non-Trawl ACT 25% (mt)	Possible Northern Mortality (mt) a/	Estimated Percent of Mortality North
Sub-option 1: Coastwide Non-trawl Allocation	2025	744	476	268	--	680 a/	91%
	2026	752	481	271	--	688 a/	91%
	2027	762	488	274	--	698 a/	92%
	2028	771	493	278	--	707 a/	92%

Sub-option 2: ACT with allocation Sub-option A	2025	744	476	268	67	543 b/	73%
	2026	752	481	271	68	549 b/	73%
	2027	762	488	274	69	556 b/	73%
	2028	771	493	278	69	563 b/	73%
Sub-option 2: ACT with GAP modification Sub-option	2025	744	476	268	67	543 b/	73%
	2026	752	534	218	55	588 b/	78%
	2027	762	541	221	55	596 b/	78%
	2028	771	547	224	56	603 b/	78%

a/ Assumes 100 percent attainment of the trawl allocation added to the coastwide non-trawl allocation minus the 64 mt five-year average mortality from the fishery south of 34° 27′ N. lat.
b/ North portion of the CW allocation assumes 100 percent attainment of the trawl allocation added to the north non-trawl ACT. The non-trawl ACT could be exceeded by some amount, which could result in possible mortality that is higher than the amount shown.

Socioeconomic Impacts

The removal of the management line at 34° 27′ N. lat. under Option 2 would allow the targeted non-trawl fishery in the north to be prosecuted similarly to the average of the last few years, but not necessarily expanded (with the GAP modification of ACT sub-option 2). The removal of the management line would allow for the northern and southern non-trawl fisheries to potentially harvest the same levels as in 2023 (if not more). If conditions remained similar to 2023, there could be a potential of $666,407 of ex-vessel revenue south of 34° 27′ N. lat. from landings of 27.3 mt and a potential of $493,571 in ex-vessel revenue north of 34° 27′ N. lat. from landings of 27.9 mt.

Under any of the management options for 2025-26 (including status quo), there is the possibility that at least some vessels in the IFQ fishery will incur economic losses due to allocation reductions. The threshold at which certain allocation levels will impact IFQ vessels is unclear. If the management line is removed, only allocation Sub-option B would result in substantive[1] socioeconomic impacts that are different from status quo impacts. The additional 53 mt to the IFQ fishery under Sub-option B in 2026, compared to status quo, could provide bottom trawl vessels with greater flexibility in their Dover sole, thornyhead, and sablefish complex (DTS) targeting strategy and provide additional opportunity to target Dover sole, which is frequently caught with shortspine thornyhead. While greater volumes of Dover sole are typically landed in a single trip, resulting in greater overall ex-vessel revenue contribution than shortspine thornyhead, shortspine thornyhead tends to fetch a slightly higher price per pound than Dover sole in most years and therefore is still a highly marketable species itself.

Socioeconomic impacts to both the trawl and non-trawl fisheries are expected based on recombination and subsequent allocative decisions.

[1] All sub-options under Option 2 result in trawl and IFQ allocations that are 5 mt lower in 2025 than status quo, and allocation Sub-option A results in trawl and IFQ allocations that are 5 mt lower in 2026 as well.

Management Impacts

Trawl Impacts

Option 2 to remove the management line at 34° 27′ N. lat. with the allocation Sub-Option A, which sets the trawl allocation at 64 percent of the coastwide HG, would result in coastwide shortspine thornyhead trawl allocations of 476 mt and 481 mt in 2025 and 2026, respectively (Table 7). Compared to keeping the management line in place (Option 1), those allocations would be 5 mt less each year than the 2025-26 trawl allocations north of 34° 27′ N. lat. An at-sea set-aside is deducted from the trawl allocation to account for mortality in the at-sea fishery. The at-sea set-aside options for shortspine thornyhead are 70 mt (Option 1, status quo), 100 mt (Option 2), and 50 mt (Option 3). Under Option 2, management of the at-sea fishery would remain unchanged except that the set-aside amount would be deducted from a coastwide trawl allocation rather than the allocation north of 34° 27′ N. lat. The at-sea fishery is prohibited from processing south of 42° N. lat., so effort distribution is not expected to change. Analysis of the at-sea set-aside options for shortspine thornyhead can be found in Chapter 3, Section 2.2.3 of the Council Analytical Document (Agenda Item F.5, Attachment 2, April 2024).

After removing the at-sea set-aside, the remainder of the trawl allocation is allocated to the IFQ program for which a quota system is used to monitor catches and keep mortality within the allocation. Based on the Council's PPA HCR of P* 0.45 (Alternative 2), removing the management line and using the area recombination methods described previously would result in coastwide IFQ allocations ranging from 376 mt to 426 mt in 2025 and 381 mt to 484 mt in 2026, depending on the at-sea set-aside option chosen as well as the allocation sub-option under this action (Table 7). Compared to the status quo shortspine thornyhead IFQ allocation north of 34° 27′ N. lat. in 2025-26, the coastwide IFQ allocation would be 5 mt lower in both 2025 and 2026 if the trawl allocation is set at 64 percent of the coastwide HG both years (Sub-Option A). If the trawl proportion is increased to 71 percent in 2026, as proposed by the GAP (Sub-Option B), the 2026 IFQ allocation would be 48 mt higher in 2026 than the status quo north allocation.

Table 7. Shortspine thornyhead IFQ allocations in 2025-26 with (Option 2) and without (Option 1 SQ) management line removal across the two allocation sub-options and all three at-sea set-aside options under consideration. All IFQ allocations are based on the Alternative 2 HCR of P* 0.45.

Shortspine Thornyhead Management Line Option	Year	Coastwide HG (mt)	Coastwide Trawl Allocation (mt)	IFQ Allocation (mt)			Difference from SQ (mt)
				At-Sea Set-Aside Option 1 SQ (70 mt)	At-Sea Set-Aside Option 2 (100 mt)	At-Sea Set-Aside Option 3 (50 mt)	
Option 1 (Status Quo) a/	2025	N/A	N/A	411	381	431	
	2026	N/A	N/A	416	386	436	
Option 2, Sub-Option A (64% trawl allocation in 2026)	2025	744	476	406	376	426	-5
	2026	752	481	411	381	431	-5

Shortspine Thornyhead Management Line Option	Year	Coastwide HG (mt)	Coastwide Trawl Allocation (mt)	IFQ Allocation (mt)			Difference from SQ (mt)
				At-Sea Set-Aside Option 1 SQ (70 mt)	At-Sea Set-Aside Option 2 (100 mt)	At-Sea Set-Aside Option 3 (50 mt)	
Option 2, Sub-Option B (71% trawl allocation in 2026)	2025	744	476	406	376	426	-5
	2026	752	534	464	434	484	+48

a/ The status quo allocations shown are only for shortspine thornyhead north of 34° 27′ N. lat. If the management line is kept, the status quo allocation south of 34° 27′ N. lat. would be the fixed 50 mt.

IFQ mortality of shortspine thornyhead north of 34° 27′ N. lat. averaged 707 mt annually prior to 2020 and 333 mt annually since 2020 (Table 8), and attainment has generally been declining since the start of the IFQ program. Although mortality has been below 370 mt since 2020, status quo reductions to the shortspine thornyhead north IFQ allocation in 2025-26 could restrict the ability of bottom trawl vessels to flexibly target either Dover sole or sablefish based on market demand and could, overall, increase the price of shortspine thornyhead quota pounds in the north as demand increases (See Chapter 4, Section 2.2.6 of the Council Analytical Document [Agenda Item F.5, Attachment 2, April 2024]). Additionally, higher sablefish allocations in 2025-26 could increase shortspine thornyhead catches, but to what extent is unknown, as data analysis and industry communication suggests that bottom trawl vessels are generally able to avoid shortspine thornyhead while targeting sablefish (Appendix D). Also, the co-occurrence of sablefish and shortspine thornyhead varies by vessel.

The allocation scheme proposed by the GAP (Sub-option B) would calculate the coastwide trawl allocation as 64 percent of the coastwide HG in 2025 and 71 percent of the coastwide HG in 2026. Using 71 percent to calculate the coastwide trawl allocation in 2026, instead of 64 percent, results in an additional 53 mt that could be used by trawlers that are currently operating north of 34° 27′ N. lat. That additional 53 mt would likely give bottom trawlers some additional flexibility to set DTS targeting strategies based on market demand. Sablefish prices have been at record lows in recent years, and some trawl buyers have invested in Dover sole infrastructure, both of which could incentivize prioritizing Dover sole. Given that 95 percent of IFQ catch of shortspine thornyhead is by bottom trawlers and 96 percent of bottom trawl catch is caught with Dover sole on the same haul, the additional quota in 2026 under Sub-option B could be used to target additional Dover sole. The rate of Dover sole to shortspine thornyhead per haul varies widely for each vessel and across vessels in the fleet, so it would be complicated to estimate exactly how much additional Dover sole could be caught. However, fleetwide, generally 10-14 mt of Dover sole are caught per 1 mt of shortspine thornyhead every year and total catches of the two species tend to fluctuate in unison year-to-year.

Historically, there has been very little to no bottom trawl fishing south of 34° 27′ N. lat. in the IFQ fishery, and therefore, the 50 mt allocation to the south has been underutilized (Table 8). 2012 is the only year in which IFQ trawl vessels landed any shortspine thornyhead south of 34° 27′ N. lat. (0.6 mt). Fixed gear vessels in the IFQ fishery (i.e., “gear switchers”) have landed the remainder

of shortspine thornyhead south; however, there has been zero total IFQ mortality of shortspine thornyhead south since 2017.

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Table 8. Historical shortspine thornyhead mortality, allocation, and attainment north and south of 34° 27′ N. lat. in the IFQ fishery, 2011-2024. Mortality Data Source: GEMM (2011-2022) and PacFIN (2023)

	North of 34° 27′ N. lat.			South of 34° 27′ N. lat.		
Year	IFQ Mortality (mt)	IFQ Allocation (mt)	IFQ Attainment	IFQ Mortality (mt)	IFQ Allocation (mt)	IFQ Attainment
2011	719	1,452	50%	8.4	50	17%
2012	722	1,435	50%	1.0	50	2%
2013	841	1,407	60%	3.7	50	7%
2014	688	1,392	49%	2.6	50	5%
2015	726	1,601	45%	0.7	50	1%
2016	746	1,583	47%	1.6	50	3%
2017	743	1,571	47%	-	50	0%
2018	628	1,557	40%	-	50	0%
2019	551	1,537	36%	-	50	0%
2020	365	1,524	24%	-	50	0%
2021	327	1,282	25%	-	50	0%
2022	369	1,249	30%	-	50	0%
2023	273	1,217	22%	-	50	0%
2024		1,187			50	

There will likely be impacts to the value of shortspine thornyhead QS (long-term) and QPs (short-term) from removing the management line. QS holders of southern shortspine thornyhead are likely to see economic gains, because with the management line removed and coastwide QS, they would be able to sell QPs to willing buyers in the north where they are likely to be used. Impacts to QS holders of northern shortspine thornyhead are more complicated to predict and will likely be driven by several factors, including short-term QP price changes with changes in demand and the long-term health of the stock which impacts the profitability of investing in QS. Under status quo 2025-26 management measures, northern shortspine thornyhead allocation reductions are likely to increase demand for northern QPs, thereby increasing the price of QPs on the market. If the management line is removed, the additional 53 mt under allocation sub-Option B may lessen the degree to which QP prices increase, making it easier for vessels to acquire QPs to cover catches. However, the degree to which that additional quota will impact prices is unknown.

Non-Trawl Impacts

Analysis below assumes the Council chooses Option 2, allocation sub-option B and ACT sub-option 2. The removal of the management line at 34° 27′ N. lat. (Option 2) and subsequent change

in allocation in 2026 (sub-option B) would result in coastwide non-trawl allocations of 268 mt and 218 mt in 2025 and 2026, respectively. This coastwide non-trawl allocation would give the non-trawl sector the ability to prosecute both the 2018-2022 average mortalities of the northern and southern fisheries (42 mt and 64 mt, respectively seen in Table 2 from Agenda Item F.7.a, Supplemental GMT Report 3, March 2024, Table 9) with additional room for potential growth in the southern fishery.

If the Council moved forward with sub-option 2 (ACT), there would be a mechanism to slow the concentration of effort in the northern non-trawl fishery. With the removal of the CCAs, there are now 4,600 square miles of newly opened fishing grounds in the south, which historically have been productive shortspine thornyhead grounds. It is anticipated that the southern fishery will have higher harvest in the next biennium because of this newly opened area. However, given that shortspine thornyhead is a coastwide stock, if the southern non-trawl fishery was not catching the remainder of the allocation, the north could harvest more than the ACT based on the coastwide ACL. The GMT has outlined some considerations under the biological impacts section of this report as to the conservation risk to the stock based on this potential concentration of fishing mortality north of 34° 27′ N. lat.

The purpose and need of this management measure is to prevent the collapse of the non-trawl shortspine thornyhead targeted fishery north of 34° 27′ N. lat. An ACT is a tool that could be used as a cautious approach when removing the management line to maintain historic fishing opportunities south of 34° 27′ N. lat.

Table 9. Shortspine thornyhead mortality, allocation, and attainment north and south of 34° 27′ N. lat. in the non-trawl sector, 2011-2024. Mortality Data Source: GEMM (2011-2022) and PacFIN (2023)

	North of 34° 27′ N. lat.			South of 34° 27′ N. lat.		
Year	IFQ Mortality (mt)	IFQ Allocation (mt)	IFQ Attainment	IFQ Mortality (mt)	IFQ Allocation (mt)	IFQ Attainment
2011	71	76	93%	183	313	58%
2012	65	76	86%	128	309	41%
2013	61	74	83%	109	305	36%
2014	53	73	73%	93	301	31%
2015	48	84	57%	79	831	9%
2016	49	83	59%	112	851	13%
2017	65	83	78%	146	814	18%
2018	67	82	82%	111	806	14%
2019	50	81	62%	83	839	10%
2020	34	80	42%	52	832	6%
2021	35	68	51%	41	749	5%
2022	27	66	41%	33	680	5%
2023	33	64	51%	31	663	5%
2024		62			645	

If the Council removes the management line (Option 2) and chooses ACT sub-option 2, there would be a coastwide ACL and trip limits would not need to be reduced like under status quo. In 2023, there were 69 LE vessels and 5 OA vessels that participated in the fishery north of 34° 27′ N. lat., however, few were reaching their trip limits. The GMT has analyzed trip limit Option 2 which changes the OA trip limits from monthly to bimonthly and raises the trip limit for LE to 3,000 lbs. per bimonthly period (
Table 10) north of 34° 27′ N. lat. All trip limit options in the north keep the projected mortality under the proposed ACT for 2026 if allocation Sub-option B is chosen (55 mt). The GMT projections do not take into account new entrants into the fishery that might choose to target shortspine thornyhead for the first time, nor do they account for any changes to how these fisheries will operate in relation to the closures to mitigate quillback rockfish impacts in California.

Table 10. Shortspine thornyhead trip limit options north of 34° 27′ N. lat. with a P* of 0.45. This is compared to the 2026 (lower) north of 34º 27′ ACT N. lat. of 55 mt (see Table 6).

Option	Sector	Trip Limit	Landing Projection (mt)	Est. Total Landings (mt)	Est. Discard Mortality Average: 2018-2022 Values (mt)	Est. Total Mortality (mt)	% of the 2026 N. of 34º 27′ ACT (mt)
Status Quo: Option 1	OAN	50 lbs./ month for all periods	0.8	31	*Average: 4.0*	35.0	***64%***
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	50 lbs./month for all periods	2.3				
	LEN	2,000 lbs./2 months for periods 1-3	7.2				
		2,500 lbs./2 months for periods 4-6					
	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	2,000 lbs./2 months for periods 1-3	20.7				
		2,500 lbs./2 months for periods 4-6					
Option 2	OAN	100 lbs./2 months for all periods	0.8	32	*Average: 4.0*	36.0	***66%***
	OAS: 40° 10′ N. lat. - 34° 27′ N. lat.	100 lbs./2 months for all periods	2.3				
	LEN	3,000 lbs./ 2 months for all periods	7.3				

	LES: 40° 10′ N. lat. - 34° 27′ N. lat.	3,000 lbs./ 2 months for all periods	21.3				

The majority of fishing activity south of 34° 27′ N. lat. occurred by LE fishermen (15 vessels participated in 2023 versus two that participated from the OA sector), so an OA trip limit model was not run. In 2024, the CCA reopened per Amendment 32, which resulted in approximately 4,600 square miles of fishing opportunity south of 34° 27′ N. lat. that have not been fished in over 20 years where shortspine thornyhead are known to exist. Reopening these areas may provide additional opportunity in the next biennium and, given the actions taken to incentivize an offshore commercial fixed gear fishery off California, paired with the much higher price per pound of live fish, will likely result in increased shortspine thornyhead retention; however, the fishery is expected to remain within harvest limits. Option 2 increases the trip limit for LE fishing south of 34° 27′ N. lat. in order to attain more of the non-trawl allocation, which has a limited impact on the projection since it is based on status quo effort (Table 11).

Table 11. Limited entry shortspine thornyhead south of 34° 27′ N. lat. (LES) trip limit options.

Option	Sector	Trip Limit	Landing Projection (mt)	Est. Discard Mortality Average: 2018-2022 Values (mt)	Est. Total Mortality Range (mt)
Option 1 Status Quo:	LES: South of 34° 27′ N. lat.	3,000 lbs./2 months for all periods	28.0	1.6	29.6
Option 2	LES: South of 34° 27′ N. lat.	4,000 lbs./2 months for all periods	30.4	1.6	32

During the overwinter analysis, when all trip limits were being investigated, the GMT discovered that the OA fishery south of 34° 27′ N. lat. has a daily limit. This daily limit is intended to limit effort into the fishery, especially since the bi-monthly limit is high. Therefore, the GMT does not see a reason to remove the daily limit south of 34° 27′ N. lat. at this time.

Open Access Shortspine Thornyhead South of 34° 27′ N. lat.:

- **Option 1 (Status Quo):**
    - Shortspine thornyhead and longspine thornyhead 100 lbs. per day, no more than 1,000 lbs. per 2 months.

The difference in effort between the north and the south of 34° 27′ N. lat. showcases the importance of having sub-area trip limits that can be used as a mechanism to control catch in either area.

9E. Descending Device Requirement for Recreational Vessels in Federal Waters

Proposed Management Measure

The Council adopted this new management measure would create a coastwide descending device requirement in the EEZ (*i.e.*, 3-200 nm offshore), thus creating regulatory consistency between state and federal waters across all three states. The purpose of this measure is to reduce mortality of rockfish species in the Pacific Coast groundfish recreational fisheries by returning discarded fish to depth.

Background

At their November 2023 meeting, the Council recommended the implementation of a new management measure that would require recreational vessels (private and charter) targeting groundfish in federal waters off Washington, Oregon, and California to have a descending device onboard. A descending device is a tool used to return fish that suffer from barotrauma to depth of capture. Barotrauma is a condition caused by rapid decompression when a fish is reeled up from depth (high pressure) to the surface (low pressure), which can cause multiple physiological changes, notably an inflated swim bladder (Haggarty 2019). When rockfish suffering from barotrauma are released at the surface, their ability to return to depth on their own is compromised due to the inability of the fish to vent the gas from the swim bladder. This can result in increased mortality, either due to surface depredation from birds, marine mammals, etc. or physiological trauma resulting from barotrauma. Returning a fish to depth can reverse the physiological effects of barotrauma and can reduce mortality of released fish. (*e.g.*, Haggarty; 2019; Bellquist et al., 2019; Davies et al., 2022, etc.).

The Council takes into account estimated mortality from surface release and descending device-released fish when considering total mortality for many rockfish species, and has adopted rates for these categories (*see* Agenda Item H.4.a, Supplemental GMT Report 1, November 2022). In general, mortality of fish released at the surface is higher than mortality of fish released at depth (Haggarty, 2019). The Council has acknowledged their interest in methods to reduce overall mortality of rockfish in groundfish recreational fisheries. However, a federal requirement for possession of a descending device has not been adopted. The rationale for a requirement to *possess* a device as opposed to a requirement *for use* is that not all anglers can be observed during fishing; however, information from recreational anglers and charter crew suggest there is widespread support for the use of these devices.

While there is not a federal regulation for possession of a descending device onboard fishing vessels, both Washington and Oregon currently have regulations in place for descending devices that apply to both groundfish and Pacific halibut. Specifically, WDFW requires any recreational vessel fishing for bottomfish or Pacific halibut to have a descending device rigged for immediate use on board the vessel (*see* WAC 220-310-110). ODFW requires any recreational vessel fishing for or in possession of groundfish or Pacific halibut to have a functional descending device on board, and further specifies that a descending device must be used when releasing any rockfish outside of the 30 fm depth contour. In addition, ODFW specifies that the descending device be presented for inspection at the request of an enforcement officer (*see* ODFW 635-039-0090).

California has several outreach tools that encourage and educate on the use of descending devices (see CDFW's Rockfish Barotrauma Information website), but as of this writing (February 2024) does not formally require their use, though is considering the implementation of similar regulations for their state waters (*see* GMT Report from November 2023).

Purpose and Need

The purpose of this measure is to require the possession of a descending device on vessels targeting groundfish. The need is twofold, 1) to create consistency in federal waters for a descending device requirement and 2) to reduce groundfish mortality in the recreational fishery.

Options

Two options are being considered for this management measure.

- **Option 1:** Status quo (no federal requirement for a descending device)
- **Option 2:** Federal requirement for all recreational vessels in the EEZ to have one functional descending device on board the vessel while fishing for groundfish.

Option 1 would maintain the status quo, which is no requirement for a descending device to be onboard recreational vessels targeting groundfish in federal waters. Washington and Oregon would continue to enforce their state requirements.

Option 2 would create a new federal requirement for approximately 68,000 vessels across Washington, Oregon, and California (Table). This option would require the vessel to have a functional descending device on board the vessel while fishing for groundfish and be required to present it at the request of an enforcement officer. The requirement would be one functional descending device per vessel, regardless of the number of anglers onboard. Recreational vessels would include any vessel fishing for groundfish under recreational catch limits in federal waters. Option 2 would only pertain to recreational groundfish fisheries, noting that Washington and Oregon state regulations also require a descending device to be on board recreational vessels that target Pacific halibut.[1]

Table shows the estimated number of vessels by state that may be affected by this new management measure. Washington and Oregon data was based on an average of recreational participants during the time since the state-specific descending device requirement went into effect (*i.e.*, 2019 for Washington and 2017 for Oregon). California data was based on 2017-2022 to show date ranges similar to the other states. 2023 data is not available at the time of this writing. California does not currently have a descending device requirement so there is not a natural start date for this analysis. 2017-2022 was chosen as it is representative of the number of participants in the fishery and a similar date range to the other states,

[1] If the Council were to consider implementation of a similar requirement for Pacific halibut, the action would need to be considered under Pacific halibut management as the Pacific Coast Groundfish FMP does not include management of this species.

Table 1- Estimated Minimum Number of Recreational Vessels and Anglers by State

Washington: Average Bottomfish and Halibut (2019-2023)[1]		
Boat Type	***Unique Vessels***	***Anglers per Boat Trip***
Party/Charter	34	11
Private/Rental	3,527	3
Total		
Oregon: Average Groundfish and Halibut (2017-2023)[2]		
Boat Type	***Unique Vessels***	***Average Anglers per Boat Trip***
Charter	69	13
Guide	673	5
Private	14,840	3
Total	15,169	4
California: Average Bottomfish and Halibut (2017-2022)[3]		
Boat Type	***Unique Vessels***	***Average Anglers per Boat Trip***
CPFV	254	Reference footnote 3 below
Private/ Rental	49,011	3
Total	49,265	Reference footnote 3 below

[1] The estimated number of private vessels and anglers in Washington was based on the number of annual WA state saltwater license sales in 2019-2023, assuming that 60 percent fish the coast (*i.e.*, state and federal waters), 45 percent of those fish bottomfish/halibut, and 3 anglers per vessel. Average number of private vessels is 5,290 if 2 anglers per vessel is assumed. Estimates are minimums due fishery and port closures in 2020 and 2021 that impacted effort. The number of anglers per party/charter vessel trip uses 2023 as a proxy for the range of years.

[2] The estimated number of vessels and anglers in Oregon only include those vessels/anglers that have been interviewed by an ODFW Ocean Recreational Boater Survey sampler, and therefore constitute minimum estimates.

[3] The estimated number of CPFV anglers in California varies drastically by management area. Presenting an average of CPFV anglers per boat is not representative of the fishery. CPFV angler capacity in California ranges from 100 to 3 anglers per boat. Vessels in southern California are substantially larger than vessels in northern California.

Impact Analysis

Biological/Environmental Impacts

Option 1 would not cause adverse environmental impacts to non-target and/or discarded species of rockfish. However, there would be forgone mortality savings that could have been accomplished if a descending device were used to return unwanted rockfish to depth of capture.

Option 2 would create positive environmental impacts for non-target and/or discarded species of rockfish, as it would decrease mortality of those species if descending devices usage increases due to the onboard requirement. Benefits of releasing rockfish at depth via a descending device have been researched and documented (e.g., Wegner et al, 2022, Belquist et al, 2019; Haggerty, 2019; etc.). The GMT has previously conducted extensive analysis on the survival benefits from the use of descending devices for groundfish species caught in both the commercial and recreational groundfish fishery sectors. This analysis is documented in various GMT Reports (*see* GMT

Reports from April 2013, March 2017, and November 2022) and Section 4.5.1.6 of the 2009-2010 Environmental Impact Statement (*see* pages 276-290). As a result of these analyses and subsequent SSC endorsement, discard mortality rates (DMRs) are currently applied to estimate total discard mortality when reconciling total mortality for select groundfish species in the recreational fishery, which is detailed in Section 2.6.3 of the SAFE (*see* pages 279-280). The DMRs are applied to end-of-year catch data to develop a total mortality amount for species in the Pacific Coast Groundfish FMP (Somers, et al. 2020).

Socioeconomic Impacts

Option 1 would not cause socioeconomic impacts as there would be no federal requirement to possess a descending device, thus those vessels that do not already possess one would not be required to purchase one.

Option 2 would cause a slightly negative socio-economic impact for those vessels that do not already own and carry a descending device because the vessel owner or operator would need to purchase a descending device initially and/or purchase an additional descending device in the event that one became damaged or lost. Option 2 is not expected to impact a high number of recreational vessels in Washington or Oregon, as those vessels are already required by state law to carry descending devices. Option 2 is anticipated to impact a higher proportion of recreational vessels in California since California does not have a state regulation mandating their use, however many recreational vessels voluntarily carry descending devices, and therefore Option 2 is not anticipated to impact all California recreational vessels. Based on a survey of prices from major retail companies that sell descending devices, their cost ranges between $8.00-$70.00, depending on the brand and complexity of the device. For example, a simple device consisting of a basic inverted hook costs between $8.00-$30.00, whereas a more sophisticated device with a pressure-activated release mechanism costs between $50.00-$70.00. Therefore, the anticipated cost is expected to be between $8.00 and $70.00 per vessel that does not already possess a functional descending device, depending on the model chosen.

Management Impacts

Option 1 would cause negative management impacts because it would allow for continued regulatory inconsistency across state and federal waters, thus sustaining enforcement challenges for state/federal enforcement officers and fishermen.

Option 2, would cause positive management impacts because it would create a consistent set of regulations across the entire west coast in federal waters. Management complexity would be reduced as anglers across the west coast could operate under a single regulation and not under a patchwork of regulations as is at present. Enforcement challenges would be reduced under a single set of regulations.

9F. Modify Continuous Transit Limitations for California Recreational Vessels

This management measure would modify federal continuous transit provisions for California recreational vessels. These modifications would allow recreational vessels to anchor overnight and/or stop to fish for non-groundfish species inside the seasonal Recreational RCA, also known as the 50-fm "offshore fishery". CDFW took emergency state action to modify relevant rules in state waters, with the new regulations going into effect on October 30, 2023. In federal waters, addressing this request would require a modification to the continuous transit provisions for recreational vessels at 50 CFR 660.360(c)(3)(i)(a).

Background

At their September 2023 meeting, the Council recommended that California recreational fishing vessels be required to fish seaward of the Recreational RCA line (*i.e.*, the 50 fm depth contour, a management measure also known as the "offshore fishery") for the remainder of 2023, consistent with California state action implemented on August 21, 2023. The purpose of this action was to protect nearshore-dwelling quillback rockfish, a species that was declared overfished by NMFS in December 2023. Like other groundfish closures that exist in federal waters, continuous transit rules apply when a Recreational RCA line is in effect, which means recreational vessels may only be transiting shoreward of 50 fm depth contour on their way back to port (see 50 CFR 660.360(c)(3)(i)(a)). The GAP brought up early concerns that these continuous transit rules, in conjunction with similar transit rules that were applicable in California state waters at the time, prevent recreational vessels from: 1) anchoring overnight on multi-day charter trips, either planned or for safety shoreward of 50 fm, and 2) anchoring to fish for non-groundfish species (*e.g.*, lobster or Dungeness crabs with traps) shoreward of 50 fm. The lack of ability to do these activities creates significant safety-at-sea concerns and forces charter companies to cancel fishing trips that typically offer a variety of target species, both groundfish and non-groundfish (primarily invertebrate targets). The GAP therefore submitted a request to allow recreational vessels to anchor and perform these activities for the upcoming 2025-26 harvest specifications cycle but expressed an urgent need for this issue to be addressed sooner, as the new harvest specifications and management measures action will not be in place until 2025. NMFS is addressing this issue in federal waters via an emergency rule for the 2024 fishing season, however the modifications are needed for the 2025-26 biennium and beyond.

Purpose and Need

The purpose of this measure is to improve the flexibility of recreational fishing vessels off California in allowing them to anchor overnight during multi-day trips as well as allow for non-groundfish fishing when anchored. The need of this measure is relative to National Standard 10, safety at sea. Vessels on multi-day trips may encounter hazardous seas and anchoring in the lee of weather while at sea area improves the safety of the vessel and the fishermen aboard it.

Proposed Management Measure

Currently, federal transit regulations for California recreational vessels at 50 CFR 660.360(c)(3)(i)(a) specify that vessels may only be in continuous transit shoreward of the 50 fm

Recreational RCA line. This new management measure would modify those regulations to allow recreational vessels in California to stop and/or anchor in federal waters shoreward of the 50 fm Recreational RCA line. Per a request from the EC, vessels that stop or anchor inside the Recreational RCA would not be allowed to have any type of hook-and-line gear deployed in the water. The EC made this request to ensure that groundfish fishing would not be occurring inside the Recreational RCA (*i.e.*, shoreward of 50 fm). Hook-and-line gear is the primary gear type used by recreational vessels to target groundfish; therefore, prohibiting its deployment while shoreward of 50 fm would help federal and state enforcement officers enforce the modified transit provisions while still allowing vessels to use other gear types for non-groundfish fishing (*e.g.*, traps for lobster and crab or dip nets for squid).

Options

Two options are being considered for this management measure.

- **Option 1:** Status quo (federal continuous transit provisions remain unchanged)
- **Option 2:** Modify federal continuous transit provisions for California recreational vessels

Option 1 would maintain the status quo, which means the requirement to only be in continuous transit shoreward of the 50-fm RCA line would persist.

Option 2 would modify continuous transit regulations to allow recreational vessels in California to stop and/or anchor in federal waters shoreward of the 50 fm Recreational RCA line. Hook-and-line gear deployment would be prohibited.

Impact Analysis

Biological/Environmental Impacts

The Recreational RCA/50-fm offshore fishery was a new management measure analyzed in the Environmental Assessment prepared for Amendment 30 to the Pacific Coast Groundfish Fishery Management Plan, 2023-2024 Harvest Specifications and Management Measures. Neither option would impose any impacts beyond those considered in that analysis.

Socioeconomic Impacts

Option 1 would cause recreational vessels off California to cancel thousands of fishing trips to comply with federal transit regulations when the Recreational RCA/offshore fishery is in place, which would cause an adverse economic impact on California fishing communities. During the 2022 fishing season, CDFW estimated that approximately 6,936 multi-day groundfish trips and 20,320 groundfish/non-groundfish combination fishing trips, respectively, occurred across both the party charter and private/rental sectors. These trip numbers are considered minimum estimates, as data to inform the number of multi-day trips and groundfish/non-groundfish combination trips is limited.

Option 2 would allow recreational vessels off California to continue operating multi-day groundfish trips and groundfish/non-groundfish combination trips. Multi-day groundfish trips and groundfish/non-groundfish combination trips are common and occurred regularly in federal waters prior to offshore only fisheries. This option would prevent the adverse economic impacts anticipated under Option 1.

9G. Correction To The Pacific Sand Lance Scientific Name And The Common Name For Pacific Spiny Dogfish In Federal Regulation

Background

Recently, a discrepancy between the Pacific Coast Groundfish Fishery Management Plan (FMP) and Federal regulation was identified. The scientific name of Pacific sand lance and the common name of Pacific spiny dogfish are not the same in both documents. Council action is necessary to correct the issue. The request is for the Council to consider adding this administrative change to the 2025-26 harvest specification and management measures process to direct the National Marine Fisheries Service to make necessary corrections.

Purpose and Need

The purpose of this measure is to update Federal regulations regarding recent changes to the Pacific sand lance scientific name and the Pacific spiny dogfish common name. The need is to create consistency between Federal regulation and the FMP

Pacific Sand Lance

The scientific name for Pacific sand lance at CFR 50 §660.5 (a)(3) Shared Ecosystem Component Species is incorrectly listed as *Ammodytes hexapterus*. The correct scientific name for this species is *Ammodytes personatus*. The scientific name was changed per the findings of Orr et al. 2015.

Pacific Spiny Dogfish

The common name for spiny dogfish *(Squalus suckleyi)* has changed to include "Pacific" and correct common name is Pacific Spiny Dogfish (Ebert et al, 2010; Page et al. 2013). The corrections to the common name would occur at the following sections[1] in 50 CFR and trawl and fixed gear trip limit tables (not listed):

- §660.11 General Definitions "Groundfish" (1) Sharks
- §660.50(f)(8)
- §660.60(c)(1)(i)
- Table 1a to Part 660, Subpart C, Title 50 and at footnote dd
- Table 2a to Part 660, Subpart C, Title 50 and at footnote dd
- §660.130(d)(1)(i)
- §660.230(c)(2)(i)
- §660.330(c)(2)(i)

[1] NMFS is expected to make additional corrections, as appropriate.

Impacts

There are no direct or indirect impacts to the fishery through this action. It is administrative in nature. However, it could result in positive benefits to the fishery as the FMP and regulation would be consistent. Consistency between the two documents reduces confusion at the management and fishery levels.

Appendix A. Magnuson-Stevens Act National Standards, Fishery Impact Statement and Executive Order 13175 Analyses and Considerations [1]

Magnuson-Stevens Act National Standards

Analysis of the 2025-26 groundfish harvest specifications and management measures in relation to the 10 National Standards as contained in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act [hereinafter 'MSA"]), and a brief discussion of how each alternative is consistent with the National Standards, where applicable. In recommending a preferred alternative, the Council must consider how to balance the national standards.

National Standard 1 — Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

MSA section 303(a)(3) requires that each FMP include an estimate of MSY and OY for the fishery. OY is the quantity of fish that will provide the greatest overall benefit to the U.S., particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems. OY is prescribed as such on the basis of the MSY from the fishery as reduced by any relevant economic, social, or ecological factor; and in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the MSY in such fishery. The harvest specification action alternatives are consistent with the OY harvest management framework described in Chapter 4 of the Groundfish FMP. The FMP Chapter 4 describes OY as "a decisional mechanism for resolving the Magnuson Stevens Act's multiple purposes and policies, implementing an FMP's objectives and balancing the various interests that comprise the national welfare." The OYs are based on MSY or MSY as reduced in consideration of social, economic, or ecological factors.

The final preferred HCRs for the 2025-2026 management cycle balance the stock conservation mandate in the MSA and the socioeconomic mandate to provide the greatest overall benefit to the U.S. with respect to managing marine resources consistent with the NS1 guidelines. For rex sole, the final preferred Alternative 2 allows for slightly higher harvest relative to the default HCR Alternative 1, and both are still predicted to maintain a healthy stock biomass in the next ten-year projection period. The less precautionary HCR under the final preferred Alternative 2 would balance the need for potential future expansion in the groundfish trawl fleet while still maintaining a stock status above the management target. The recent 2023 rex sole assessment results demonstrated an increase to status quo and the Alternatives do not pose additional conservation concerns. For shortspine thornyhead, the recent 2023 assessment estimated the stock to be in the precautionary zone, and after a slow decline both Alternatives allow for the stock to begin slowing rebounding over the next ten years. The final preferred Alternative 2 would follow a similar trajectory but does not return the stock to a healthy status within the projection period such as under Alternative 1, which only reaches healthy status in the last projected year. However, it does

[1] This MSA Analysis is the version reviewed by the Council at their June 2024 meeting.

follow the same trend as the default Alternative 1 and yet allows for higher harvest specifications with slight increases over time. This stock is important to the groundfish trawl fleet and with anticipated increases to sablefish catch limits, which is co-caught with Dover sole and thornyheads, there may be expanded effort. For Dover sole, the final preferred Alternative provides an option for allowable harvest which keeps the stock in healthy status. The default Alternative 1 with a constant allowable catch exceeds what is possible based on updated biomass estimates and therefore does not meet the principle of National Standard 1.

New assessments for rex sole and shortspine thornyhead, and updated catch projections for Dover sole informed final preferred harvest specifications for the 2025-2026 management cycle. The relative abundance and scale of the shortspine thornyhead and Dover sole populations has decreased relative to status quo and preferred management measures for these species reflect the conservation needs for these species as inferred from the new assessments.

The 2021 stock assessment of quillback rockfish off California and the associated 2023 rebuilding analysis were used to inform alternative rebuilding strategies and harvest specification options being considered by the Council. This stock was also removed from the Nearshore Rockfish Complexes, to ensure precision in management and tracking of mortality, etc. which will assist in sustainable management.

Under the Alternatives being considered for this stock, trade-offs will need to be considered carefully under National Standard 1. Alternative 2 would rebuild the stock well within the statutory maximum time to rebuild, as well as allowing for some level of harvest. Harvest specifications are important even during the rebuilding period due to the severe restrictions and impacts that these constricting harvest specifications will have on groundfish fisheries. Although Alternative 4 with no fishing mortality would rebuild in the shortest timeline, it is generally untenable as some fishing mortality would be expected to occur, even if non-directed, and it would also have severe economic consequences.

National Standard 2 — Conservation and management measures shall be based upon the best scientific information available.

The best available science standard applies to the following areas relative to this proposed action: stock assessments, rebuilding analyses, and methods for determining management reference points (OFL, ABC, ACL, etc.); these areas form the basis for determining harvest levels and the evaluation of socioeconomic impacts. Harvest specifications for 2025 and 2026 were updated and based on default or alternative HCRs analyzed in this document. These values reflect the application of the best scientific information available to current harvest management policies.

The harvest specifications considered under the action (the action alternatives, including the Final Preferred Alternatives) are based on the most recent stock assessments and developed through the peer review STAR process. All these assessments were judged by NMFS to be based on BSIA before results were used to decide harvest specifications and management measures.

The Groundfish SAFE document will be updated to summarize the basis for alternative harvest specifications and reference the stock assessments that were used. It also describes the methods

that were used to determine reference points for harvest specifications (OFL, ABC, ACL, etc.) for stocks and stock complexes.

The process to decide stock assessment priorities utilizes a matrix of factors designed by the NMFS Northwest Fisheries Science Center following national NMFS guidance on best practices for making such decisions. This process has been judged by NMFS to be BSIA.

Socioeconomics are a critical component to fishery management. The NWFSC has developed a model application, called the Input-Output Model for Pacific Coast Fisheries (IOPAC), for estimating personal income impacts of commercial fishing on the West Coast. Outputs from this model are used by the Council to develop the alternatives and are considered BSIA.

National Standard 3 — To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The Council develops and designates management units for groundfish, which include stocks, stock complexes, or geographic subdivisions thereof within its jurisdiction in the west coast EEZ. Groundfish ACLs are set for these management units. The Groundfish SAFE (2024) document details the process by which ACLs for each management unit are developed. Many west coast groundfish stocks have a broader distribution than the west coast EEZ and are therefore managed by multiple countries and management entities. Pacific whiting is managed under an international treaty agreement with Canada. Amendment 31 to the FMP defined 20 stocks of 14 managed groundfish species. These stocks are managed through the Council process. Species with multiple stocks units, e.g., copper rockfish, vermilion rockfish, etc., are managed as a unit, with the exception of the California stock of quillback rockfish, which has a status of overfished and is, under the preliminary preferred alternative (PPA), expected to be managed as a single stock to facilitate improved monitoring of the stock to ensure accurate tracking of removals. Quillback rockfish is managed as single unit off of Oregon and Washington within the nearshore rockfish complex north of 40°10′ N. lat.. The remainder of managed species listed in the FMP have not been officially defined as stocks; however, in the near term, until they are defined, these species are managed as single units (e.g., yelloweye rockfish) or within complexes. The complexes are delineated at north of and south of 40°10′ N. lat.; however, the complexes are managed as a unit and states are in close coordination in terms of management where complexes extend across state boundaries. Under the PPA, the Council is considering removing the management line at 34°27′ N. lat. for shortspine thornyhead to improve management for the stock and to reflect the stock definition as adopted under Amendment 31. This change would create a single coastwide ACL, replacing the area specific ACLs under present allocation structure. The measure would allow the Council to manage the stock as a single coastwide unit coast.

National Standard 4 — Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be; (A) fair and equitable to all such fishermen, (B) reasonably calculated to promote conservation, and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Fishery sector allocations are intended to provide improved utilization of target stock by reducing the stranding of available yield in a sector's allocation and thus addressing inequities. During this biennial harvest specifications process the Council is considered modifications to the existing biennial allocations for canary rockfish, widow rockfish and petrale sole. The Council did adopted a modest reduction to non-trawl allocation of the widow rockfish biennial allocation to better reflect the needs of the trawl sector as their PPA. The Council adopted, as PPA, modifications to the formal Amendment 21 allocation of shortspine thornyhead. Modifications to the formal allocation to a biennial allocation of shortspine thornyhead is expected to address changes to the available yield and address maintain current allocation equity between sectors. The modification to the shortspine thornyhead formal allocation structure is expected to improve equity between fishermen north and south of 34°27′ N. lat. by removing the existing management line. The stock south of south of 34°27′ N. lat. has been underutilized by the trawl and non-trawl sectors. If the allocation changes from formal to biennial, the Council will have the opportunity every two years to evaluate the allocation of shortspine thornyhead to the fishery.. The proposed measures to modify these allocations do not discriminate between residents of different states..

Allocation decisions are made through the Council process, which facilitates substantial participation by state representatives and the public. Allocation proposals are brought forward when alternatives are crafted through cooperative efforts between fishery managers and the public, taking into account the needs of fishing communities and the biological aspects of a given stock. Emphasis is placed on equitable division, while simultaneously considering and achieving conservation goals.

In the trawl sector, fishery participants who belong to the IFQ sector will receive the same percentage of a sector allocation, but no particular entity will receive different percentages than they have at present. The non-trawl sector operates under trip limits and no one entity is granted a percentage; therefore, the distribution of the allocation under a common pool and all participants have equal opportunity to harvest the allocation. There are no formal allocations to the recreational sector as it shares the non-trawl allocation.

This action considers HCR alternatives to Dover sole, rex sole, and shortspine thornyhead in the EEZ off the U.S. west coast. Under the FPA for harvest specifications, the Council adopted Alternative 2 HCRS for these stocks. Dover sole is managed as single stocks; whereas, rex sole is managed in the Other Flatfish Complex. Both Dover sole and rex sole (via the Other flatfish Complex) are formally allocated to the trawl and non-trawl sectors. The trawl sector lands the vast majority of these stocks. The non-trawl sector does not commonly land Dover sole and rex sole. Shortspine thornyhead is, currently, formally allocated to the trawl and non-trawl sectors north and south of 34°27′ N. lat. The trawl sector lands the majority of this stock north of 34°27′ N. lat.; whereas, the non-trawl sector lands the majority of shortspine thornyhead south of 34°27′ N. lat. The Council determined allocation for these stocks was necessary through the Amendment 21 process.

This action also considers a rebuilding plan to California quillback rockfish in the EEZ off of California. This stocks is managed as a single stock and is not allocated to the fishery sectors. The non-trawl sector, including the recreational fishery, lands the vast majority of this stock. The trawl sector rarely encounters either stock on a regular basis. The Council has determined allocation of California quillback rockfish either trawl/non trawl or within the non-trawl sector is not necessary.

Amendment 33 to the FMP considers several new management measures; however, the only new management measure related to NS4 is modifications to shortspine thornyhead under consideration by the Council. The remaining new management measures do not affect current allocations for any stock or stock complex. For example, the new provision to require possession of a descending device on boats engaged in recreational fishing for groundfish in the EEZ is designed to reduce mortality of released groundfish. This measure, and the other new management measures, have no allocative properties.

National Standard 5 — Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

Management measures were designed to offer increased opportunity to the resource as well as increase overall attainments of stocks that allow participants to attain OY through efficient distribution of the resource among the user groups. This design should allow for efficient access to the resource as well as potentially allow for increased utilization by the various sectors as well as allow for ecosystem needs to be met. Routine measures have been previously analyzed in prior MSA analyses associated with harvest specification and management measure processes.

The proposed California quillback rockfish rebuilding strategies in the EEZ will reduce the ACL compared to the previous biennium. The Council adopted Alternative 2, the ABC rule from the rebuilding analysis, as PPA. California quillback rockfish are important to the commercial sector non-trawl, notably in the live fish fishery, and the recreational fishery. Alternative 2 has a 76 percent probability of rebuilding the stock by 2060, i.e., eleven years before T_{max}. California Quillback rockfish are managed are expected to be managed as single stock in the EEZ off of California, per the Council's PPA. This stock cannot be solely targeted as they co-occur with other rockfishes. In order to reduce impacts to quillback rockfish, but address the needs of the fishery and also follow BSIA (which indicates this stock is overfished), the Council adopted a suite of commercial and recreational fishery measures, which included time/area closures in the recreational fishery, modified commercial non-trawl trip limits, the use of specific gear, and depth limits in the area where California quillback is commonly encountered in commercial non-trawl fishery as PPA. Both the commercial and recreational fishery in California are subject to a zero retention provision for this stock. In total, these measures are designed to reduce California quillback rockfish mortality to the extent practicable while taking into account the needs of communities. These measures are expected to assist in stabilizing fishing communities in the face of uncertainty regarding future management actions on this species but also attempt to reflect the current biomass off of California.

The Alternative 2 harvest specifications is juxtaposed to Alternative 4, or F = 0. A F = 0 strategy requires zero fishery mortality. This strategy is predicted to rebuild the stock by 2045, some 26 years before T_{max}. Given the uncertainty of the distribution of this stock in the EEZ off California, it is difficult to predict where and when encounters could occur in groundfish fisheries. While the end of its range is placed just off of Ventura, California (i.e., Anacapa Passage, see Love et al, 2002), there are historical catches of quillback south of this location. Therefore, to ensure zero fishing mortality in the groundfish fishery, the conservative approach to achieve this objective would need to be considered, potentially resulting in a complete groundfish fishery closure off of California. The F = 0 strategy, while the fastest to rebuild the stock, would have high negative

socioeconomic impacts on fishing communities. In brief, Alternative 2 rebuilding strategy likely does not meet the needs of communities

The Council adopted the Alternative 2 HCR for shortspine thornyhead as FPA, which results in a reduction to the ACL when compared to the previous biennium. This stock is an important component to the commercial fishery sectors. Trawl and non-trawl sectors utilize these stocks at different rates. The Council adopted modifications to shortspine thornyhead the allocation strategy as their PPA. The Amendment 21 allocation structure disproportionally impact the non-trawl sector, notably north of the shortspine thornyhead management line at 34°27′ N. lat. The revision to the allocation structure would remove the management line and create a coastwide ACL. Revisions to the allocation structure would not change existing trawl IFQ apportionments, but could allow for a modest increase to the non-trawl sector, which is managed via trip limits. The allocation modifications are expected to improve the stability of the fishery and balance both conservation and needs of fishing communities.

The Council reduced the biennial allocation of widow rockfish to the non-trawl sector by 25 percent under the PPA. The allocation structure was 400 mt to non-trawl and the remainder of the ACL to the trawl sector. Fishery landings data demonstrated the non-trawl sector has been under-utilizing the allocation since it was increased in the 2021-22 biennium, landing approximately 6 percent of the allocation annually. The widow rockfish resource is primarily utilized by the trawl sector and lands, on average, over 90 percent of their allocation annually. The widow rockfish ACL decreases by nearly 11 percent from the previous biennium. The realignment of the allocation is likely to improve the efficiency of trawl sector utilization and concomitantly is not expected to decrease the utilization of widow rockfish by the non-trawl sector. The Council will have the opportunity to reevaluate this allocation in the next biennium.

The Council adopted Alternative 2 HCRs for Dover sole which is lower than the Alternative 1 status quo HCR, a static 50,000 mt. The Alternative 1 HCR results in an ACL greater than the ABC and is therefore not in alignment with NS 1 or NS 2. The Council adopted no changes to the Dover sole trawl/non-trawl allocation.

Rex sole is managed under the Other Flatfish Complex, which is allocated to the trawl/non-trawl sectors. The Council adopted Alternative 2 HCR for rex sole, which is an increase from the previous biennium, which subsequently increases the Other Flatfish Complex ACL. The Council did not adopt any allocation changes to this complex.

In this action, multiple new management measures are under consideration, including Amendment 33 to the FMP. The groundfish open access vessel registration measure would allow for improved understanding of open access fishery. Enumerating the participants in this fishery is highly uncertain at present. This measure would improve the Council's ability to manage this fishery and the ability of NMFS to estimate open access catch and effort. The measure to update the electronic monitoring (EM) program's discard and retention requirements does not change management of the fishery. It improves clarity and consistency between regulation and in the vessel monitoring plan. The measure to modify federal continuous transit provisions for California recreational vessels will allow recreational vessels to anchor overnight and/or stop to fish for non-groundfish species inside the seasonal Recreational RCA. This measure does not affect efficiency, but rather considers NS 10, where it will be discussed further. The measure to require descending devices

does not create a more efficient use of the resource. It is designed to improve the survivability of rockfish released at sea. The measure to correct the scientific name of Pacific sand lance and the common name in Pacific spiny dogfish in regulation is administrative in nature and is not related to this NS.

Overall, these measures are predicted to increase attainment of the primary targets in the affected fishery sectors and none have economic allocation as its sole purpose.

National Standard 6 — Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

The measures in this analysis reflect the flexibility of the Council to address the improving status of the fishery yet still meet conservation goals. The harvest specifications and management measures proposed in this analysis reflect differences in catch and, in particular, bycatch of overfished species. The Council is able to monitor the fishery for indications of overages and apply measures to ensure ACLs are achieved, but not exceeded, through routine inseason action. The management measures in this analysis do not appreciably change this framework, but rather reflect the status of stocks in the FMP. Inseason actions taken by the Council can include temporal adjustments, spatial adjustments, as well as catch control mechanisms (i.e., trip limits) that are specific to area and/or fishery. Routine management measures have been analyzed in previous EA/EIS and other relevant analytical documents. The following examines the new management measures for the 2025-26 biennium.

The BSIA for the California quillback rockfish stock indicates the stock is overfished. The Council is considering BSIA by adopting a rebuilding plan. The Council proactively adopted management measures in 2023-24 for this stock to minimize, if not eliminate, landings. These measures are expected to continue into the 2025-26 biennium. The measures impact both the commercial and recreational fisheries by restricting access to depths where quillback are predominantly found and reduce bag and trip limits to zero. All changes to quillback rockfish are designed to reduce overall mortality through flexible management options.

National Standard 7 — Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

Development of these alternatives was achieved through coordinated effort of West Coast fishery managers, enforcement, and stakeholders over the course of a calendar year at six Council meetings. The alternatives in this analysis were developed to reduce the overall burden on participants and to achieve management objectives and priorities among the three West Coast states. In general, coordination between managers, enforcement, and stakeholders reduces duplication in action or effort and, therefore, reduces costs. The implications of the alternatives are evaluated in this analysis

National Standard 8 — Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of National Standard 2, in order to (A) provide for the sustained participation of such

communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

The 2015 EIS for the 2015-16 harvest specifications and management measures including Amendment 24 evaluated both long-term and short term impacts of alternative harvest management policies on west coast fishing communities. The short-term impacts of the current proposed actions do not differ substantially in context or intensity from the impacts disclosed in the 2015 EIS. These effects were taken into account by adopting the preferred alternative. Target species catch estimates for each alternative are projected based on the management measures. The catch estimates provide the base information for estimating ex-vessel revenue and personal income impacts at the community level (with the port group area the unit of analysis for community impacts).

The management measures selected as preferred maximize positive economic impacts on the communities and could improve participation over time. These changes may provide increased opportunity for both commercial and recreational sectors and may, concomitantly, improve stability of many fishing communities. Commercial fisheries, overall, should see increased opportunity and flexibility under the actions..

West Coast fishing communities depend on a diverse portfolio of commercial and recreational fisheries to support year-round operations. The proposed California quillback rockfish rebuilding considers impacts to recreational and commercial fisheries in order to account for the needs of fishing communities which provide services to these fisheries. The increase in rex sole ACLs as well as the potential revisions to the shortspine thornyhead allocation are expected to reflect the needs of fishing communities and provide positive economic benefits to the fishery. In the case of Dover sole, the Council adopted an HCR which results in an ACL that is lower than the 2023-24 biennium which will align with the tenets of NS 1 and NS 2.

The new management measure to create a Federal OA registration requirement would allow better understanding of the impacts of management measures on this fleet and the communities they are based in. At present, the lack of understanding of the participation of this fleet could inadvertently create harm. The registration will align with NS 2 as well, as the West Coast Groundfish Observer Program (WCGOP) should improve understanding of the fishing practices of OA vessels that fish in the EEZ, thus allowing WCGOP to better tailor observer coverage. Improved understanding of the impacts from this fleet is expected to provide increased certainty of estimates used by assessors and managers alike.

National Standard 9 — Conservation and management measures shall, to the extent practicable, (A) minimize bycatch, and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

Minimizing bycatch, of overfished species and other sensitive species such as canary rockfish, is an important component of the alternatives. Routine management measures are designed to reduce incidental bycatch of yelloweye rockfish, cowcod, quillback rockfish, and bronzespotted rockfish is mitigated through mixture of non-retention, trip limits, gear specifications, and depth/time based area closures. The new management measure to require a descending device aboard all recreational vessels fishing in EEZ, as described below, address bycatch and methods to reduce mortality.

National Standard 10 — Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The routine measures have been designed to promote safety at sea and have been previously analyzed. This section focuses on new management measures. Overall, the new management measures analyzed, and recommended to NMFS for implementation,, as part of the 2025-26 harvest specifications were designed to improve operational flexibility. These measures, as described below, should improve spatio-temporal opportunity for fishermen to access the resource. They do not decrease safety at sea when compared to No Action. While the increases to ACLs and trip limits may encourage additional effort for target species, it is not expected to change how the fishery operates at present. Meaning, fishermen are likely to retain more species and/or tonnage on the same schedule as in previous years. This may allow fishermen to spread out trips over good weather periods rather than be constrained to poor weather periods in order to attain limits.

The new management measure to modify federal continuous transit provisions for California recreational vessels would allow recreational vessels to anchor overnight and/or stop to fish for non-groundfish species inside the seasonal Recreational RCA, also known as the 50-fm "offshore fishery. This measure would allow fishermen to stop and anchor in federal waters overnight which could reduce the motivation to transit while tired, which could increase the likelihood of accidents at sea. This measure offers more flexibility to anglers and may promote better fishing practices, thus increasing safety at se

Access to the Non-Trawl RCA due to gear modifications may increase the number of vessels fishing further offshore, however, this measure allows fishermen more flexibility in where to fish and may promote better fishing practices, thus increasing safety at sea

The California quillback rockfish rebuilding plan considers closures to depth, time, and area restrictions. This measure is not expected to decrease safety at sea. This management measure may induce fishermen to increase investment in vessels and vessel equipment to harvest the resource more efficiently. Upgrades to the operational ability of the vessel could likely result in enhanced safety. Modifying a depth boundary may result in more vessels venturing further offshore to target deeper water groundfish species; however, recreational anglers may chose instead to target non-groundfish and/or state managed species in the nearshore areas. However, with changes to season structures, depth restrictions, etc., recreational anglers may become more cognizant of safety needs and apply improved safety measures to their fishing practices (e.g., meaning larger boats, increased safety equipment aboard vessel, etc.). Further, recreational anglers may choose to fish aboard CPFVs which are better equipped for offshore fishing.

Fishery Impact Statement

Section 303(a)(9) of the Magnuson-Stevens Act requires that a fishery impact statement be prepared for each FMP or FMP amendment. A fishery impact statement is required to assess, specify, and analyze the likely effects, if any, including the cumulative conservation, economic, and social impacts, of the conservation and management measures on, and possible mitigation measures for (a) participants in the fisheries and fishing communities affected by the plan amendment; (b) participants in the fisheries conducted in adjacent areas under the authority of B-12 another Council; and (c) the safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery.

The EA/RIR prepared for this plan amendment constitutes the fishery impact statement. The likely effects of the proposed action are analyzed and described throughout the EA/RIR. The effects on participants in the fisheries and fishing communities are analyzed in the RIR chapter of the analysis (TBD). That analysis finds that on a coastwide basis effects of the proposed action on participants and fishing communities are positive for commercial fisheries and neutral for recreational fisheries. The effects of the proposed action on safety of human life at sea are evaluated above under National Standard 10. Based on the information reported in this section, there is no need to update the Fishery Impact Statement included in the FMP.

The current proposed actions are unlikely to result in adverse impacts on EFH outside those disclosed in Section 4.1.4 in the 2019 EIS. The 2019 EIS, which analyzed Amendment 28 impacts, describes impacts of the groundfish management program on EFH, consistent with the EFH assessment requirements of 50 CFR 600.920 (e)(3).

The proposed action affects the groundfish fisheries in the EEZ off the West Coast, which are under the jurisdiction of the Pacific Fishery Management Council. Impacts on participants in fisheries conducted in adjacent areas under the jurisdiction of other Councils are not anticipated as a result of this action

Executive Order 13175

EO 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the U.S. government-to- government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes. The Secretary recognizes the sovereign status and comanager role of Indian tribes over shared Federal and tribal fishery resources. In section 302(b)(5), MSA reserves a seat on the Council for a representative of an Indian tribe with federally recognized fishing rights from California, Oregon, Washington, or Idaho.

The U.S. government formally recognizes the four Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) that have treaty rights to fish for groundfish. In general terms, the quantification of those rights is 50 percent of the harvestable surplus of groundfish available in the tribes' usual and accustomed fishing areas (described at 50 CFR 660.324). Each of the treaty tribes has the discretion to administer its fisheries and to establish its own policies to achieve program objectives

Agenda Item F.6
Attachment 3 ***(Electronic Only)***
June 2024

Appendix B

Final California Quillback Rockfish Rebuilding Plan Analysis

June 2024

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Executive Summary

The California stock of quillback rockfish (*Sebastes maliger*) status was determined as overfished by the Secretary of Commerce in December 2023. In March 2024, the Council adopted the California quillback rockfish rebuilding analysis which specified the following rebuilding parameters: T_{MIN} = 2045, T_{MAX} = 2071, mean generation time of 26 years.

In April 2024, the Council adopted the ABC Rule rebuilding strategy (i.e., Alternative 2) as their preliminary preferred alternative (PPA). This rebuilding plan analysis examines Alternative 2 in comparison to Alternative 4, or "F = 0". The ABC rule allows for annual catch limits (ACLs) of 1.3 mt and 1.5 mt for 2025 and 2026, respectively, and increases as the stock rebuilds; whereas, the F = 0 strategy has an ACL of 0 mt until the stock is rebuilt. The Council considered but removed Alternative 1 and Alternative 3 from consideration.. Alternative 1 was rejected from further consideration because, overall, it differed little from Alternative 2 while taking two years longer to rebuild with a lower probability of rebuilding (69.4 percent) within the required timeline (by 2071). Alternative 3 was not selected for further consideration because it failed to meet technical and legal requirements. Additionally, the No Action alternative could not be considered as this harvest specification does not take rebuilding into account

TABLE ES 8. Alternative 2025 and 2026 harvest specifications (mt) and harvest control rules (HCR) for California quillback rockfish.

Alternative	2025			2026			Harvest Control Rule
	OFL (mt)	ABC (mt)	ACL (mt)	OFL (mt)	ABC (mt)	ACL (mt)	
Alternative 2 *Preliminary Preferred*	1.52	1.30	1.30	1.77	1.49	1.49	ABC (P*=0.45), ACL (ABC rule); Median time to rebuild: T_{TARGET} 2060
Alternative 4	1.52	1.30	0	1.81	1.54	0	ABC (F = 0), ACL (SPR=1); Median time to rebuild: T_{TARGET} 2045

Alternative Rebuilding Strategies

Alternative 2 (PPA), the "ABC rule" rebuilding strategy, sets ABC equal to management risk tolerance (P* = 0.45) and the scientific uncertainty (time-varying sigma) reduction applied to the overfishing limit (OFL). As shown TABLE ES 1, Alternative 2 has a 50 percent probability of rebuilding the stock by 2060 (T_{target}) and 73.6 percent probability of rebuilding by 2071 (T_{MAX}) (TABLE ES 1).

Alternative 4 (F = 0) represents a harvest strategy that achieves zero fishing mortality and rebuilds the stock in the minimum amount of time. This strategy has a 50 percent probability of rebuilding the stock by 2045(T_{target}) and a 99.9 percent probability of rebuilding by 2071 (T_{MAX}) (TABLE ES 1).

The Council considered but removed Alternative 1 and Alternative 3 from consideration. Alternative 1 would rebuild the stock by T_{MAX}, 2071; however, the Council rejected Alternative 1 as, when compared to Alternative 2, Alternative 1 delays rebuilding by two years and with a lower probability of rebuilding (69.4 percent) by T_{MAX}. Alternative 3 was not selected for further consideration because it failed to meet technical and legal requirements. Additionally, the No Action alternative could not be considered as this harvest specification.

Impacts of the Alternatives on the Stock

The projected rebuilding probabilities under all alternatives are shown above in TABLE ES 1(based on values in Table 3; Langseth, 2023). Probabilities represent the proportion of rebuilding analysis simulations that reach the target spawning output by the specified year. Both alternatives rebuild the stock, the difference between the two is Alternative 4 rebuilds the stock approximately 15 years faster than Alternative 2.

California quillback rockfish are caught in non-groundfish incidental fisheries. This potentially affects the timeline for rebuilding because the assumption of zero mortality would be violated each year incidental mortality in non-groundfish fisheries occurs.

Impacts of the Alternatives

Regardless of the rebuilding strategy the Council ultimately adopts, reductions in groundfish fishery opportunities in many California coastal communities will ensue and likely be economically, financially, and socially disruptive with long-lasting impacts (e.g., loss of infrastructure). Commercial and recreational fishing activities yield well over a billion dollars annually in impacts to communities (NMFS, 2024). Groundfish fishing opportunity is considered "the glue that holds fishing communities together,"[49] and rebuilding measures are likely to compound the impacts already being experienced by these communities and groundfish participants as they have faced recent declines and changes in other fisheries (e.g., federal disaster declarations for salmon, red sea urchin, Pacific sardine in California, and delayed/shortened Dungeness crab seasons).

The social and economic differences between the two rebuilding alternatives are hard to quantify because the future impacts are uncertain for three major reasons. First, the response of the stock to rebuilding efforts and the time needed for rebuilding is uncertain. Second, the uncertainty of this stock's response to management measures and other future changes to the fishery and/or ecosystem. The third source of uncertainty is fishery participant behavior.

This uncertainty is further complicated by California's diverse coastline and the many ports with variable infrastructure, ranging from heavily industrialized to small, localized ports. A selection of ports along the California coast with both commercial and recreational infrastructure and that are known to be ports of historical importance to fishing were analyzed to evaluate rebuilding impacts. California quillback rockfish commercial fishery landings and ex-vessel revenue make up a small portion of each port complex's total revenue generated by rockfish for the entire groundfish management group. Ports will see reduced profits under Alternative 2 or be required to

[49] See, for example, SSC Econ Subcommittee Minutes March 2000, Agenda Item H.2.d Public Comment March 2011.

forgo profits of all groundfish fisheries under Alternative 4 to reduce California quillback rockfish mortality to zero.

California quillback is primarily caught by the Limited Entry Fixed Gear (LEFG), Open Access (OA), and Nearshore sectors. These fisheries were negatively impacted by the management measures (trip limits, time/area closures, etc.) put in place in September 2023 to reduce impact to California quillback rockfish. These measures were continued into 2024 and are expected to have similar impacts as 2023 to these fisheries. These three non-trawl sectors will continue to be impacted in 2025 and beyond if the Council adopts Alternative 2, and to a greater extent, if the Council adopts Alternative 4. Alternative 4 would likely prohibit all groundfish fishing and with limited opportunities in other fisheries, it may require participants to find alternative sources of income. It is uncertain whether participants who leave the fishery will ever re-enter (be it before or after California quillback rockfish is declared rebuilt), especially as the future opportunities in salmon, crab, and other interlinked fisheries remain uncertain. Under Alternative 2, the trawl fishery would likely not be restricted relative to California quillback rockfish but would be impacted under Alternative 4. This fishery has limited catches of California quillback rockfish with zero catch in many years, but not all. Therefore, in order to achieve an F = 0 strategy, the Council would need to place restrictions on the trawl fishery off of California.

Historically, California quillback rockfish mortality has been higher in the recreational sector than in the commercial sectors, and for anglers, the groundfish fishery, particularly rockfish, has provided a consistent source for fishing opportunity.

Short Term Community Impacts (2025-26 Biennium)

Alternative 2 maintains some groundfish opportunity for the 2025-26 biennium under restrictions implemented in 2023 and continued for 2024. These restrictions have already reduced commercial landings and ex-vessel revenue, and similar impacts could be anticipated in the next biennium. In contrast, Alternative 4 would likely require full groundfish fishery closures in federal waters off California.

Alternative 2

Under Alternative 2, management measures for California quillback rockfish would be limited to the commercial non-trawl and recreational fisheries as these fisheries generate the vast majority of impacts to this stock. Management measures implemented under Alternative 2 would resemble measures that were implemented in 2024 to minimize California quillback rockfish encounters, which are described in more detail below, and additional inseason action may be needed if limits are exceeded or projected to be exceeded. Impacts would predominantly affect federal fixed gear vessels between 42° N. lat. and 37° 07′ N. lat. and would not impact trawl vessels. Fixed gear vessels operating in the Individual Fishing Quota (IFQ) fishery (i.e., "gear switchers") would be impacted by the area-based restrictions under Alternative 2, because they are subject to the non-trawl Rockfish Conservation Area (RCA). Non-trawl commercial fisheries south of 37° 07′ N. lat. would be held to a 0 lbs. trip limit for California quillback rockfish, but area-based trip limits and depth restrictions are not expected to be imposed.

The 2024 commercial management measures to minimize California quillback rockfish impacts imposed gear type requirements[50] for non-trawl vessels targeting groundfish when fishing shoreward of 75 fathoms north of 37° 07′ N. lat., thereby concentrating non-trawl commercial effort onto the continental shelf. This change in gear type means that, in many cases, in order to continue fishing in federal waters shoreward of 75 fathoms, fishery participants will have to learn a new gear type. It is reasonable to assume that there will be a learning curve that might inhibit profits within this fishery until participants learn the gear. In addition, commercial vessels fishing outside of state waters must have a vessel monitoring system (VMS), which may represent a new cost for vessels that only previously fished shallower than this depth. For those vessels that were historically fishing shoreward of 75 fathoms and who are unable to adopt the new gear requirement, fuel costs and encounters with inclement weather will likely increase as those vessels are forced to fish farther offshore. While OA vessels have generally fished shallower than LEFG vessels in the past, these measures will concentrate LEFG and OA vessels into the same area. These impacts are expected to continue into 2025 and beyond under the Alternative 2 ABC rule rebuilding strategy.

However, compared to Alternative 4, Alternative 2 allows commercial vessels to continue fishing and maintains some level of target stock utilization as California quillback rockfish rebuilds. Fishery participants would not lose all sources of groundfish revenue, and there is the potential for shoreside infrastructure to remain intact and stable, which ensures that there are buyers and processors ready to receive the benefits of a rebuilt stock by the end of the rebuilding period.

The economics of recreational fishing are difficult to estimate, however, in the most general sense a reduction in overall fishing effort is likely to result in negative economic impact to revenue in local communities through reductions in goods and services provided to recreational anglers (e.g., launch fees, fuel, lodging, etc.). For recreational fisheries, Alternative 2 maintains the depth restrictions and a zero (0) California quillback rockfish sub-bag limit adopted for 2024. The California recreational fishery would have limited access to nearshore areas depending on area and time of year. As a result, overall effort may be reduced during the offshore season and effort could be compacted during nearshore periods. It also may increase the safety risk for anglers that are pushed into offshore areas. Similar to the commercial fishery, while Alternative 2 imposes some restrictions to minimize California quillback rockfish mortality, it also allows anglers to continue fishing and does not entirely eliminate all opportunity. Thus, Alternative 2 provides some economic benefits to ports by providing nearshore opportunities in critical summer months when the bulk of groundfish effort occurs.

Alternative 4

Under Alternative 4, all directed groundfish fishing sectors would be impacted to accomplish this rebuilding strategy. Alternative 4 would likely prohibit all commercial groundfish fishing in federal waters off California at all depths. Likewise, this alternative would fully close recreational groundfish fishing in all marine areas at all depths in federal waters. The economic impact to communities due to a recreational groundfish closure is difficult to estimate; however, based on Fisheries Economics of the United States, 2022 (NMFS 2023) it is reasonable to assume the impacts would range into the hundreds of millions of dollars, statewide. Some communities may

[50] Legal non-bottom contact hook-and-line gear are allowed in the non-trawl RCA (50 CFR 660.330(b)(3)).

be more or less impacted than others. These complete and/or near-complete closures of fisheries would have devastating impacts to fishery participants and coastal communities in California. A complete closure of the commercial groundfish fishery off California may result in a potential yearly loss to the area of around $18 million dollars in ex-vessel revenue compared to the no action alternative. Moreover, the management measures used to reduce the 10-year California quillback rockfish average yearly mortality in this area, which is currently 2 mt, would come at the potential loss of 1,841 mt of all other rockfish or 6,314 mt of all other groundfish per year TABLE ES 2). The long-term impacts of this, including infrastructure loss, are discussed in the following section.

TABLE ES 9. Average yearly landings and ex-vessel revenue of California quillback rockfish compared to all rockfish landings (including cabezon, greenling, California scorpionfish, and lingcod) and all groundfish landings for 2014-2023. Source PacFIN 4/24/24

	Quillback Rockfish (mt)	Rockfish (mt)	Groundfish (mt)	Groundfish Ex-Vessel Revenue (USD)
42° to 40° 10' N. lat.	1.33	620	2,921	$4,851,445
40° 10' to 37° 07' N. lat	0.92	793	2,162	$5,124,627
37° 07' N. lat. to the US Mexico Border	<0.01	427	1,230	$7,777,678
Total	**2.25**	**1,841**	**6,314**	**$17,753,750**

< [value] indicates a confidential value due to data limitations.

Long Term Community Impacts

California has many ports with variable infrastructure, ranging from heavily industrialized (e.g., Los Angeles harbor) to small, localized ports (e.g., Shelter Cove). For a variety of California ports, engagement and reliance scores are given for both commercial and recreational fisheries using United States Census Bureau data. For many ports off of California, fishery engagement is medium to high while fishery reliance is low (both commercial and recreational). This is most likely driven by the high population density and existence of a variety of industries in those ports (i.e., low reliance), while the total number of vessels and number of landings into those ports are generally high (i.e., high engagement) compared to ports off of Oregon and Washington where a small number of large-volume landings are more common. This means that, while the economies in those communities may be able to adapt to the long-term potential loss of commercial fishing engagement, a large number of participants and buyers in the fishery would be impacted by fishing restrictions under this rebuilding plan. With the long-term potential loss of recreational engagement, a large number of businesses, patrons, and private anglers would be impacted.

Alternative 2 maintains some groundfish opportunity but at the cost of more time under restrictions, recognizing that given the small stock size and recent mortality trends, it is not likely that all restrictions will be removed when the stock is rebuilt. Alternative 4 rebuilds California quillback rockfish on a quicker timeline, yet it is likely that more participants might choose to leave fisheries, and more shoreside infrastructure may be lost, than under Alternative 2 because of the large spatial scale of closures. It is unlikely that fishery participants who have taken a hiatus from fishing would re-enter the fishery once California quillback rockfish is rebuilt. Depending on the port communities, when fishery participants leave, there is also a likelihood that infrastructure (e.g., ice houses, processors) will permanently leave these communities. However, under either

course of action, once the California quillback rockfish stock is rebuilt, regulatory restrictions for California quillback rockfish will likely continue, as the predicted rebuilt stock B_{MSY} is expected to be lower than past California quillback rockfish mortality prior to 2023. Based on this information, even when rebuilt, groundfish fisheries are unlikely to be restored to levels typical of the years before the stock was declared overfished.

Below, long-term impacts to commercial port complexes and recreational MAs (management areas) under each of the two HCR alternatives are described in more detail.

Alternative 2

Commercial Port Complexes

Alternative 2 management measures are likely to mirror those implemented for 2024, which have already inflicted adverse economic impacts to California fishery participants and port economies. Those impacts are likely to continue into the future beyond the 2025-26 biennium, but it is difficult to predict long-term management measures throughout the entire rebuilding period as the ACL slowly increases. Alternative 2 would predominantly impact federal fixed gear vessels in the long-term, as the vast majority of commercial mortality of California quillback rockfish comes from those fisheries. Alternative 2 better meets the needs of fishing communities in the short term by providing some fishing opportunities with a gradual increase throughout the rebuilding time frame, which is projected to be longer than that of Alternative 4. However, this short-term benefit comes at the cost of access to co-occurring stocks in federal waters in the 2045-2060 time frame compared to Alternative 4. In other words, federal fishery participants restricted by Alternative 2 management measures would not realize the benefits of a rebuilt stock until much later under Alternative 2, compared to Alternative 4.

Additionally, under Alternative 2, the long-term federal nearshore restrictions could force some fixed gear vessels out of the groundfish fishery entirely if they are unable to learn and utilize a new gear type or purchase a VMS, or if the costs of fuel and the risk of inclement weather serve as barriers to spatial effort shift toward offshore areas. Alternative 2 management measures may also shift effort from areas with restrictions into Central and Southern California. This effort shift, in conjunction with the opening of the Cowcod Conservation Areas, and opening of the Non-Trawl RCA seaward of 75 fathoms, could concentrate effort south of 37° 07' N. lat., which may create unintended conservation concerns or flood the market and collapse other fisheries.

Recreational Management Areas

Opportunity in nearshore waters close to coastal reefs is the primary driver of groundfish effort and social and economic benefits of recreational groundfish fishing in California. From 2013-2024, just over 71% of bottomfish trips took place within 3 miles of the coast. Statewide, recreational engagement and reliance vary. Overall, reliance on recreational fishing is low for most ports in California, whereas, engagement leans towards medium to medium high. Under Alternative 2 season structure some of the smaller communities (e.g., Crescent City, Fort Bragg, Bodega Bay, etc.) may be impacted by season structure more so than other areas.

Under Alternative 2, each recreational fishery management area (MA) has a different season and depth structure reflecting historical California quillback rockfish catch and angler effort for bottomfish. Management measures to achieve Alternative 2 include an “offshore only” season

which requires anglers to fish seaward of the 50 fathom RCA line. “Offshore-only” depth restrictions are effective at reducing recreational mortality of California quillback rockfish. However, because localized of variations in bathymetry, the presence or absence of rocky reefs outside of 50 fathoms, and the proximity of the 50-fathom line to shore, a season structure which restricts anglers to fishing grounds seaward of 50 fathoms will likely reduce effort as many private recreational vessels cannot access or fish those grounds safely. The majority of MAs contain a number of smaller launch sites where kayaks and other smaller vessels are the most effective means to access local reefs. In all management areas, the offshore-only fishery would likely eliminate effort by kayak fishing, which has increased significantly over the last 20 years, as kayaks are not often able to safely travel long distances from shore. Overall, decreases in fishing effort will have a negative economic impact to revenue in local communities through reductions in goods and services provided to recreational anglers (e.g., launch fees, fuel, lodging, etc.). However, alternative fishing target opportunities (e.g., salmon, Pacific halibut) may offset some of the negative impacts due to groundfish effort reductions at times when those fisheries are not restricted as well.

Alternative 4

Commercial Port Complexes

Under Alternative 4, it is likely all directed commercial groundfish fishing in California would be prohibited. Due to the uncertainty around the true range of this stock, with references saying the California quillback rockfish geographic range extends southward in California to Anacapa Island (34° N. lat.) and can be found deeper than 75 fathoms (Love et al., 2002), extending the area or depth closure beyond the current 2024 restrictions will need to be considered by the Council to achieve F = 0. Management measures for the entire groundfish fishery would also need to be enacted to reduce mortality of California quillback rockfish to zero. Alternative 4 would have substantial adverse economic impacts to the groundfish sectors in California. Further, it is unlikely to reach an F = 0 scenario with this rebuilding plan, given the historical mortality of California quillback rockfish in other non-groundfish fisheries which would need to be addressed in other Fisheries Management Plans.

Loss of the groundfish fishery would likely reduce, and potentially eliminate, infrastructure (e.g., processors, port services, etc.) linked to groundfish. Given the timeline to rebuild this stock, it is foreseeable that other community interests are likely to integrate into the port areas (i.e., industry replacement). Densely populated ports with high property value such as San Francisco will see the loss of fishing infrastructure at a faster rate than less populated areas and be less likely to return to fishing infrastructure after becoming restaurants and apartment buildings. Port communities may select for a known economic return rather than re-establish an unknown economy from fisheries, i.e., the loss of historic fishing communities to development.

Fishing engagement and dependence, along with social vulnerability, can be an indicator of long-term community impacts from a complete loss of fishing in those ports. The two port complexes in northern California, Crescent City and Eureka, have a medium and low dependency on the commercial fishing industry, respectively, and rate moderate to high on the social vulnerability scale. The three more northerly port complexes in Central California (area between 40° 10' and 37° 07' N. lat.), Fort Bragg, Bodega Bay, and San Francisco, have a medium and low dependency on the commercial fishing industry, respectively, and have high to low social vulnerability as

latitude decreases (Table B-13). These port complexes rely heavily on Dungeness crab, and to a lesser extent salmon and groundfish, with the expectation of Fort Bragg, which is unique as it derives more proportional ex-vessel revenue from groundfish than any other port other than Eureka. The five port complexes in the area between 37° 07' N. lat. and the U.S./Mexico Border, Monterey Bay, Morro Bay, Santa Barbara, Los Angeles, and San Diego, have a high to low dependency on the commercial fishing industry. They rate moderate to low on the social vulnerability scale with the exception of Moss Landing and Los Angeles which rate high to medium high. Due to rare encounters with quillback rockfish south of Point Conception, it is unclear whether impacts will be experienced in all port complexes. However, to achieve F = 0, Monterey Bay, Morro Bay, Santa Barbara, Los Angeles, and San Diego groundfish fisheries would likely be closed. Commercial quillback rockfish encounters are extremely rare south of Point Conception but not zero, and therefore, may need to be closed along with more centrally located ports.

Recreational Management Area

Under Alternative 4, all marine areas would be closed to recreational groundfish fishing with social and economic impacts commensurate with community dependence. For areas more reliant on bottomfish trip types, the impact could be greater compared to ports with more diverse targets. Businesses that are centered on marine recreational groundfish fisheries (e.g., tackle shops, charter boats, etc.) would likely see adverse economic impacts, and businesses (e.g., hotels, restaurants, etc.) that are linked to marine recreational groundfish fisheries could be negatively impacted as well. In the long term, as the stock recovers, it is uncertain what fisheries, areas, etc., could reopen.

As noted above, fishing engagement and dependence, along with social vulnerability, can be an indicator of long-term community impacts from a complete loss of fishing. A low reliance rating suggests social and economic impact to these communities may not be highly affected by regulatory changes. These management/port areas may be more diversified in terms of other industries available to residents and could potentially withstand impacts from recreational fishery regulatory changes. In northern California the ports of Crescent City and Eureka were identified as having high and medium high social vulnerability respectively; both exhibit medium recreational engagement, whereas, Crescent City displays medium reliance on recreational fisheries and Eureka has low reliance. The Mendocino management area encompasses the major ports of Shelter Cove and Fort Bragg, with several rural ports (e.g., Albion). Shelter Cove and Fort Bragg were identified as having medium social vulnerability and reliance on groundfish in the recreational fisheries by NMFS. Within the San Francisco MA, the major ports of Bodega Bay and San Francisco while both are identified as having low social vulnerability, they diverge relative to recreational engagement and reliance where the former port scores low and medium high respectively, the latter scores the opposite. This area is unique in that San Francisco bay offers additional fishing alternatives when other fisheries are closed or when weather is inclement. The Central MA encompasses a number of major recreational ports, including Santa Cruz, Monterey, Avila Beach, and Morro Bay plus rural landings and except for Moss Landing, have low social vulnerability and low reliance on recreational fishing. The community reliance on recreational fishing in the Southern MA is low; however, Oxnard and Los Angeles, have medium high vulnerability. This area is the largest population center in California and a far greater amount of boat-based effort is exerted in this MA than in MAs north of Point Conception.

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1. Introduction

This document constitutes the analysis in support of the rebuilding plan for the California stock of quillback rockfish. The status of the California stock of quillback rockfish (*Sebastes maliger*) was determined as overfished by the Secretary of Commerce (Agenda Item F.2, Attachment 2, March 2024) according to the "applicable minimum stock size threshold" (MSST) as described in Section 4.5 of the Pacific Coast Groundfish Fishery Management Plan (FMP). In brief, that section describes that the term "overfished" is where a stock's abundance is below its overfished threshold, or MSST. Overfished/rebuilding thresholds, in general, are linked to the same productivity assumptions that determine the OFL levels.. The FMP defines a proxy value for maximum sustainable yield (B_{MSY}) of 40 percent of unfished spawning output as the default value of this threshold for non-flatfish stocks. The 2021 assessment (Langseth et al., 2021) estimated the California stock of quillback rockfish (hereafter "California quillback rockfish") population to be at 14 percent of the unexploited equilibrium spawning output at the start of 2021 (Figure 1). Per the Magnuson-Stevens Fishery Conservation and Management Act (MSA) Section 304(e)(3), the Council is required to prepare and implement a Pacific Coast Groundfish Fishery Management Plan (FMP) Amendment specifying the rebuilding plan for the California stock of quillback rockfish.

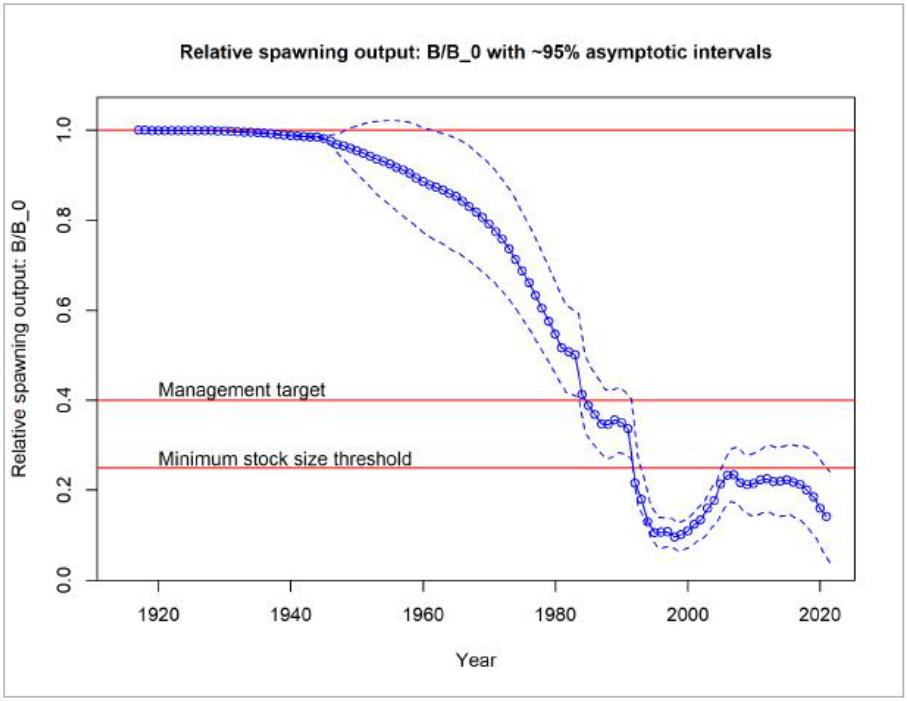

Figure 6. Estimated time series of relative spawning output from Langseth et al., 2021, Figure 24.

1.1 Action Area

The proposed action area is the Exclusive Economic Zone (EEZ) off of the state of California.

Figure 7. Action area for the California stock of quillback rockfish rebuilding plan, the entire EEZ , i.e., 3 to 200 nm, seaward of California state territorial waters.

1.2 Purpose and Need of the Proposed Action

The purpose of this action is to rebuild the California stock of quillback rockfish, which was declared as overfished by the Secretary of Commerce, to sustainable levels in as short a time as possible. The proposed action is needed because MSA §304(e)(3) requires Regional Fishery Management Councils to "prepare a fishery management plan, plan amendment, or proposed regulations" in order to prevent overfishing and implement a plan to rebuild the overfished stocks. MSA §304(e)(3), requires the Council to prepare and implement a plan amendment or proposed regulations within two years of notification that a stock is overfished.

Rebuilding plans are mandated when the size of a stock or stock complex falls below a level described in the Pacific Coast Groundfish FMP as the MSST. Regardless of the cause of the decline, fishing mortality needs to be controlled to prevent further deterioration in the condition of the stock, and if the stock has been overfished, to allow it to rebuild. Rebuilding plans specify a time period for rebuilding and the management actions being taken to rebuild an overfished stock. Both the procedural provisions and the standards established for rebuilding plans must meet the requirements of the MSA, in particular, National Standard 1 and §304(e), and also be consistent with FMP goals and objectives.

Preventing overfishing also means returning stocks to a size capable of achieving maximum sustainable yield (MSY). Council actions should be submitted to National Marine Fisheries Service (NMFS) within 15 months of this notification to ensure sufficient time for the Secretary to implement the measures, if approved (50 CFR 600.310(j)(2)(ii)).

1.3 Stock Rebuilding Plans

The FMP discusses stock rebuilding plans at §4.6.3, which is incorporated by reference. Briefly, for a stock that is overfished, the rebuilding plan will specify a time period for ending the overfished condition and rebuilding the stock. Overfishing restrictions and recovery benefits should be fairly and equitably allocated among sectors of the fishery.

1.4 Requirements for Rebuilding Plans

National Standard Guidelines specify how rebuilding should occur and, in particular, establish constraints on Council action (50 CFR 660.310(e)). Rebuilding should bring stocks back to a population size that can support MSY (B_{MSY}). A rebuilding plan must specify a target year (T_{TARGET}) based on the time required for the stock to reach B_{MSY}. This target is bounded by a lower limit (T_{MIN}) defined as the time needed for rebuilding in the absence of fishing (i.e., F = 0). Rebuilding plans for stocks with a T_{MIN} less than ten years must have a target less than or equal to ten years. If, as is the case with most of the groundfish stocks considered in this amendment, the biology of a particular species dictates a T_{MIN} of ten years or greater, then the maximum allowable rebuilding time, T_{MAX}, is the rebuilding time in the absence of fishing (T_{MIN}) plus "one mean generation time." Mean generation time is a measure of the time required for a female to produce a reproductively-active female offspring (Pielou, 1977; and especially Restrepo et al., 1998) calculated as the mean age of the net maternity function (product of survivorship and fecundity at age). The MSA states the rebuilding time should be as short as possible, taking into account the status and biology of the overfished stocks and the needs of fishing communities (Sec. 304(e)(A)(i)). In most cases, because of the biology of the stocks and the needs of fishing communities, the rebuilding time, or the target year, will be greater than the minimum rebuilding time (T_{MIN}).

1.5 Contents of Rebuilding Plans

This document follows the detailed contents of a rebuilding plan section in the FMP § 4.6.3.2 and is incorporated by reference.

1.6 History of Action

Quillback rockfish was assessed in 2021 using a length-based data-moderate method, which is included by reference (Langseth et al., 2021). The Scientific and Statistical Committee (SSC) reviewed the assessment in June 2021 and endorsed it as the best scientific information available (BSIA) and suitable to inform management (Agenda Item G.5.a, Supplemental SSC Report 1, June 2021). The SSC noted the estimated stock size of California quillback rockfish to be below the MSST (Agenda Item G.5.a Supplemental SSC Report 1, June 2021), indicating it appeared to be overfished. A rebuilding analysis was conducted and submitted to the Council at the September 2021 meeting under Agenda Item G.5, Attachment 10, June 2021 and recommended by the SSC (Agenda Item C.6.a Supplemental SSC Report 1, September 2021). The Council referred the assessment to the Groundfish Subcommittee (GFSC) of the SSC for further review in September

2021. The SSC determined the results of the rebuilding analysis, per the recommendations of the GFSC, to be technically correct (Agenda Item E.2.a. Supplemental SSC Report 1, November 2021). The Council then adopted the stock assessment and the rebuilding analysis at their November 2021 meeting.

The next step was for NMFS to determine the status of quillback rockfish based on the stock assessment results. In March 2021, the Council was informed by NMFS that it needed to correct the FMP to define stocks of managed groundfish species (Agenda Item E.3.a, NMFS Report 1, March 2022). Briefly, the FMP at that time did not define stocks of managed species. Therefore, the status could not be determined until the stock was defined in the FMP, which Amendment 31 accomplished.

Despite not being declared overfished, the Council took precautionary measures to reduce impacts on California quillback rockfish for the 2023-24 biennium. The Council adopted Alternative 1 California quillback rockfish harvest specifications at their June 2022 meeting under Agenda Item F.6. as their final preferred alternative (FPA) to inform the contribution of California quillback rockfish to the nearshore rockfish complexes north and south of 40° 10′ N. lat. (refer to Informational Report 2, September 2022). The OFL for California quillback rockfish, within the nearshore complexes, were projected using a 50% SPR harvest rate from the 2021 assessment of quillback rockfish in CA, with 49.6% of the OFL apportioned north of 40°10' N lat. and 50.4% of the OFL apportioned south of 40°10' N lat. based on the estimated average 2002-2020 total catch by area based on the estimated average 2002-2020 total catch by area. The ACL were based on the an SPR55% harvest rate projected from the rebuilding analysis.

Additionally, for waters off of California, the Council implemented an annual catch target (ACT) set equal to the combined statewide ACL contributions to the nearshore rockfish complexes (Table 1). The Council also adopted a 75 lbs. bimonthly trip limit for the fixed gear commercial fishery and a 1 fish bag limit for the recreational fishery. These harvest specifications and management measures are detailed in Informational Report 2, September 2022.

Table 2. The 2023-24 estimated and summed No Action California quillback rockfish contributions (ACL contribution SPR 0.55 < ABC P* = 0.45) and ACTs (ACT = ACL contribution) to the nearshore rockfish complexes north and south of 40° 10′ N. lat.

Specification a/	**2023 (mt)**	**2024 (mt)**
OFL	2.11	2.32
ABC	1.85	2.01
ACL Contribution	1.76	1.93
ACT	1.76	1.93

Amendment 31 defined quillback rockfish as state-specific stocks in Washington, Oregon, and California, which allowed NMFS to determine status of these stock units.. In December 2023, the status of California quillback rockfish was determined to be overfished (Agenda Item F.2, Attachment 2, March 2024).

At the September 2023 meeting, the Council was informed by the California Department of Fish and Wildlife (CDFW) that the 2023 California quillback rockfish ACT was exceeded (Agenda

Item G.8.a, CDFW Report 1, September 2023) and that the state had implemented actions to reduce impacts to the stock (Agenda Item G.8.a, Supplemental CDFW Report 2, September 2023). Following analysis by the Groundfish Management Team (GMT; Agenda Item G.8.a, Supplemental Report 5, September 2023), the Council adopted inseason actions for federal waters off of California that were consistent to CDFW actions (Agenda Item G.8.a, Supplemental Report 5, September 2023). In brief, these actions reduced the commercial trip limit and recreational bag limit to zero. Further, recreational groundfish fishing shoreward of the 50 fathom non-trawl rockfish conservation area (RCA) was prohibited and area-based gear-specific trip limit restrictions were placed on the fixed gear commercial fishery.

In September 2023, under Agenda Item G.6 Initial Harvest Specifications and Management Measures Actions for 2025-26, the Council expressed concerns regarding the assumed removals for 2023 and 2024 applied in the updated rebuilding analysis. The GMT's recommended removal assumption for 2024 in the rebuilding analysis was 10.62 mt, which was based on the 2023 Groundfish Multiyear Report (GEMM, Agenda Item G.1.b, NWFSC Report 1, September 2023; Agenda Item E.2.a, Supplemental GMT Report 2, November 2023). The methodology used to develop this value is described in Agenda Item E.2, Supplemental GMT Report 1, November 2023. At that time, additional inseason actions were being considered in response to the ACT being exceeded for California quillback rockfish – actions that were expected to reduce mortality for the remainder of 2023 and for 2024. Given these concerns, CDFW recommended a removal assumption of 6.32 mt in 2024 (Agenda Item G.6, Supplemental CDFW Report 1, September 2023). In response, the Council recommended the Northwest Fishery Science Center (NWFSC) complete an alternate run of the rebuilding analysis using an alternate quillback rockfish removal assumption based on expected inseason actions, i.e., the CDFW removal assumption.

In November 2023, the Council reviewed the 2023 California quillback rockfish rebuilding analysis, with the alternate rebuilding removal assumption (i.e., the CDFW removal assumptions) included as a separate appendix (Agenda Item E.2, Attachment 1, November 2023). The SSC endorsed the rebuilding analysis as BSIA and concurred with the GFSC that the analysis was conducted in accordance with the Terms of Reference (TOR) for Groundfish Rebuilding Analysis (Agenda Item E.2.a, Supplemental SSC Report 1, November 2023). However, the SSC did not make recommendations on the removal assumptions. The Council postponed adoption of the 2023 rebuilding analysis (based on the 2021 assessment) and requested an additional SSC review of the public comments submitted by Dr. Ray Hilborn and Dr. Mark Maunder [via a letter submitted by J.T. Hobbs] regarding the 2021 stock assessment.

Also in November 2023, as part of developing the range of 2025-26 harvest specifications and management measures, CDFW recommended the Council consider managing California quillback rockfish contributions to the nearshore rockfish complexes north and south of 40° 10′ N. lat. with a 2025 OFL specification of 8.41 mt and a category 3 buffer using a P*=0.40 to obtain an ABC of 5.06 mt [ABC = 8.41*0.602 = 5.06] (Agenda Item E.2, Supplemental CDFW Report 2, November 2023). CDFW recommended this be added to the range of HCRs. Thus, a range of four action alternatives[51] for the 2025-26 California quillback rockfish OFL, ABC, and ACL values were:

[51] Table 5 and 4, Agenda Item E.2, Attachment 1, November 2023 and Agenda Item E.2.a, Supplemental CDFW Report 2, November 2023

- Alternative 1 - ACL SPR = 0.55 < ABC P* 0.45,
- Alternative 2 - the ABC rule, P* 0.45,
- Alternative 3 - CDFW alternative, and
- Alternative 4 - F = 0.

In November 2023, the Council adopted inseason adjustments by extending the duration of several measures implemented through the September 2023 (G.8.a. Supplemental GMT Report 2, September 2023) inseason action, with the goal of minimizing the mortality of California quillback rockfish (detailed in E.9.a, Supplemental GMT Report 1, November 2023) in limited entry (LE) and open access (OA) groundfish fisheries in 2024. The majority of the management measures implemented through the 2023 inseason actions are for the area between 42° N. latitude and 36° N. latitude within the area of the non-trawl RCA. In November 2023, the inseason action expanded the RCA to include all federal waters shoreward of 75 fathoms. Based on analysis conducted by the GMT at the November 2023 meeting (E.9.a. Supplemental GMT Report 1, November 2023), the Council recommended revising some of the measures implemented through the September 2023 inseason action to reduce discard mortality of California quillback rockfish while further narrowing the scope of restrictions and minimizing the economic impact to fishing communities to the extent possible (88 FR 90127, January 1, 2024).

In January 2024, the SSC GFSC conducted a review of the public comments submitted by Dr. Ray Hilborn and Dr. Mark Maunder, as requested by the Council in November. A TOR was specifically developed for this review meeting to provide the Council with further guidance on using the existing 2021 assessment of California quillback rockfish and corresponding 2023 rebuilding analysis for decision-making. This additional GFSC review did not raise new information that had either not been considered by the GFSC and SSC during its past reviews, or for which the approach taken by the stock assessment team did not follow the TOR and accepted practices guidelines, or for which there are data that could have been included in the assessment at the time it was conducted (SSC GFSC report, March 2024).

At the March 2024 Council meeting, the GFSC and the SSC again recommend use of the 2021 stock assessment and adoption of the 2023 rebuilding analysis for California quillback rockfish (Agenda Item F.7.a, Supplemental SSC Report 1, March 2024). The Council adopted the 2023 rebuilding analysis for California quillback rockfish, as described in Agenda Item F.2, Attachment 1, March 2024, with the original GMT removal assumptions. The Council also affirmed the range of 2025-26 harvest specifications to be included in analysis f based on the range developed in November (see Table 1 in Agenda Item E.7.a, Supplemental GMT Report 1 November 2023.

In April 2024, the Council adopted the ABC rule (Alternative 2) as a preliminary preferred alternative (PPA) for their rebuilding strategy and removed the default HCR (Alternative 1) and the CDFW proposal (Alternative 3) from further analysis. Final action on California quillback rockfish harvest specifications for 2025-26 and the associated rebuilding plan is scheduled for June 2024.

2. Alternatives

2.1 Rebuilding Analysis

A California quillback rockfish rebuilding analysis was prepared in 2023 (Langseth, 2023) to examine a range of alternative rebuilding strategies and inform harvest specification decision-making, which is incorporated by reference. Based on the rebuilding analysis, California quillback rockfish are unable to rebuild within 10 years. T_{MAX} is the maximum time allowed for rebuilding, and is calculated as the T_{MIN} plus the mean generation time for stocks that require more than 10 years to rebuild. Mean generation time is the estimated time it takes a spawning female to be replaced by a spawning female in the next generation. For long-lived rockfish, the mean generation time plus T_{MIN} can provide an extended period to achieve rebuilding. The adopted California quillback rockfish rebuilding analysis specified resulting rebuilding parameters (T_{MIN} = 2045, T_{MAX} = 2071, mean generation time of 26 years).

2.2 Rebuilding Options

At the April 2024 meeting, the Council adopted the following rebuilding plan harvest specifications for analysis, as described in Agenda Item F.2, Supplemental Revised Attachment 1, April 2024. The analyses for these alternatives are detailed above in Agenda Item F.5, Attachment 2, April 2024 which is incorporated by reference, though summarized here.

- **Alternative 2**: the "ABC rule" rebuilding strategy, in which the ACL is set equal to the ABC given a selected management risk tolerance (P* = 0.45) and time-varying scientific uncertainty (sigma = 1.0) reduction applied to the OFL
- **Alternative 4:** F = 0, i.e., no fishing mortality

The rebuilding analysis assumes these HCRs persist through the course of rebuilding the California quillback rockfish population. However, long-term management strategies for California quillback rockfish may be revisited during each biennial management cycle undertaken by the Council. The T_{TARGET} indicates the rebuilding target year in which the stock would be rebuilt and is associated with each potential rebuilding strategy for consideration by the Council. The target year for rebuilding (T_{TARGET}) must fall between T_{MIN} and T_{MAX}.

2.3 Comparison of Rebuilding Strategies

The California quillback rockfish rebuilding analysis (Langseth, 2023) compares rebuilding strategies in Table 2 of that document. The Council considered a no action and four harvest specification alternatives for California quillback rockfish. The Council, as discussed below, adopted Alternative 2 as their PPA and removed Alternative 1 and Alternative 3 from consideration. This rebuilding plan analysis examines Alternative 2 (PPA) and Alternative 4 (Table 2)

No Action represents the HCR used to calculate the 2023-24 harvest specifications, where California quillback was 1) not declared overfished, 2) not defined as a stock, and 3) was managed in the nearshore rockfish complexes along with an aggregate of other nearshore species. Alternative 1 represents the default HCR and uses the rebuilding strategy of SPR = 0.55,

ACL<ABC, P* = 0.45. Due to the similarities of impacts between No Action and Alternative 1, no meaningful comparison can be made to No Action and, for the reasons above, No Action is not an identified rebuilding strategy. Alternative 1 addresses the SPR = 0.55 rebuilding strategy, represents the stock as defined, and represents a management strategy for California quillback rockfish as a single stock. Therefore, for purposes of this analysis Alternative 1 is considered the No Action scenario.

Table 3. Harvest specifications for OFL and ACL resulting from rebuilding strategies based on Langseth (2023) given the assumed removals for 2021-2024.

Quillback Rockfish in CA	**Harvest Control Rule a/**		
	Alternative 1	**Alternative 2**	**Alternative 4**
	SPR 0.55	ABC Rule (P*=0.45)	F = 0 (i.e., no fishing mortality)
2021 assumed removals (mt)	*15.58*	*15.58*	*15.58*
2022 assumed removals (mt)	*18.11*	*18.11*	*18.11*
2023 assumed removals (mt)	*11.12*	*11.12*	*11.12*
2024 assumed removals (mt)	*10.62*	*10.62*	*10.62*
2025 OFL/ACL (mt)	1.52/1.26	1.52/1.30	1.52/0
2026 OFL/ACL (mt)	1.77/1.47	1.77/1.50	1.81/0
SPR	0.55	-	1.0
T_{TARGET}	2062	2060	2045
T_{MAX}	2071	2071	2071
Probability of recovery by T_{MAX}	0.694	0.736	0.999

a/ Alternative 3 is not included in this table because it was not part of the range included in the rebuilding analysis.

Under an Alternative 1 strategy, California quillback has a 50 percent probability of rebuilding the stock by 2062 (T_{target}) and a 69.4 percent probability of rebuilding by 2071 (T_{MAX}). The ACLs in 2025-26 under Alternative 1 are marginally less than those under Alternative 2 only differing in the hundred decimal position (e.g., 2025 Alt. 1 ACL = 1.26 mt versus Alt. 2 ACL = 1.30 mt). Across the rebuilding period Alternative 1 is projected to rebuild the stock two years before Alternative 2. However, the probability that Alterative 1 rebuilds by T_{MAX} is 69.4 percent, slightly lower than the projected probability associated with Alternative 2 of 73.6 percent. There is no substantive difference between these two Alternatives in terms of management and harvest specifications, and a meaningful comparison between these two alternatives cannot be accomplished due to their similarities. The resulting difference in impacts to communities, both short and long term, between Alternative 1 and 2 are negligible. Therefore, this rebuilding plan analysis compares only Alternative 2 and Alternative 4.

Alternative 2 is described as the "ABC rule" rebuilding strategy, which is where the ACL is set equal to the ABC based on a pre-specified management risk tolerance (P*) and the scientific uncertainty (sigma) reducing the ABC from the overfishing limit (OFL). This calculation applies

the ABC harvest rate with category 2 time-varying sigma = 1.0 and a P* = 0.45. The Alternative 2 ABC rule strategy has an expected 50 percent probability of rebuilding the stock by 2045 (T_{target}) and a 73.6 percent probability of rebuilding by 2071 (T_{MAX}) (Figure 3). Alternative 4 is set at F = 0, which assumes no fishing mortality and has a 50 percent probability of rebuilding the stock by 2045 and a 99.9 percent probability of rebuilding by 2071 (T_{MAX}, Figure 3). This Alternative rebuilds the stock on the fastest schedule; however, it assumes that there would be no mortality in any fishery, groundfish or otherwise.

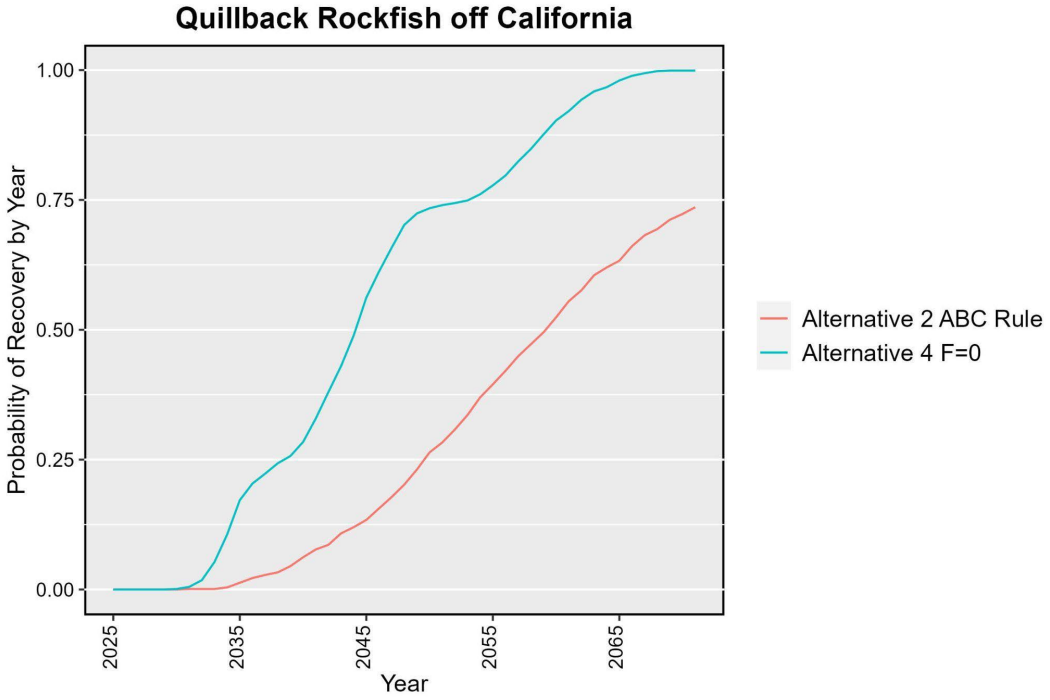

Figure 8. Projected probability of recovery by year of California quillback rockfish under each rebuilding strategy; Alternative 2 ABC rule and Alternative 4 with no fishing mortality (F = 0). Probabilities represent the proportion of simulations that reach the target spawning output (i.e., recovery) by the specified year.

Under Alternative 4, projected spawning output reaches target faster than does Alternative 2 (Figure 4), which is consistent with the rebuilding timelines. Spawning output under an F = 0 strategy (Alternative 4) would be expected to increase faster than a strategy that allows for mortality (i.e., Alternative 2). Alternative 4 OFL increases at a faster rate, in terms of time, than does Alternative 2, corresponding to the fact that under F=0 no mortality is expected (Figure 5). The ACL under F=0 would remain at 0mt throughout the rebuilding period; whereas, the ACLs would slowly increase under Alternative 2 (Figure 6)

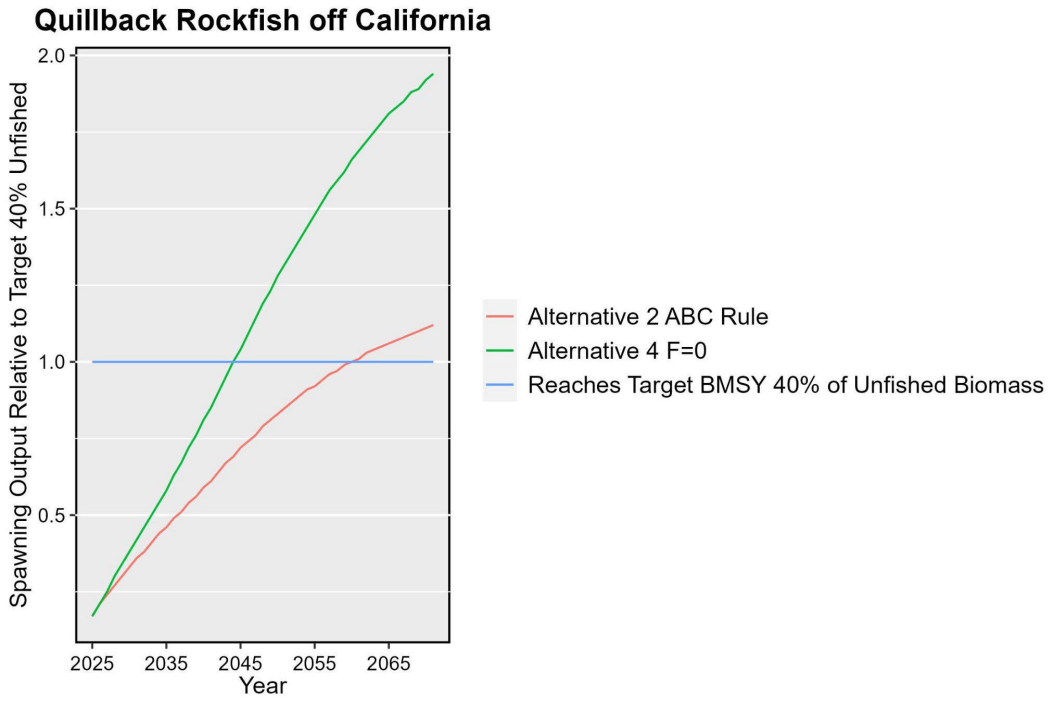

Figure 9. Projected spawning output relative to the target 40 percent unfished spawning output (i.e., value 1 = reached target), of California quillback rockfish under each rebuilding strategy; Alternative 2 ABC rule and Alternative 4 with no fishing mortality (F = 0).

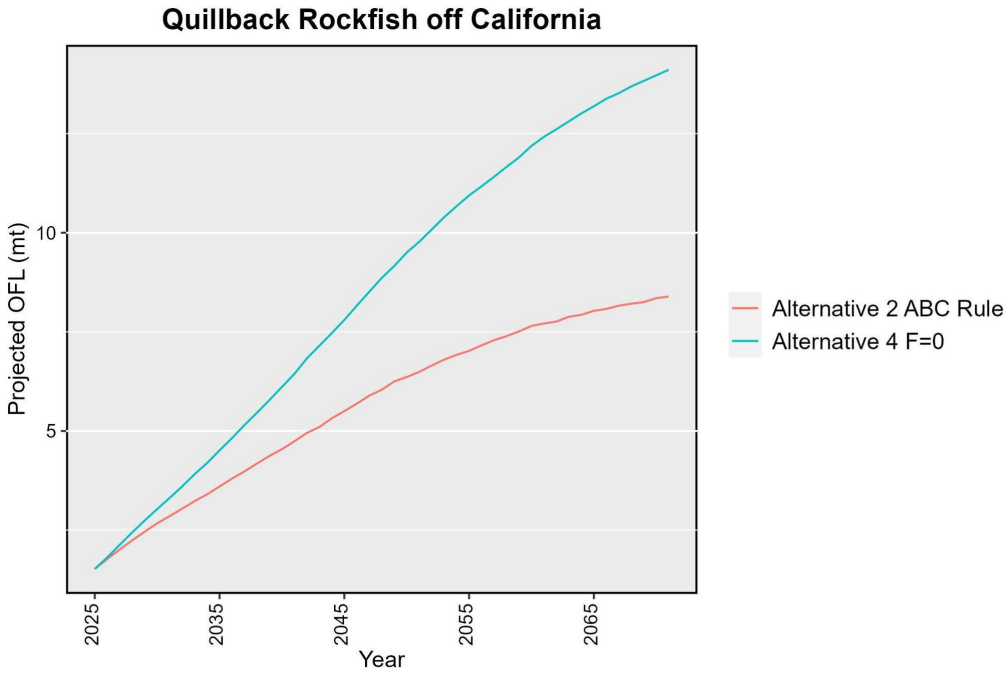

Figure 10. Projected overfishing limit (OFL; mt) of California quillback rockfish under each rebuilding strategy; Alternative 2 ABC rule and Alternative 4 with no fishing mortality (F = 0).

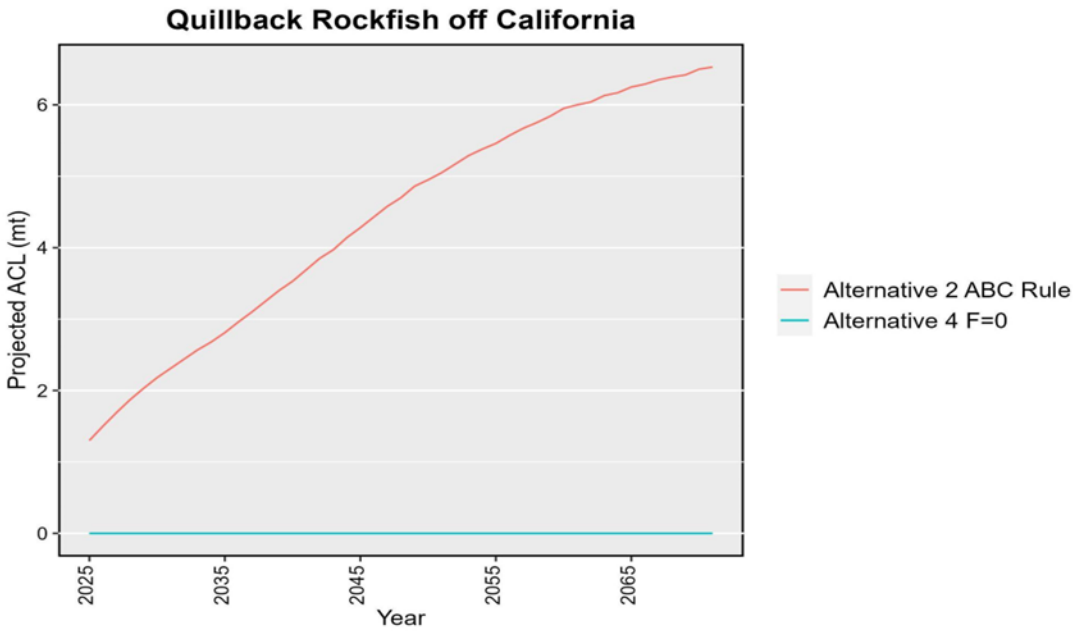

Figure 11 Projected annual catch limit (ACL; mt) of California quillback rockfish under each rebuilding strategy; Alternative 2 ABC rule and Alternative 4 with no fishing mortality (F = 0).

2.4 Alternatives Considered but Rejected

The Council requested analysis of a range of rebuilding strategies for policy consideration as part of the 2025-26 groundfish harvest specifications and management measure process (Agenda Item F.5, Attachment 2, April 2024). The requested rebuilding strategies were Alternatives 1 through 4, with Alternative 1 as the default HCR and Alternatives 2 and 4 as the Alternatives described above (i.e., ABC rule and F = 0). Alternative 3 included harvest specifications that were proposed by CDFW (Agenda Item E.2.a, Supplemental CDFW Report 2 Nov 2023).

Alternative 1 represented the default HCR, as used in the 2023-24 management cycle, with a SPR = 0.55 to determine the ACL. Alternative 1 is projected to rebuild the stock with a 50 percent probability by 2062, within the statutory maximum time to rebuild of 2071 (T_{MAX}) and represents a 69.4 percent probability of rebuilding by 2071 (T_{MAX}).

Overall trends represented by Alternative 1 (default) and Alternative 2 (ABC rule) harvest control rules were functionally identical in that they did not deviate until well into the rebuilding period. Alternative 1 under default HCR would have a slightly lower probability of rebuilding (69.4 percent) within the required timeline, compared to Alternative 2 (73.6 percent) with the ABC rule. Alternative 1 would also take two years longer (2062) for the stock to reach the target rebuilding level, compared to Alternative 2 (2060). Thus, in April 2024, the Council did not select Alternative 1 for further consideration.

Alternative 3 harvest specifications for California quillback rockfish were proposed by CDFW during the November 2023 Council meeting. The Alternative 3 ABC value was the result of a 2025 OFL of 8.41 mt with a category 3 sigma=2.0 and a P*=0.40 applied to obtain an ABC = 5.06 mt [ABC = 8.41*0.602 = 5.06]. The harvest specification values in Alternative 3 were greater than those estimated in the adopted 2023 rebuilding analysis and represented harvest levels beyond what would appear biologically reasonable for a rebuilding population, and as such did not meet the MSA rebuilding requirements. Lastly, Alternative 3 was proposed for analysis prior to the Council officially adopting the 2023 rebuilding analysis. Thus, in April 2024, the Council did not select Alternative 3 for further consideration.

3. Stock Status and Biology

3.1 Biology

The biology and population dynamics of quillback rockfish are described in several documents, including the Groundfish Stock Assessment and Fishery Evaluation (SAFE) report (PFMC, 2022), the 2021 assessment (Langseth et al., 2021), and Amendment 31 (PFMC, 2023). These reports are incorporated by reference.

Quillback rockfish is a long-lived nearshore rockfish, which can live up to 95 years and is late to mature (Yamanako and Lacko, 2001; Love et al., 2002). The range of this species is from Kodiak Island, Alaska to Anacapa Island, California, though it is most common from southeast Alaska to central California (Love et al., 2002). Off of California, adult quillback rockfish are generally found in waters between 20-50 fathoms in nearshore kelp forests and rocky habitat (Love et al., 2002; Love, 2011).

In 2010, a productivity and susceptibility analysis conducted at a coastwide scale estimated quillback rockfish to have a vulnerability of major concern (V = 2.22, Cope et al., 2011). This analysis calculated species-specific vulnerability scores based on two dimensions: productivity characterized by life history and susceptibility characterized by how the stock is likely affected by fisheries.

3.2 Assessment

Quillback rockfish was first assessed in 2010 using Depletion-Based Stock Reduction Analysis (DB-SRA) to provide estimates of coastwide OFLs (Dick and MacCall, 2010). The coastwide OFL was then apportioned to each management area based on the proportion of historical catches north and south of 40° 10′ N. lat. It is important to note, the application of DB-SRA did not estimate a stock status, but rather assumed that depletion at that time was distributed around the management target (i.e., 40 percent of unfished spawning output). The 2010 assessment found there was a 52 percent probability that quillback rockfish was experiencing overfishing, as recent coastwide catches were greater than the estimated median coastwide OFL estimate from that analysis (Dick and MacCall, 2010).

The 2021 assessment of California quillback rockfish used a length-based data-moderate methodology (Langseth et al., 2021). This assessment was a single-sex model that included two fishing fleets (a recreational fleet and a commercial fleet), externally estimated biological relationships (length-weight, length-at-age, natural mortality, fecundity, and maturity), estimated asymptotic selectivity for each fishing fleet, assumed a Beverton-Holt stock recruitment relationship with fixed productivity (i.e., steepness of 0.72), and estimated annual recruitment deviations (Agenda Item G.5.a, Supplemental SSC Report 1, June 2021). Assumed biological parameters are provided below in Table 3. There was substantial uncertainty in the California model given sensitivity to assumed mortality parameters and the limited data in California. The assessment was assigned a category 2 designation (i.e., sigma = 1.0). The assessment of California quillback rockfish estimated 2021 depletion (i.e., fraction of unfished spawning output) of 14 percent, below the MSST for rockfish (25 percent).

The SSC reviewed the 2021 assessment and endorsed it as BSIA for use in management and the Council adopted the assessment after considering several discussions presented in SSC statements and GFSC reports that are reflected in the record for Council meetings in June 2021 (Agenda Item G.5.a Supplemental SSC Report 1), September 2021 (Agenda Item C.6.a Supplemental SSC Report 1), and November 2021 (Agenda Item E.2.a Supplemental SSC Report 1). Those reports characterize the SSC's conclusions about the assumptions, strengths, and limitations of the 2021 assessment. An additional review meeting conducted in January 2024 also clarifies SSC conclusions (SSC GFSC report, March 2024).

Table 4. Summary of key parameters in the 2021 assessment for California quillback rockfish.

Parameter	Value	Estimated or Fixed
Natural mortality yr^{-1}	0.057	Fixed
Length at age (cm)		
von Bertalanffy k yr^{-1}	0.199	Fixed
Asymptotic length (cm)	43.04	Fixed
Weight at length (kg)		
Coefficient	1.963 e-05	Fixed
Exponent	3.016	Fixed
Maturity at length (cm)		
Inflection (cm)	29.23	Fixed
Slope	-0.80	Fixed
Fecundity at length (cm)		
Inflection	3.93e-07	Fixed
Slope	3.702	Fixed
Stock-recruitment		
$Ln(R_0)$	3.17	Estimated
Steepness (h)	0.72	Fixed
Variation in Recruitment (σ_R)	0.60	Fixed
Recruitment deviations	Annual deviations from the stock-recruitment curve	Estimated
Start Year for Early Deviations	1940	Fixed
Start Year for Main Deviations	1978	Fixed
End year for Deviations	2017	Fixed
Maximum Bias Adjustment	0.35	Fixed

3.3 Model sensitivity to stock-recruit steepness

The steepness of the stock-recruitment relationship, which determines the productivity of a fish population, is one of the key parameters for understanding the dynamics of the stock and determining projected rebuilding. The stock-recruit steepness represents the proportion of average unfished recruitment achieved at 20 percent of unfished spawning output and ranges from 0.2 to 1.0 (the higher value indicates the higher productivity of the stock). Reliable estimation of this parameter is dependent on long, contrasting time-series of stock-recruit data that are often not available (Hilborn and Walters, 1992; Conn et al., 2010). To date, the majority of groundfish assessments lack sufficient data to estimate steepness reliably, resulting in the parameter being fixed at an assumed value. Similar to other groundfish assessments, the assessment of California quillback rockfish was unable to reliably estimate this parameter due to the short time-series of data, which are primarily available after the estimated large declines in spawning output, and due to the continuous downward trajectory of the stock abundance. Therefore, steepness in the assessment model was fixed at the value of 0.72, which is the mean of the rockfish prior defined in the groundfish stock assessment TOR (applicable version to 2021 assessment; December 2020).

The impact to the assumed value of steepness was explored in the 2021 assessment through analysis of model sensitivity to alternative values, and through likelihood profile analyses. The likelihood profile for steepness from the 2021 assessment for California quillback rockfish is shown in Figure B-3. The estimated negative log-likelihood declines indicate improved fits to the data with increasing values of steepness with the best fit to the data found with a value of 1.0, which is considered to be implausible for a slow-growing rockfish, implying that this parameter is unable to be estimated given the available data. The change in the estimated fraction of unfished spawning output across a range of steepness values is shown in Figure 7.

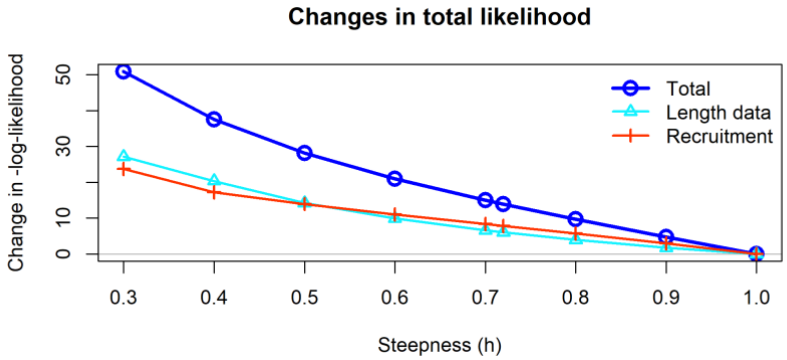

Figure 12. Negative log-likelihood profile in total and for each data type over the range of steepness from 0.3 to 1.0 by increments of 0.1 (from Langseth et al., 2021).

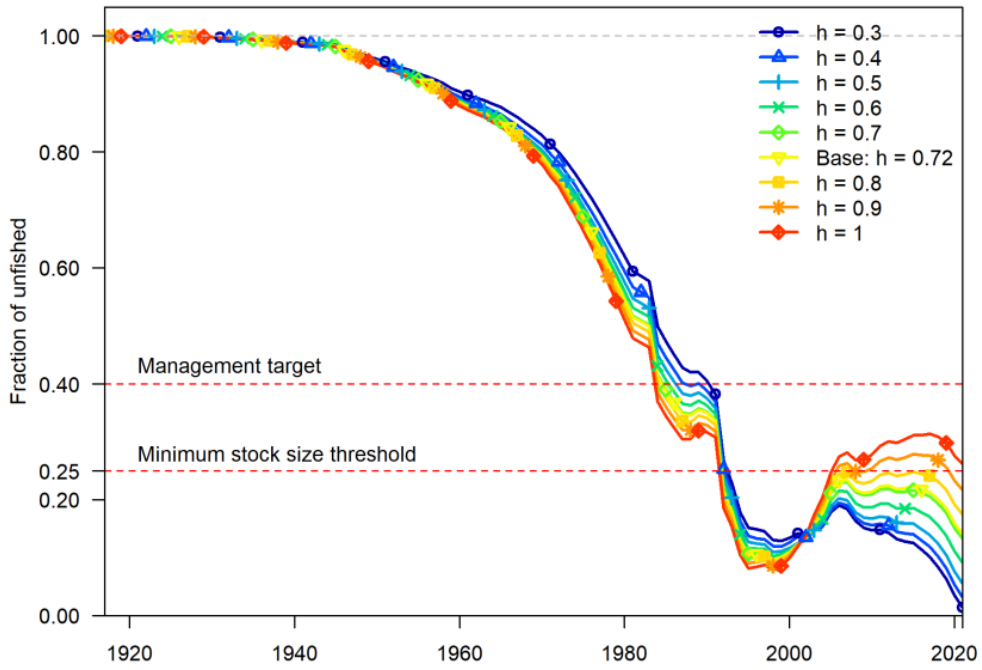

Figure 13. Time series of the estimated fraction of unfished spawning output associated with values of steepness ranging from 0.3 to 1.0 by increments of 0.1 (from Langseth et al., 2021).

Similar to steepness, natural mortality is often difficult to estimate based on available data and is often fixed within groundfish assessments. Quillback rockfish are a long-lived rockfish that are thought to live up to 95 years of age (Yamanako and Lacko, 2001; Love et al., 2002). Across the U.S West Coast there are limited age data for quillback rockfish with the majority of these samples being collected in recent years, well after the peaks of high historical catches. Natural mortality was fixed in the model based on literature values of a maximum age of 95, resulting in an assumed natural mortality of 0.057 yr^{-1}. A likelihood profile and model sensitivities over natural mortality values were conducted in the 2021 assessment (Langseth et al., 2021). The likelihood profile over natural mortality supported higher values (i.e., a lower maximum age, Figure 9). This information is being informed primarily by the length data and the estimates of annual recruitments which would be expected to contain limited data on natural mortality, particularly compared to age data which were not included in the base model. The estimated fraction unfished was also highly sensitive to assumptions about natural mortality (Figure 10).

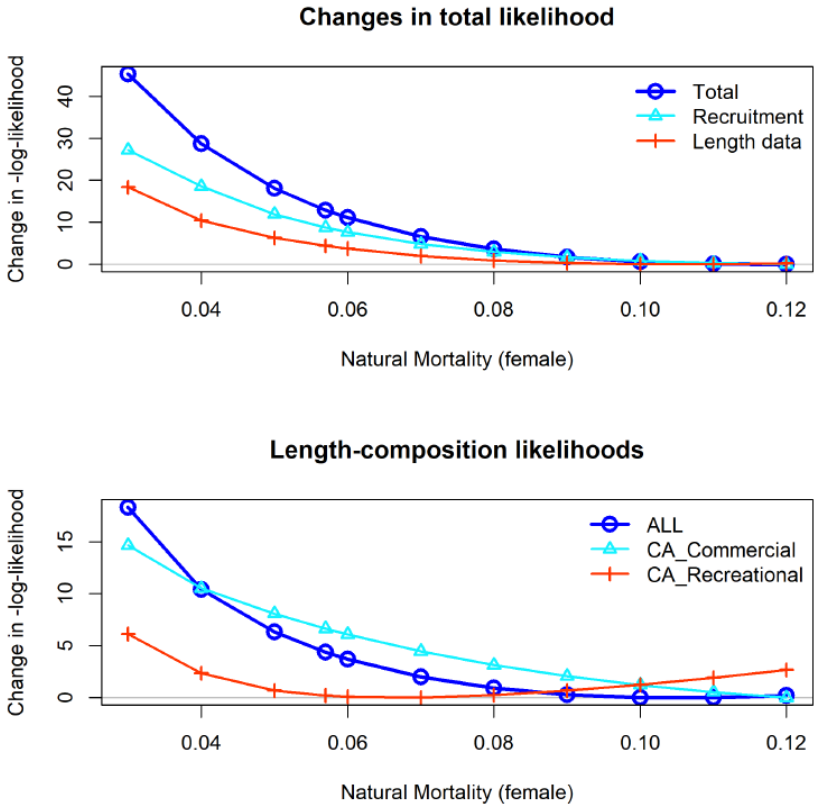

Figure 14. Negative log-likelihood profile in total and for each data type over a range of natural mortality values (from Langseth et al., 2021).

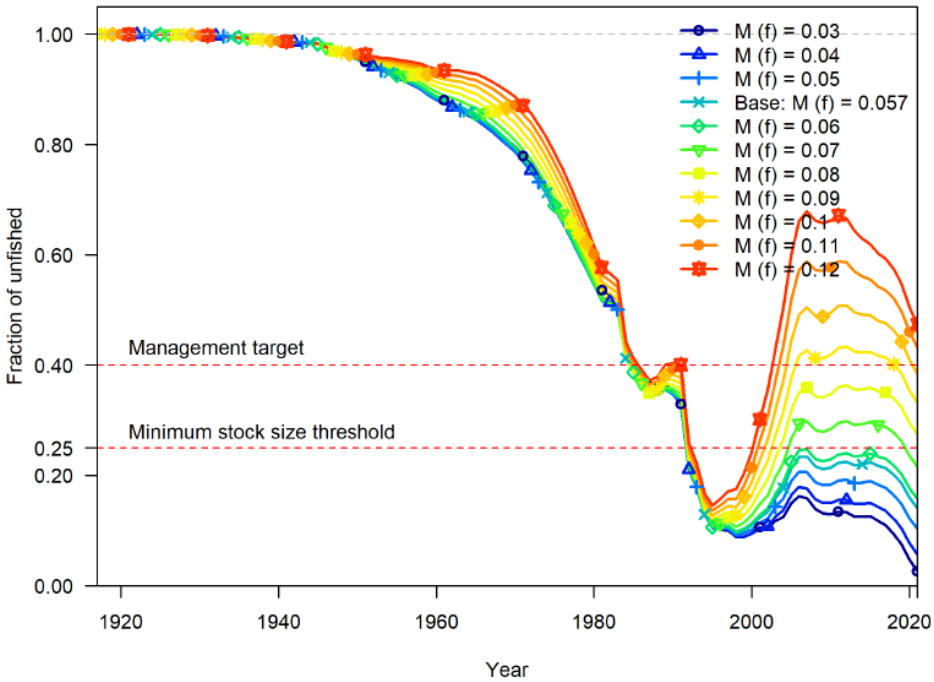

Figure 15. Time series of the estimated fraction of unfished spawning output associated with a range of natural mortality values (from Langseth et al., 2021).

3.4 Projected rebuilding probabilities

The projected rebuilding probabilities under all alternatives are shown below in Table 4 (based on values in Table 3; Langseth, 2023). In brief, Alternative 2 represents a 73.6 percent probability of rebuilding the stock by 2060 and Alternative 4 represents a 99.9 percent probability by 2045. Probabilities represent the proportion of rebuilding analysis simulations that reach the target spawning output by the specified year. Both alternatives rebuild the stock, but Alternative 4 rebuilds the stock approximately 15 years faster than Alternative 2.

Table 5. Rebuilding strategies for Alternative 2 and Alternative 4 showing T_{target}, T_{max}, rebuilding probability by T_{max}

	Alternative 2	**Alternative 4**
Rebuilding Strategy	ABC Rule (P*=0.45)	F = 0
T_{target}	*2060*	*2045*
T_{max}	*2071*	*2071*
Rebuilding probability	*73.6%*	*99.9%*

3.5 Aging error

The 2021 assessment of California quillback rockfish did not include ages in the model; hence, aging error was not defined within the assessment.

3.6 Research

The stock assessment for California quillback rockfish (Langseth et al., 2021) provided the following research recommendations:

- At the time of the assessment due to issues in California data in Pacific Fisheries Information Network (PacFIN) (i.e., condition code) length samples landed live vs. dead from the commercial fleet were unable to be identified. The ability to examine sample sizes and lengths from each type of landings would allow for future assessments to account for a greater range of commercial fishing behavior.
- Improved understanding of where recreational fishing is commonly occurring (areas and depths) and the range of sizes available by depth would better inform the selectivity form.
- Age data were predominantly from Oregon and Washington waters. Collecting length and otolith samples from recreational and commercial catches in California would result in samples from the entire U.S. West Coast informing growth. Otoliths from the West Coast Groundfish Bottom Trawl survey would also help inform growth; however, the survey has limited observations of quillback rockfish in California since they are commonly found at or around untrawlable habitat (e.g., rocky reefs). Otoliths collected in California that were identified and aged during model reviews were insufficient to robustly estimate a separate

California specific length-age relationship given the limited sample size of young quillback rockfish. More data, particularly of young and old fish, are needed to be able to robustly estimate a California-specific growth curve and confirm whether growth of quillback rockfish differs between California and Washington and Oregon.

- Recruitment patterns showed lower than average recruitment in the 2000s. Additional data to support such patterns in recruitment would provide additional support for model estimates. Catches of quillback rockfish were particularly high in a few years for both the recreational and commercial fleet. Better understanding the factors contributing to these high catches as well as potential resolutions, should they be needed, would aid in ensuring catch time series are accurate.
- The SSC Groundfish Subcommittee also identified the following future work topics based on the additional Council requested January 2024 review meeting, as presented to the Council under the SSC items for the March 2024 Council meeting:
- The prior for *h* (i.e., steepness) should be revisited given the results of recent assessments and recent advancements in methods for constructing *h* priors, such as the approach developed by Marc Mangel (e.g., Mangel et al., 2010).
- The next assessment of quillback rockfish in California should explore the development of a recreational and/or California Collaborative Fisheries Research Program survey-based index of abundance, comparable to those developed in recent assessments for vermilion rockfish, copper rockfish, and other nearshore rockfish species.
- Research should be conducted to assess what constitutes "too uncertain" given the default of returning to the last assessment, especially in the context of assessments for which there are no previous full or data-moderate assessments.
- It was noted that turning off the sum-to-zero constraint on penalty in Stock Synthesis increases the value of terminal year depletion within the assessment for California quillback rockfish. The SSC should consider this matter when revising the groundfish stock assessment review Terms of Reference and Accepted Practices Guidelines documents.
- It was noted that the estimated variances for some recruitment deviations exceeded the value of $sigma_R$, which is unusual (though has occasionally been seen in other assessments) and unexpected, and may indicate model misspecification. This issue was recommended for further exploration and could be a diagnostic for future data-moderate assessments.

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4. Management of Quillback Rockfish

4.1 Harvest Specifications

In prior biennial harvest specifications and management measure cycles, quillback rockfish was managed under the Nearshore Rockfish complexes north and south of 40° 10′ N. lat. Off of California, the northern component was from 42° N. lat. to 40° 10′ N. lat. and the southern component was from 40° 10′ N. lat. to the U.S./Mexico border. Stock complexes have multiple stocks that contribute their harvest specifications to calculate a single OFL/ACL for the complex. These complexes are managed to the complex harvest specification and, in general, not to individual component stock specifications.

For 2025 and beyond, the Council recommended removing the California quillback rockfish stock from the nearshore rockfish complexes and managing it to the stock-specific OFL/ABC/ACL to facilitate precision in management and tracking of mortality, which will assist in sustainable management under rebuilding. Table 5 shows the estimated harvest specifications under Alternative 2 and Alternative 4 until 2034.

Table 6. Predicted OFL, ABC, and ACL values under Alternative 2 ABC Rule and Alternative 4 F = 0 rebuilding strategies through 2034

Year	Time-Varying Sigma Buffer[1]	Alternative 4, F = 0				Alternative 2, The ABC Rule		
		OFL (mt)	ABC (mt)	ACL (mt)		OFL (mt)	ABC (mt)	ACL (mt)
2021	-	2.34	-	15.58		2.34	-	15.58
2022	0.882	1.91	-	18.11		1.91	-	18.11
2023	0.874	1.41	-	11.12		1.41	-	11.12
2024	0.865	1.25		10.62		1.25	-	10.62
2025	0.857	1.52	1.30	0		1.52	1.30	1.30
2026	0.849	1.81	1.54	0		1.77	1.49	1.49
2027	0.841	2.13	1.79	0		2.01	1.69	1.69
2028	0.833	2.44	2.03	0		2.24	1.87	1.87
2029	0.826	2.74	2.26	0		2.46	2.03	2.03
2030	0.818	3.03	2.48	0		2.67	2.18	2.18
2031	0.810	3.31	2.68	0		2.85	2.31	2.31
2032	0.803	3.6	2.89	0		3.04	2.44	2.44
2033	0.795	3.91	3.11	0		3.23	2.57	2.57
2034	0.788	4.19	3.30	0		3.4	2.68	2.68

4.2 Fishery Mortality

Historically, California quillback rockfish mortality has been higher in the recreational sector than in the commercial sectors (Table 6, Figure 11). Prior to the overfished declaration, California quillback rockfish were targeted and retained by a small group of commercial limited entry state issued deeper nearshore permitees. Commercial open access and limited entry participants without a deeper nearshore permit also incidentally encounter quillback rockfish while targeting other species and must discard that catch at sea (Agenda Item G.8.a, Supplemental GMT Report 2, September 2023, Agenda Item G.8.a, Supplemental GMT Report 5, September 2023, Agenda Item E.9.a, Supplemental GMT Report 1, November 2023).

This rebuilding plan is specific to the groundfish FMP and can only restrict targeted groundfish fisheries. Historically there have been some small incidental catch from fisheries not managed under the Groundfish FMP (Table 6) [52]. These fisheries are not subject to the California quillback rockfish rebuilding plan. All California quillback rockfish mortality counts against the ACL. Meaning, mortality from non-groundfish fisheries would likely result in failure of the Alternative 4, F = 0, rebuilding strategy. These non-groundfish fisheries include, but are not limited to, directed Pacific halibut, open access California halibut, and pink shrimp trawl,. Additionally, mortality from research is estimated.. Figure 11 displays the same information as Table 6, but as a visual representation.[53] Figure 12 shows the California quillback rockfish mortality by management area used to manage the nearshore rockfish complex.[54]

Table 7. Preliminary estimates of quillback rockfish mortality (mt) off California by sector, 2013-2022. Incidental open access (IOA) includes directed Pacific halibut, open access California halibut, pink shrimp trawl, and research. Note that research values represent coastwide estimates, and are not specific to California.

YEAR	Directed Groundfish Fisheries					Other		Total (mt)
	California Recreational (mt)	Shoreside Trawl (mt)	LE Fixed Gear - Hook & Line (mt)	Nearshore (mt)	OA Fixed Gear - Hook & Line (mt)	Coastwide Research (mt)	IOA (mt)	
2013	2.9	0	0	0.67	0	0.01	0	3.58
2014	2.53	0	0	0.45	0	0.03	0	3.01
2015	7.43	0	0	1.09	0.01	0.08	0	8.61
2016	8.48	0	0.03	0.96	0.02	0.17	0	9.66
2017	9.76	0	0.77	1.74	0.01	0.09	0.03	12.4

[52] These values were provided by the Fisheries Observation Program and were produced using the methods outlined in Somers et al. 2022b. These estimates are in a pre-review, pre-decisional state and should not be formally cited. They are to be considered provisional and do not represent any final determination or policy of NOAA or the Department of Commerce. Incidental open access (IOA) includes directed Pacific halibut, open access California halibut, pink shrimp trawl, and incidental mortality. Limited entry (LE) fixed gear hook and line includes both sablefish-endorsed and non-sablefish-endorsed sectors. Research mortality was not estimated by state, and coastwide values are shown here for reference.

[53] *Id.*

[54] *Id.*

YEAR	Directed Groundfish Fisheries					Other		Total (mt)
	California Recreational (mt)	Shoreside Trawl (mt)	LE Fixed Gear - Hook & Line (mt)	Nearshore (mt)	OA Fixed Gear - Hook & Line (mt)	Coastwide Research (mt)	IOA (mt)	
2018	10.11	0	0	2.62	0.01	0.04	0	12.78
2019	11.46	0	0	3.89	0	0.03	0.8	16.18
2020	7.8	0	0	4.1	0.12	0	0	12.02
2021	10.55	0	0	4.76	0	0.02	0.01	15.34
2022	9.23	0.01	0	1.86	6.75	0.06	0.01	17.92

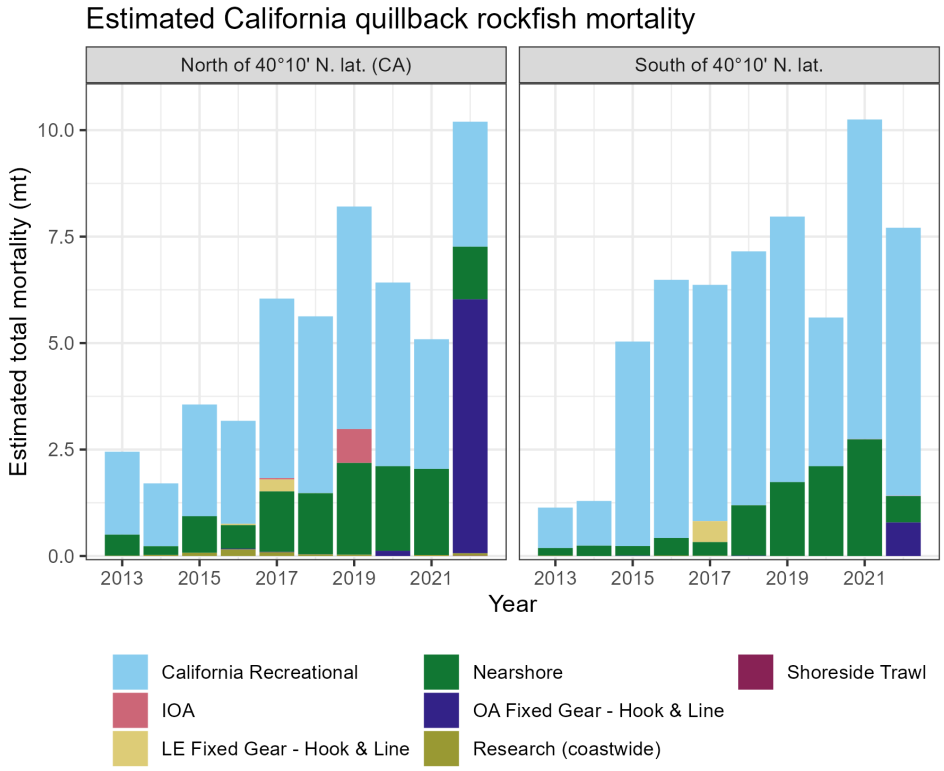

Figure 16. Preliminary estimates of California quillback rockfish mortality by sector from 2013-2022. Incidental open access (IOA) includes directed Pacific halibut, open access California halibut, pink shrimp trawl, and incidental mortality. Note that research values represent coastwide estimates, and are not specific to California.

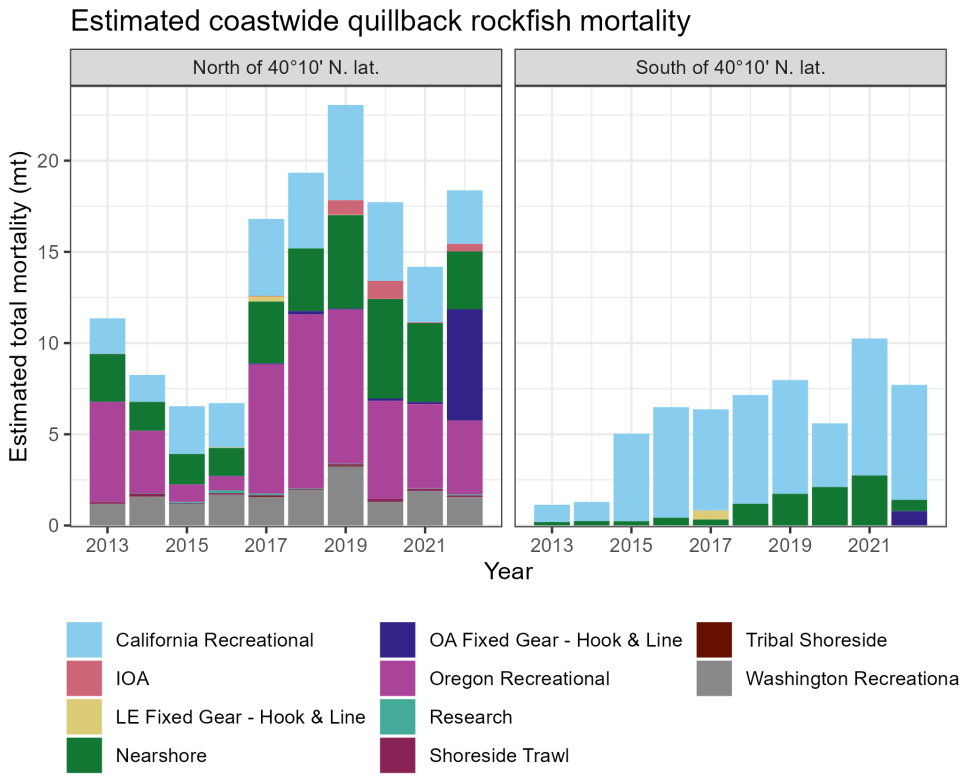

Figure 17. Estimated coastwide quillback rockfish fishing mortality north and south of 40° 10′ N. lat by sector from 2013-2022. Incidental open access (IOA) includes directed Pacific halibut, open access California halibut, pink shrimp trawl, and incidental mortality. Data from Somers et al. 2022b.

4.3 Management of California Quillback Rockfish

Quillback rockfish is caught in both the commercial and recreational fisheries off of California. This rebuilding plan and the management measures proposed to achieve its goals are applicable to federal waters only. While this stock is caught in both federal and state waters, the proportion of catch/mortality by each area is unclear. As will be discussed below, waters less than 20 fathoms are predominantly in state waters and, therefore, under state control in terms of management measures. However, it is important to state upfront, all quillback rockfish mortality off of California, regardless of area, will count towards the ACL adopted by the Council under this rebuilding plan.

4.4 Commercial Fisheries

4.4.1 History of California Quillback Rockfish Management in the Non-trawl Commercial Fishery

California quillback rockfish is predominantly caught in the commercial fixed gear groundfish fishery relative to all other commercial sectors. Routine management measures available to the Council to achieve management objectives for this fishery include trip limits, gear types, and the non-trawl RCA. Routine measures can be modified, as appropriate, within the season under the routine groundfish inseason management measure agenda item. Emergency action is also an option, but criteria at MSA section 305(c) must be met in order for the Council to consider this option.

Prior to the 2023-24 biennium, species specific management measures were not employed by the Council for this stock. At the beginning of the 2023-24 biennium, a quillback rockfish trip limit of 75 lbs. per two months, within the 2,000 lbs. per two months minor nearshore rockfish trip limit for the area between 42° - 40° 10′ N. lat. and south of 40° 10′ N. lat., was adopted by the Council (Informational Report 2, September 2022). The ACT for this stock was exceeded in the summer of 2023. As a result, CDFW took action to close areas in California state waters, and the Council took action to reduce all impacts on this stock in federal waters at the September 2023 meeting. The Council adopted a suite of management depth/area based trip limit measures, which included reducing the trip limit for this stock to 0 lbs. per two months and established a commercial Non-Trawl RCA boundary for additional trip limits at 36° N. lat. . (Agenda Item G.8.a, Supplemental GMT Report 2, September 2023 and Agenda Item G.8.a, Supplemental GMT Report 5, September 2023).

At the November 2023 meeting, the Council recommended similar commercial fishery management measures and to be implemented for 2024 (Agenda Item E.9.a, Supplemental GMT Report 1, November 2023). In March 2024, the Council adjusted the shoreward boundary of the Non-Trawl RCA, between 36° N. lat. and 37° 07′ N. lat. from the 3 nautical mile (nm) line to 50 fathoms (fm). This modification was due to findings, as noted in F.8.a, Supplemental GMT Report 1 March 2024, that California quillback rockfish encounters between 36° N. lat. and 37° 07′ N. lat. were rare throughout the analyzed time series. This finding suggested restoration of the fishery to this area was feasible and should have limited impacts on the stock.

4.4.2 Comparison of Proposed 2025-26 Commercial Management Measures

Detailed analysis and comparison of the proposed 2025-26 biennial management measures under all alternatives for the non-trawl fishery are in Chapter 5 in the Agenda Item F.6, Attachment 2, June 2024 and are incorporated by reference. The measures to achieve but not exceed ACLs generated via the rebuilding parameters for Alternative 2 (PPA) and Alternative 4 are summarized and compared below. Alternative 2, while less restrictive than Alternative 4, results in management measures which are very similar to those implemented in the latter half of 2023 and all of 2024. These measures are expected to keep mortality of California quillback rockfish within Alternative 2 harvest specifications.

Under Alternative 2, area-based depth restrictions coupled with specific trip limits and specific non-trawl gear types were adopted as PPA (see Chapter 5, Section 2.1.3). These measures are similar to those adopted by the Council in November 2023 (Agenda Item E.9.a, Supplemental GMT Report 1, November 2023). The objective of these measures is to reduce mortality in the non-trawl commercial fishery to ensure that the 2025 and 2026 Alternative 2 ACLs of 1.30 mt and 1.50 mt, respectively, are not exceeded. Alternative 2 management measures to reduce impacts on California quillback rockfish predominantly impact commercial federal fixed gear vessels between 42° N. lat. and 37° 07′ N. lat. Non-trawl commercial fisheries south of 37° 07′ N. lat. must abide by a 0 lbs. trip limit for California quillback rockfish, but area based trip limits and depth restrictions are not as restrictive as north of this latitude. Under Alternative 2, management measures for California quillback rockfish would be limited to the commercial non-trawl and recreational fisheries as these fisheries generate the vast majority of impacts to this stock. The management measures adopted as PPA would not restrict the trawl fishery in regard to California

quillback rockfish, but gear switchers in the IFQ fishery would continue to be subject to non-trawl RCA restrictions.

The objective of Alternative 4 (Chapter 5, §5 of Agenda Item F.5, Attachment 2, April 2024) would be to reduce mortality of California quillback rockfish to zero in all groundfish fisheries. Due to the uncertainty around the true range of this stock, with references saying the California quillback rockfish geographic range extends southward in California to Anacapa Island (34° N. lat.) and can be found deeper than 75 fathom (Love et al., 2002), extending the area or depth closure beyond the current 2024 restrictions will need to be considered by the Council to achieve F = 0. Management measures for the entire groundfish fishery would also need to be enacted to reduce mortality of California quillback rockfish to zero. Unlike Alternative 2, the trawl fishery, including the at-sea whiting sector, would also be impacted under Alternative 4. This fishery has limited catches of California quillback rockfish with zero catch in many years, but not all (e.g., there are historical records prior to 2014, Somers et al., 2023). Therefore, in order to achieve an F = 0 strategy, the Council would likely need to place restrictions on all groundfish fisheries, including the trawl fishery. The extent of depth and gear restrictions off of California necessary to achieve zero mortality of quillback rockfish are unknown at this time, noting that some vessels generally operate much deeper than areas considered "nearshore" where quillback rockfish preside. However, the Council may wish to conservatively close all directed groundfish fishing off of California under Alternative 4.

Shoreside whiting vessels are not expected to be impacted by either HCR alternative, because there have historically been no shoreside whiting landings into California ports. However, if shoreside whiting vessels operate in areas off of California they could be impacted by trawl restrictions under Alternative 4. California quillback rockfish mortality could occur in other non-groundfish fisheries (e.g., salmon, coastal pelagic, etc.) that are not covered under this rebuilding plan.

The social and economic difference between the two rebuilding alternatives is hard to quantify because the future impacts are uncertain for three major reasons. First, the response of the stock to rebuilding efforts and the time needed for rebuilding is uncertain. Second, management measures for the duration of the rebuilding period are uncertain, as managers will need to respond to new information that comes from the newly emerged fishery and the non-bottom contact hook-and-line gear, as well as the rebuilding trajectory and any other future changes to the fishery and/or ecosystem. The third source of uncertainty is fishery participant behavior. Fuller et al. (2017) described three choices that fishery participants might make when faced with environmental, technological or management changes as 1) change spatial distribution of fishing, 2) find alternative sources of income and even stop fishing altogether, or 3) change how they distribute effort among the fisheries they participate in.

The non-trawl fishery in California has been subject to a suite of management measures that took place in September 2023 (Agenda Item G.8.a, Supplemental GMT Report 2, September 2023 for the remainder of 2023 Agenda Item G.8.a, Supplemental GMT Report 5, September 2023) and in November 2023 (Agenda Item E.9.a, Supplemental GMT Report 1, November 2023) for 2024. In brief, these measures concentrate non-trawl commercial fishery effort north of 37° 07′ N. lat effort onto the continental shelf with specific gear type requirements (i.e., legal non-bottom contact hook-and-line gear are allowed in the non-trawl RCA (50 CFR 660.330(b)(3)) when targeting groundfish. This change in gear type means that in many cases, in order to continue fishing in

federal waters shoreward of 75 fathoms, fishery participants will have to learn a new gear type. It is reasonable to assume that there will be a learning curve that might inhibit profits within this fishery until participants learn the gear and find new fishing areas.

These changes in management between 42° and 36° N. lat. (until March 2024 when the line was amended to 37° 07′ N. lat. for commercial sectors) directly impact nearshore fishermen that operate with deeper nearshore or shallow nearshore California permits, Open Access fishermen that target groundfish shoreward of the Non-trawl RCA, and any limited entry fishermen operating shoreward of the Non-trawl RCA. Many nearshore permit holders and Open Access fisherman do not have a vessel monitoring system (VMS) and therefore have a barrier to entry into the fishery within the Non-trawl RCA under Alternative 2. Currently under federal management measures, the nearshore fishery will be impacted more than other fisheries. However, under Alternative 2 the state of California has management flexibility to allow fishing in state water. There is uncertainty around what management measures the state of California will take to manage the fisheries within state waters (including the nearshore fishery). Therefore, some participants might not need VMS to continue to fish, and those participants may be able to continue to fish for the live market fishery that happens nearshore. The restrictions put into place in 2023 (no action) and put forth for consideration under Alternative 2 have already severely impacted fishers on the water, seen by a reduction of ex-vessel revenue and landings. Regulatory restrictions for California quillback rockfish may continue after the stock is rebuilt, as the predicted rebuilt stock B_{MSY} is expected to be lower than recent California quillback rockfish mortality. Based on this information, even when rebuilt, groundfish fisheries are unlikely to be restored to levels before the stock was declared overfished.

Alternative 4 closures would be more widespread than Alternative 2, and therefore would have fewer options to continue fishing, with no groundfish fishing likely taking place in order to achieve F = 0. Non-groundfish opportunities, such as Chinook/coho salmon and Dungeness crab, are already constrained and are unlikely to accommodate expansion resulting from lost groundfish opportunities, and they may not provide enough stable income to keep participants fishing. Therefore, under Alternative 4, although it would rebuild California quillback rockfish on a quicker timeline, it is likely that more participants might choose to leave fisheries (Option 2 described in Fuller et al., 2017) than under Alternative 2 because of the large spatial scale of closures. Alternative 2 does maintain some groundfish opportunity but at the cost of more time under restrictions, but it also allows for more regulatory flexibility and adaptation as new information is found. Under both alternatives, once the California quillback rockfish stock is rebuilt, it is likely that there will continue to be restrictions to fishing operations, as the small, estimated stock size and consequently low expected ACLs (ACLs much lower that past California quillback rockfish mortality) even after the stock is rebuilt are unlikely to accommodate a full removal of restrictions. It is unlikely that fishery participants who have taken a hiatus from fishing would re-enter the fishery once California quillback rockfish is rebuilt. Depending on the port communities and when fishery participants leave, there is also a likelihood that infrastructure (e.g., ice houses, processors) will permanently leave these communities.

4.4.3 Commercial Monitoring

PacFIN Fish Ticket Data

The majority of California quillback rockfish mortality from commercial fisheries is discarded at-sea, which means that fish ticket data on shoreside landings is not informative for tracking most mortality across all commercial sectors throughout the season. The next paragraph discusses discard data used to monitor mortality and inform management. However, there have been very small amounts of California quillback rockfish mortality in the groundfish trawl fishery, with zero mortality most years but not all. With very low ACLs under Alternative 2, it will be important to continue monitoring every quillback rockfish caught to the extent possible. Since 2011, 89 percent of coastwide quillback rockfish caught by the bottom trawl and midwater rockfish sectors of the IFQ program were landed, on average. This means that landings data in PacFIN's fish ticket database could be used to monitor the majority of any trawl-caught quillback rockfish off of California inseason if Alternative 2 is chosen and the trawl fishery continues to operate off of California.

West Coast Groundfish Observer Program

The West Coast Groundfish Observer Program (WCGOP) is the main source of information on at-sea discards in shore-based groundfish fisheries. From 2018 to 2022, coastwide WCGOP observer coverage has averaged about 39 percent in the limited entry fixed gear sablefish endorsed fishery, 3 percent in the limited entry fixed gear non-sablefish fishery, 5 percent in the non-nearshore open access fixed gear fishery, and 7 percent in the nearshore fixed gear fishery (Somers et al., 2023a). Fleet-wide discards are estimated annually using a ratio estimator for sectors without full observer/electronic monitoring coverage (Somers et al., 2023b). WCGOP data indicated that the OA fixed gear sector encountered and discarded California quillback rockfish at a higher rate in 2022 than in previous years, potentially driven by an increase in pole effort. In 2022, estimated OA fixed gear discards of California quillback rockfish increased from a previous three year average of 0.1 mt to 6.9 mt coastwide (Somers et al. 2023b).

Dockside sampling

The California Cooperative Groundfish Survey (CCGS) is a commercial market sampling program implemented in 1978. This program is designed primarily to collect species composition data for rockfish and secondarily to collect biological information such as length, sex, maturity, and age data to help manage the fishery. Over time this program grew to include other groups of groundfish including flatfish, roundfish, and non-groundfish such as California sheephead. The CCGS is conducted jointly by the Pacific States Marine Fisheries Commission (PSMFC), CDFW, and NMFS. Using the sampling scheme designed by Sen (1984), port samplers collect data from the landings at each of the seven defined port complexes. The data are entered into the CCGS catch database, termed CALCOM, managed by PSMFC. At the end of the year, port sampling data are applied to landing receipts to obtain the final estimates of species-specific landings for the state. In addition, the landing estimates are applied to the age and length data from the port samples to estimate age and length compositions of the commercial landings. For estimation purposes, port sampling is stratified by year, market category, port complex, gear group, quarter (1-4), and condition (live or dead). The annual landing estimates are then provided to PacFIN for inclusion in their system.

4.5 Recreational Fisheries

4.5.1 Historical Management of California Quillback Rockfish in the California Recreational Fishery

California quillback rockfish mortality is predominantly driven by the California recreational groundfish fishery, primarily with hook and line gear. In the recreational fishery, this stock is caught in conjunction with other groundfish, particularly nearshore rockfish. The prevalence of this stock decreases from north to south; however, California quillback rockfish have been reported in recreational catch as far south as the Southern management area (Figure 13). The Council uses routine measures to mitigate catch of this stock, e.g., seasons, depth/area closures, and bag limits. Prior to 2022 there was no California quillback rockfish sub bag limit and anglers could take up to 10 quillback rockfish, (Agenda Item E.7.a Supplemental CDFW Report 2 November 2021). California manages recreational fisheries within five districts (Figure 13) bound north and south by lines of latitude. Each district can have specific management measures, which may differ across districts (e.g., season length, sub-bag limits, etc.). The season structures and corresponding recreational catch estimates for quillback rockfish for 2012-2021 can be found in Agenda Item F.4.a Supplemental CDFW Report 3 April 2022. In 2022 a one (1) fish quillback rockfish sub-bag limit was instated following the results of the 2021 quillback rockfish data moderate stock assessment. Additionally, "all depth" fishing opportunities were allowed in 2023 with the hopes that anglers would spread out, and choose to fish in areas where quillback rockfish were not prevalent. However, this did not occur and anglers primarily targeted nearshore waters resulting in exceedance of the quillback rockfish OFL and inseason closures in 2023 (Agenda Item G.8.a Supplemental CDFW Report 2 September 2023) As part of the 2023-24 biennial groundfish management measures, the quillback rockfish sub-bag limit in California remained at one (1) fish; however, at the September 2023 Council meeting, the Council reduced the limit to a zero (0) quillback rockfish sub-bag limit for the remainder of 2023 as the ACT was exceeded. In March 2024, the Council adopted similar management measures for the remainder of 2024 (see Agenda Item F.8.a, Supplemental GMT Report 1, March 2024 and Agenda Item F.8.a, Supplemental CDFW Report 2, March 2024) which included depth restrictions and a zero (0) quillback rockfish sub-bag limit (Table 7).

Figure 18. Map of California showing the five groundfish management areas, noting Central is one management area, though divided by management measures at 36° N. lat. Source: CDFW.

Table 8. 2024 California recreational groundfish season structure after inseason actions.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed			>50 fm	May 1 – Sep 30 < 20 fm					>50 fm	<20 fm	>50 fm
Mendocino	Closed			>50 fm	May 1 – Sep 30 < 20 fm					>50 fm	<20 fm	>50 fm
San Francisco	Closed			>50 fm	May 1 – Sep 30 < 20 fm					>50 fm	<20 fm	>50 fm
Central – N °36	Closed			>50 fm	May 1 – Sep 30 < 20 fm					>50 fm	<20 fm	>50 fm
Central – S °36	Closed			All Depth			Jul 1 - Sep 30 < 50 fm			Oct 1 - Dec 31 > 50 fm		
Southern	Closed			All Depth			Jul 1 - Sep 30 < 50 fm			Oct 1 - Dec 31 > 50 fm		

4.5.2 Proposed 2025-26 Recreational Management Measures for California Quillback Rockfish

Detailed analysis and comparison analysis of the proposed 2025-26 biennial management measures for the recreational fishery under all alternatives are found in Chapter 8 in Agenda Item F.5, Attachment 2, April 2023 and are incorporated by reference. Alternative 2 (PPA) and

Alternative 4 are compared below. In brief, comparatively, both Alternatives would allow for fishing, though with depth-based area restrictions. Alternative 2 management measures, while less restrictive than Alternative 4, are very similar to those implemented in the latter half of 2023 and all of 2024. The difference in management complexity between 2024 management measures and Alternative 2 is negligible. Alternative 2 is less likely to cause increased social and economic impacts on port communities relative to 2024 than Alternative 4.

The Council adopted Alternative 2, Option 4 (Table 7) as PPA, which is identical to 2024 inseason changes (Agenda Item F.8.a CDFW Supplemental Report 2, March 2024). This alternative would allow the recreational fishery to target groundfish, but under management measures that are designed to reduce impact to levels that would not exceed the ACL. Alternative 2, Option 4 would provide increased economic benefits to ports by providing nearshore opportunities in critical summer months where the bulk of groundfish effort occurs. Given the similarity of Alternative 2, Option 4 to the 2024 season structure, it could be expected that similar economic returns may occur.

Under Alternative 4, the objective is for no fishery related mortality (F = 0) for California quillback rockfish. In order to achieve no fishing mortality to California quillback rockfish, groundfish season structures would require a full-closure within all five Groundfish Management Areas (Table 8). Agenda Item F.8.a Supplemental GMT Report 1 March 2024 presented recreational quillback rockfish mortality for California between 2005-23. Even with the closure of the boat-based groundfish fishery, bycatch of California quillback rockfish is expected in non-groundfish fisheries (s (e.g., salmon, coastal pelagic, etc.), which are not covered under this rebuilding plan.

Table 9. Potential California recreational fishery season structure under the Alternative 4 rebuilding strategy.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Jan 1 – Dec 31; Closed all depths											
Mendocino	Jan 1 – Dec 31; Closed all depths											
San Francisco	Jan 1 – Dec 31; Closed all depths											
Central	Jan 1 – Dec 31; Closed all depths											
Southern	Jan 1 – Dec 31; Closed all depths											

Recreational Monitoring

The California Recreational Fisheries Survey (CRFS) is a multi-part survey implemented in 2004. The CRFS Sampler Manual provides an explanation of the principles and goal of CRFS, detailed instructions regarding sampling procedures and protocols, and the proper coding of all forms. The manual describes the history of the survey, general information, methods, the roles and responsibilities of supervisors, leads, and samplers, and much more.

The goal of CRFS is to produce, in a timely manner, marine recreational fishery data needed for sustainable management of California's marine resources. The fishery data produced are catch and effort estimates for marine recreational finfish fisheries. CRFS field sampling is conducted at over

500 publicly-accessible sites during daylight hours to gather catch and effort data. CRFS samplers intercept recreational anglers at the completion of their fishing trips to collect on-site data by conducting the survey. The Angler License Directory Telephone Survey (ALDTS) operates on a monthly basis. The data collected are used to estimate the total number of marine recreational fishing trips taken by license holders when field observations of effort are not feasible, such as night-time fishing and private-access sites

CRFS conducts four major angler surveys based on fishing mode, and each survey is different. A fishing mode is defined as the method of access to fisheries. The modes in CRFS are:

- MM – Man-made structure fishing
- BB – Beach and bank fishing
- PC – Party and charter boat fishing
- PR – Private and rental boat fishing

CDFW Groundfish Project tracks recreational groundfish mortality on a weekly and/or monthly basis to ensure that mortality remains within allowable limits. Several rockfish species of concern are tracked on a weekly basis using preliminary CRFS field reports. In 2024 the species tracked weekly included black rockfish, California quillback rockfish, copper rockfish, and yelloweye rockfish. Additional information can be found under California Recreational Fishery, No Action, Inseason Management Response in the Revised 2025-26 Management Measure Analytical Document (Agenda Item F.6, Attachment 2, June 2024).

5. Community Dependence

Alternatives 2 and 4 are both likely to have pronounced impacts on groundfish fishing communities[55] in California. The alternatives differ mainly in how those impacts are distributed among current and future fishing communities. Relative to Alternative 4, expected benefits of Alternative 2 accrue to current California fishing communities in the form of increased groundfish fishing opportunities in the period from the present to 2045[56]. During this period, groundfish harvesting opportunities in California under Alternative 2, while unknown, are expected to be higher than under Alternative 4. The expected costs of Alternative 2, relative to Alternative 4 come in the form of fewer groundfish fishing opportunities in the period 2045 - 2060. These costs are paid by future fishermen and fishing communities. During this period, the stock is projected to reach B_{MSY} under Alternative 4 and to be in rebuilding under Alternative 2. Therefore, it is assumed that harvesting opportunities in this period are higher under Alternative 4. These expectations are subject to a number of important uncertainties as articulated in Section 3.3.2 (biologic uncertainty regarding the realized speed of rebuilding and managerial uncertainty regarding specific future management actions). The key uncertainty affecting an economic comparison of the alternatives addressed in this section is the extent to which expected future benefits under Alternative 4 can be realized. This uncertainty is heavily influenced by the ability of California groundfish fishing communities to adapt to a 20 year moratorium on groundfish fishing and persist into the future. The community dependence section is an attempt to articulate the specific issues that influence how communities might adapt to loss of groundfish revenues, which heavily impacts the extent to which future benefits of rebuilding can be realized.

5.1 California Communities

California comprises 1,100 miles of diverse coastline. Marine fisheries in this state are diverse due to the differences of coastal geography, bathymetry, and variance in impact of the California current along the state. Commercial fisheries are spread along the coast and many fishermen have a diverse portfolio of fishery participation, e.g., crab, groundfish, etc. Anecdotal evidence suggests that groundfish is considered the base fishery for many participants, as the resource is consistently available throughout the year, whereas salmon or crab are seasonal fisheries subject to wide fluctuations in numbers and regulatory controls. Recreational fishing is equally diverse. These anglers target groundfish, particularly rockfish, as this fishery has in the past provided a consistent source for fishing opportunity. Recreational Fisheries Information Network (RecFIN), the database for West Coast recreational data, estimates that well over a million recreational angler trips per year are taken from California ports. Commercial and recreational fishing activities yield well over a billion dollars annually in impacts to communities (NMFS, 2024). The following

[55] Although "fishing community" has often been defined in place-based terms under MSA National Standard 8 (see Clay and Olson, 2008), there is emerging recognition that "fishing community" encompasses communities of practice as well as communities of place. This section considers both fishing communities of place (geographically defined California communities where fishing occurs) and communities of practice (aggregations of fishery participants such as commercial and recreational fishermen as well as participants in the different sectors of the groundfish fishery).

[56] These expectations are discussed in Section 2 and 3. Section 2 establishes the expectation of rebuilding the stock by 2045 under Alternative 4 and by 2060 under Alternative 2. Section 3 establishes the expectation that Alternative 4 imposes a moratorium on groundfish fishing in California, while Alternative 2 allows for some groundfish fishing in the majority of groundfish sectors under some limited conditions.

sections examine community vulnerability and dependence on commercial and recreational fishing.

5.2 Summarized Vulnerability and Dependence of Select California Port Communities

California has many ports with variable infrastructure, ranging from heavily industrialized (e.g., Los Angeles harbor) to small, localized ports (e.g., Shelter Cove). This analysis examines a selection of ports along the California coast with both commercial and recreational infrastructure that are also known to be ports of historical importance to fishing. These port areas are analyzed using the Community Social Vulnerability Index (CSVI), which is a measure of generalized social and economic vulnerability at the community scale. CSVI is derived from U.S. Census Bureau data (demographics, personal disruption, poverty, housing characteristics, housing disruption, labor force structure, etc.; see Jepson and Colburn, 2013) in communities that depend on commercial fishing (page 33, Agenda Item H.1.a CCIEA Team Report 1, March 2024). Recreational and Commercial Fishing Reliance measure a community's dependence on commercial and recreational fishing. These index values are constructed using similar methods as those used to construct the CSVI. Construction of these index values is discussed in Breslow et al. (2014), The 2023-2024 California Current Ecosystem Status Report, and Jepson and Colburn (2013). Commercial fishing engagement is calculated using counts of permits, number of fish dealers, and volume of fish landed commercially in each community. Like the CSVI, this index is calculated at the geographic level of Census Designated Place (CDP), which means there are several hundred West Coast communities for which this index value is calculated. The index value is generally higher in CDPs that overlap with a commercial fishing port (such as Crescent City, Eureka, or Santa Barbara, CA) and are generally lower in CDPs which are proximate to, but not co-located with, a major fishing port (such as Scotts Valley, Moss Beach, or San Rafael, CA). Commercial fishing reliance is a population weighted measure of dependence that scales the commercial fishing engagement index by population. Recreational fishing engagement and reliance is calculated similar to commercial engagement/reliance using counts of charter licenses and permits.

Table 9 shows the CSVI, recreational and commercial fishing reliance, and recreational and commercial fishing engagement for the ports selected for this analysis. The meanings of these values will be expanded in sections below. For many ports off California, fishery engagement is medium to high while fishery reliance is low (both commercial and recreational). This is most likely driven by the high population density and existence of a variety of industries in those ports (i.e., low reliance), while the total number of vessels and number of landings into those ports are generally high (i.e., high engagement) compared to ports off of Oregon and Washington where a small number of large-volume landings are more common. This means that, while the economies in those communities may be able to adapt to the loss of commercial fishing engagement, a large number of participants and buyers in the fishery will be impacted by fishing restrictions under this rebuilding plan. With the loss of recreational engagement, a large number of businesses, patrons, and private anglers will be impacted.

Table 10. Vulnerability and dependence in California fishing communities for 2021.

Name	CSVI	Commercial Engagement	Commercial Reliance	Recreational Engagement	Recreational Reliance	Recreational District
Crescent City	High	High	Medium	Medium	Medium	Northern
Eureka	Medium High	High	Low	Medium	Low	Northern
Shelter Cove	Medium High	Medium	Medium	Low	Low	Northern
Fort Bragg	High	High	Medium	Medium	Medium	Mendocino
Bodega Bay	Low	High	Medium	Low	Medium High	Mendocino
San Francisco	Low	High	Low	High	Low	San Francisco
Half Moon Bay	Low	High	Medium	Low	Low	San Francisco
Santa Cruz	Low	High	Low	Medium	Low	Central N. 36
Moss Landing	High	High	High	Medium	Low	Central N. 36
Monterey	Low	High	Low	Medium High	Low	Central N. 36
Avila Beach	Low	Medium	Medium	Low	Medium High	Central S. 36
Morro Bay	Low	High	Medium	Medium	Low	Central S. 36
Santa Barbara	Low	High	Low	High	Low	Southern
Oxnard	Medium High	High	Low	High	Low	Southern
Los Angeles	Medium High	High	Low	High	Low	Southern
Newport Beach	Low	Medium	Low	High	Low	Southern
San Diego	Low	High	Low	High	Low	Southern

(Source: Karma Norman/NWFSC Human Dimensions Program, see discussion of indicators above).

5.3 Commercial Communities

Reductions in groundfish fishery opportunities in many California coastal communities will likely be financially detrimental, socially disruptive and may have long-lasting impacts (e.g. loss of infrastructure). This is likely to compound the impacts already being experienced by these communities as they have faced recent declines and changes in other fisheries. For example, in the past five years, there have been multiple federal fisheries disaster declarations for salmon fisheries, red sea urchin, and Pacific sardine in the state of California (Table 10)

Table 11.Federal disaster declarations for marine fisheries off of California in the last ten years. (Source: NOAA Fishery Disaster Declaration)

Fishery	Declaration Year(s)
California Sacramento River Fall Chinook and Klamath River Chinook Salmon Fisheries	2024 a/
California Sacramento River Fall Chinook, Klamath River Fall Chinook Ocean and Inland Salmon Fisheries, 2023	2023
Resighini Rancheria Tribe Klamath River & Ocean Salmon, 2023	2023 a/
Oregon and California Klamath River Fall Chinook Salmon Fishery, 2016 and 2017	2016/2017
California Red Sea Urchin Fishery	2016, 2017, 2018, & 2019
California Pacific Sardine Fishery	2015, 2016, 2017, 2018, & 2019
California Dungeness Crab and Rock Crab	2015 & 2016

a/pending

In addition, recent Dungeness crab seasons have been delayed and shortened, potentially decreasing opportunities for groundfish participants affected by existing California quillback rockfish related management measures to rely on this already-volatile fishery. Based on the figures Figure 14 and Figure 15 (R3 and R4, respectively, from Agenda Item I.1.a, IEA Team Report 2, March 2021), the groundfish fishery contributes to the network of fishing participation in Crescent City, Eureka, Fort Bragg, Monterey, Morro Bay and Los Angeles to varying degrees. Groundfish has also been called the "glue," income stabilizer, or bridge fishery that keeps communities together because of the potential year-round stability it provides participants when salmon or crab seasons are closed or shortened. It remains uncertain the degree to which the 2023 and 2024 closure of salmon fishing in California will shift participants into the groundfish fishery, even if this fishery is reduced by management restrictions in association with California quillback rockfish. Alternative 4 would suspend all groundfish fishing between 42° N. lat. and 34° N. lat., but with limited opportunities in other fisheries, it might force more participants to find alternative sources of income and not rely on their network of fishing participation. These participation networks might not be indicative of the future flexibility, because Alternatives 2 and 4 might lead to consolidation of fisheries. It is also uncertain whether participants who leave the fishery will ever re-enter (be it before or after California quillback rockfish is declared rebuilt). In addition, the future opportunities in salmon, crab, and other interlinked fisheries remain uncertain.

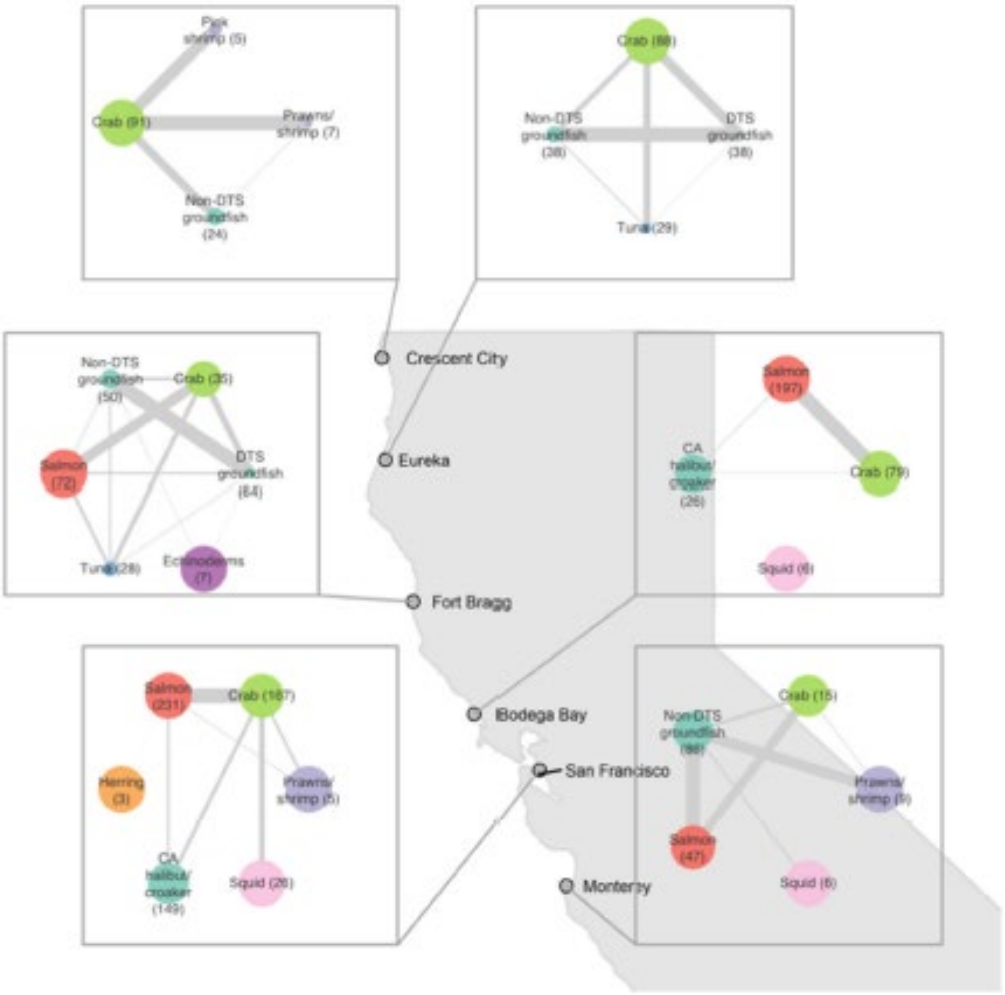

Figure 19. Figure R.3 from Agenda Item I.1.a, IEA Team Report 2, March 2021. Fisheries participation networks for IO-PAC port groups in Northern and Central California based on November 2019-September 2020 landings receipts. Node size is proportional to revenue from a given fishery; numbers in parentheses are number of vessels participating in a node. The thickness of lines ("edges") is proportional to the number of vessels participating in the pair of fisheries connected by the edges.

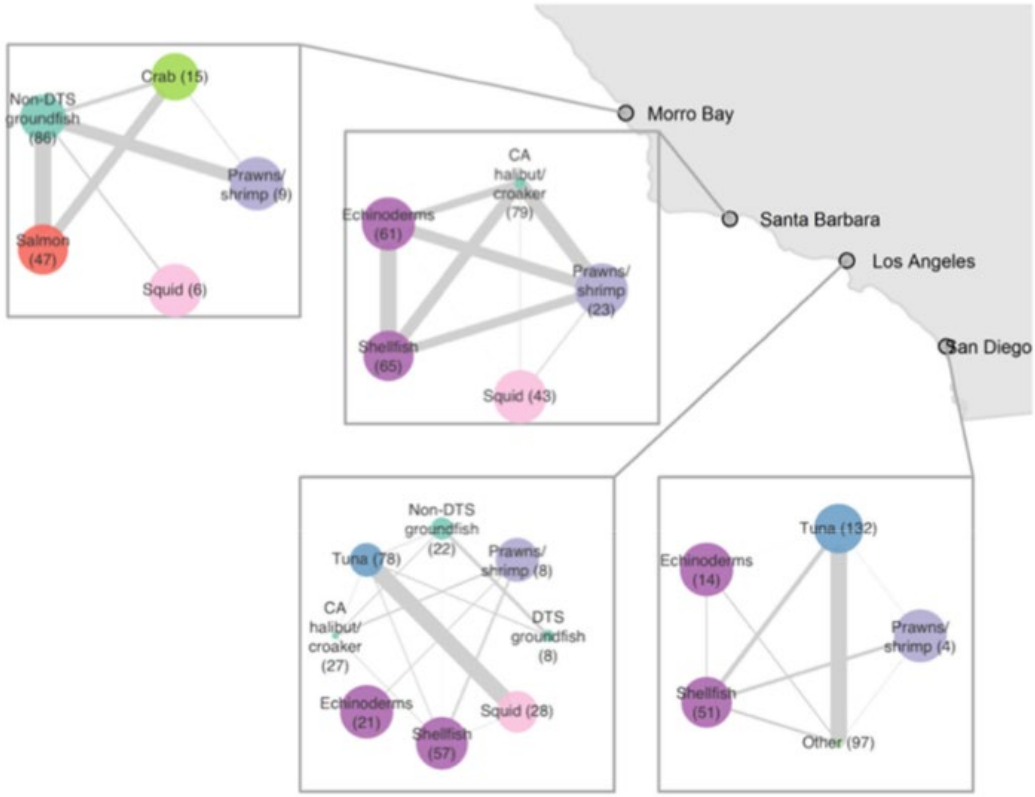

Figure 20. Figure R.4 from [Agenda Item I.1.a, IEA Team Report 2, March 2021]. Fisheries participation networks for IO-PAC port groups in Southern California based on November 2019- September 2020 landings receipts. Node size is proportional to revenue from a given fishery; numbers in parentheses are number of vessels participating in a node. The thickness of lines ("edges") is proportional to the number of vessels participating in the pair of fisheries connected by the edges.

Although California quillback rockfish are a contributing economic component to individuals participating in the nearshore fishery, and to a greater extent the nearshore live fish fishery, the total California quillback rockfish landings and ex-vessel revenue make up a small portion of each port complex's total revenue generated by rockfish (including cabezon, greenling, California scorpionfish, and lingcod) or the entire groundfish management group (Table 11 and Table 12). Although California quillback rockfish landings are a small portion of each port's portfolio, under Alternative 4 each port would be required to forgo the profits of all groundfish to reduce California quillback rockfish mortality to zero, because there is a possibility that any directed groundfish sector may encounter California quillback rockfish incidentally. For example, each year Eureka could forgo approximately $4 million to prevent the mortality of 0.4 mt of quillback rockfish. The extent to which quillback rockfish contribute to each port's overall landings and ex-vessel revenue of groundfish varies and will be analyzed in each respective section below.

Table 12. Average landings of California quillback rockfish compared to all rockfish landings (including cabezon, greenling, California scorpionfish, and lingcod) and all groundfish landings for 2014-2023. Source PacFIN 4/24/24

Port Group	Quillback Rockfish (mt) a/	All Rockfish (mt)	All Groundfish (mt)
Crescent City	0.95	70.73	190.57
Eureka	0.38	549.57	2730.86
Fort Bragg	0.90	625.74	1662.39
Bodega Bay	<0.01	19.19	62.65
San Francisco	0.02	148.30	436.99
Monterey	0.00	121.64	417.68
Morro Bay	<0.01	138.73	374.22
Santa Barbara	--	116.38	291.77
Los Angeles	--	25.11	66.95
San Diego	--	25.47	79.68

a/ 0.00" indicate a non-zero rounding sum, "–" indicate no data.
< [value] indicates a confidential value due to data limitations.

Table 13.Average ex-vessel revenue from California quillback rockfish compared to revenue from all rockfish landings (including cabezon, greenling, California scorpionfish and lingcod) and all groundfish landings for 2014-2023. Source PacFIN 4/24/24

Port Group	Quillback Rockfish USD ($) a/	All Rockfish USD ($)	All Groundfish USD ($)
Crescent City	8,862	337,382	650,918
Eureka	2,796	747,816	4,200,527
Fort Bragg	11,779	1,097,311	3,483,528
Bodega Bay	<40	109,547	424,802
San Francisco	283	364,305	1,216,297
Monterey	36	639,014	1,588,203
Morro Bay	<10	1,485,596	2,574,326
Santa Barbara	–	1,494,419	2,558,643
Los Angeles	–	221,619	478,430
San Diego	–	245,876	578,077

a/ 0.00" indicate a non-zero rounding sum, "–" indicate no data.
< [value] indicates a confidential value due to data limitations.

The LEFG, OA, and Nearshore sectors were most negatively impacted by the management measures put in place in 2023 to prevent commercial California quillback rockfish mortality from

exceeding the harvest limits. Those management measures have already greatly limited access in the commercial groundfish fishery (Agenda Item G.8.a, Supplemental GMT Report 2, September 2023, Agenda Item G.8.a, Supplemental GMT Report 5, September 2023, and Agenda Item E.9.a, Supplemental GMT Report 1, November 2023 hereinafter links are referred to as No Action). These sectors will continue to be impacted if the Council adopts Alternative 2, and to a greater extent, if the Council adopts Alternative 4, because the majority of commercial impact to protect California quillback rockfish is concentrated on these sectors. Within the LEFG (excluding sablefish endorsed landings), OA, and Nearshore sectors, Figure 16,Figure 17, and Figure 18 displays each port complex's total commercial groundfish landings, number of vessels that made landings, and ex-vessel revenue from groundfish landings by year from 2014 to 2023. These figures highlight the relative scale of landings, participation, and revenue across port complexes, with the largest concentration of groundfish landings and revenue generally occurring in the port complexes of Monterey, Morro Bay, and Santa Barbara. In some years, landings and revenue in the Fort Bragg port complex was comparable or greater than those of the three previously mentioned ports, and prior to 2020, participation was also comparable. In 2020, there was a reduction across most port complexes (likely due to COVID-19) and each port complex has begun to rebound since then. The landings, number of participants, and ex-vessel revenue across port complexes are variable and will be addressed in the following sections.

Figure 21. Groundfish landings (mt; all species) in the Limited Entry Fixed Gear (excluding sablefish endorsed), Open Access, and Nearshore sectors by California IOPAC port group, 2014-2023.

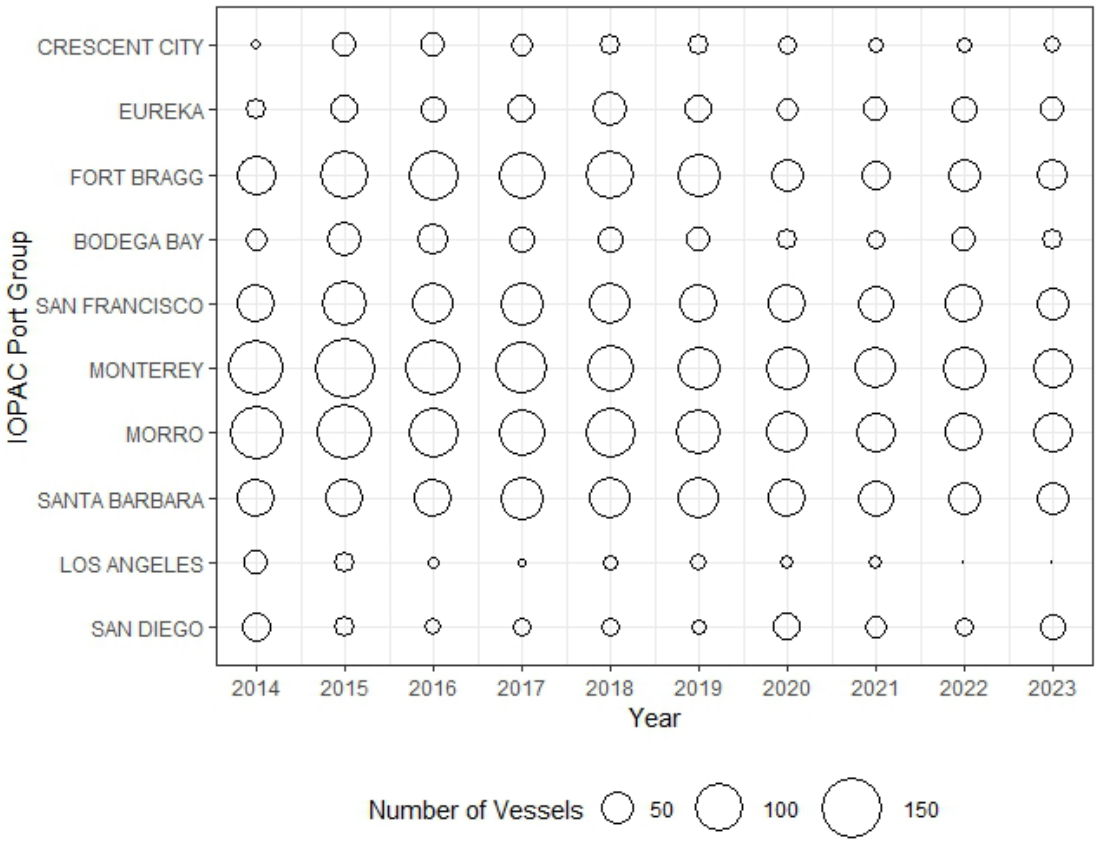

Figure 22. Number of vessels that made groundfish landings (all species) in the Limited Entry Fixed Gear (excluding sablefish endorsed), Open Access, and Nearshore sectors by California IOPAC port group, 2014-2023.

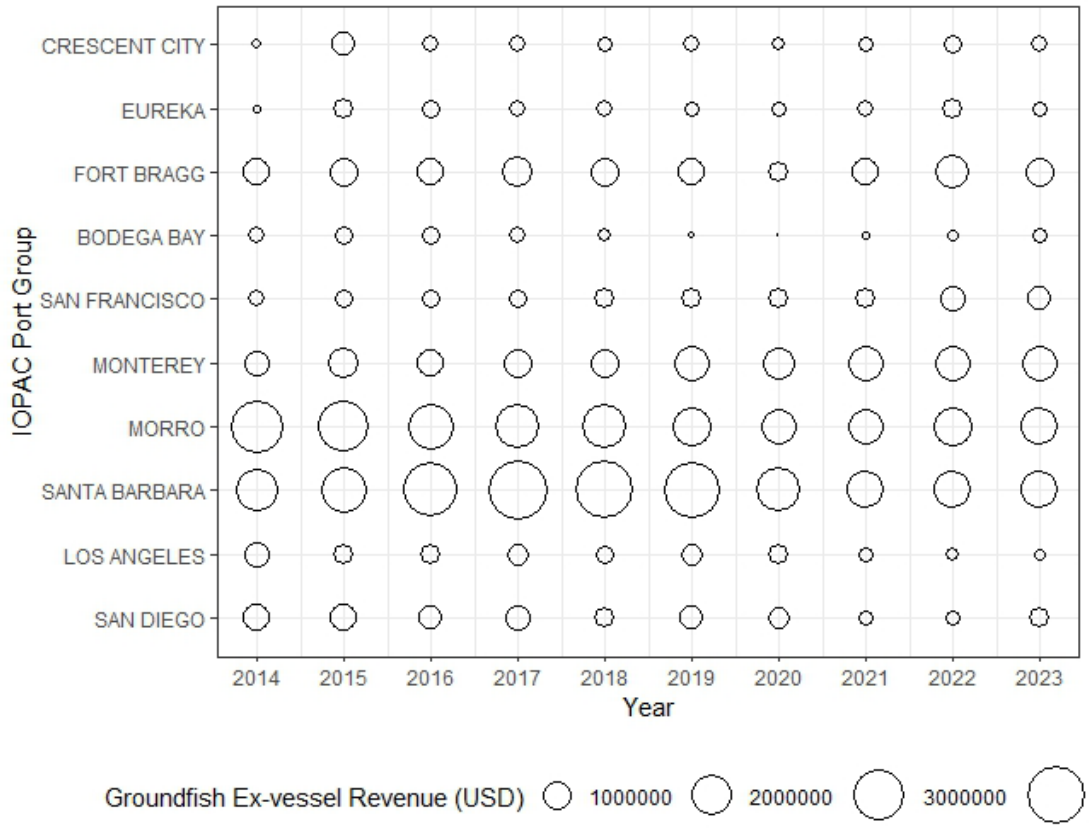

Figure 23. Inflation-adjusted ex-vessel revenue from groundfish landings (all species) in the Limited Entry Fixed Gear (excluding sablefish endorsed), Open Access, and Nearshore sectors by California IOPAC port group, 2014-2023.

5.3.1 Area Between 42° and 40° 10' North latitude

The two port complexes in northern California, Crescent City and Eureka, have a medium and low dependency on the commercial fishing industry, respectively, and rate moderate to high on the social vulnerability scale (Table 9). Both Crescent City and Eureka rely heavily on Dungeness crab (**Figure 19**). However, Eureka fisherman also rely on groundfish as a major contributor to the port complex portfolio. Although groundfish may not supply the ports with the most ex-vessel revenue, groundfish are the fishery sectors that have been the most stable in light of canceled salmon closures or shortened invertebrate seasons (e.g., Dungeness crab, red sea urchin, etc.). In years where salmon and crab are open, groundfish provides fishermen the opportunity to generate an income in between these seasons, as crab is typically prosecuted in the winter and salmon in the late spring.

Groundfish landings and ex-vessel revenue in northern California are similar across both port complexes when comparing limited entry fixed gear, open access, and nearshore sectors since 2014, noting that there are more vessels participating out of Eureka (Figure 16,Figure 17, and Figure 18). This indicates each port complex in the north will be equally impacted by the fixed gear management measures outlined in Alternative 2 similar to the management measures put in place in 2023 and 2024 to prevent commercial California quillback rockfish mortality from exceeding the harvest limits. These management measures, which include vast area closures, gear

restrictions, and prohibiting the entire nearshore complex in federal waters, will have substantial impacts to these fishing communities. These ports generate a large portion of their fixed gear income from lingcod and nearshore and demersal shelf stocks, which can no longer be accessed inside of 75 fm (where the majority of the rocky reefs exist). Additionally, the diversity of the Northern California bathymetry, with many canyons and shelf sections that extend the 75 fm depth contour far past the safe range for some of the smaller operations, as well as the requirement to have VMS onboard, could prevent vessels from replacing lost opportunity shoreward of the Non-Trawl RCA.

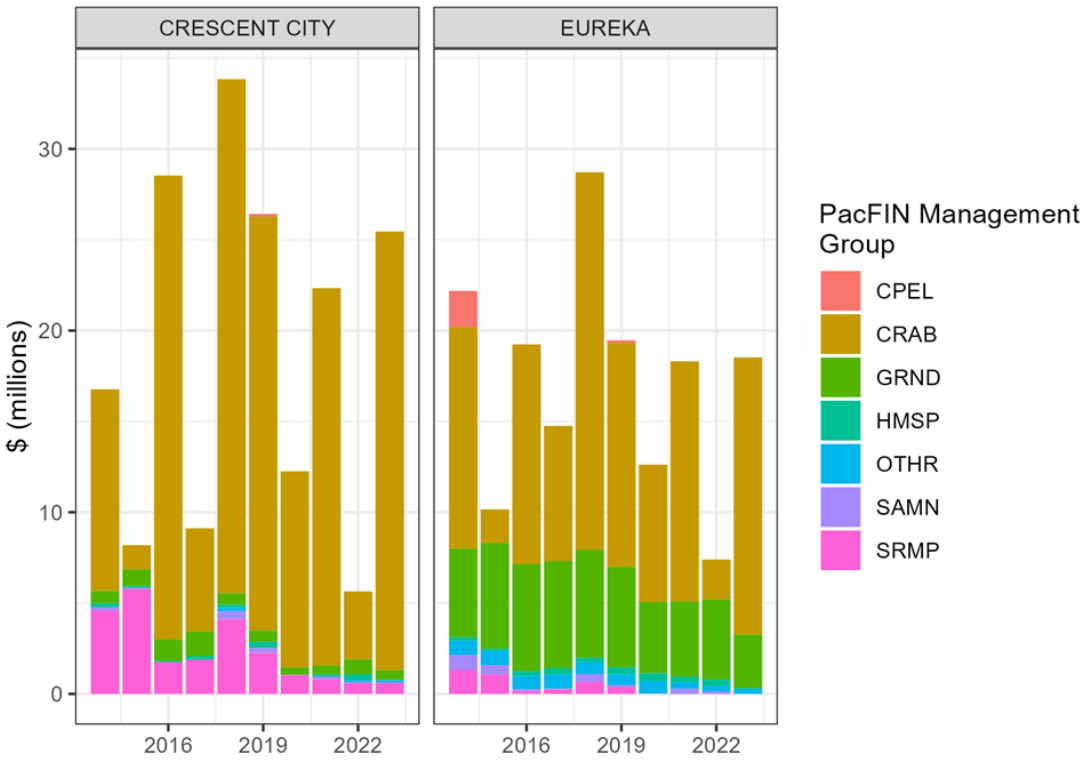

Figure 24. Commercial fish revenues by PacFIN Management Group for California IOPAC Port Areas between 42 - 40’10 2014 - 2023. Shellfish revenues are excluded. PacFIN Management Group acronyms are as follows: coastal pelagic (CPEL), crab, groundfish (GRND), highly migratory species (HMSP), other (OTHR), salmon (SAMN), and shrimp (SRMP). CODE010 - PacFIN Species Code List

The proposed management measures under Alternative 4 would likely close groundfish fisheries in Northern California. Eureka is unique as it derives more of their proportional ex-vessel revenue from groundfish than any other port; however, most of the port complex’s ex-vessel revenue is from bottom and midwater trawl landings (Figure 20Given the different fishing strategies and target stocks of the trawl fishery compared to the non-trawl fishery, Alternative 2 may have less impact on the overall commercial value but Alternative 4 would have substantial impacts on the port. If the Council were to adopt the Alternative 4 (F = 0) rebuilding strategy, in the near term all directed groundfish sectors would need to be completely closed between 42° and 40° 10' N. lat. In the long term, as the stock recovers, it is uncertain what fisheries, areas, etc. could reopen, as there is a non-zero chance that the trawl and fixed gear sector may interact with at least a single California quillback rockfish. A complete closure of the groundfish fishery between 42° and 40°

10' N. lat. may result in a potential yearly loss to the area of around $5 million dollars compared to the No Action alternative (Table 12). Moreover, the management measures used to reduce the 10-year California quillback rockfish average mortality in this area, which is currently 1 mt, would come at the potential loss of 620 mt of all other rockfish or 2,921 mt of all other groundfish per year Table 11). Alternative 4 would have substantial adverse economic impacts to the groundfish sectors in this area. Further, it is unlikely an F = 0 scenario could be achieved, given the historical mortality of California quillback rockfish in other non-groundfish fisheries like Pacific halibut in this area of the state.

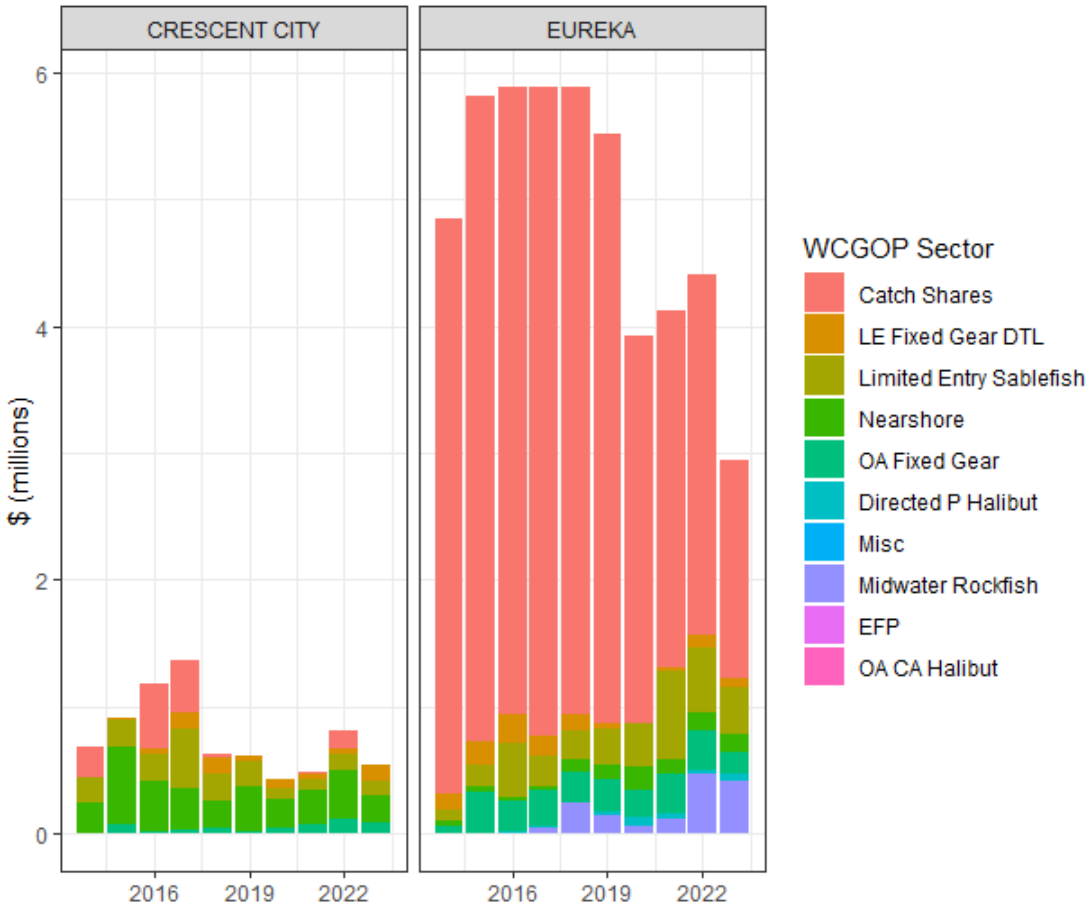

Figure 25. Groundfish revenue by West Coast Groundfish Observer Program sector code for IOPAC port areas between 42° - 40° 10′ N. lat. The following modifications to original WCGOP codes have been made here for ease of presentation: "Catch Shares" and "Catch Shares EM" have been combined; "Midwater Rockfish" and "Midwater Rockfish EM" have been combined; "Pink Shrimp," "Ridgeback Prawn," "Sea Cucumber," and "Research" have been combined into a "Misc" sector. There were no shoreside whiting landings into California ports, though note that the shoreside whiting fishery may possibly operate in California waters and land elsewhere.

5.3.2 Area Between 40° 10' and 37° 07' North latitude

The three port complexes in in the area between 40° 10' and 37° 07' N. lat., Fort Bragg, Bodega Bay, and San Francisco, have a medium and low dependency on the commercial fishing industry, respectively, and have high to low social vulnerability as latitude decreases (Table 9). These port

complexes rely heavily on Dungeness crab, and to a lesser extent, salmon and groundfish with the expectation of Fort Bragg, which is unique as it derives more of its proportional ex-vessel revenue from groundfish than any other port other than Eureka. In Fort Bragg, groundfish ex-vessel revenue matches or exceeds the revenue from Dungeness crab (Figure 21). Although groundfish may not supply these ports with the most ex-vessel revenue in relation to other management groups, they are part of the fishery participation network for the port and often act as an income stabilizer between other seasons or closures.

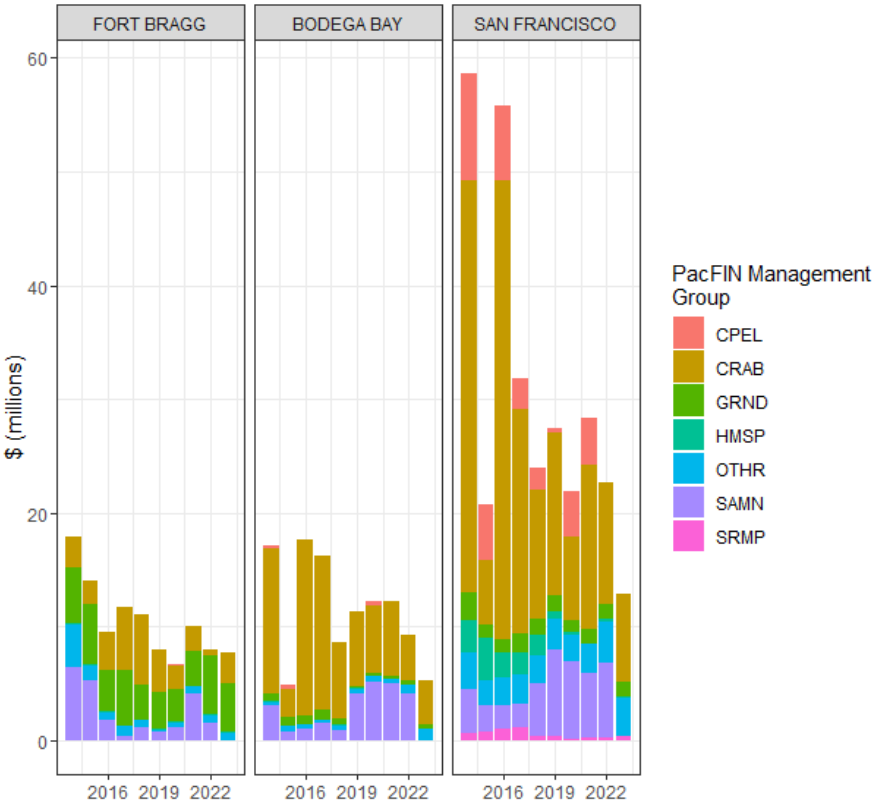

Figure 26.: Commercial fish revenues by PacFIN Management Group for California IOPAC Port Areas between 40° 10′-37° 07′ N. lat. (2014 - 2023). Shellfish revenues are excluded. PacFIN Management Group acronyms are as follows: coastal pelagic (CPEL), crab, groundfish (GRND), highly migratory species (HMSP), other (OTHR), salmon (SALM), shellfish (SHLL), and shrimp (SRMP). CODE010 - PacFIN Species Code List

Fort Bragg's fixed gear groundfish landings, ex-vessel revenue, and number of participants are greater than Bodega Bay or San Francisco and among the highest in Northern or Central California (Figure 16,Figure 17, and Figure 18). Along with a higher proportion of the port's ex-vessel revenue being derived from groundfish and the limited diversity of other management groups landing into Fort Bragg (Figure 22), it is likely to be one of the port complexes most affected by either Alternative 2 or Alternative 4. San Francisco fixed gear sectors have been increasing in both landings and ex-vessel revenue over the last decade, which would be severely reduced under either alternative. Alternative 2 is similar to the management measures put in place in 2023, which have already greatly limited access in the commercial groundfish fishery. Similar to the Crescent City and Eureka ports, these impacts are felt substantially across these fishing communities, including vast area closures, gear restrictions, and prohibiting the entire nearshore complex in federal waters.

These ports generate a large portion of their fixed gear income from lingcod and nearshore and demersal shelf stocks, which can no longer be accessed inside of 75 fm where the majority of the rocky reefs exist. Additionally, the diversity of the Central California bathymetry, with many canyons and shelf sections that extend the 75 fm depth curve far past the safe range for some of the smaller operations, as well as the requirement to need VMS, could prevent vessels from replacing lost opportunity shoreward of the Non-Trawl RCA.

Current restrictions would be continued under Alternative 2. Anecdotal evidence from public comment since September 2023 illustrates that the no action management measures that would be continued under Alternative 2 have had negative impacts in the form of decreasing landings and ex-vessel revenue. Alternative 4 could disproportionately impact Central California port complexes, notably Fort Bragg, as groundfish is a primary target in the industry's portfolio. Loss of the groundfish fishery would likely reduce, and potentially eliminate, infrastructure (e.g., processors, port services, etc.) linked to groundfish. Given the timeline to rebuild this stock, it is foreseeable that other community interests are likely to integrate into the port areas, (i.e., industry replacement). As California quillback recovers, these port communities likely will not be able to revert back to being fully supported by the fishing industry, considering the uncertainty of a future fishery. It is expected that densely populated ports with high property value such as San Francisco would see the loss of fishing infrastructure at a faster rate than less populated areas such as Fort Bragg. In San Francisco it is highly unlikely for commercial real estate to return to fishing infrastructure after becoming a restaurant or apartment building, each of which would likely generate more revenue than a fishing port. Meaning, port communities may select for a known economic return rather than re-establish an unknown economy from fisheries, i.e., the loss of historic fishing communities to development.

Fort Bragg and San Francisco derive approximately half of the port complex's groundfish ex-vessel revenue from the trawl catch share sector (Figure 22).While there is uncertainty regarding the long term impacts to this fishery relative to Alternative 4, the near term impacts would likely be high in these ports. If the Council were to adopt the Alternative 4 (F = 0) rebuilding strategy, all directed groundfish sectors would need to be completely closed for the near term. In the long term, there is uncertainty regarding whether revisions to the rebuilding plan will be made. In addition, given that there is a non-zero chance that the trawl and fixed gear sectors may interact with at least a single quillback, management measures under an F = 0 strategy will likely need to be conservative, suggesting that the closures may be long term. A complete closure of the groundfish fishery in the Central California port complexes may result in a potential annual loss of approximately $5 million dollars to these communities if Alternative 4 were adopted (Table 12). Moreover, the management measures used to reduce the 10-year California quillback rockfish average mortality in this area, which is currently approximately 1 mt, would come at the potential loss of 793 mt of all other rockfish or 2,162 mt of all other groundfish per year (Table 11). Alternative 4 would have substantial adverse economic impacts to this area and would likely still result in California quillback rockfish mortality associated with bycatch in other non-groundfish fisheries like Pacific halibut, salmon, and California halibut among others.

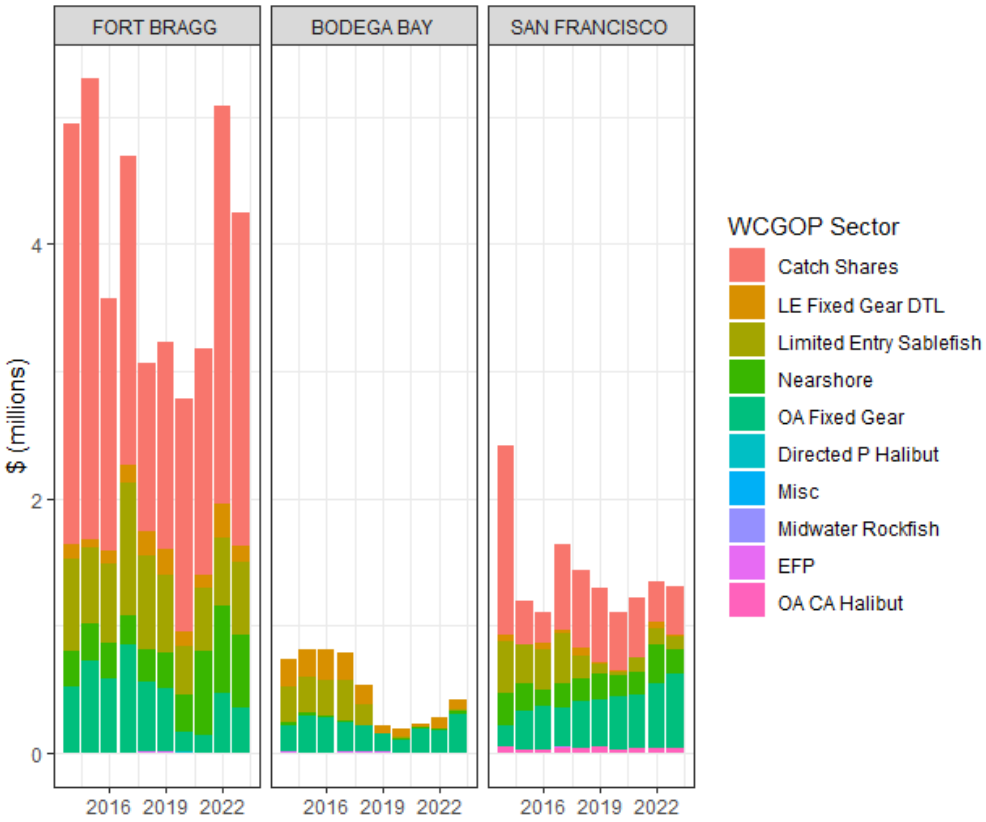

Figure 27. Groundfish revenue by West Coast Groundfish Observer Program sector code for IOPAC port areas between 40° 10′-37° 07′ N. lat. The following modifications to original WCGOP codes have been made here for ease of presentation: "Catch Shares" and "Catch Shares EM" have been combined; "Midwater Rockfish" and "Midwater Rockfish EM" have been combined; "Pink Shrimp," "Ridgeback Prawn," "Sea Cucumber," and "Research" have been combined into a "Misc" sector. There were no shoreside whiting landings into California ports, though note that the shoreside whiting fishery may possibly operate in California waters and land elsewhere.

5.3.3 Area Between 37° 07' North latitude and the US Mexico Border

The five port complexes in the area between 37° 07' N. lat. and the U.S./Mexico Border, which includes Monterey Bay, Morro Bay, Santa Barbara, Los Angeles, and San Diego, have a high to low dependency on the commercial fishing industry. They rate moderate to low on the social vulnerability scale with the exception of Moss Landing and Los Angeles which rate high to medium high (Table 9). Though quillback rockfish's range extends to Anacapa Island, California (approximately 34° N. lat.; Love et al., 2002), this species is extremely rarely recorded south of Point Conception in any commercial fishery data and never in California Collaborative Fisheries Research Program or the CDFW and MARE ROV survey data (Agenda Item F.8.a Supplemental GMT Report 1 March 2024). Therefore, it is unclear whether the impacts will be only to ports between 37° 07' and 34° 27' N. lat., namely Monterey Bay, Morro Bay, and Santa Barbara, or to all ports south of 37° 07' N. lat. No commercial landings of California quillback rockfish have been reported in ports south of Morro Bay, though two encounters with quillback rockfish were observed in the state-permitted nearshore fishery south of Point Conception. In addition, quillback rockfish were reported for only one year and month (December 2012) in the South District (San

Diego, Orange and Los Angeles Counties) in CRFS data. Data are provided for all ports between 37° 07' N. lat. and the U.S./Mexico Border.

These three northern ports are more similarly related, as ocean dynamics and species composition shift from Central California into the South California Bight. Additionally, they have a much larger portion of the fixed gear groundfish landings, ex-vessel revenue, and participants (Figure 16,Figure 17, and Figure 18) than the ports south of Point Conception. Monterey Bay generates most of their ex-vessel revenue from coastal pelagic species (CPS) and to a lesser extent salmon and groundfish; however, the groundfish fishery has been expanding in recent years (Figure 23). The shift to groundfish is likely due to the uncertainty in salmon/Dungeness crab and the boom and bust cycles of CPS. Morro Bay has a diverse portfolio which has relied more heavily on groundfish in recent years and Santa Barbara is primarily generating ex-vessel revenue from CPS or the "other" category, consisting primarily of spiny lobster and red sea urchin. The groundfish fishery has historically been the income stabilizer that provides stability throughout changes and closures to salmon, crab, coastal pelagic, and lobster seasons in this region. None of the five ports in this area will be affected by Alternative 2 if the management line remains at 37° 07' N. lat. other than the prohibition to retain California quillback rockfish as proposed above. The management measures associated with this region are not as restrictive as measures applied to the north due to the rare occurrence of California quillback rockfish (Agenda Item E.9.a, Supplemental GMT Report 2, November 2023). Alternative 2, however, may shift effort from the areas described above into Central and Southern California. This effort shift, in conjunction with the opening of the Cowcod Conservation Areas, and opening of the Non-Trawl RCA seaward of 75 fathoms, could concentrate effort south of 37° 07' N. lat. which may create unintended conservation concerns or flood the market and collapse other fisheries.

However, under Alternative 4, Monterey Bay, Morro Bay, Santa Barbara, Los Angeles, and San Diego groundfish fisheries would likely be closed to reach F = 0. As mentioned above, commercial quillback rockfish encounters are extremely rare south of Point Conception but not zero, and therefore, this area may need to be closed along with more centrally located ports. To reach F = 0, the Council would likely need to adopt a complete closure of the groundfish fishery, resulting in a yearly loss to the area of a potential $7 million dollars compared to the No Action alternative and more if subsequent years were chosen (Table 12). Moreover, the management measures used to reduce the 10-year California quillback rockfish average mortality in this area, which is currently less than 0.01 mt, would come at the potential loss of 427 mt of all other rockfish or 1,230 mt of all other groundfish per year (Table 11). Such an action would have substantial adverse economic impacts to Monterey Bay, Morro Bay, Santa Barbara, Los Angeles, and San Diego, and likely would still have quillback rockfish mortality associated with bycatch in other non-groundfish fisheries.

Figure 28. Commercial fish revenues by PacFIN Management Group for California IOPAC Port Areas south of 37° 07′ N. lat. (2014 - 2023). Shellfish revenues are excluded. PacFIN Management Group acronyms are as follows: coastal pelagic (CPEL), crab, groundfish (GRND), highly migratory species (HMSP), other (OTHR), salmon (SAMN), shellfish (SHLL), and shrimp (SRMP). CODE010 - PacFIN Species Code List

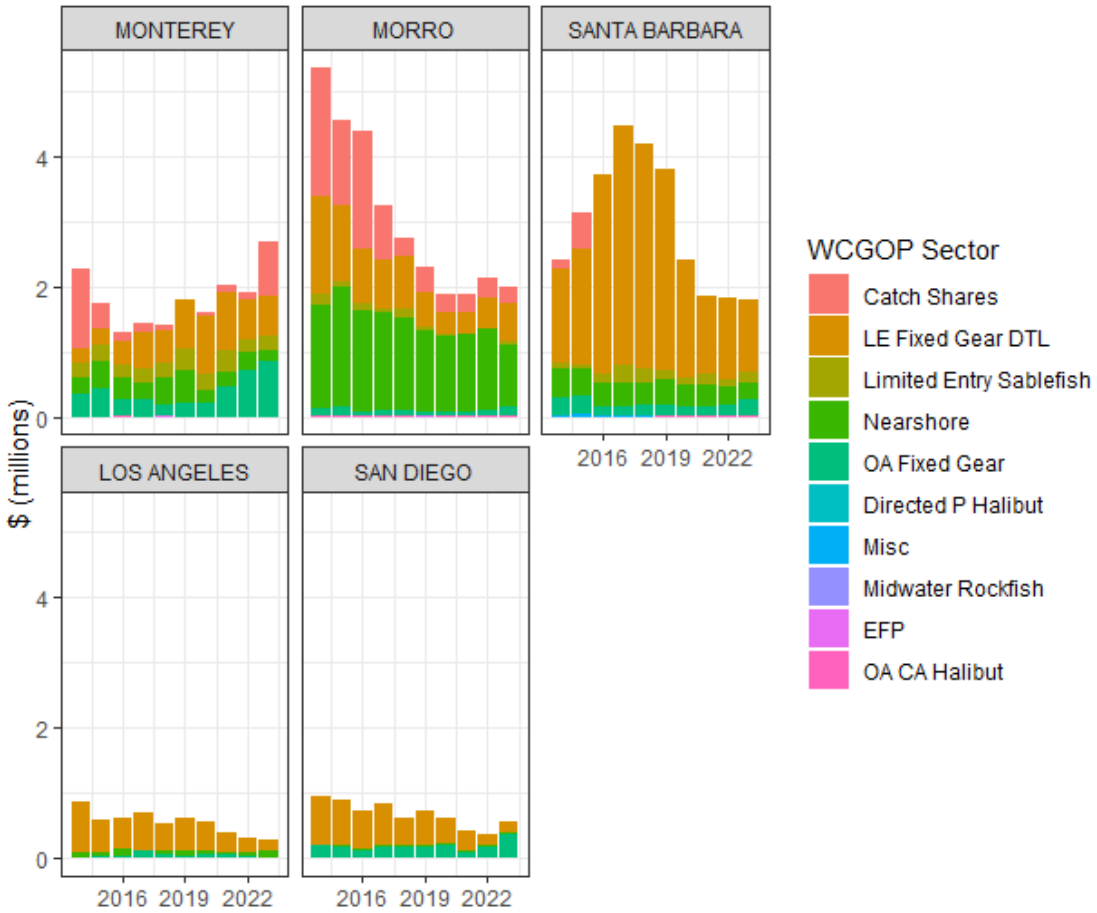

Figure 29. Groundfish revenue by West Coast Groundfish Observer Program sector code for IOPAC port areas south of 37° 07′ N. lat. The following modifications to original WCGOP codes have been made here for ease of presentation: "Catch Shares" and "Catch Shares EM" have been combined; "Midwater Rockfish" and "Midwater Rockfish EM" have been combined; "Pink Shrimp," "Ridgeback Prawn," "Sea Cucumber," and "Research" have been combined into a "Misc" sector. There were no shoreside whiting landings into California ports, though note that the shoreside whiting fishery may possibly operate in California waters and land elsewhere.

5.4 Social Considerations Related to West Coast Fisheries

5.4.1 Equity and Fairness

Both MSA and Executive Order 13985 emphasize principles of fairness and equity in decision making. While these legislative mandates are clear in their direction to consider fairness and equity, they are less clear in specifying precisely how these concepts should be evaluated. Household income is often seen as a factor describing underserved communities and is observable for a sample of West Coast fishery participants. Additionally, the vulnerability framework developed by Jepson and Colburn (2013) and utilized in the 2023 California Current Ecosystem Status Report uses household income as a determinant of vulnerability for communities of place. Using these survey data, we can directly observe this important determinant of vulnerability for fishery participants. In this section we examine the extent to which groundfish fishermen likely to

be most severely impacted by rebuilding measures exhibit household income characteristics making them particularly vulnerable to disruption.

The West Coast Fisheries Participation Survey is conducted regularly (every three years since 2017) by Social Scientists at the NWFSC. Its primary purpose is to help researchers and managers understand individuals' choices to participate in commercial fishing and the benefits, both monetary and non-monetary, that they derive from fishing. Survey questions 31 (from the 2023 survey) and 32 (from the 2020 survey) ask respondents for their approximate household income from the previous year.

Household income is defined categorically with 7 possible levels. Differences in distributions across these income categories for individuals most affected[57] by rebuilding measures versus those not directly affected can be evaluated using a χ^2 test-statistic. Under the null hypothesis, observations are distributed across the income levels independent of individual status (affected/unaffected). Figure 25 shows observed and expected observation counts under the null hypothesis for affected and unaffected fishermen, where the "affected" group includes all previously defined affected fishermen in California..

Figure 30. Observed and expected distribution of household income for 2023 survey respondents. "Affected" group includes affected fishermen in California.

[57] Here "affected" individuals are those participating in fixed gear groundfish fisheries and "unaffected" includes all other respondents. The primary negative impacts of both Alternative 2 and Alternative 4 (loss of access to historical fishing grounds) will fall disproportionately on fixed gear groundfish fishermen in California.

5.4.2 Social Capital and Community Identity

> *Fishing is more than just a source of income to many fishers. It is a source of enjoyment and fulfillment that other available jobs apparently cannot match for most fishers. It is a way of life and an important part of social identity to many. How fisheries impact the wellbeing of participants and coastal communities is influenced by factors aside from how much fish can be harvested and the profits the fishery generates. (Holland et al. 2019, p.638)*

Impacts to communities from loss of access to historically utilized fishing grounds generally extend beyond the financial impacts from loss of income to fishermen and loss of ex-vessel revenue to port communities. Social or non-monetary impacts of restricting access to fishing grounds may include loss of a sense of identity and belonging as well as loss of community cohesion that is important in sustaining fishing communities. Richmond and Casali (2008) identify social capital as a key determinant of fishing community sustainability and resilience.

While these impacts are difficult to quantify, the West Coast Fisheries Participation Survey was designed to help researchers and managers understand these social dynamics. Several questions from the 2023 vintage of this survey can offer important insights on social implications of a prolonged fishery closure:

1. Question 24: *Have you ever continued fishing in order to provide employment for crew when you thought the profits earned by the vessel might fail to cover expenses?* 57% of respondents answered in the affirmative to this question.
2. Question 12 asks respondents to indicate their agreement with a series of statements regarding connection to their community.
    a. 80% of respondents "Strongly Agree" with the statement: *Being a fisherman is important to me*.
    b. 63% "Strongly Agree" with the statement: *My fishing community is important to me.* Additionally, 62% "Strongly Agree" with the statement: *Continuing a community tradition is important to me.*
    c. 42% "Strongly Agree" with the statement: *Continuing a family tradition is important to me.*

Item #1 suggests that providing for the financial needs of their community is important to West Coast commercial fishermen. Item #2 suggests that West Coast commercial fishermen value their identity as fishermen and supports the perception of fishermen as emotionally connected to their communities.

The loss of access to a key target species like groundfish, and the fleet attrition likely to accompany that loss, will have impacts on well-being of individual fishermen as well as adverse impacts to communities stemming from degradation of social capital. While these potential social impacts are likely to be felt to some extent under either Alternative 2 or Alternative 4, they are likely to be more severe under Alternative 4.

5.4.3 Long-term considerations to commercial communities

The long term decline in overall commercial fishing activity in California, and its association with deteriorating commercial fishing support infrastructure[58], is well documented. Pomeroy et al. (2011) profiled the California North Coast ports of Crescent City, Eureka, and Fort Bragg, making the following observations:

> *"Aging infrastructure, the closure of support businesses such as Eureka Fisheries in 2000 and Eureka Ice and Cold Storage in 2008, and increasingly expensive real estate prices and permitting requirements for maintaining and developing Eureka's working waterfront, have complicated efforts by fishermen and others to maintain viable operations. Receiving and processing capacity has contracted geographically and become consolidated. Where multiple providers of goods and services (e.g., marine supply, fuel dock, vessel maintenance and repair) once were needed to meet local demand, only one or two of each type remain, serving communities elsewhere along the North Coast as well as Eureka. While this consolidation suggests increased efficiency, the limited number of goods and service providers makes the local fishing community vulnerable to further regulatory, economic and environmental change. (p.9)"*
>
> *"The decline in fishing activity at Crescent City over the last 30 years has reduced shoreside activity, leading businesses to close, reduce services and/or inventory, or diversify their operations. With limited alternative sources of revenue, harbor infrastructure has deteriorated. Insufficient provision for basic maintenance and repair of docks and related infrastructure has led to their disrepair and vulnerability to events such as the 2006 tsunami. These and other costs, particularly for dredging and dredge material disposal, and maintaining and operating the wastewater treatment plant, have become significant. (p.9)"*
>
> *"As fishing activity has declined over the last 30 years, so has the Noyo Harbor District's revenue base, making it difficult to maintain and improve infrastructure, while costs, particularly for dredging and dredge material disposal, have become significant both for the harbor district, and Dolphin Isle Marina. Use of other infrastructure, including receiving stations, fuel docks and the ice plant, which are privately owned, has declined as well, leading to reductions in the number and types of support businesses. With only a core group of support businesses remaining, fishery participants are concerned about the potential for further loss of infrastructure, and its implications for the viability of local fisheries and the fishing community. (p.10)"*

Infrastructure concerns specific to groundfish are documented in the Pacific Coast Groundfish Fishery Social Study (PCGFSS) led by Suzanne Russell. Appendix J of the West Coast Groundfish Trawl Catch Share Program Five Year Review presents results from this survey relating to commercial fishing support infrastructure by homeport area. The overarching theme of responses from California's North Coast area is that persistent disruptions to groundfish participation (combined impacts of the Trawl Buyback Program and implementation of RCAs in 2003 permanently removed significant groundfish harvesting capacity from the Crescent City, Eureka, and Fort Bragg area; implementation of Catch Shares in 2011 which led to industry consolidation

[58] Here "infrastructure" is used to encompass physical commercial fishery support infrastructure as well as commercial fishing support services (vessel and gear maintenance for example), and markets.

and further vessel attrition) has led to a loss of infrastructure and support services, creating a hardship for remaining fishermen. Similar losses in California port infrastructure resulting from restrictive management measures could be felt by the commercial fixed gear fishery under this rebuilding plan.

While it is difficult to project their magnitude, it is likely that reductions in groundfish fishing opportunity under Alternatives 2 and 4 will exacerbate the ongoing deterioration in commercial fishery infrastructure at California ports. As with most impacts in this analysis, the potential adverse infrastructure implications of Alternative 4 can reasonably be assumed to be more severe than Alternative 2, as Alternative 4 is expected to result in larger reductions in groundfish fishing activity.

5.5 Recreational Communities

Recreational fishing benefits to participants and communities in a number of different ways. Recreational anglers often report deriving value from fishing in the form of: health and wellness benefits of outdoor exercise and relaxation, spiritual and cultural benefits of connecting with nature, subsistence benefits, and social benefits of spending time with friends and loved ones (Young et al. 2016). Economic evaluation of recreational fishing, such as is commonly done through estimation of angler willingness to pay, encompasses the many dimensions of value anglers derive from fishing.

When recreational fishing access is limited, anglers are impacted through the loss of cultural, spiritual, social, and financial values associated with fishing. Economic evaluation of this loss implies consideration of the many distinct and unique sources of value (see Oleson et al. 2015). When referencing methodology or approach to inferring welfare losses from regulatory restrictions on recreational fishing we will use the term "economic analysis" or "economic impact analysis." When referencing particular potential or realized impacts to anglers and communities we will use the term "social and economic impacts" in recognition of the diverse sources of value recreational fishing provides.

Off California, groundfish are a common target for recreational anglers. Effort is variable but relative to time of year, port area, and presence of other target species. The majority of groundfish, including California quillback rockfish, are caught by boat-based anglers, either private vessels (PR mode) or party/charter vessels (PC mode). Recreational effort is correlated with population density, meaning areas of higher population density are expected to have higher effort than those with lower density. Additionally, differentiation of trips to target a particular species group (trip type) is generally reflective of stocks available to anglers in a given area. For example, in the northern ports, recreational anglers may preferentially target ocean salmon during the salmon season and in southern ports, recreational anglers may target kelp bass, highly migratory species, or coastal pelagics (e.g., yellowtail) at certain points of the year. The presence of other fisheries allows for anglers to diversify their effort. In areas with more target species, anglers can target species other than groundfish or groundfish that do not co-occur with California quillback rockfish. Overall, based on RecFIN data, bottomfish is the dominant target for recreational anglers in California (Figure 26).

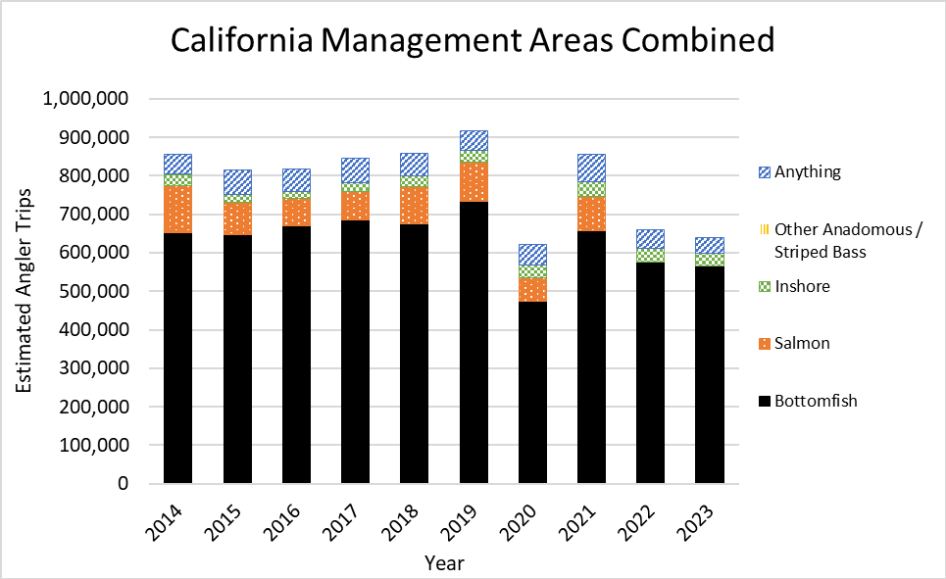

Figure 31. Statewide. Recreational angler trips in all Management Areas of the California recreational fishery by RecFIN trip type target from 2014-2023 for the private rental and party charter boat modes in ocean waters. Highly migratory species and invertebrate data is not included in RecFIN data for California. Salmon data only available through 2021 and is from the Council's Salmon Historical data ("blue book"). RecFIN trip type "bottomfish" includes groundfish, Pacific halibut and some state managed species. Examples of target species and/or groups in the trip type category can be found in Table 1.1 of the CRFS Methods document.

5.5.1 California Recreational Management Areas Fisheries

California manages the recreational fishery in five management areas MA –Northern (Oregon/ California border to 40°10′ N. lat.), Mendocino (40°10′ N. lat. to Point Arena 38°57.5' N. lat.), San Francisco (Point Arena, 38°57.5' N. lat. to Pigeon Point 37°11' N. lat.), Central (Pigeon Point, 37°11' N. lat. to Point Conception 34°27' N. lat.), and Southern (Point Conception 34°27' N. lat. to the US/Mexico Border). In terms of fisheries, there are noticeable differences between the Southern MA and the Northern MAs. For all MAs, groundfish provide a reliable opportunity and is a primary driver for fishing effort; however, each MA is not limited to groundfish as alternative targets are available. These other fisheries could provide positive benefits to recreational anglers and communities; however, these benefits may be limited to anglers who are able to access these non-groundfish fisheries and those communities where these alternate fisheries are accessible.

Fishery effort in the Northern (**Figure 27**), Mendocino (Figure 28), San Francisco Bay (Figure 29), and Central MAs (Figure 29) is primarily focused on groundfish and salmon (when available). Groundfish effort is the primary driver of the recreational fishery in these MAs. Recreational effort for salmon is second to groundfish in these MAs; however, annual salmon abundance can fluctuate and opportunity can be very limited in certain years. From 2008 to 2010 and again in 2023-24, increased salmon fishing restrictions, including full season closures, were implemented to address the collapse of Sacramento River fall run Chinook salmon. Recreational anglers in these MAs target other species (Dungeness crab, albacore, and California halibut, etc.) based on the availability of the resource (i.e., time of year, proximity to port, abundance, etc.).

In the Northern and Mendocino MAs, Pacific halibut fishery provides an additional source of opportunity in this portion of the coast which is not available in all MAs. The halibut fishery is a quota fishery scheduled May through November, though the fishery may need to close early if quota is attained (or projected to be attained) prior to the scheduled end date. Reduced groundfish and salmon opportunities, however, have resulted in additional angling effort into this fishery, increasing the likelihood that the quota will be attained earlier in the year. Alternative targets could displace some of the angler effort and provide a positive impact to communities, as anglers have something to target, but it is unclear if they could offset the benefits provided by anglers who target groundfish. A reduction in overall fishing effort has a negative economic impact to revenue in local communities through reductions in goods and services provided to recreational anglers (e.g., launch fees, fuel, lodging, etc.).

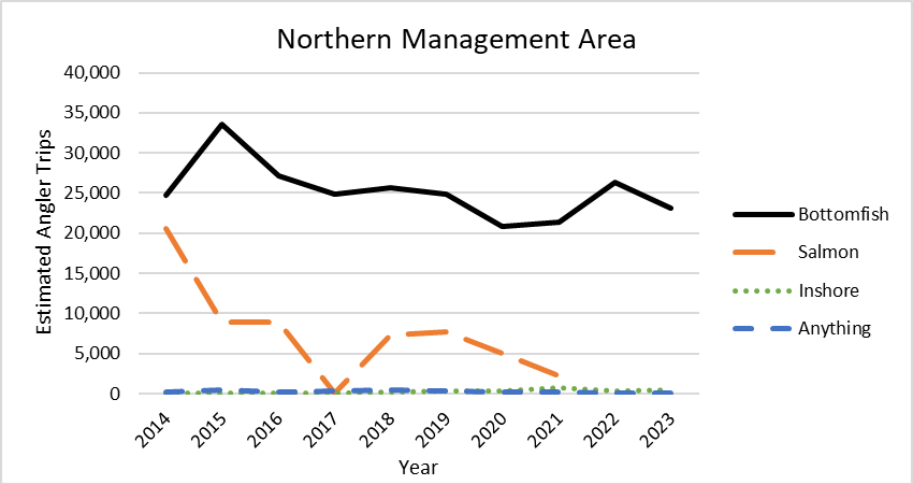

Figure 32. Recreational angler trips in the Northern Management Area of the California recreational fishery by RecFIN trip type target from 2014-2023 for the private rental and party charter boat modes in ocean waters. Salmon data only available through 2021 and is from the Councils Salmon Historical data ("blue book"). RecFIN trip type "bottomfish" includes groundfish, Pacific halibut and some state managed species.

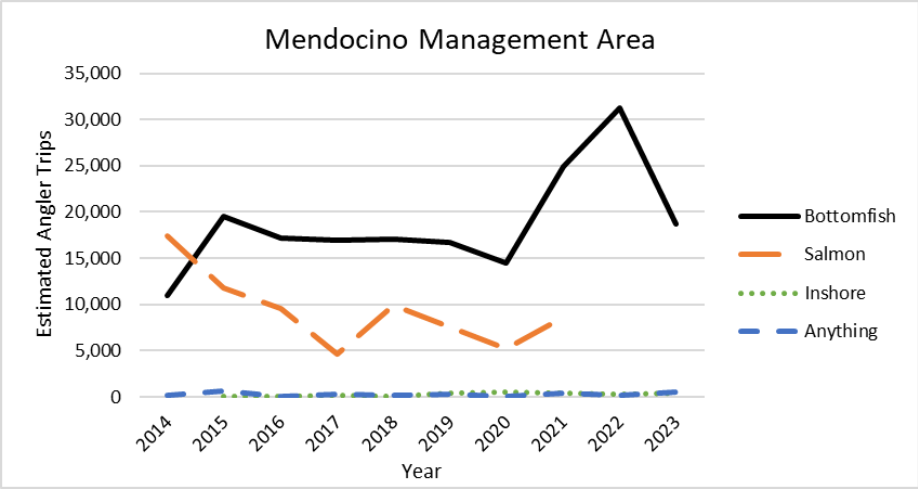

Figure 33. Recreational angler trips in the Mendocino Management Area of the California recreational fishery by RecFIN trip type target from 2014-2023 for the private rental and party charter boat modes in ocean waters. Salmon data only available through 2021 and is from the Councils Salmon Historical data ("blue book") RecFIN trip type "bottomfish" includes groundfish, Pacific halibut and some state managed species.

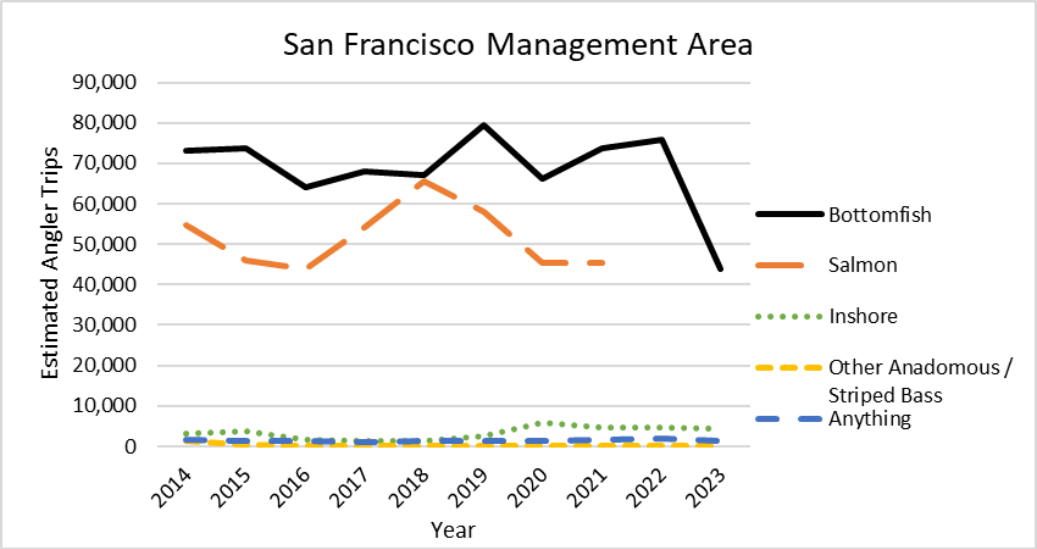

Figure 34. Recreational angler trips in the San Francisco Management Area of the California recreational fishery by RecFIN trip type target from 2014-2023 for the private rental and party charter boat modes in ocean waters. Salmon data only available through 2021 and is from the Councils Salmon Historical data ("blue book"). RecFIN trip type "bottomfish" includes groundfish, Pacific halibut and some state managed species. Examples of target species and/or groups in the trip type category can be found in Table 1.1 of the CRFS Methods document.

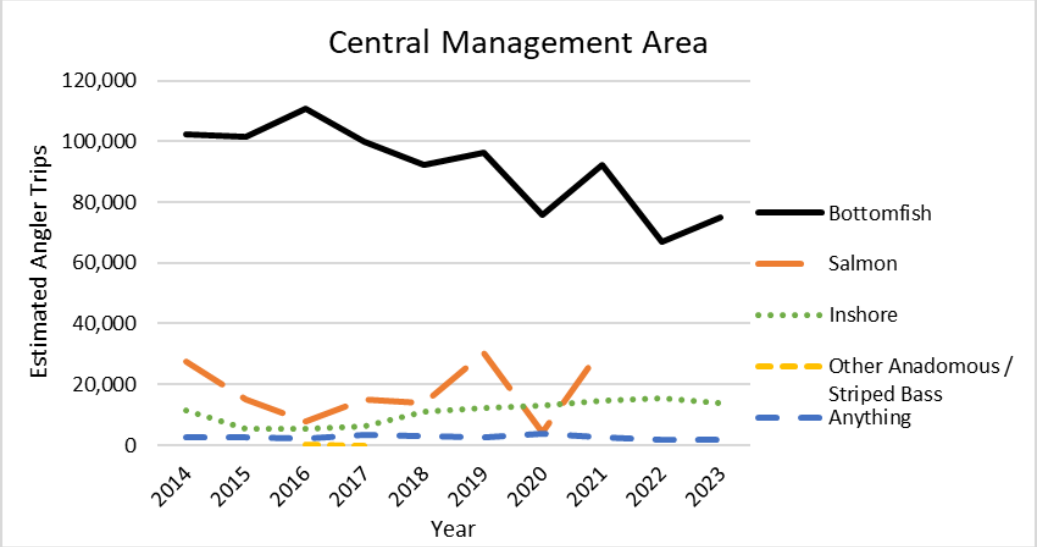

Figure 35. Recreational angler trips in the Central Management Area of the California recreational fishery by RecFIN trip type target from 2014-2023 for the private rental and party charter boat modes in ocean waters. Salmon data only available through 2021 and is from the Councils Salmon Historical data ("blue book"). Limited salmon effort occurs in the Southern MA, however salmon management reports trips from Monterey Bay to the Mexico border as one management area. The limited salmon effort which occurs in the Southern MA is displayed in the Central MA graphs. RecFIN trip type "bottomfish" includes groundfish, Pacific halibut and some state managed species. Examples of target species and/or groups in the trip type category can be found in Table 1.1 of the CRFS Methods document.

The San Francisco Bay MA offers the most opportunity for anglers north of the Southern MA, ranging from inshore bay fisheries (striped bass, shark, CA halibut, etc.) to nearshore groundfish

to salmon and pelagic species (i.e., albacore). Anglers in this MA can shift to other fisheries more easily than other northern California MAs due to the diversity of target species.

The Southern MA offers anglers a wide diversity of target species. While primary angler effort is for groundfish in the Southern MA there are multiple alternatives for anglers to target, including California halibut, California sheephead, white seabass, and highly migratory species, and risk of California quillback rockfish interactions in this area are low, there is a non-zero chance it could be caught. Many of the alternative fisheries which have rockfish bycatch are state managed (e.g., California halibut, white seabass, ocean whitefish, sandbasses, and California sheephead). These fisheries, in general, have a low potential for California quillback rockfish bycatch and are outside the regulatory authority of the Council and the NMFS.

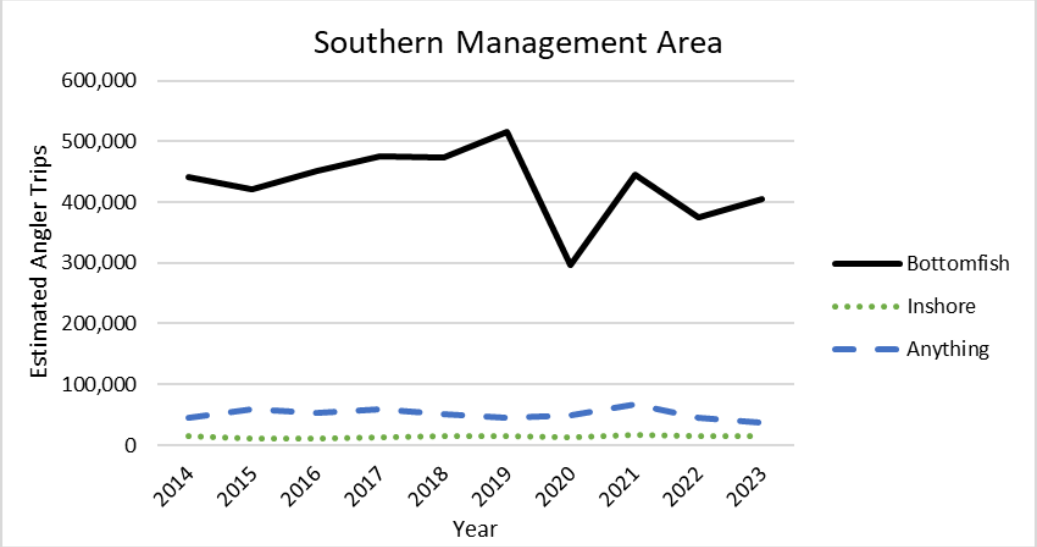

Figure 36. Recreational angler trips in the Southern Management Area of the California recreational fishery by RecFIN trip type target from 2014-2023 for the private rental and party charter boat modes in ocean waters. Limited salmon effort occur in this area; however, salmon management reports the limited trips from Monterey Bay to the Mexico border as one management area. The limited salmon effort which occurs is displayed in the Central MA graphs. RecFIN trip type "bottomfish" includes groundfish, Pacific halibut and some state managed species. Examples of target species and/or groups in the trip type category can be found in Table 1.1 of the CRFS Methods document

Depth Restrictions and Angler Effort Considerations

Opportunity in nearshore waters close to coastal reefs is the primary driver of recreational groundfish effort and provides social and economic benefits in California. From 2013-2024, just over 71% of bottomfish trips took place within 3 miles of the coast.

Alternative 2, the season structure for MAs north of 36 N. lat. would have seasonal depth restrictions, for portion of the year, anglers would be allowed in waters less than 20 fathoms and then restricted to waters greater than 50 fathoms for the other portion. This structure prohibits access to depths from 20 to 50 fathoms, year round, as catch information suggests the abundance of California quillback rockfish is highest in these depths (Agenda Item F.8.a Supplemental CDFW Report 1 March 2024, Agenda Item E.7.a Supplemental CDFW Report 2, November 2021). The

same strategy is implemented for 2024 (Agenda Item Supplemental CDFW Report 2, March 2024 and Agenda Item F.8.a Supplemental GMT Report 1 March 2024) and is mirrored for the 2025-26 seasons. This "offshore only" depth restriction is expected to allow for recreational fishing opportunities to continue; however, due to localized bathymetry, the presence or absence of rocky reefs outside of 50 fathoms and the proximity of the 50 fathom line to shore are not universal throughout the California Coast (Table 13). These factors are likely to reduce overall angler effort as private vessels may not be able to access these depths, safety, etc. CPFVs, however, may offer anglers a means to access these depths.

Additionally, kayak fishing has increased significantly over the last 20 years. The majority of MAs contain a number of smaller launch sites where kayaks and other smaller vessels are the most effective means to access local reefs. In all management areas, the offshore-only fishery would likely eliminate kayak fishing effort as kayaks are not often able to safely travel long distances from shore. Nearshore or All-Depth opportunities are the only times kayak anglers can access the groundfish fishery.

Recreational fisheries in the Northern MA are highly centered on nearshore waters due to the prevalence of coastal reefs, as this MA has limited rocky reef habitat beyond 50 fms close to the ports shown in Table 13. The average distance from port to 50 fm is 9.7 nm. The Mendocino MA has limited rocky reef habitat beyond 50 fms close to port Table 13. The average distance from port to the 50 fm boundary is 3.8 nm. In the San Francisco MA there is good rocky reef habitat beyond 50 fms, however the distance to these areas is substantially greater than any other management area with an average of 21.5 miles from major launch ramps (Table 13). The Central management area has one of the starkest contrasts in distance to the 50 fm RCA line due to the Monterey Bay Canyon, as compared to other areas of the coast. Moss Landing is one of the closest launch ramps to the 50 fm RCA line at just under three miles, however the ports of Morro Bay and Avila in the southern portion of the MA are over nine miles to the 50 fm RCA line (Table 13).

The offshore-only season structure is not considered under Alternative 4 as it is expected that the entire groundfish fishery off California would be closed.

Table 14. The distance in miles to the 50 fm RCA line from CRFS highest effort launch ramps (PR1 sites) in California and the average distance to the 50 fm RCA line in each management area, the avg distance north of Pt. Conception and the overall state average distance.

CRFS PR1 Site Name	Management Area	Miles to 50 fathom RCA
Crescent City Inner Boat Basin docks	Northern	8.78
Crescent City Harbor launch ramp	Northern	8.78
Trinidad hoist	Northern	7.53
Trinidad docks (water taxi)	Northern	7.53
Eureka Marina launch ramp	Northern	13.5
	Avg. Northern	**9.74**
Shelter Cove launch	Mendocino	4.24
Noyo River launch ramp	Mendocino	3.28

CRFS PR1 Site Name	Management Area	Miles to 50 fathom RCA
	Avg. Mendocino	**3.76**
Bodega Westside launch ramp	San Francisco	9.67
Berkeley Marina launch ramp	San Francisco	38.4
Princeton-Pillar Point launch ramp	San Francisco	16.4
	Avg. San Francisco	**21.49**
Santa Cruz Marina launch ramp	Central	9.36
Moss Landing launch ramp	Central	2.92
Monterey Marina launch ramp	Central	6.47
Coast Guard Jetty launch ramp	Central	6.44
Morro Bay launch ramp	Central	9.93
Avila Boat Sling	Central	9
	Avg. Central	**7.35**
	Avg. N. of Pt. Conception	**10.27**
Santa Barbara launch ramp	Southern	6.17
Ventura launch ramp	Southern	10.5
Channel Islands launch ramp	Southern	1.98
Marina Del Rey launch ramp	Southern	1.25
Cabrillo launch ramp	Southern	3.73
Dave's launch ramp	Southern	11.5
Sunset Aquatic launch ramp	Southern	10.4
Dana Point launch ramp	Southern	2.29
Dana Basin launch ramp	Southern	6.71
Shelter Island launch ramp	Southern	8.89
	Avg. Southern	**6.3**
	Statewide Avg.	**8.81**

5.5.2 California Groundfish Management Area Recreational Communities

As noted above, recreational effort for groundfish primarily occurs in nearshore waters. In general, nearshore waters are within state territorial boundaries. This rebuilding plan is specific to federal waters. The following analysis assumes federal water groundfish management and California state water groundfish management would be consistent with one another. Meaning, this analysis does

not explore any potential differences in impacts that could occur due to differences in management. To do so would presuppose future action.

Northern MA

The Northern Management Area encompasses the major ports of Crescent City and Eureka with a number of smaller landings (e.g., Trinidad and Fields Landing). The ports of Crescent City and Eureka were identified as having medium high social vulnerability; whereas, Crescent City displays medium reliance on recreational fisheries and Eureka has low reliance (Table 9). The reliance rating suggests that under both alternatives, the social and economic impact to these communities is differential. Crescent City could be expected to incur higher impacts due to regulatory changes related to California quillback rockfish than would Eureka.

The groundfish season in the Northern MA is highly depth restrictive as quillback rockfish are common in this MA. Nearshore access is limited to summer months (June - September) and November. Based on anecdotal evidence and the average monthly angler trips, the bulk of social and economic benefits to fishing communities in this area are heavily linked to the summer months. Much of the effort is from out of town visitors, which brings important revenue to local businesses. The season structure to support Alternative 2 would be closed for the first 3 months of the year, would limit fishing to nearshore (< 20 fathoms) to six months of the year and would restrict access to greater than 50 fathoms for the other 3 months of the year.

Management measures to achieve Alternative 2 would likely result in a reduction of overall fishing effort in this MA which may correspond to reduced economic benefits. However, alternative fishing target opportunities (e.g., salmon, Pacific halibut) may offset some of the negative impacts due to groundfish effort reductions at times when those fisheries are not restricted as well. Under Alternative 4, all recreational groundfish effort would cease, though anglers could only be able to target non-groundfish species. This Alternative would result in negative economic impacts to these fishing communities.

Table 15. Expected recreational fishery income and income change under the Alternatives for the Northern Management Area ($millions). After Agenda Item F.5 Supplemental Attachment 4, April 2024

Community Groups	No Action	Alternative 2	Alternative 4
Recreational Fishery income impacts	2.6	3.4	0.0
Change in recreational fishery income impacts	*2.6*	+0.9	-2.6

Under Alternative 2, this MA is expected to adversely affect ports in terms of constraints on season and depth restrictions to minimize California quillback rockfish mortality. Table 14 evaluates income impacts resulting from recreational fishing trips projected under the alternatives.. For the Crescent City - Eureka area Alternative 2 results in a $3.4 million increase in income relative to Alternative 4. Income impacts of recreational fishing under Alternative 4 management measures are negative relative to No Action. While Alternative 2, would present a restrictive management scenario for the nearshore groundfish fishery in this MA, it would allow for fishing which may provide some positive economic impact to businesses that provide goods and services to recreational anglers (e.g., freshwater, crab, salmon, etc.). Alternative 4 is the most restrictive management scenario and businesses that are centered on marine recreational groundfish fisheries (e.g., tackle shops, charter boats, etc.) would likely see adverse economic impacts, and businesses

that are linked to marine recreational groundfish fisheries (e.g., hotels, restaurants, etc.) could be negatively impacted as well.

Mendocino Management Area

The Mendocino MA encompasses the major port of Shelter Cove and Fort Bragg, with several rural ports (e.g., Albion). Fort Bragg and Shelter Cover were identified as having medium social vulnerability and reliance on groundfish in the recreational fisheries by NMFS (Table 9). These ratings suggest these communities could be negatively impacted due to the integration of recreational fisheries into their industrial profiles.

The groundfish season in the Mendocino MA is highly depth restrictive as California quillback rockfish are common in this MA. Nearshore access is limited to summer months (June - September) and November. Based on anecdotal evidence, the bulk of social and economic benefits to fishing communities in this area are heavily linked to the summer months. Much of the effort is from out of town visitors, which brings important revenue to local businesses. Like in the Northern MA, the season structure to support Alternative 2 in the Mendocino MA would be closed for the first 3 months of the year, would limit fishing to nearshore (< 20 fathoms) to six months of the year and would restrict access to greater than 50 fathoms for the other 3 months of the year.

Alternative 2 would likely result in a reduction of overall fishing effort in this MA which may correspond to reduced social and economic benefits. However, alternative fishing target opportunities (e.g., salmon, Pacific halibut) may offset some of the negative impacts due to groundfish effort reductions at times when those fisheries are not restricted as well. Under Alternative 4, all groundfish effort would be curtailed and anglers would only be able to target non-groundfish species. Alternative 4 would result in greater income losses and associated job losses, which would likely impose negative social and economic impacts to these fishing communities compared to Alternative 2.

Table 16. Expected recreational fishery income and income change under the Alternatives for the Mendocino Management Area ($millions). After Agenda Item F.5 Supplemental Attachment 4, April 2024

Community Groups	No Action	Alternative 2	Alternative 4
Recreational Fishery income impacts	3.7	5.0	0.0
Change in recreational fishery income impacts	*3.7*	+1.3	-3.7

Table 15 evaluates management measures similar to those expected under Alternative 2 of this rebuilding plan. For the Fort Bragg - Bodega Bay[59] port area, Alternative 2 results in a $5 million increase in income relative to Alternative 4. Income impacts of recreational fishing under Alternative 4 are negative relative to No Action. Although Alternative 2 presents a restrictive management scenario for the nearshore groundfish fishery in this MA, it does allow for fishing which, relative to No Action, provides positive economic impact to businesses that provide goods and services to recreational anglers (e.g., freshwater, crab, salmon, etc.). Alternative 4 is the most restrictive management scenario. Business that are centered on marine recreational groundfish fisheries (e.g., tackle shops, charter boats, etc.) would likely experience financial losses associated with the reduction in recreational groundfish trips. Businesses indirectly linked to marine

[59] Bodega Bay is not part of the Mendocino MA; however, the economic analysis linked these ports.

recreational groundfish fisheries (e.g., hotels, restaurants, etc.) could be negatively impacted as well.

San Francisco Management Area

The San Francisco MA encompasses the major recreational ports of Bodega Bay, Sausalito, Berkeley, Emeryville, San Francisco and Half Moon Bay, as well as a number of minor ports. Bodega Bay was identified as having low social vulnerability and medium to high dependence and San Francisco, which this analysis treats as proxy for the Bay Area, has low dependence on groundfish in the recreational fisheries (Table 9). These ratings suggest differential social and economic impacts to port communities could occur due to regulatory changes to the groundfish fishery. It could be expected that impacts to social and economics of Bodega Bay would be more negative than impacts to San Francisco, suggesting that recreational fishing is more integrated into the industries of Bodega Bay than San Francisco.

This MA has the largest coastal population in northern California, with a seemingly corresponding amount of recreational fishing effort (Figure 29). While overall California quillback rockfish encounter rates are lower than in the Mendocino and Northern MAs, the high angler effort for groundfish appears to correlate with high California quillback rockfish mortality. Unlike other MAs, the San Francisco MA offers unique fishing opportunities (e.g., California halibut, striped bass, etc.) inside San Francisco Bay, which provides additional fishing alternatives when other fisheries are closed or when weather is inclement. Historically, effort within San Francisco bay has fluctuated based on target species abundance. Groundfish has been, historically, a reliable fishery for recreational anglers given the seasonality and variability in availability of other targets in this MA. Other opportunities include albacore and other tunas seasonally, and Dungeness crab. Recreational salmon opportunities in this region can be limited in some years. From 2008 to 2010 and again in 2023-2024, restrictions were implemented to address the collapse of Sacramento River fall-run Chinook salmon. Restrictions on salmon and other fisheries typically coincide with increased groundfish effort and clearly demonstrate the importance of alternative fishing opportunities when salmon fishing is closed (Figure 29). Alternative opportunities will be particularly important for 2024 and in future years given the likely event of continued restrictions on salmon stocks in the near future. With no or reduced salmon seasons, restrictions on groundfish seasons to reduce impact on California quillback rockfish would likely result in a reduction of overall fishing effort in this MA, as was seen from 2022 and 2023 in Figure 30.

The groundfish season in the San Francisco MA is highly depth restrictive as California quillback rockfish are somewhat common in this MA. Nearshore access is limited to summer months (June - September) and November. Anecdotally, the summer months are thought to provide the bulk of the social and economic benefits to fishing communities in this area; however, this major metropolitan area generates substantial fishing effort year round if opportunity is provided. Alternative 2 would likely result in a reduction of overall fishing effort in this MA which may correspond to reduced social and economic benefits. However, alternative fishing target opportunities (e.g., salmon, California halibut. striped bass, etc.) may offset some of the negative impacts due to groundfish effort reductions at times when those fisheries are not restricted as well. Under Alternative 4, all groundfish effort would be curtailed and anglers would only be able to target non-groundfish species. Alternative 4 would result in negative social and economic impacts to these fishing communities; however, these impacts could be limited to ports that primarily focus

on groundfish. Ports inside of San Francisco Bay may be able to better diversity as non-groundfish species are prevalent and easily accessible.

Table 17. Expected recreational fishery income and income change under the Alternatives for the San Francisco Management Area ($millions). After Agenda Item F.5 Supplemental Attachment 4, April 2024

Community Groups	No Action	Alternative 2	Alternative 4
Recreational Fishery income impacts	11.5	20.5	0.0
Change in recreational fishery income impacts	*11.5*	+9.0	-11.5

Table 16 evaluates income impacts resulting from recreational fishing trips, for the San Francisco area, Alternative 2 results in a potential $20.5 million increase in income relative to Alternative 4. Income impacts of recreational fishing under Alternative 4 management measures are negative relative to No Action. While Alternative 2 presents a restrictive management scenario for the nearshore groundfish fishery in this MA, it does allow for fishing which may provide some positive economic impact to businesses that provide goods and services to recreational anglers (e.g., freshwater, crab, salmon, etc.). Alternative 4 is the most restrictive management scenario, and businesses that are centered on marine recreational groundfish fisheries (e.g., tackle shops, charter boats, etc.) would likely result in adverse economic impacts and businesses that are linked to marine recreational groundfish fisheries (e.g. hotels, restaurants, etc.) could be negatively impacted as well. It may be more adverse for isolated communities, such as Half Moon Bay, which do not have the fishery diversity that the interior San Francisco Bay communities have.

Central Management Area

The Central Management Area encompasses the major recreational ports of Santa Cruz, Moss Landing, Monterey, Morro Bay and Avila and a number of rural landings. Excepting Moss Landing, the port communities listed have low social vulnerability and low reliance on recreational fishing (Table 9). The reliance rating suggests that under both alternatives, the social and economic impacts to these communities may not be highly affected by regulatory changes. These port areas may be more diversified in terms of other industries available to residents and could potentially withstand impacts from recreational fishery regulatory changes.

Under Alternative 2, differential impacts could occur to communities north and south of 36 N. lat. As noted above in Table 7, the season structure PPA divides the Central district into two areas, one north of 36° N. lat. and one south of 36° N. lat. North of 36° N. lat., there would be increased recreational fishery restrictions in terms of where and when anglers could fish. The ports impacted are Monterey, Moss Landing, and Santa Cruz. The season structure in this area would be the same as the three districts to the north. South of 36° N. lat., season structure more closely resembles the Southern Management area, which is to say there are fewer restrictions on season restrictions for anglers in Morro Bay and Avila compared to the fishery north of 36° N. lat. The bifurcation of the Central MA in 2024 was intended to lessen the social and economic impacts to port areas south of 36° N. lat. which have little to no impact on California quillback rockfish. South of 36° N. lat., season structure and management measures are primarily designed to avoid impacts on species other than California quillback rockfish such as vermillion and copper rockfish. Under Alternative 4, the entire recreational fishery would be closed to groundfish for all of the Central district

Despite the northern portion of the MA benefiting from the unique bathymetry of the Monterey Bay, nearshore opportunities in summer months (June - September) still provide the bulk of the social and economic benefits to fishing communities in this area. In 2024, the Central MA was split into two sub areas with different regulations north and south of 36° N. lat. Almost all California quillback rockfish mortality in recreational fisheries occurs north of 36° N. lat. (Agenda Item F.8.a Supplemental GMT Report 1 March 2024, Agenda Item F.8.a, Supplemental CDFW Report 2, March 2024).

Table 18. Expected recreational fishery income and income change under the Alternatives for the Central Management Area ($millions). After Agenda Item F.5 Supplemental Attachment 4, April 2024

Community Groups	No Action	Alternative 2	Alternative 4
Recreational Fishery income impacts	12.4	19.7	0.0
Change in recreational fishery income impacts	*12.4*	+7.3	-12.4

Table 17 evaluates income impacts resulting from recreational fishing trips, show Alternative 2 resulting in a potential $19.7 million income increase for Santa Cruz – Monterey – Morro Bay relative to Alternative 4. Income impacts of recreational fishing under Alternative 4 management measures are negative relative to No Action. In the northern part of this MA, Alternative 2 presents a restrictive management scenario for the nearshore groundfish fishery in this MA, it does allow for fishing which may provide some positive economic impacts to businesses that provide goods and services to recreational anglers (e.g., California halibut, salmon, etc.) Impacts to the southern portion of this MA would not be as restrictive as in the northern part of this MA since California quillback rockfish are rare in this part of the Central MA. This area, along with the Southern MA, have the most liberal season and regulations in the state.

Under Alternative 4, businesses that are centered on marine recreational groundfish fisheries (e.g., tackle shops, charter boats, etc.) would likely result in adverse economic impacts and businesses that are linked to marine recreational groundfish fisheries (e.g., hotels, restaurants, etc.) could be negatively impacted as well.

Southern Management Area

The Southern MA encompasses the ports of Santa Barbara, Ventura, Long Beach, Los Angeles, Marina Del Rey, Dana Point, Oceanside and San Diego as well as numerous other minor ports and launch ramps. This area is the largest population center in California and a far greater amount of boat-based effort is exerted in this MA than in MAs north of Point Conception (Figure 31). The community reliance on recreational fishing in this MA is low; however, Santa Barbara, Oxnard, Los Angeles, Newport Beach and San Diego have high vulnerability. The reliance rating suggests that under both alternatives, the social and economic impact to these communities may not be highly affected by regulatory changes (Table 9). This could indicate there are other, more dominant factors that impact these communities more so than recreational fishing In contrast to an Alternative 2 scenario, under Alternative 4, all recreational groundfish effort would likely have to cease to eliminate the small chance of California quillback rockfish mortality, and anglers would only be able to target non-groundfish species.

The proposed Southern MA season structure under Alternative 2 are primarily designed to avoid impacts on species other than California quillback rockfish, such as vermillion and copper

rockfishes. In the Southern MA, the fishery would be closed January – March, open in all depths from April 1 through August 15, and open for an offshore only fishery (>50 fm RCA line) from August 16 – December 31. This season is similar to the 2024 season and impacts are expected to be similar.

Table 19. Expected recreational fishery income and income change under the Alternatives for the Southern Management Area (millions). After Agenda Item F.5 Supplemental Attachment 4, April 2024

Community Groups	No Action	Alternative 2	Alternative 4
Recreational Fishery income impacts	104.2	162.5	0.0
Change in recreational fishery income impacts	*104.2*	+58.3	-104.2

Table 18 shows Alternative 2 resulting in a potential $162.5 million income increase relative to Alternative 4. Income impacts of recreational fishing under Alternative 4 management measures are negative relative to No Action. Complete closure of the groundfish fishery would have substantial adverse economic impacts to this area.

6. Conclusions

The California stock of quillback rockfish is overfished and requires a rebuilding plan. The goal of a rebuilding plan is to rebuild the stock in the shortest time possible taking into account the status and biology of the stock and the needs of fishing communities. This rebuilding plan analysis considers two rebuilding strategies, Alternative 2: the ABC rule, and Alternative 4: F = 0.

Under the ABC rule strategy (i.e., Alternative 2), the stock is expected to rebuild by 2060 (73.6 percent probability) and under the F = 0 strategy, the stock is expected to be rebuilt by 2045 (99.9 percent probability). The ABC rule allows for ACLs of 1.3 mt and 1.5 mt for 2025 and 2026, respectively, whereas the F = 0 strategy has a 0 ACL until the stock is rebuilt. Under the F = 0 strategy, ABCs would increase during the rebuilding period, but the ACLs remain at 0. The simple difference between the two strategies is Alternative 4 is predicated on zero fishing mortality of California quillback rockfish.

Management measures to support Alternative 2, the ABC rule, allow for minimal mortality in the groundfish fishery. The ACLs for this strategy could be interpreted as a *de minimis* strategy, in that no directed fishery could be prosecuted on this stock and the ACLs are likely to only support minor bycatch of California quillback rockfish. Management measures for Alternative 2 would allow for both recreational and commercial fishing; however, these fisheries would be managed with restrictions designed to avoid California quillback rockfish. In brief, these management measures would remove effort from areas and depths where California quillback rockfish have been historically caught off of California and move the fishery to depths where they are uncommon or rarely observed. The management measures to achieve Alternative 2 are primarily focused on recreational and commercial non-trawl fisheries. California quillback rockfish abundance increases in a northerly direction. Proposed management measures under Alternative 2 reflect the fishery's encounters of California quillback rockfish in accordance to their range. In brief, the state is subject to two commercial management regimes, one that is north of 37° 07′ N. lat. and one that is south of 37° 07′ N. lat. and two recreational management regimes, one that is north of 36° N. lat. and one that is south of 36° N. lat. In the northern area, management measures are designed to restrict access through time/depth closures, sub-bag and trip limits of zero, and highly restrictive commercial fishery trip limits of other co-occurring stocks. The northern area is subject to higher restrictions through a more conservative approach to managing the fisheries, whereas in the southern area, fisheries are still managed through a series of time/area closures, a recreational sub-bag limit of zero, and commercial trip limits. However, as California quillback rockfish encounters are expected to be extremely rare in the southern area, a more liberal management approach is proposed.

Alternative 4 would require imposing more prohibitive and widespread closures on all directed groundfish fisheries, including trawl fisheries and southern non-trawl fisheries which would not be restricted under Alternative 2. The extent of depth and gear restrictions off of California necessary to achieve zero mortality of quillback rockfish are unknown at this time, noting that some vessels generally operate much deeper than areas considered "nearshore" where California quillback rockfish preside.

The Council would likely be required to close the entire groundfish fishery off of California under Alternative 4 to achieve zero mortality in directed groundfish fisheries; however, zero mortality across all West Coast fisheries is likely unachievable, as mortality has occurred incidentally in non-groundfish fisheries (e.g., Pacific halibut). Non-groundfish fisheries are not subject to this rebuilding plan. It is unrealistic to expect zero mortality from fisheries not subject to the rebuilding plan and any mortality would violate the assumption in the rebuilding plan of no fishing mortality under F = 0.

Fishery diversity increases from north to south in California. Port communities in the northern portion of the state (i.e., N of 36° N. lat. could potentially be able to fish Dungeness crab and salmon when opportunities to fish groundfish is limited; however, in recent years, these fisheries have not been consistent due to a multitude of issues (e.g., abundance, whale entanglement, etc.) and are not year-round fisheries. Port communities in the southern portion of the state (i.e., S of 36° N. lat.) of the areas affected by the California quillback rockfish closures , where fishery diversity is higher, would have increased opportunity to target state-managed non-groundfish fisheries, lobster, and some HMS stocks. However, the extent to which these fisheries could replace groundfish is uncertain, as they too are seasonal, whereas groundfish previously provided the bridge between other high value non-groundfish target stocks.

Alternative 4 would likely result in complete economic failure for those businesses heavily integrated and/or businesses primarily dependent on groundfish in California ports. While there is potential for some ports to support non-groundfish fisheries, the benefits could be limited as groundfish generally provides stability to these ports. Other non-groundfish fisheries which have historically provided positive economic benefits (e.g., Dungeness crab, salmon, etc.) are becoming unstable foundations for ports due to such factors as lack of certainty regarding season structure, abundances, and regulator changes. a

Alternative 2 management measures offer more management flexibility and the ability to adapt to new information while being more surgical with openings and gear allowances than Alternative 4 management measures. As noted, Alternative 2 management measures are restrictive for half of the state and do not include trawl fishery restrictions; however, some groundfish and alternative non-groundfish opportunities will allow for some stability to the fishery overall. Alternative 4 would decrease fishery stability in the entire state, noting that the alternative stocks available do not provide the same benefits across the state. Ports north of 36 N. lat. are less flexible in reacting to groundfish closures due to the lack of fishery diversity. These ports are highly focused on groundfish and target salmon and crab based on their intermittent availability. Ports south of 36 N. lat. are more flexible to groundfish closures as there is more diversity in fisheries; however, groundfish in this area provides a consistent source of positive benefits to communities. Availability of non-groundfish stocks can be intermittent (e.g., salmon, crab) or unavailable to large portions of the state, e.g., kelp bass, white seabass, salmon, crab, etc.

Commercial non-trawl management measures under Alternative 2 are only proposed from 42° to 37° 07’ N. lat. whereas management measures for the recreational sector are proposed from 42° to 36° N. lat. Under Alternative 2 management measures, the economic benefits from the groundfish fishery in areas closed to protect California quillback rockfish will be reduced relative to historical benefits. The net result in this area from Alternative 2 is likely to have increased negative impacts to fishing communities relative to past benefits and the commercial management structure.

Economic impacts for southern fishing communities are not expected to incur the same level of negative impacts to more northern communities where California quillback rockfish are more common. Other than the prohibition of California quillback rockfish the management measures for this area are not expected to change from status quo, thus allowing the groundfish fishery to largely continue as it has in the past. While the social and economic impacts are likely to produce fewer benefits overall to fishing communities in the north, the management measures allow for fishing to occur at select depths and times during the year, which will provide some relief to communities.

Alternative 4 would impose large burdens on the economy and devastate coastal communities of California which may never return to groundfish once the stock is rebuilt. As has been noted, groundfish supports most California ports, or at least significantly contributes to these communities. Alterative 4 would likely close all groundfish effort off of California. Some communities may be able to replace groundfish, but likely not to the same level of benefits provided from the financial security from the groundfish fishery to port communities. Other industries may replace fishing in communities; however, it is unclear if and when this would occur.

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Literature Cited

Abbott, Joshua K., Bryan Leonard, and Brian Garber-Yonts. "The distributional outcomes of rights-based management in fisheries." *Proceedings of the National Academy of Sciences* 119.2 (2022): e2109154119.

Breslow, S.H., Levin, D., Norman, P., Poe, K., Thomson, M., Barnea, C., Dalton, R., Dolsak, P., Greene, N., Hoelting, C. and Kasperski, K., 2014. Human dimensions of the CCIEA: a summary of concepts, methods, indicators, and assessments. Washington Sea Grant Program. WASHU-T-14-005. 37 p.

Clay, P.M. and Olson, J., 2008. Defining" fishing communities": vulnerability and the Magnuson-Stevens fishery conservation and management act. *Human Ecology Review*, pp.143-160.

Cope, J.M., DeVore, J., Dick, E.J., Ames, K., Budrick, J., Erickson, D.L., Grebel, J., Hanshew, G., Jones, R., Mattes, L., Niles, C., and Williams, S. 2011. An Approach to Defining Stock Complexes for U.S. West Coast Groundfishes Using Vulnerabilities and Ecological Distributions. North American Journal of Fisheries Management 31(4): 589–604.

Dick, E.J., and MacCall, A.D. 2010. Estimates of sustainable yield for 50 data-poor stocks in the pacific coast groundfish fishery management plot. NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-460. 208 p.

Fuller, E.C., J.F. Samhouri, J.S. Stoll, S.A. Levin, J.R. Watson. 2017. Characterizing fisheries connectivity in marine social–ecological systems. ICES Journal of Marine Science 74(8):2087-2096.

Holland DS, Abbott JK, Norman KE. 2020. Fishing to live or living to fish: Job satisfaction and identity of west coast fishermen. Ambio. Feb;49(2):628-639. doi: 10.1007/s13280-019-01206-w. Epub 2019 Jun 3. PMID: 31161600; PMCID: PMC6965537.

Langseth, B.J. 2023. DRAFT 2023 Rebuilding analysis for quillback rockfish (*Sebastes maliger*) in U.S. waters off the coast of California based on the 2021 stock assessment. Pacific Fishery Management Council, Portland, Oregon. 45 p.

Langseth, B.J., C.R. Wetzel, J.M. Cope, J.E. Budrick. 2021. Status of quillback rockfish (*Sebastes maliger*) in U.S. waters off the coast of California in 2021 using catch and length data. Pacific Fisheries Management Council, Portland, Oregon. 127 p.

Jepson, M. and Colburn, L.L., 2013. Development of social indicators of fishing community vulnerability and resilience in the US Southeast and Northeast regions. NOAA Tech. Memo. NMFS-F/SPO 129. 72 p.

Love, M.S., Yoklavich, M., and Thorsteinson, L. 2002. The rockfishes of the northeast pacific. University of California Press, Berkley; Los Angeles, California.

Mangel, M., Brodziak, J. and G. DiNardo. 2010. Reproductive ecology and scientific inference of steepness: a fundamental metric of population dynamics and strategic fisheries management. Fish and Fisheries 11: 89-104.

National Marine Fisheries Service (NMFS). 2024. Fisheries Economics of the United States, 2022. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-248, 28 p.

Oleson, K.L., Barnes, M., Brander, L.M., Oliver, T.A., Van Beek, I., Zafindrasilivonona, B. and Van Beukering, P., 2015. Cultural bequest values for ecosystem service flows among indigenous fishers: A discrete choice experiment validated with mixed methods. *Ecological Economics*, *114*, pp.104-116.

Pielou, E.C. 1977. Mathematical Ecology. John Wiley & Sons, New York, 385 pp.

Plummer, M.L., W. Morrison, and E. Steiner. 2012. Allocation of fishery harvests under the Magnuson-Stevens Fishery Conservation and Management Act: Principles and practice. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-115, 84 p.

Sen, A.R., 1984. Sampling commercial rockfish landings in California. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-SWFSC-45, 95 p.

Somers, K. A., K. E. Richerson, V. J. Tuttle, and J. T. McVeigh. 2023a. Estimated Discard and Catch of Groundfish Species in the 2021 U.S. West Coast Fisheries. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-182.

Somers, K. A., K. E. Richerson, V. J. Tuttle, and J. T. McVeigh. 2023b. Fisheries Observation Science Program Coverage Rates, 2002–22. U.S. Department of Commerce, NOAA Data Report NMFS-NWFSC-DR-2023-01. 11 p.

Restrepo, V., 1998. Technical guidance on the use of precautionary approaches to implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Technical Memorandum NMFS–F/SPO–31 . 56p.

Richmond, L. and L. Casali. 2022. The role of social capital in fishing community sustainability: Spiraling down and up in a rural California port. *Marine Policy*, v.137

Pomeroy, C., Thomson, C.J. and Stevens, M.M., 2011. California's North Coast fishing communities historical perspective and recent trends. url: https://escholarship.org/content/qt243633jk/qt243633jk.pdf

Yamanaka, K.L. and Lacko, L.C., 2001. Inshore rockfish (Sebastes ruberrimus, S. maliger, S. caurinus, S. melanops, S. nigrocinctus, and S. nebulosus): stock assessment for the west coast of Canada and recommendations for management. Canadian Science Advisory Secretariat.

Young, M.A., Foale, S. and Bellwood, D.R., 2016. Why do fishers fish? A cross-cultural examination of the motivations for fishing. *Marine Policy*, *66*, pp.114-123.

Appendix C: Catch Projection Model Details

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1. Non-Nearshore Model

The non-nearshore model projects bycatch impacts for limited entry and open access fixed gear vessels that are fishing seaward of the non-trawl Rockfish Conservation Area (NT_RCA). The main focus is on bycatch of yelloweye rockfish. This model was reviewed by the Pacific Fishery Management Council's (PMFC) Scientific and Statistical Committee (SSC) in 2013 and endorsed as "best available science and appropriate for use in the 2015-16 specifications process." (Agenda Item F.7.b, Supplemental SSC Report, June 2013) West Coast Groundfish Observer Program (WCGOP) observations on discards and landed catch 2002-21 provide the primary data input for estimating bycatch with Pacific Fishery Information Network (PacFIN) fish ticket data also providing information on the distribution of catch among gear types. Data from 2021 were the most recent data available at the time of the analysis. The core structure of the projection model has not been changed from 2019-20 biennial process.

Sablefish is the primary target for vessels fishing in these sectors. The sablefish (*Anoploploma fimbria*) annual catch limit (ACL) north of 36° N lat. is apportioned according to the formal intersector allocations shown in Figure 1-1. The formal intersector allocations of sablefish north of 36° N lat. Management measures are intended to keep the total mortality—i.e., discard mortality and landings—within the allocation for each sector (Figure 1). Because of the economic importance of sablefish, the bycatch impact analysis assumes that the annual sablefish allocation will be fully attained by the fixed gear fleets seaward of the NT_RCA. WCGOP bycatch observations are therefore expressed as a ratio to the expected landings of sablefish.

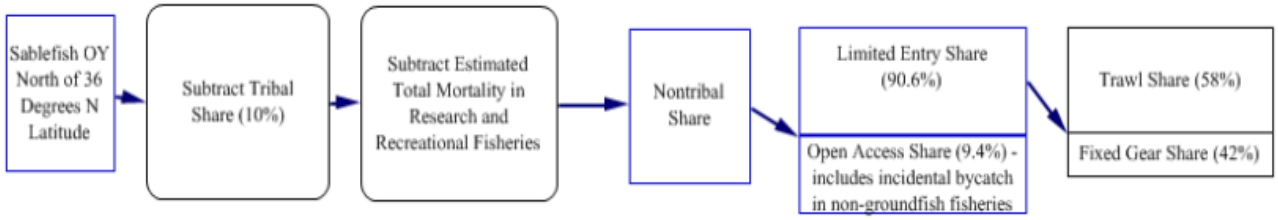

Figure 1. The formal intersector allocations of sablefish north of 36° N lat

The model continues to combine data from the fixed gear sablefish fishery north of 40° 10' N lat. and 40°10' to 36° N. lat. from the years 2002-21. Data from each year is weighted equally. There are tradeoffs with data accuracy and precision involved with stratifying observations to finer levels across attributes (i.e., time, area, depth, and gear type). Aggregating data across years allows reporting of retained and discarded catch of groundfish species by gear type at a finer latitudinal and depth scale than would otherwise be possible. Differences in the encounter rate of yelloweye rockfish (and previously canary rockfish) between depths and areas are the major focus of the model and so these stratifications have taken priority. The data is stratified by gear because of the differences in the rate of encounter between pot and longline gear types.

Data summarizing observed retained and discarded catch from fishing efforts north of 40° 10' N lat. are stratified across three alternative depth ranges that are used to evaluate the potential impact of extending the seaward boundary of the NT_RCA on bycatch levels. As described in the Agenda Item F.6, Attachment 2, June 2022, the seaward NT_RCA boundary is the key bycatch

management measures in these non-nearshore sectors. Although the range of depths recorded for an individual fixed gear set by observers is commonly much smaller than for observed trawl tows, there is some uncertainty in the assignment of catch and discard from many sets to a specific 25 fm interval. For this exercise, the average of the beginning and ending depths of each set was used to represent the depth at which all fish on the set were caught.

The area stratification used in this model was developed first for use in the 2009-10 biennial management cycle. This stratification was arrived at through consideration of canary rockfish and yelloweye rockfish bycatch north of 40° 10' N lat. by depth and area and provides the Council with the option of employing differential seaward RCA boundaries within these areas. Four subareas were identified bounded by: 1) Cape Mendocino 40°10' N lat. to the boundary of the northern Eureka International North Pacific Fishery Commission (INPFC) statistical area at 43°30' N lat.; 2) Northern Eureka INPFC boundary to Cascade Head at 45°03' N lat.); 3) Cascade Head to Point Chehalis (46°54' N lat.), and 4) Point Chehalis to the U.S.-Canada border (49° N. lat.). Several alternative boundaries were evaluated. Analysts determined that the four listed above provided the greatest contrast and reliability between areas of high and low yelloweye rockfish bycatch. Since rockfish bycatch in the pot gear fleet is small and there are limited numbers of pot gear observations in some areas, results for this group are summarized with respect to depth only (without subareas). Note at the beginning of the 2017-18 biennium, the seaward boundary of the NT_RCA was moved from 150 fm to 125 fm in the area between 34°27′ N lat. and 40°10′ N lat..

To produce estimates of catch by area, the model must assume a distribution of sablefish catch north of 40°10' N. lat. and in the area between 40°10' N lat. and 36° N. lat.by gear types (longline vs pot) for both the open access and limited entry sectors. The assumed distribution is based on fish ticket landings for the years 2002-21. The 2002-21 average of WCGOP observed landings are then used to project the distribution of the longline catch north of 40°10' N lat. among the four management subareas. The model then applies WCGOP observed discard rates to these projected catch distributions using the appropriate area, depth, and gear stratification to produce annual estimates of discard for the rebuilding rockfish (e.g., yellowtail rockfish) encountered by the non-nearshore fixed gear sectors. Discard rates were calculated by dividing the total observed discard weight for each species by the weight of retained sablefish. Data is available for all species encountered in the non-nearshore sectors; yet focuses on yelloweye rockfish and the potential need to adjust the seaward boundary of the NT_RCA to lower their catch. The total mortality of other groundfish species discarded and landed by these sectors is reviewed and accounted for annually and will be addressed if catch reaches levels where a sector allocation or other catch limit is at risk of being exceeded. If necessary, the structure and data in this model could be used to project bycatch of species for which discard becomes a concern in the non-nearshore sectors.

1.1 Sablefish Daily Trip Limit Model Description

The models used to project sablefish landings by the Limited Entry Fixed Gear (LEFG) and Open Access (OA) Daily Trip Limit (DTL) sectors north and south of 36° N. lat. are multiple linear regression models that use trip limits and or expected inflation-adjusted sablefish price per pound to predict bimonthly landings, separately for each sector. They are also used for inseason management. Detailed descriptions of the models can be found in Appendix A of the 2011-2012 harvest specifications EIS. The models were originally produced by members of the GMT, Oregon Department of Fish and Wildlife (ODFW), National Oceanic and Atmospheric Administration (NOAA) Southwest Fisheries Science Center (SWFSC), and Northwest Fisheries Science Center (NWFSC) in 2006 (LEFG) and 2009 (OA).

Changes in model specification are made as needed over time to increase accuracy of projections where possible. The LEFG and OA models north of 36° N. lat. were reviewed and updated in 2023 as part of an SSC methodology review.[60] Changes since the 2017-18 harvest specifications include: new landings data through 2023 were added to all four models, period-specific fixed effects were used in place of the former method which created separate linear regressions for each period, data weighting was removed, the period 4 adjuster variable was removed, and fixed effects from the COVID-19 pandemic (2020-2021) were added. The time range of data included in each model varies from 2007-2023, to 2012-2023, depending on its information content for making projections. Sablefish DTL Model Methodology Review Materials for May 9 SSC Subcommittee Workshop (May 2023)

Accuracy of prediction varies among the four models. Of the four, the best fit of predicted to actual bimonthly landings is produced by the model for the LEFG sector north of 36° N. lat. (LEN), with an in sample R^2 value of 0.8059. Using time-series cross-validation to evaluate out-of-sample prediction error, the LEN model results in an R2 of XXX and an RMSE of XXX. Using the most recent data, the worst fit between predicted and actual landings comes from the model for the OA sector north of 36° N. lat. (OAN), with an R^2 value of 0.3038. However, in spite of the relatively low model fit, landings in the OAN sector have been less than 23 percent of the landings target since 2017, and, therefore, there is little concern of exceeding the landing share. Prediction outputs and input variables for each of the DTL sectors are shown in Table . To predict total fleetwide landings for each sector, predicted landings per vessel is multiplied by the predicted number of vessels for each period, with the exception of LES for which fleetwide landings are predicted in a single model.

Table 1. **Prediction outputs and input variables for each of the sablefish DTL models.**

Sector	Prediction Output	Regression Inputs
LEN	Landings per vessel	Bimonthly trip limit + period-specific fixed effects + COVID-19 fixed effects
	# of vessels	Price (inflation adjusted) + period-specific fixed effects + COVID-19 fixed effects
OAN	Landings per vessel	Bimonthly trip limit + period-specific fixed effects + COVID-19 fixed effects
	# of vessels	Price (inflation adjusted) + period-specific fixed effects + COVID-19 fixed effects
LES	Total fleet-wide landings	Weekly trip limit + price (inflation adjusted)
OAS	Landings per vessel	Bimonthly trip limit + weekly trip limit
	# of vessels	Bimonthly trip limit + weekly trip limit

[60] Sablefish DTL Model Methodology Review Materials for May 9 SSC Subcommittee Workshop (May 2023)
Groundfish Management Team Report on Updates to the Sablefish Trip Limit Model (October 2023)
SSC's Economics and Groundfish Subcommittees Report on Sablefish Daily Trip Limit Model (October 2023)

1.2 Model Input Data

Landings and catch data were acquired from PacFIN Comprehensive FT database using the "GMT Sablefish Flags." This flag initially assigns vessel-daily landings data to each sector based on the fields described in Table 2.

All sablefish landings are required to be reported on electronic fish tickets. For the LEN sector, the software tracks landings accumulation by vessel against their sablefish endorsed tier permits. If the vessel has active sablefish endorsed primary tier permits attached, the season is open, and there is room on the attached permits, landings are counted as primary. When either the tier permits on the vessel are exhausted or the season ends, landings are then counted as DTL. The algorithm in the software adheres to the specific federal regulations concerning primary and DTL landings in 50 CFR 660.232. If a vessel is not landing against a tier permit but has a fixed gear endorsement (with or without a trawl endorsement), then it is landed in LE. If only a trawl endorsement is present, it is OA. To separate by area, all landings south of the INPFC Conception area (Mexico/US border to Point Conception) are counted against the limits south of 36° N. lat., while all other landings are considered north of 36° N. lat.

Table 2. PacFIN codes are used to assign vessel-daily landings and catch data to each sector.

Field	Value	Description
Council_Code	P	PFMC only
Is IFQ landing	F	No IFQ landings included
PacFIN Species Code	SABL	Sablefish Only
Round_weight_lbs	>0	Must have landed at least 1 pound of sablefish
Participation group code	C	Commercial tickets only
Removal type code	Not in "R" or "E"	Not research or EFP
PacFIN group gear code	Not in "TWL" or "TWS"	No trawl gear used

1.3 Accounting for Discards and Discard Mortality

The sablefish catch share for the LEFG sectors north of 36° N. lat. is divided amongst the primary sector and the DTL sector, the latter of which is reduced to account for discard mortality by multiplying the DTL catch share by 19 percent (observed discard rate estimate) and by 20 percent (discard mortality rate estimate), resulting in the LEN landings target. The same rates are applied to the OA DTL sector north of 36° N. lat. catch share. For the sectors south of 36° N. lat., the observed discard rate is 9 percent, and the same discard mortality rate is applied (20 percent). Landings should fall within the sector-specific landings targets in order to ensure that the total harvest guideline is not exceeded. The GMT compares model-projected landings to each sector's landings target to set appropriate trip limits. The estimated discard rate used by the GMT was calculated using the report "Estimated Discard and Catch of Groundfish Species in the 2020 US West Coast Fisheries" by Somers et al. (2021). The discard mortality rate estimate was taken from information in Davis (2001) and Shirripa and Colbert (2006). Shirripa (2008) used experimental data and sea surface temperature to predict varying release mortality by gear. The GMT considered that Davis (2001) demonstrated high sensitivity to temperature and deck time, and that Shirripa and Colbert (2006) demonstrated high variability of predicted discard mortality informed by sea

surface temperature data, and adopted an estimate of 20 percent. This value was also used in the 2021 update assessment (Kapur et al. 2021).

1.4 Nearshore Fisheries

The Nearshore fishery comprises small vessels operating off the coasts of Oregon and California operate under state limited entry programs but are also considered federal OA vessels as they harvest federally managed species. While the fishery predominately caters to the live fish markets as they receive much greater prices for live "plate-sized" fish, there is also a smaller secondary component that caters to the fillet markets. Federally managed species that comprise the fishery are nearshore rockfishes, lingcod, cabezon, California scorpionfish, and kelp greenling.

In terms of catch accounting, all landings for the nearshore fishery are recorded on fish tickets. However, discard mortality has to be estimated since less than 20 percent of total trips are observed each year. To estimate total discard mortality for both observed and unobserved trips, discards from the portion of observed trips are applied to the unobserved trips by the WCGOP. This same general approach is also used to project future discard mortality for the nearshore (described in greater detail below).

1.5 Methods for Projecting Nearshore Landings and Discard Mortality

Separate approaches are used to project future landings and discard mortality for the nearshore fisheries. Landings are projected using three different approaches: (1) full attainment of landings targets is assumed for high attainment stocks (e.g., Oregon black rockfish); (2) via trip limits models for stocks where changes are proposed (e.g., lingcod and canary rockfish); and (3) via trend analysis (including averages where trend is flat) for low attainment stocks of which regulations are similar to the past.

To project total economic value associated with nearshore landings, the total ex-vessel price (i.e., paid to the fishermen) associated with these landings is expanded to include the "multiplier" effects that these landings also generate to processors, fishery-related businesses (e.g., boat yards), and coastal communities in general. In short, the value generated by fishing extends far beyond just the price paid to fishermen. These secondary effects of additional value as fish sale proceeds trickle throughout coastal communities are generated using the IO-PAC model (not just for the nearshore fishery, but for all fisheries).

Future discard mortality projections are produced by the nearshore model, which was designed to directly mimic the procedures used by WCGOP to estimate post-season "actual" catch. This mimicry is important since the WCGOP estimates are the official mortality source used in the management of the nearshore fishery. Mismatches would compromise the ability of the model to reliably produce projections to meet management objectives.

The GMT concluded that the main source of inaccuracy with the nearshore model has been very high volatility in annual bycatch rates that are used by WCGOP for estimates of catch. Since the annual bycatch rates fluctuate by a large degree from year to year and cannot be accurately predicted at this time, this means that the bycatch rate inputs from the nearshore model that are based on averages will oftentimes differ from the annual bycatch rates (and sometimes by large degrees).

The main issue with the nearshore model has therefore been an overreliance in the accuracy of the point estimate projections. Until the annual bycatch rates can be better predicted, the nearshore model projections should be only viewed as "ball-park" estimates. The GMT has developed a preliminary bootstrap model to project the uncertainty associated with future nearshore projections, but more work needs to be done until it can be used for management purposes.

In regards to methodology, the nearshore model uses a multi-species bycatch rate approach that is depth- and area-specific (described in detail in 2009-10 FEIS). A walk-through of how the model works is provided in Table 2.

Table 3.. Estimation process and data sources used in the nearshore model to project discard mortality of overfished rockfish.

	STEP 1:				STEP 2:	STEP 3:				STEP 4:				STEP 5:				STEP 6:				STEP 7:			
	Bycatch rates by depth from WCGOP observed trips				Users enters projected Landings of targets	Depth of Landings provided by WCGOP				Landings of each species split by depth = Step 2 x Step 3. Then summed (black shading)				Discarded mt computed = Bycatch rates (Step 1) by depth applied to sum of landings by depth				Discard mortality rates applied to discarded mt (from step 5)				Discarded mortality by depth = Step 5 x Step 6. Sum is the total mortality			
	Depth bin (fathoms)					Depth bin (fathoms)				Depth bin (fathoms)				Depth bin (fathoms)				Depth bin (fathoms)				Depth bin (fathoms)			
	0-10	11-20	21-30	30+		0-10	11-20	21-30	30+	0-10	11-20	21-30	30+	0-10	11-20	21-30	30+	0-10	11-20	21-30	30+	0-10	11-20	21-30	30+
Bycatch stock																									
Yelloweye Rockfish	0.003	0.012	0.043	0.003	0.000	53.6%	46.4%	0.0%	0.0%					0.318	1.533	0.196	0.005	28%	45%	67%	100%	0.089	0.690	0.131	0.005
Target stocks																									
Black Rockfish					120.000	47.1%	51.0%	1.4%	0.5%	56.53	61.16	1.69	0.62												
Cabezon					23.385	40.6%	55.9%	3.2%	0.2%	9.51	13.08	0.75	0.05												
Lingcod					65.000	37.5%	59.5%	2.1%	0.9%	24.40	38.65	1.34	0.61												
Black and Yellow Rockfish					0.017	0.0%	42.9%	57.1%	0.0%	0.00	0.01	0.01	0.00												
Blue/Deacon Rockfish					7.458	26.3%	70.6%	2.6%	0.6%	1.96	5.26	0.19	0.04												
Brown Rockfish					0.017	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00												
China Rockfish					6.498	30.5%	65.1%	3.7%	0.7%	1.98	4.23	0.24	0.04												
Copper Rockfish					1.007	38.1%	58.7%	3.2%	0.0%	0.38	0.59	0.03	0.00												
Gopher Rockfish					0.045	78.2%	21.8%	0.0%	0.0%	0.04	0.01	0.00	0.00												
Grass Rockfish					0.222	100.0%	0.0%	0.0%	0.0%	0.22	0.00	0.00	0.00												
Nearshore Rockfish Unid					0.000	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00												
Olive Rockfish					0.000	57.1%	42.9%	0.0%	0.0%	0.00	0.00	0.00	0.00												
Quillback Rockfish					1.307	17.1%	70.2%	11.8%	1.0%	0.22	0.92	0.15	0.01												
Greenling Unid					0.000	29.6%	70.4%	0.0%	0.0%	0.00	0.00	0.00	0.00												
Kelp Greenling (Oregon)					18.144	49.7%	49.2%	1.0%	0.2%	9.01	8.92	0.18	0.03												
Painted Greenling					0.000	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00												
						Total landings by depth =				104.3	132.8	4.6	1.4												

TOTAL MORTALITY = 0.915 MT

2. Individual Fishing Quota Projection Model: Summary of the 2023-2024 Model

2.1 Introduction: Summary of the 2025-26 model

The role of this model is to produce two outputs for use in the biennial groundfish harvest specifications Analytical Document: 1) projections of total annual IFQ sector fishing mortality (hereafter referred to as "catch" or "total catch") of each species, under a suite of allocations, and 2) projections of annual vessel-level landings for input to the Commercial Fisheries Landings Distribution Model, followed by the Input-Output Model for Pacific Coast Fisheries (IO-PAC) for subsequent economic analysis, also within the harvest specifications Analytical Document. The model is not intended as an inseason management tool. The model projects catch of IFQ species categories only; species managed with trip limits are not included.

Catch projections are produced using a combination of three methods among the thirty different IFQ species categories (hereafter as "species") included in the fishery, based on a combination of a) attainment of vessel quota, and b) average annual vessel catch; or c) a bycatch option for non-target species. The fishery is stratified into two fleets with separate sets of predictions, based on the proportion of Pacific whiting caught on each trip. Corresponding uncertainty estimates are produced as bootstrapped 95 percent prediction intervals. The model is written in R. See Matson et al. 2017 for a full description of all but the bycatch module. The bycatch module was adapted to the Matson et al. 2017 model for the 2019-2020 harvest specifications cycle. An early version of the model (Matson and Taylor, 2012) was used in the 2013-14 harvest specifications (https://www.pcouncil.org/wp-content/uploads/September_2012_AppendixA_13-14_FEIS_SPEX.pdf).

Projections of the range of alternative allocations recommended by the Council and provided by the GMT were originally analyzed in early January, 2024. A second set of allocations, with substantially expanded ranges for canary rockfish, was analyzed at Council request, in February, 2024. And a final, third set of allocations was analyzed after recommendation by the Council, following the April, 2024 meeting. The last set of allocations differed from the February allocations by small amounts across several species categories, including widow, yellowtail, and yelloweye rockfish; as well as shortspine thornyheads, starry flounder, and petrale sole.

2.2 Methods

The model projects catch of each target species by individual vessel in the fleet using a combination of two methods; the first is based on weighted mean vessel attainment of annual quota pounds, and the other, on weighted mean of annual vessel catch. The model's choice between the two target catch projection methods at the vessel-species level is mediated by a vector of parameter values, one for each species, which are determined through an optimization process using residuals from hindcasts of a year with known final catch estimates, in this case 2023. Predictions of catch

for each species within a fleet are produced by aggregating the vessel level predictions to the fleet level, then summing the two fleet projections (whiting and non-whiting).

Inputs to the model include catch data at the fishing trip level for each vessel (with separate landings and discard estimates for each species), IFQ quota pounds (QP) data for each vessel, annual fishery allocation data, and proposed fishery allocations ("alternatives") under which catch is to be predicted. Each alternative consists of a set of proposed values for future allocations of quota pounds to the fishery, with a single fishery level value for each species. Fishery-level quota pounds from the alternative are then distributed among vessels, according to the fleet allocation distribution in the most recent year.

The bycatch method employed here predicts catch of each designated bycatch species, using weighted average, annual, vessel-specific bycatch rates, according to ratios of each bycatch species to aggregate target catch, in shelf or slope species groups. Each of the 30 species categories is designated as "target" or "bycatch" and "shelf" or "slope" in the model input files. Those estimated bycatch rates are then used to project mortality of bycatch species, according to the predicted catch amounts for appropriate target species. Uncertainty is estimated in the same way for bycatch as target species, using bootstrap-simulated distributions.

Weighted average annual vessel and species-specific retention rates were used to convert predicted total catch to predicted landings.

Projections for the whiting sector were constrained to 2023 levels, since the Pacific whiting allocation was fixed at the 2023 level among all alternatives (as a placeholder), and the overall purpose of the analysis was not to predict whiting catch, which is an internationally managed species, with a separate process. All other species in the whiting sector were modeled as bycatch fixed at 2023 bycatch rates. Although fixed, making the whiting sector projections using the model allowed distribution of the catch among vessels combined with the non-whiting sector projections, for use in downstream economic analysis.

These projections reflect data that includes surplus carryover trends for 2018-2023. Under the current No Action alternative for sablefish, and most other IFQ species categories, the sum of the northern and southern ACLs is set equal to the ABC. If this is the case for the Final Preferred Alterative, then no surplus carryover is allowed under the law. The court ruling Conservation Law Foundation v. Pritzker, No. 13-00821 (D.D.C. Apr. 4, 2014), stated that under the plain language of 302(h)(6) of the MSA, 16 U.S.C. § 1852(h)(6), neither the Council nor NMFS may establish a total potential catch level that exceeds the ABCs recommended by the SSC. This total potential catch level includes surplus carryover..

2.3 Recent IFQ model retrospective analysis

Projected catch in metric tons for each IFQ species, among the different suites of alternative allocations, is shown at the fleet level in Table 2. Predicted attainment levels are shown in Table 3. Example plots of point projections with accompanying 95% prediction intervals (depicted as proportion of each respective allocation) by species and sector, at the fleet level are shown in Figure 1.

For Arrowtooth flounder, the alternatives ranged between 43 to 55 percent of the 2023 levels, for this low-attainment species (5 percent in 2023, and an average of 8 percent since 2018, over the reference years for the model), which has shown a decreasing catch trend since 2011. A decrease in allocation of this scale is not projected to have a substantial impact on catch. Catch has not generally been responsive to allocation levels for Arrowtooth flounder since 2011. Projected catch over the range of the alternatives fell within 96 to 100 percent of No Action levels.

Canary rockfish

The range of Canary rockfish alternative allocation levels analyzed here (in February, 2024) for 2025-2026 was between 32 and 41 percent of 2023 levels. Model-based projections suggest that allocations at the "Low" level of each alternative in each year, between 268 and 269 mt, could prove challenging for the fishery. Projected attainment for the "Low" allocation level for each alternative and year presented in Table 1 is between 95 and 96 percent (Table 3), corresponding to predicted catch of between 256 to 256.5 mt (Table 2).

However, these results are more encouraging than those from preliminary (January, 2024) low-end alternative allocations, analyzed while developing the range, whose corresponding projections indicated likely over-attainment by the fishery. The current low-end allocation levels (Table 1) are approximately 38 mt higher; previous values were between 230 and 230.5 mt, and corresponded to just 27 percent of 2023 levels. Model-based projections indicated that allocation levels that low were likely to be problematic; projected attainment was between 103.6 and 103.7 percent, corresponding to predicted catch of between 238.4 to 238.7 mt. Over-attainment of Canary rockfish at that level is not unprecedented, and has occurred before in the IFQ fishery, during 2015.

At the same time, under the "High" allocation levels, predicted attainment is less than 84 percent, with projected catch of between approximately 291.1 and 291.5 mt. Additionally, the way the shorebased whiting fleet is treated in the model, as part of the total IFQ fishery model projections also becomes important at these very low potential allocation levels. Because we have no way to know what the whiting TAC level will be going forward, the shorebased whiting fleet portion of the projections for all species is held constant across all alternatives, at 2023 levels, and in this case makes up nearly half of the total IFQ prediction for the current "Low" level within each alternative (120 mt, which is slightly lower than the actual whiting fleet catch in 2023, of 127 mt). Although Canary rockfish is bycatch for the whiting fleet, it is possible, or even likely that if faced with very low allocation levels, rather than the much higher 2023 levels; that bycatch of Canary could also be much lower by the IFQ whiting fleet, although this situation is difficult to model under the current configuration. Because of this, the Canary rockfish projection could be high biased in a way that becomes important at the scale of the "Low" alternative allocation levels. This factor is worth considering for decision making.

Canary rockfish in 2023 showed an attainment of approximately 60 percent, and an average of 48 percent since 2018, since the stock has been rebuilt. However, during times of constraint, when the allocation was very low during rebuilding in 2015, attainment did reach 103.6%; (Figure 2), suggesting that fishers went into deficit. In conclusion, the allocation levels being contemplated at the low end of the range for Canary rockfish deserve careful consideration, as these projections suggest that they could produce marked fishery constraint.

The range of Chilipepper rockfish allocations being considered ranges between 125 and 134 percent of 2023 levels. Projections are for similar attainment levels as 2023, of the somewhat higher allocations, at approximately 61 percent of the allocation, and projected catch between 1,191 and 1,268 mt. There has been a trend of increasing catch over the model reference period since 2018, despite decreasing allocations.

Proposed allocations for Other flatfish range between 140 and 169 percent of 2023 levels, from approximately 5,807 to 6,987 mt. Catch and allocations have been trending downward in recent years for this low-attainment species, but attainment has varied little since 2018, with a mean of 8.9 percent. Projected catch varies little among alternatives, and is between approximately 337 and 340 mt, with projected attainment between 5 and 6 percent of the much higher potential allocations.

Petrale sole has consistently been a very highly attained species, with mean attainment since 2018 at 91.2 percent, despite a sizable drop experienced during the pandemic. Attainment in 2023 was 92.6 percent. The range of potential allocations analyzed was between just 59 and 63 percent of 2023 levels, or between approximately 1,810 and 1,941 mt, rather than 3,064 in 2023. Model predictions are mainly attainment-based for this species, with catch demonstrating a consistent dependence upon allocation, with an R-square value of 0.92 since 2011, 0.64 since 2018, and high attainment levels. The predicted attainment level across the alternatives is 92.6 percent, and projected catch ranges between 1,675 and 1,796 mt.

Sablefish

Sablefish shows by far the greatest degree of change in proposed allocation levels versus No Action for this biennium, with increases to the IFQ allocation for northern and southern areas, of nearly 3 ½ times the 2023 levels (between 339 and 345 percent). Catch and attainment in the North and South have historically shown vastly different patterns in IFQ, with consistently high attainment in the North, and the opposite case in the South. Sablefish North of 36° N. attainment stayed between 90 and 100 percent (and sometimes above) from 2011-2019. Catch and attainment then fell dramatically during the pandemic, to 69 percent in 2020, rose a bit to 73 percent in 2021, and by 2022 made a recovery to 98 percent, along with the highest catch ever, over the history of the IFQ fishery (Figure 3). However, in 2023, when the northern sablefish allocation rose dramatically, to its highest level ever during IFQ management, instead of following the allocation, catch instead fell off somewhat, and attainment dropped again to 69 percent. The approximately 30 percent increase in allocation from 2022 to 2023 was apparently more than the fishery could effectively make use of at that time. This departure from the previously strong attainment trend could be due to a combination of factors. Sablefish prices were low in 2023, perhaps due to a combination of a small size distribution (sablefish pricing is size-dependent) as well as market conditions, and the outlook for prices in 2024 has thus far not been encouraging. Between 2022 and 2023, sablefish prices dropped 16 percent for bottom trawl, where the bulk of IFQ sablefish is caught. Non-trawl IFQ sablefish saw a much more dramatic drop in price during 2023, to just 56 percent of 2022 levels. According to media reports, Alaskan fisheries have also been struggling to make use of their higher sablefish quotas, and there have apparently been calls for restraint among some commercial fishers, due to concern of flooding the market and further driving down prices.

Potential allocations of Sablefish North of 36° N. range between 13,091 and 13,420 mt, versus 3,894 mt in 2023. Projected resulting catch is between 8,076 and 8,268 mt, which is 300 and 303

percent of 2023 levels, respectively. Projected attainment varies little, between 61.6 and 61.7 percent (with prediction intervals between approximately 40 and 80 percent attainment), lower than 2023 attainment levels of approximately 69 percent. Although 61-62 percent would be the lowest sablefish attainment rate in IFQ fishery history, the projected increase of catch, in and of itself still appears rather enormous.

Recent context, including apparent price/market conditions, together with the recent lack of response to the 30 percent allocation increase from 2022 to 2023, create intuitive skepticism about whether, or when this projected vast increase in catch may be realized. However, the projections are for years 2025 and 2026; sablefish prices and other market factors can vary considerably both among and even within year, so while there is uncertainty, conditions could conceivably change in coming years.

The model projection is informed by weighted annual catch and attainment patterns over the recent history of the fishery (2018-2023). Although the informativeness is heavily weighted to the most recent year, when a shift in attainment patterns occurred, and is also informed by the relatively poor attainment year of 2020, as well as 2021, the out-of-reference problem seen here, in which the conditions for which we are trying to forecast within, do not occur within the data used to inform the model. The allocations for which we are trying to project catch are more than 3 times the size of the largest allocation in the history of the IFQ fishery. This is a common, and exceedingly difficult problem to reconcile for forecasting in general; and this general type of problem has occurred in the West Coast Groundfish Fishery before, when a stock has begun management under a rebuilding plan and harvest levels dropped outside the range of available data, or when a stock has rebuilt, and harvest levels increased out of that range.

Additionally, the model is not informed about future prices for instance, and we don't have forecasted sablefish price information, or forecast exchange rate for the Japanese Yen, which is a strong predictor of sablefish landings in general, particularly in fixed gear fishery sectors.

There is additional uncertainty about potential changes in catch for species that co-occur with sablefish, particularly within the Dover-Thornyhead-Sablefish (DTS) complex. This was investigated through examining between-species correlations among DTS species, at the IFQ fishery, fleet (a.k.a. sub-sector), and vessel levels. At the fishery level, sablefish catch did not show significant correlation with other IFQ species categories within the same management area, and the DTS complex, over the years used to inform the projection model (2018-2023); nor the entire time series of the IFQ fishery (2011-2023; Table 4, Figure 4), although Dover sole catch showed strong correlation with both Longspine and Shortspine thornyheads. Results are presented at the fishery level, for years 2018-2023, which were used to inform the projection model (Table 4, Figure 4).

The lack of significant correlation between sablefish and other DTS species at the fishery level was not resolved by extending the time series through 2011, nor by stratifying the fishery further into smaller fleets (bottom trawl, whiting, mid-water rockfish, non-trawl). However, when more granular, vessel-level, annual catch data were examined, it revealed mixed results among vessels, along a continuum between no correlations, and significant correlations between catch of sablefish and one or more DTS species.

Taken together, the results suggest that at the high level, fishers appear to have some control over their catch composition among DTS species, given the lack of aggregate, fleet-level relationship, and broad range of variation among vessels along a continuum, in correlation strength and significance among species in the DTS complex. Results clearly vary among vessels, even within the same IFQ fleet or subsector, as well as among years. Spatial and temporal variation in vessel-specific fishing effort patterns, as well as specific target strategy likely affect DTS catch composition, but this would take more than the time available for this harvest specifications analysis to determine.

Conclusions for northern sablefish

The projected catch levels for northern sablefish are highly uncertain, given that the enormous scale of the modeled allocation levels have not been observed before in the IFQ fishery, recent market conditions and prices have been poor for sablefish, and future market conditions and currency exchange rates for export markets are unknown.

Given the lack of fishery or fleet-level (subsector) correlations between sablefish catch and that of other DTS species; if projected increases in sablefish catch occur, although some accompanying increases in other DTS species might occur (beyond projected levels) as a result, it appears unlikely that they would be of similar scale as sablefish itself, or that it would lead to substantial constraint or exceedance of allocations for co-occurring DTS species.

The mixed nature of DTS species catch correlations in different vessels show both a mechanism for the lack of significance at fleet and fishery levels, and contribute to the considerable uncertainty of this issue for future outcomes. Results suggest that many fishers have some control over their DTS catch composition, which is encouraging, in terms of navigating the uncharted territory of the large sablefish allocations proposed for 2025 and 2026.

Southern sablefish

Potential allocations of Sablefish South of 36° N. range between 3,288 and 3,288.6 mt, versus 970 mt in 2023. Projected resulting catch is between 293.7-293.8 mt, which is 312 percent of 2023 levels. Even with the more than threefold increase in projected catch, projected attainment would be just 8.9 percent, somewhat lower than the 2023 rate of 9.7 percent. Attainment rates of southern IFQ sablefish have been in this very low range since 2017-2018. The last time catch of southern IFQ sablefish was in the projected range was 2011-2012, which showed accompanying attainment rates of between 86 and 44 percent, respectively. Much like for northern sablefish, there is considerable uncertainty whether 2025 and 2026 catch will reach the projected levels, even with the very high allocation.

Catch, allocation, and attainment of Shortspine thornyheads North of 34°27' N. have all been on a declining trend in IFQ from 2011 forward. Alternative allocations of Shortspine thornyheads North of 34°27' N. for the next biennium are for between 27 and 38 percent of No Action 2023 levels of 310.1 and 436.2 mt, respectively. Although attainment of this species category in IFQ has been quite low, at a mean of 31 percent since 2018 (projection model reference years) and 24 percent in 2023, concern is that it could become a constraint, with higher or current catch levels of other DTS species. Although catch of IFQ sablefish hasn’t shown a significant correlation with shortspine thornyheads at the fishery or fleet level, it has shown a positive correlation in some

vessels, and catch of sablefish could increase dramatically in the coming biennium, if market conditions and prices are amenable. Also, catch of longspine thornyheads and Dover sole have shown high, positive, significant catch correlations with this species (Figure 4, Table 4), and their catch is projected to stay at 2023 levels or drop modestly, which is at odds with the decreases in allocation for northern shortspine thornyheads. As a result of the decreased allocation, shortspine thornyhead attainment North of 34°27' N. is projected to rise to between 45 and 53 percent of the alternative allocations, with projected catch between 165.2 and 198.1 mt, although this projected catch range would represent between 58 and 70 percent of 2023 catch levels.

Shortspine thornyheads South of 34°27' N. has had a static IFQ allocation of 50 mt since the beginning of the fishery in 2011, when IFQ catch of this species category was at its highest, of approximately 8.5 mt. Annual catch dropped from 2011 until it reached zero in 2017, where it has remained since. Since annual catch has been absent during the entire reference data period for the model (2018-2023), catch is not formally projected, but assumed to remain at zero.

Widow rockfish has transitioned into a mode of high attainment since 2017 when the allocation dramatically increased to more than 10,000 mt, and has shown a mean IFQ allocation level of 11,292 mt since 2018. Attainment has shown a mean rate of 91.4 percent since 2018, over the model reference data period, and was nearly 95 percent in 2023. The alternative allocations are set to drop to between 81 and 90 percent of 2023 levels, to between 9,297.7 and 10,342.7 mt in the next biennium. Projected attainment ranges between 95 and 96 percent of the allocation, with projected catch at between 82 and 90 percent of 2023 levels, at between 8,900.3 and 9,844.7 mt.

Catch of yelloweye rockfish in IFQ since 2018 has been low and variable between 0.13 to 0.81 mt, with a mean of 0.45 mt (CV = 48%) since 2018. Annual catch has been trending raggedly upwards over the model reference data period, since 2018, but dropped abruptly in 2023, from its highest IFQ level in 2022 at 0.81 mt, down to 0.45 mt. Alternative yelloweye rockfish allocations are proposed to slightly decrease to between 79 and 81 percent of 2023 levels, to between 3.5 and 3.6 mt. Corresponding catch of yelloweye is projected at between 76 and 80 percent of 2023 levels, approximately 0.3 to 0.4 mt, and an attainment rate of 10 percent of the allocation. Annual projections are well within the recent historical range, and slightly lower than the average.

Yellowtail rockfish has shown relatively steady high attainment since 2018, with a mean of 75 percent, and mean catch of 4,030 mt per year, and 2,861 mt in 2023. Alternative yellowtail rockfish allocations are proposed to slightly increase to between 107 and 114 percent of 2023 levels, to between 4,037.8 and 4,270.2 mt. Catch under the range of alternative allocations is projected to increase to between 105 and 109 percent of 2023 levels, to between 2,998.2 and 3,112 mt, and between 73 and 74 percent attainment..

2.4 Final allocations, projections and results

At the April, 2024 PFMC meeting, the Council recommended an updated, final range of allocations, which would encompass, and facilitate analysis of options across the full range of potential fishery allocations considered for the 2024-2025 biennium, including those chosen for the PPA and FPA. The final, comprehensive range of allocations analyzed is shown in Table 5, the corresponding model-based catch projections are shown in Table 6, and projected attainment values in Table 7.

Differences between the final, post-April allocations and the previous set, modeled in February, were between zero and trace amounts for most species categories and alternatives (Table 5). For the remaining species categories, the differences were small, between less than one and six percent; although for Shortspine thornyheads North of 34°27' N., allocation levels at the high end of both alternatives in 2026 increased by between 11 and 12 percent. Allocations for yelloweye rockfish dropped by between 0.2 mt across the alternatives (Table 5). The low end of the petrale sole range increased by between four and six percent. Changes to widow, yellowtail, and cowcod rockfish were all less than two percent.

Differences in projected catch (Table 6) from the final alternatives, versus the previous set analyzed were also minimal, and echoed the changes to alternatives. The predicted catch of Shortspine thornyheads North of 34°27' N. increased by five to 6 percent, in response to the 11 to 12 percent increased allocations. Projected catch of petrale sole was also between 3 and 6 percent higher under the April allocations, compared with the previous set, nearly mirroring the changes to allocations themselves, for this high-attainment, target species. Predicted bycatch of yelloweye rockfish remained very low, and changed between zero and 0.1 metric ton (between 0.029 and 0.055 mt), within rounding error for the resolution shown in the tables (Table 6), across the alternatives. Projected catch of yellowtail rockfish was between zero and 1.5 percent lower than under the previous set of alternatives.

Differences in projected attainment, between the final, post-April allocations and previous set of allocations analyzed in February (Table 7) were between zero and 0.5 percent different for the vast majority of species categories. The exception was Shortspine thornyheads North of 34°27' N., in which attainment was between 2.5 and 2.7 percent higher under the high-end of both alternatives in 2026..

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Table 1. Suites of analytical allocations (mt) used to "bookend" the range of projected (catch) impacts, in modeling predicted catch in the IFQ fishery, for 2025-2026, as well as 2023 (No Action) for comparison. See text for key to column headings**.**

	2023	2025 - ALT 1		2026 - ALT 1		2025 - ALT 2		2026 - ALT 2	
Species	**NO**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Arrowtooth flounder	15640.2	8543.1	8573.1	6675.4	6705.4	8543.1	8573.1	6675.4	6705.4
Bocaccio rockfish South	700.3	652.548	652.548	647.5	647.5	652.5	652.5	647.5	647.5
Canary rockfish	842.5	268	347.6	269	348.4	268	347.6	269	348.4
Chilipepper rockfish South	1563.8	2091	2091	1961.4	1961.4	2091	2091	1961.4	1961.4
Cowcod South	24.8	24.1	24.1	23.4	23.4	24.1	24.1	23.4	23.4
Darkblotched rockfish	646.8	543.3	616.9	522.4	596	543.3	616.9	522.4	596
Dover sole	45972.7	45985.1	45985.1	45985.1	45985.1	43537.9	43537.9	38819.3	38819.3
English sole	8320.6	8235.9	8235.9	8174.2	8174.2	8235.9	8235.9	8174.2	8174.2
Lingcod North of 40°10' N.	1829.3	1502.5	1502.5	1448.8	1448.8	1502.5	1502.5	1448.8	1448.8
Lingcod South of 40°10' N.	284.2	294.6	294.6	304.68	304.68	294.6	294.6	304.68	304.68
Longspine thornyhead	2129.2	1900.7	1900.7	1811.9	1811.9	1900.7	1900.7	1811.9	1811.9
Minor shelf rockfish North	694.7	763.1	763.1	755	755	763.1	763.1	755	755
Minor shelf rockfish South	163.0	175.4	175.4	175.2	175.2	175.4	175.4	175.2	175.2
Minor slope rockfish North	894.4	858.3	858.3	835.6	835.6	858.3	858.3	835.6	835.6
Minor slope rockfish South	417.1	424.6	424.6	422.7	422.7	424.6	424.6	422.7	422.7
Other flatfish	4142.1	6398.63	6463.63	5807.3	5872.3	6922.4	6987.4	6175.4	6240.4
Pacific cod	1039.3	1043.7	1043.7	1043.7	1043.7	1043.7	1043.7	1043.7	1043.7
Pacific halibut (IBQ) North	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2
Pacific ocean perch North	2956.1	2723.4	2723.4	2620.8	2620.8	2723.4	2723.4	2620.8	2620.8
Pacific whiting	178581.0	178581	178581	178581	178581	178581	178581	178581	178581
Petrale sole	3063.8	1925.5	1940.5	1809.5	1824.5	1925.5	1940.5	1809.5	1824.5
Sablefish North of 36° N.	3893.5	13091	13420	13091	13420	13091	13420	13091	13420
Sablefish South of 36° N.	970.0	3288.6	3288.6	3288	3288	3288.6	3288.6	3288	3288
Shortspine thornyheads	1146.7	310.1	360.1	311.8	361.8	380.5	430.5	386.2	436.2
Shortspine thornyheads	50.0	50	50	50	50	50	50	50	50
Splitnose rockfish South	1494.7	1419.2	1419.2	1382.2	1382.2	1419.2	1419.2	1382.2	1382.2
Starry flounder	171.9	188.65	188.65	188.65	188.65	188.65	188.65	188.65	188.65
Widow rockfish	11509.7	10142.7	10342.7	9297.7	9497.7	10142.7	10342.7	9297.7	9497.7
Yelloweye rockfish	4.4	3.5	3.5	3.6	3.6	3.5	3.5	3.6	3.6
Yellowtail rockfish North	3761.8	4230.2	4270.2	4037.8	4077.8	4230.2	4270.2	4037.8	4077.8

Table 2. Projected catch for the IFQ fishery, in years 2023 (No Action), actual 2023 catch, and based on alternative allocations for 2025 and 2026.

Predicted catch (mt)	2023 Predicted	2023 Actual	2025 - ALT 1		2026 - ALT 1		2025 - ALT 2		2026 - ALT 2	
Species	**NO ACTION**	**NO ACTION**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Arrowtooth flounder	798.1	800.2	776.3	776.5	762.4	762.7	776.3	776.5	762.4	762.7
Bocaccio rockfish South	255.4	255.6	253.5	253.5	253.3	253.3	253.5	253.5	253.3	253.3
Canary rockfish	500.1	516.0	256	291.1	256.5	291.5	256	291.1	256.5	291.5
Chilipepper rockfish South	954.0	950.3	1,268.0	1,268.0	1,190.9	1,190.9	1,268.0	1,268.0	1,190.9	1,190.9
Cowcod South of 40°10' N.	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Darkblotched rockfish	183.0	184.0	157.5	175.6	152.3	170.5	157.5	175.6	152.3	170.5
Dover sole	3,835.5	3,832.4	3,835.6	3,835.6	3,835.6	3,835.6	3,829.5	3,829.5	3,817.6	3,817.6
English sole	232.8	234.8	232.4	232.4	232.1	232.1	232.4	232.4	232.1	232.1
Lingcod North of 40°10' N.	397.1	400.5	381.8	381.8	378.2	378.2	381.8	381.8	378.2	378.2
Lingcod South of 40°10' N.	50.3	50.1	52.0	52.0	53.7	53.7	52.0	52.0	53.7	53.7
Longspine thornyhead North	22.0	21.4	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
Minor shelf rockfish North	270.6	271.8	295.1	295.1	292.2	292.2	295.1	295.1	292.2	292.2
Minor shelf rockfish South	35.8	44.3	38.3	38.3	38.2	38.2	38.3	38.3	38.2	38.2
Minor slope rockfish North	194.3	192.1	192.8	192.8	191.8	191.8	192.8	192.8	191.8	191.8
Minor slope rockfish South	27.7	27.7	28.1	28.1	28.0	28.0	28.1	28.1	28.0	28.0
Other flatfish	329.6	319.1	338.7	338.9	337.2	337.3	340.1	340.3	338.1	338.3
Pacific cod	36.5	39.2	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Pacific halibut (IBQ) North	28.2	27.7	44.5	45.2	44.5	45.2	44.6	45.3	44.5	45.1
Pacific ocean perch North	222.5	224.7	221.4	221.4	221.0	221.0	221.4	221.4	221.0	221.0
Pacific whiting	101,966.3	100,955.0	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3
Petrale sole	2,836.2	2,836.3	1,782.5	1,796.4	1,675.1	1,689.0	1,782.5	1,796.4	1,675.1	1,689.0
Sablefish North of 36° N.	2,689.0	2,677.4	8,076.1	8,268.3	8,076.1	8,268.3	8,076.1	8,268.3	8,076.1	8,268.3
Sablefish South of 36° N.	94.2	93.9	293.8	293.8	293.7	293.7	293.8	293.8	293.7	293.7
Shortspine thornyheads North	282.8	276.9	165.2	180.2	165.8	180.6	185.5	196.9	186.9	198.1
Shortspine thornyheads South	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splitnose rockfish South	19.8	19.9	19.7	19.7	19.6	19.6	19.7	19.7	19.6	19.6
Starry flounder	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Widow rockfish	10,899.3	10,896.9	9,664.0	9,844.7	8,900.3	9,081.1	9,664.0	9,844.7	8,900.3	9,081.1
Yelloweye rockfish	0.5	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3
Yellowtail rockfish North	2,863.1	2,860.8	3,092.4	3,112.0	2,998.2	3,017.8	3,092.4	3,112.0	2,998.2	3,017.8

Table 3. Projected attainment (percent of allocation) of IFQ species categories by year and alternative.

Predicted attainment (percent)	2023 Predicted	2023 Actual	2025 - ALT 1		2026 - ALT 1		2025 - ALT 2		2026 - ALT 2	
Species	**NO ACTION**		**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Arrowtooth flounder	5.1%	5.1%	9.1%	9.1%	11.4%	11.4%	9.1%	9.1%	11.4%	11.4%
Bocaccio rockfish South	36.5%	36.5%	38.8%	38.8%	39.1%	39.1%	38.8%	38.8%	39.1%	39.1%
Canary rockfish	59.4%	61.2%	95.5%	83.8%	95.3%	83.7%	95.5%	83.8%	95.3%	83.7%
Chilipepper rockfish South	61.0%	60.8%	60.6%	60.6%	60.7%	60.7%	60.6%	60.6%	60.7%	60.7%
Cowcod South of 40°10' N.	6.9%	6.9%	7.0%	7.0%	7.1%	7.1%	7.0%	7.0%	7.1%	7.1%
Darkblotched rockfish	28.3%	28.4%	29.0%	28.5%	29.2%	28.6%	29.0%	28.5%	29.2%	28.6%
Dover sole	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.8%	8.8%	9.8%	9.8%
English sole	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Lingcod North of 40°10' N.	21.7%	21.9%	25.4%	25.4%	26.1%	26.1%	25.4%	25.4%	26.1%	26.1%
Lingcod South of 40°10' N.	17.7%	17.6%	17.7%	17.7%	17.6%	17.6%	17.7%	17.7%	17.6%	17.6%
Longspine thornyhead North	1.0%	1.0%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Minor shelf rockfish North	39.0%	39.1%	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%
Minor shelf rockfish South	22.0%	27.2%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%
Minor slope rockfish North	21.7%	21.5%	22.5%	22.5%	23.0%	23.0%	22.5%	22.5%	23.0%	23.0%
Minor slope rockfish South	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
Other flatfish	8.0%	7.7%	5.3%	5.2%	5.8%	5.7%	4.9%	4.9%	5.5%	5.4%
Pacific cod	3.5%	3.8%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Pacific halibut (IBQ) North	29.0%	28.4%	45.8%	46.6%	45.8%	46.5%	45.9%	46.6%	45.7%	46.4%
Pacific ocean perch North	7.5%	7.6%	8.1%	8.1%	8.4%	8.4%	8.1%	8.1%	8.4%	8.4%
Pacific whiting	57.1%	56.5%	57.1%	57.1%	57.1%	57.1%	57.1%	57.1%	57.1%	57.1%
Petrale sole	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%
Sablefish North of 36° N.	69.1%	68.8%	61.7%	61.6%	61.7%	61.6%	61.7%	61.6%	61.7%	61.6%
Sablefish South of 36° N.	9.7%	9.7%	8.9%	8.9%	8.9%	8.9%	8.9%	8.9%	8.9%	8.9%
Shortspine thornyheads North	24.7%	24.1%	53.3%	50.0%	53.2%	49.9%	48.8%	45.7%	48.4%	45.4%
Shortspine thornyheads South	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Splitnose rockfish South	1.3%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Starry flounder	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Widow rockfish	94.7%	94.7%	95.3%	95.2%	95.7%	95.6%	95.3%	95.2%	95.7%	95.6%
Yelloweye rockfish	10.3%	10.4%	10.3%	10.4%	9.6%	9.7%	10.3%	10.4%	9.6%	9.7%
Yellowtail rockfish North	76.1%	76.0%	73.1%	72.9%	74.3%	74.0%	73.1%	72.9%	74.3%	74.0%

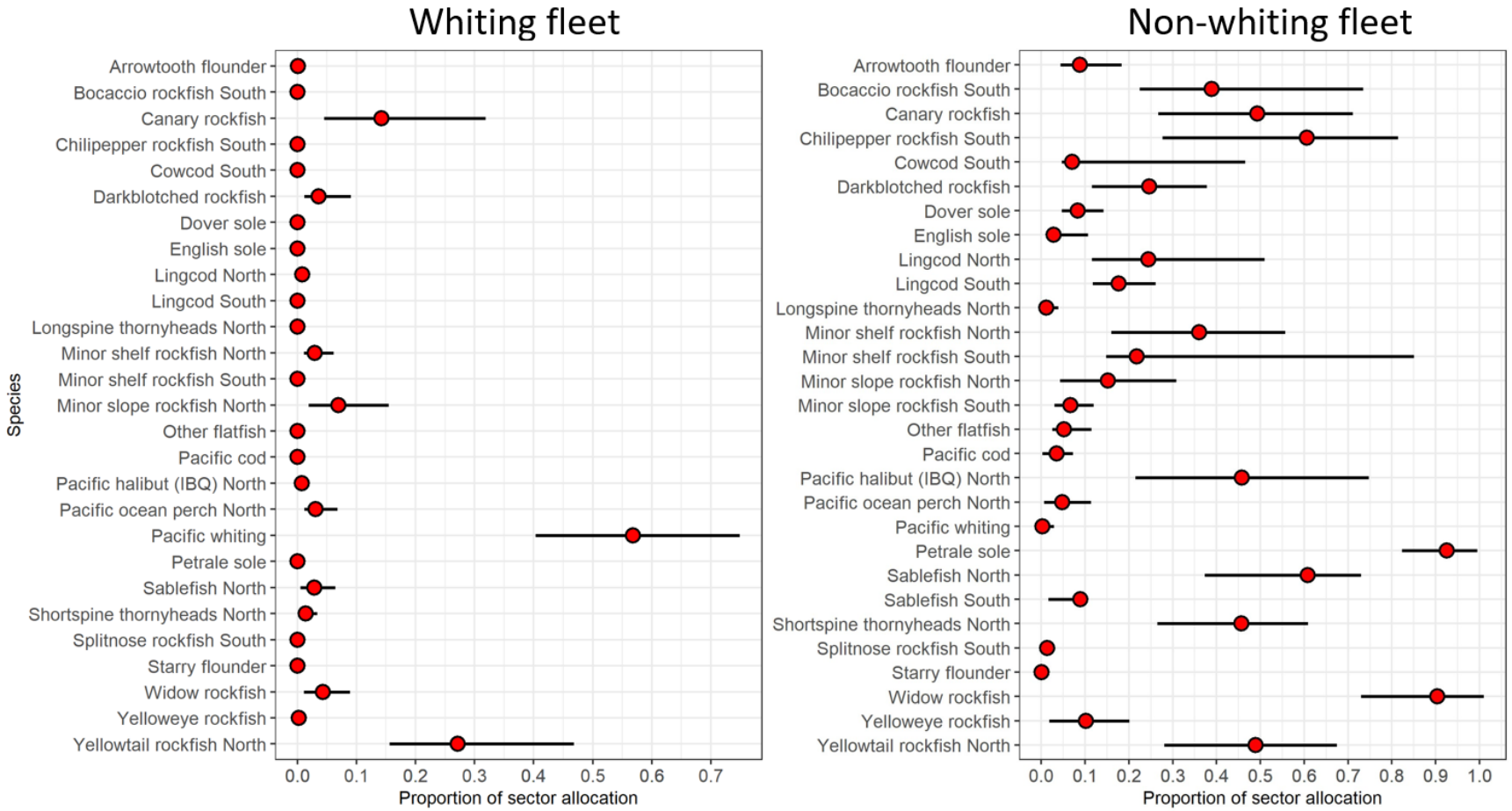

Figure 1. Example plots of point projections with accompanying 95% prediction intervals (depicted as proportion of each respective allocation) by species and sector, at the fleet level. Species with consistent catch histories and similar predictions across methods (attainment, mean annual catch, and bycatch-based methods), show smaller intervals.

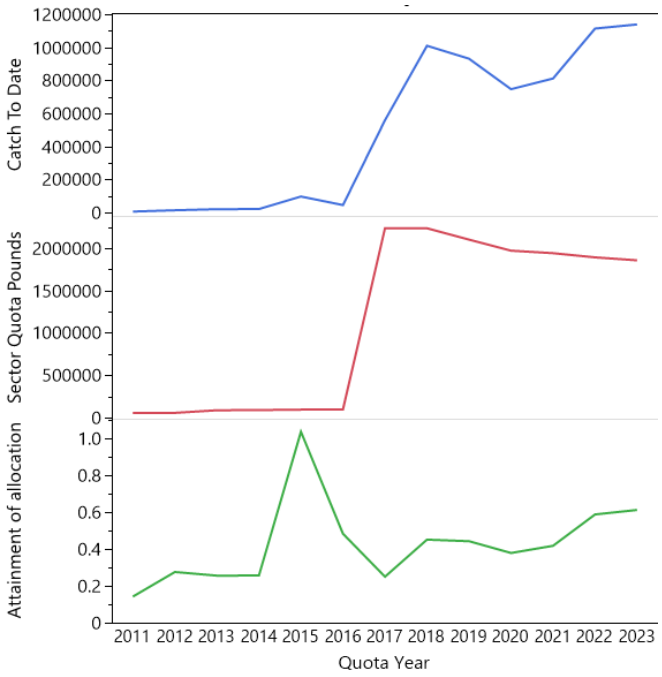

Figure 2. Annual catch (lb), allocations (lb), and attainment (proportion of allocation) for Canary rockfish in the IFQ fishery, from 2011 through 2023.

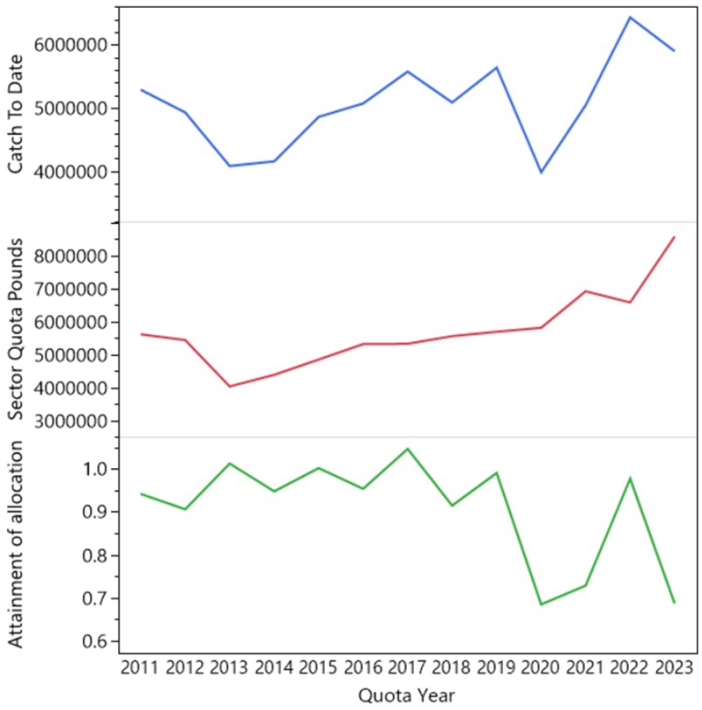

Figure 3. Annual catch (lb), allocations (lb), and attainment (proportion of allocation) for Sablefish north of 36° N. latitude in the IFQ fishery, from 2011 through 2023.

Table 4. Values of Pearson's correlation coefficient (a), probability (significance) values for correlations (b), and their confidence limits (c), for assessing the degree of covarying catch within the DTS complex, between pairs of species in the IFQ fishery, at the fleet level, between years 2018 and 2023, the years used to inform model projections for the 2025-26 groundfish harvest specifications analysis. Significant values appear in bold font. Catch of Shortspine thornyheads South has been zero in the IFQ fishery from 2018 forward.

Pearson's correlation coefficient values

	Dover	Lngsp_N	Sable_N	Sable_S	Shrtsp_N	Shrtsp_S
Dover	-	**0.976**	-0.013	-0.738	**0.984**	-
Lngsp_N	**0.976**	-	-0.059	-0.791	**0.993**	-
Sable_N	-0.013	-0.059	-	0.440	0.027	-
Sable_S	-0.738	-0.791	0.440	-	-0.769	-
Shrtsp_N	**0.984**	**0.993**	0.027	-0.769	-	-
Shrtsp_S	-	-	-	-	-	-

Significance probabilities for correlation coefficients

	Dover	Lngsp_N	Sable_N	Sable_S	Shrtsp_N	Shrtsp_S
Dover	-	**0.001**	0.980	0.094	**0.000**	-
Lngsp_N	**0.001**	-	0.912	0.061	**<.0001**	-
Sable_N	0.980	0.912	-	0.383	0.960	-
Sable_S	0.094	0.061	0.383	-	0.074	-
Shrtsp_N	**0.000**	**<.0001**	0.960	0.074	-	-
Shrtsp_S	-	-	-	-	-	-

Confidence limits for correlation coefficients

Variable	by Variable	Correlation	Lower 95%	Upper 95%
Lngsp_N	Dover	**0.9764**	**0.7941**	**0.9975**
Sable_N	Dover	-0.0135	-0.8161	0.8069
Sable_N	Lngsp_N	-0.0585	-0.8306	0.7906
Sable_S	Dover	-0.7379	-0.9691	0.1837
Sable_S	Lngsp_N	-0.7907	-0.976	0.0583
Sable_S	Sable_N	0.44	-0.5779	0.9222
Shrtsp_N	Dover	**0.9843**	**0.8583**	**0.9984**
Shrtsp_N	Lngsp_N	**0.9932**	**0.9363**	**0.9993**
Shrtsp_N	Sable_N	0.0266	-0.8023	0.8204
Shrtsp_N	Sable_S	-0.7692	-0.9732	0.1127
Shrtsp_S	Shrtsp_N	0	-	-

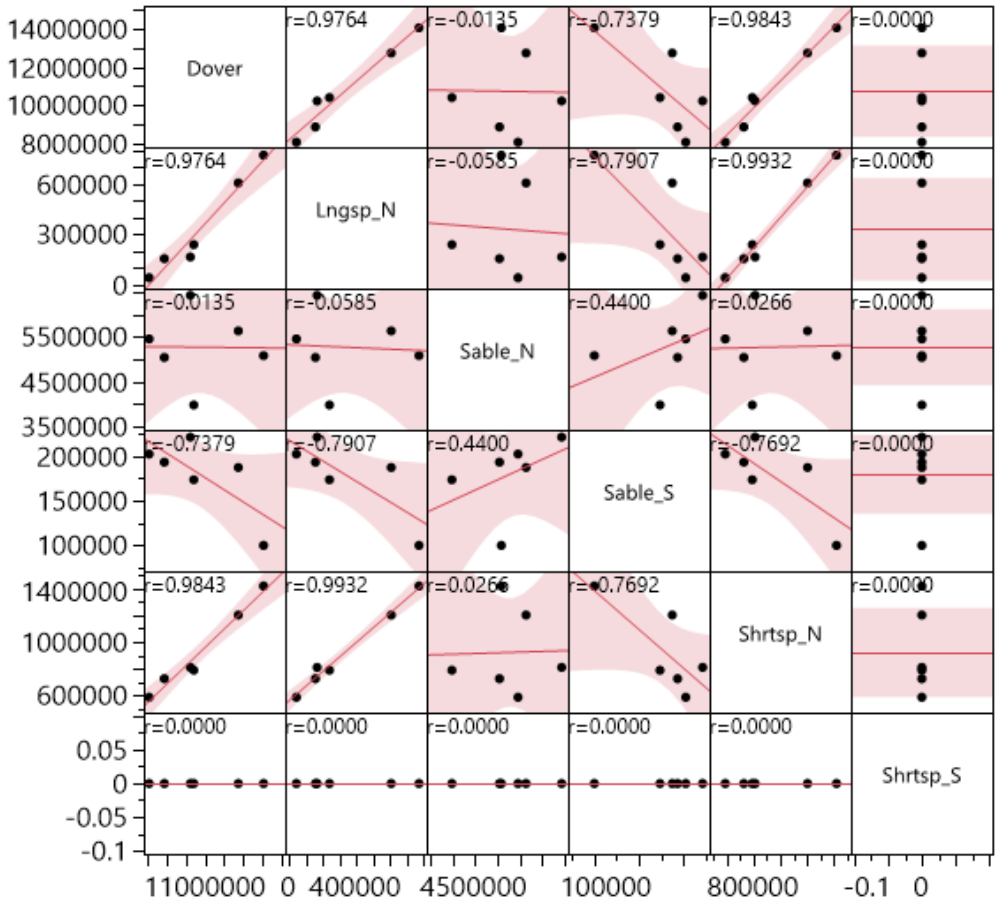

Figure 4. Relationships among IFQ species categories for annual IFQ fishery catch of Dover-Thornyhead-Sablefish (DTS) complex species, over the most recent six years of data (2018-2023) used to inform the projection model. Data show significant relationships between Dover sole and thornyheads (both shortspine and longspine) catch within management area, but no significant relationships between sablefish and other DTS complex members (see Table 4), at the annual level.

Table 5. Final (post-April 2024 PFMC meeting), suites of analytical allocations (mt) used to "bookend" the range of projected (catch) impacts, in modeling predicted catch in the IFQ fishery, for 2025-2026, as well as 2023 (No Action) for comparison. See text for key to column headings.

	2023	2025 - ALT 1		2026 - ALT 1		2025 - ALT 2		2026 - ALT 2	
Species	**NO ACTION**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Arrowtooth flounder	15640.2	8,543	8,573	6,675	6,705	8,543	8,573	6,675	6,705
Bocaccio rockfish South	700.3	653	653	648	648	653	653	648	648
Canary rockfish	842.5	268	348	269	348	268	348	269	348
Chilipepper rockfish South	1563.8	2,091	2,091	1,961	1,961	2,091	2,091	1,961	1,961
Cowcod South	24.8	24	24	23	23	24	24	23	23
Darkblotched rockfish	646.8	543	617	522	596	543	617	522	596
Dover sole	45972.7	45,985	45,985	45,985	45,985	43,538	43,538	38,819	38,819
English sole	8320.6	8,236	8,236	8,174	8,174	8,236	8,236	8,174	8,174
Lingcod North of 40°10' N.	1829.3	1,503	1,503	1,449	1,449	1,503	1,503	1,449	1,449
Lingcod South of 40°10' N.	284.2	295	295	305	305	295	295	305	305
Longspine thornyhead	2129.2	1,901	1,901	1,812	1,812	1,901	1,901	1,812	1,812
Minor shelf rockfish North	694.7	763	763	755	755	763	763	755	755
Minor shelf rockfish South	163.0	175	175	175	175	175	175	175	175
Minor slope rockfish North	894.4	858	858	836	836	858	858	836	836
Minor slope rockfish South	417.1	425	425	423	423	425	425	423	423
Other flatfish	4142.1	6,399	6,464	5,807	5,872	6,922	6,987	6,175	6,240
Pacific cod	1039.3	1,044	1,044	1,044	1,044	1,044	1,044	1,044	1,044
Pacific halibut (IBQ) North	97.2	97	97	97	97	97	97	97	97
Pacific ocean perch North	2956.1	2,723	2,723	2,621	2,621	2,723	2,723	2,621	2,621
Pacific whiting	178581.0	178,581	178,581	178,581	178,581	178,581	178,581	178,581	178,581
Petrale sole	3063.8	2,001	2,001	1,920	1,885	2,001	2,001	1,920	1,885
Sablefish North of 36° N.	3893.5	13,091	13,420	13,091	13,420	13,091	13,420	13,091	13,420
Sablefish South of 36° N.	970.0	3,289	3,289	3,288	3,288	3,289	3,289	3,288	3,288
Shortspine thornyheads	1146.7	309	360	310	405	376	431	381	484
Shortspine thornyheads	50.0	50	50	50	50	50	50	50	50
Splitnose rockfish South	1494.7	1,419	1,419	1,382	1,382	1,419	1,419	1,382	1,382
Starry flounder	171.9	188	188	188	188	188	188	188	188
Widow rockfish	11509.7	10,143	10,519	9,298	9,674	10,143	10,519	9,298	9,674
Yelloweye rockfish	4.4	3.3	3.3	3.4	3.4	3.3	3.3	3.4	3.4
Yellowtail rockfish North	3761.8	4,140	4,270	3,948	4,078	4,140	4,270	3,948	4,078

Table 6. Final (post-April 2024 PFMC meeting), projected catch for the IFQ fishery, in years 2023 (No Action), actual 2023 catch, and based on alternative allocations for 2025 and 2026.

Predicted catch (mt)	2023 Predicted	2023 Actual	2025 - ALT 1		2026 - ALT 1		2025 - ALT 2		2026 - ALT 2	
Species	**NO ACTION**	**NO ACTION**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Arrowtooth flounder	798.1	800.2	776.3	776.5	762.4	762.7	776.3	776.5	762.4	762.7
Bocaccio rockfish South	255.4	255.6	253.5	253.5	253.3	253.3	253.5	253.5	253.3	253.3
Canary rockfish	500.1	516.0	256.0	291.3	256.5	291.3	256.0	291.3	256.5	291.3
Chilipepper rockfish South	954.0	950.3	1,268.0	1,268.0	1,190.7	1,190.7	1,268.0	1,268.0	1,190.7	1,190.7
Cowcod South of 40°10' N.	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Darkblotched rockfish	183.0	184.0	157.4	175.6	152.2	170.5	157.4	175.6	152.2	170.5
Dover sole	3,835.5	3,832.4	3,835.6	3,835.6	3,835.6	3,835.6	3,829.5	3,829.5	3,817.6	3,817.6
English sole	232.8	234.8	232.4	232.4	232.1	232.1	232.4	232.4	232.1	232.1
Lingcod North of 40°10' N.	397.1	400.5	381.8	381.8	378.2	378.2	381.8	381.8	378.2	378.2
Lingcod South of 40°10' N.	50.3	50.1	52.1	52.1	53.7	53.7	52.1	52.1	53.7	53.7
Longspine thornyhead North	22.0	21.4	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
Minor shelf rockfish North	270.6	271.8	295.0	295.0	292.2	292.2	295.0	295.0	292.2	292.2
Minor shelf rockfish South	35.8	44.3	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
Minor slope rockfish North	194.3	192.1	192.8	192.8	191.8	191.8	192.8	192.8	191.8	191.8
Minor slope rockfish South	27.7	27.7	28.1	28.1	28.0	28.0	28.1	28.1	28.0	28.0
Other flatfish	329.6	319.1	338.7	338.9	337.2	337.3	340.1	340.3	338.1	338.3
Pacific cod	36.5	39.2	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Pacific halibut (IBQ) North	28.2	27.7	44.5	45.2	44.5	45.3	44.6	45.3	44.5	45.2
Pacific ocean perch North	222.5	224.7	221.4	221.4	221.0	221.0	221.4	221.4	221.0	221.0
Pacific whiting	101,966.3	100,955.0	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3	101,966.3
Petrale sole	2,836.2	2,836.3	1,852.4	1,852.4	1,777.4	1,745.0	1,852.4	1,852.4	1,777.4	1,745.0
Sablefish North of 36° N.	2,689.0	2,677.4	8,076.1	8,268.3	8,076.1	8,268.3	8,076.1	8,268.3	8,076.1	8,268.3
Sablefish South of 36° N.	94.2	93.9	293.8	293.8	293.7	293.7	293.8	293.8	293.7	293.7
Shortspine thornyheads North	282.8	276.9	164.8	180.1	165.2	191.3	184.4	197.0	185.6	207.4
Shortspine thornyheads South	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splitnose rockfish South	19.8	19.9	19.7	19.7	19.6	19.6	19.7	19.7	19.6	19.6
Starry flounder	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Widow rockfish	10,899.3	10,896.9	9,664.2	10,004.0	8,900.6	9,240.4	9,664.2	10,004.0	8,900.6	9,240.4
Yelloweye rockfish	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Yellowtail rockfish North	2,863.1	2,860.8	3,048.3	3,111.9	2,954.3	3,017.9	3,048.3	3,111.9	2,954.3	3,017.9

Table 7. Final (post-April PFMC meeting) projected attainment (% of allocation), of IFQ species categories by year and alternative.

Predicted attainment	2023 Predicted	2023 Actual	2025 - ALT 1		2026 - ALT 1		2025 - ALT 2		2026 - ALT 2	
Species	NO ACTION		LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Arrowtooth flounder	5.1%	5.1%	9.1%	9.1%	11.4%	11.4%	9.1%	9.1%	11.4%	11.4%
Bocaccio rockfish South	36.5%	36.5%	38.8%	38.8%	39.1%	39.1%	38.8%	38.8%	39.1%	39.1%
Canary rockfish	59.4%	61.2%	95.5%	83.7%	95.3%	83.7%	95.5%	83.7%	95.3%	83.7%
Chilipepper rockfish South	61.0%	60.8%	60.6%	60.6%	60.7%	60.7%	60.6%	60.6%	60.7%	60.7%
Cowcod South of 40°10' N.	6.9%	6.9%	7.0%	7.0%	7.2%	7.2%	7.0%	7.0%	7.2%	7.2%
Darkblotched rockfish	28.3%	28.4%	29.0%	28.5%	29.2%	28.6%	29.0%	28.5%	29.2%	28.6%
Dover sole	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.8%	8.8%	9.8%	9.8%
English sole	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Lingcod North of 40°10' N.	21.7%	21.9%	25.4%	25.4%	26.1%	26.1%	25.4%	25.4%	26.1%	26.1%
Lingcod South of 40°10' N.	17.7%	17.6%	17.7%	17.7%	17.6%	17.6%	17.7%	17.7%	17.6%	17.6%
Longspine thornyhead North	1.0%	1.0%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Minor shelf rockfish North	39.0%	39.1%	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%
Minor shelf rockfish South	22.0%	27.2%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%
Minor slope rockfish North	21.7%	21.5%	22.5%	22.5%	22.9%	22.9%	22.5%	22.5%	22.9%	22.9%
Minor slope rockfish South	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
Other flatfish	8.0%	7.7%	5.3%	5.2%	5.8%	5.7%	4.9%	4.9%	5.5%	5.4%
Pacific cod	3.5%	3.8%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Pacific halibut (IBQ) North	29.0%	28.4%	45.9%	46.6%	45.9%	46.7%	45.9%	46.7%	45.8%	46.6%
Pacific ocean perch North	7.5%	7.6%	8.1%	8.1%	8.4%	8.4%	8.1%	8.1%	8.4%	8.4%
Pacific whiting	57.1%	56.5%	57.1%	57.1%	57.1%	57.1%	57.1%	57.1%	57.1%	57.1%
Petrale sole	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%	92.6%
Sablefish North of 36° N.	69.1%	68.8%	61.7%	61.6%	61.7%	61.6%	61.7%	61.6%	61.7%	61.6%
Sablefish South of 36° N.	9.7%	9.7%	8.9%	8.9%	8.9%	8.9%	8.9%	8.9%	8.9%	8.9%
Shortspine thornyheads North	24.7%	24.1%	53.3%	50.0%	53.3%	47.2%	49.1%	45.7%	48.7%	42.9%
Shortspine thornyheads South	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Splitnose rockfish South	1.3%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Starry flounder	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Widow rockfish	94.7%	94.7%	95.3%	95.1%	95.7%	95.5%	95.3%	95.1%	95.7%	95.5%
Yelloweye rockfish	10.3%	10.4%	11.1%	11.2%	10.4%	10.4%	11.1%	11.2%	10.4%	10.4%
Yellowtail rockfish North	76.1%	76.0%	73.6%	72.9%	74.8%	74.0%	73.6%	72.9%	74.8%	74.0%

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3. Washington Recreational

The Washington Ocean Sampling Program (OSP) generates catch and effort estimates for the recreational boat-based groundfish fishery, which are provided to Pacific States Marine Fisheries Commission (PSMFC) and incorporated directly into the Recreational Fisheries Information Network (RecFIN) database. The OSP provides catch in total numbers of fish, and also collects biological information on average fish size, which is provided to RecFIN to enable conversion of numbers of fish to total weight of catch. Boat egress from the Washington coast is essentially limited to four major ports, which enables a sampling approach to strategically address fishing effort from these ports. Effort estimates are generated from either exit or entrance counts of boats leaving coastal ports while catch per effort is generated from boat intercepts at the conclusion of their fishing trip. The goal of the program is to provide information to RecFIN on a monthly basis with a one-month delay to allow for inseason estimates. For example, estimates for the month of May would be provided at the end of June. Some specifics of the program are:

- **Exit/entrance count –** boats are counted either leaving the port (as early as 3:00 AM - end of the day) or entering the port (approximately 8:00 AM through end of the day) to give a total count of sport boats for the day.
- **Unit of sample –** The unit of sample used by the OSP is a single boat trip.
- **Interview –** boats are encountered systematically as they return to port; anglers are interviewed for target species, number of anglers, area fished, released catch data and depth of fishing (non-fishing trips are recorded as such and included in the effort expansion). The OSP collects information on released catch but does not collect information on the condition of the released fish. However, the angler provides a depth at which the majority of rockfish were encountered allowing for; released catches to be post-stratified as live or dead based upon an assumed species specific discard mortality rate. Onboard observers are deployed on charter vessels throughout the salmon season primarily to observe hatchery salmon mark rates but also to collect rockfish discard information on these trips.
- **Examination of catch** – catch is counted and speciated by the sampler. Salmon are electronically checked for coded wire tags and biodata are collected from other species.
- **Sampling Rates –** vary by port and boat type. Generally, at boat counts less than 30, the goal is 100 percent coverage. The sampling rate goal decreases as boat counts increase (e.g., at an exit count of 1500, sample rate goal is 30 percent; over 300, sample rate goal is 20 percent). Overall sampling rates average approximately 50 percent coastwide through March-October season.
- **Sampling Schedules –** due to differences in effort patterns, weekdays/weekend days are stratified separately. Usually, both weekend days and a random 3 of 5 weekdays are sampled.
- **Personnel –** OSP sampling staff include three permanent biologists coordinating data collection, one permanent biologist generating in-season estimates of groundfish catch, one Natural Resource Scientist overseeing the program, approximately twenty-four port samplers, and two on-board observers.

- **Volume of Data** – Between 20,000 and 30,000 boat interviews completed per season coastwide.

3.1 Data Expansion Algorithms

Algorithm for expanding sampled days:

$$P_t = \frac{Exit\ Count}{Total\ Boats\ Sampled} * P_s\ sampled$$

Where:

P_s = any parameter (anglers, fish retained, fish released) within a stratum,
P_t = total of any parameter with stratum for the sample day

Algorithm for expanding for non-sampled days:

$$Total\ Weekday\ Catch = \frac{\Sigma(P_t) on\ sampled\ weekdays}{\#\ of\ weekdays\ sampled} * \#\ of\ weekdays\ in\ stratum$$

$$Total\ Weekend\ Catch = \frac{\Sigma(P_t) on\ sampled\ weekend\ days}{\#\ of\ weekend\ days\ sampled} * \#\ of\ weekend\ days\ in\ stratum$$

$$Total\ catch\ in\ stratum = Total\ Weekend\ catch + Total\ weekday\ catch$$

Notes on Data Expansion:

Salmon and halibut catch estimates are stratified by week; catch estimates for all other species are stratified by month. All expansions are stratified by boat type (charter or private), port, area, and target species trip type (e.g., salmon, halibut, groundfish, and albacore).

3.2 Washington Recreational Fishery Impact Modeling

Projected impacts for Washington's recreational fishery are essentially based upon recent years harvest as estimated by the OSP and incorporated in RecFIN. This is especially true if recreational regulations remain consistent.

WDFW doesn't use a formal model to produce estimates of projected impacts under various management measure scenarios but has relied instead on an ad hoc approach that uses historical catch on a case by case basis to evaluate impacts to overfished species.

3.3 Angler Effort

WDFW's approach to estimating projected impacts was reviewed and approved by the SSC Economics and Groundfish Subcommittees (SSC E-G/F) in the fall of 2012. With the review, the SSC E-G/F recommended a retrospective analysis of effort projections compared to post-season effort estimates for past biennial harvest specifications and management measures cycles to better understand the historical performance of Washington's ad hoc approach. Angler effort has increased since 2011. Projected fishing effort follows the same trend as actual fishing effort

3.4 Inseason Catch Projections for 2023-2024

Inseason catch projections are based upon the most recent OSP estimates and incorporated in RecFIN (with a one-month time lag) with subsequent months extrapolated from the pre-season catch projections. Beginning in 2009, depth dependent mortalities have been applied uniformly to all discarded fish coast wide through RecFIN It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon, albacore, and Pacific halibut seasons, as well as weather and other unforeseen factors.

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4. Oregon Recreational Fishery Model for 2023-2024

Groundfish mortality associated with regulatory scenarios for each alternative were projected using the Model of Oregon Recreational Groundfish (MORG), which was reviewed by the SCC and found to "use appropriate data and methods and provides a sound basis for management decisions" prior to the 2015-2016 Groundfish Biennial Specifications Process (PFMC 2015).

The model, described below, has been updated since the review to incorporate all process recommendations made by the SSC (e.g., inclusion of variances to provide measures of uncertainty). recommended changes. Additional updates were made to accommodate new data sources (e.g., mortality rates for rockfish released with descending devices and the proportion of fish release with the devices) and to increase ease of use for users to manipulate model inputs (e.g., a user interface "switchboard" was developed for all model inputs."

4.1 Landings and Discard Mortality Estimation

The MORG produces projections of landings and discard mortality for thousands of combinations of regulation options (i.e., bag limit, size limit, depth closures, and season closures). To produce these projections, MORG manipulates the exact same data inputs that the sport fishery monitoring survey, the Oregon Recreational Boat Survey (ORBS) uses to estimate total landings, discard mortality, and effort. In short, the MORG manipulates the data sets ORBS uses to estimate total catch and effort and then reruns the estimates in the same manner as done by ORBS.

Since MORG functions by manipulating the data sets used by ORBS to estimate catch and effort, it is important to first understand the process and data inputs used by ORBS to estimate total sport catch and effort. To estimate these factors, ORBS assumes un-sampled boats catch the same as sampled boats. In finer detail, ORBS obtains catches from a portion of boats intercepted by the dockside survey for a given trip type (e.g., Newport charter boats) and assumes the un-sampled boats of that similar trip type caught same (strata and domains used to lump similar trips include boat type, port, week, area fished). And by statistical definition, ORBS estimates total catch and effort by multiplying catch rates (catch per boat) for each trip type to the portion of total boats (sample and un-sampled) from that same trip type.

4.2 Landings and Discard Mortality Projections

As stated above, the two main survey components used to estimate total catch and effort are the dockside survey and the total boat survey. And the MORG projects catch and effort for regulatory options by manipulating the dockside survey interviews by adjusting what the anglers caught and where they fished, and then reruns the total catch and effort estimates using the same ORBS procedures (along with variance computations). By manipulating the individual trips, this provides the greatest ability to adjust multiple regulations at once – and is manipulating what truly occurs in the fishery.

And to account for total effort, which is used to expand the dockside interviews to total catch and effort, a variety of approaches have been taken. Until recently, the average angler trips were used because the number of trips was relatively consistent across years; however, to account for a major

spike in total effort since 2015 (i.e., from ~60,000-70,000 per year prior to 2015 to a record ~110,000 in 2015 and over 100,000 through August in 2017), the model uses a "stair-step" effort ramp with the assumption that 2023-2024 will also have similar amounts of high effort.

4.3 MORG Model Components

Bag limit model component: The bag limit model adjusts the landings of individual anglers to not exceed the proposed (new) daily bag limit, and any previous landings above the bag limit are converted to discards (with discard mortality rates applied). For example, if three anglers landed nine black rockfish and discarded six with a bag limit of seven, the catches for a bag limit of one would be three black rockfish landed (one per angler) and 12 discarded (six originally discarded plus the six of nine that were landed, but now had to be thrown back). And in a reverse situation where the bag limit is increased, anglers would be able to retain more of their discards (and the mortality rate of these fish would be changed to the discard mortality rate to 100 percent).

- **Size limit model component:** The size limit component functions very similarly to the bag limit component, but is more uncertain since lengths of discarded fish are unknown (and are assumed to match the distribution obtained by the sport observer survey, which records the sizes of discarded fish). For example, if the size limit is decreased to 10" from a current no size restriction, the model forces anglers to discard any catch below 10" (which are then converted to discards with discard mortality rates applied) and they can retain any of their catch above 10".
- **Area closure model component:** The area closure component primarily models projections of catch and effort pertaining to depth closures, as depth is the most common area closure used in the sport fisheries (to limit yelloweye rockfish interactions). And the depth closure component differs from the bag and size limit components; instead of converting landings to discards or vice versa, the depth model moves anglers from areas that become closed to open areas. To do this, the model excludes trips that occur in closed areas from the dataset, and then gives a greater weighting to the existing trips in open areas. And the main assumption is that no effort is lost due to area closures; rather that all effort shifts to open areas (this assumption based on historical data that shows the number of trips years with depth restrictions did not appear to decrease compared to years without).
- **Seasonal closure model component:** The season model component functions rather simply by forcing effort to be zero during closed times. This may result in an underestimate of catch and effort since some anglers may continue to fish during closed periods by practicing catch-and-release (which would result in discard mortality). While the effects of complete season closures may be uncertain, it was deemed reasonable to expect that most anglers would stop fishing if unable to harvest their catch. Further, season closures are the least desired regulation option, and are only used when all other regulatory options have failed to limit mortality to acceptable levels.
- **Regional catch and effort component:** Following review of MORG, the SSC recommended that the model produce regional catch and effort estimates. With one reason being that the economic multipliers used to expand the base value of recreational trips (trip expenditures; money spent on fuel, tackle, etc.) to total economic impacts to communities differ throughout regions in Oregon (i.e., "multiplier" effect of the based spending creating additional value as it cycles through the economy from business to business until all is leaked to outside the community). While regional catch and effort has not yet been coded

for in the model, it is a future goal. To complete regional modeling, both data sets (dockside intercept and total effort) could be filtered for the desired region prior to rerunning the estimation procedures.

- **Multivariate predictors of effort:** At the SSC review, ODFW demonstrated that weather (wind, waves, and wind*wave interaction) and strength of other fisheries (e.g., salmon) are related to sport groundfish effort (but not factors such as economic indicators and other environmental factors) and thus explored whether inclusion of these factors could help model performance (via use of a hybrid GLM / manipulation model). However, following further investigation ODFW concluded that while these factors may affect sport groundfish effort (and thus catch), weather and strength of other fisheries cannot be accurately predicted, and thus cannot be used as explanatory variables in MORG at this time.
- **Other features and specifications:** While MORG is simple in concept; hundreds of pages of code are required account for the approximately 60,000 (and counting) regulatory options for which MORG provides projections for. As such, MORG includes a user interface that allows users, even without any familiarity of the fisheries or modeling details, to simply adjust regulations in order to create projections for different regulation scenarios.

In addition to being able to adjust regulations, users may also adjust alpha to create projection intervals to their desired level of risk tolerance (e.g., 75 percent if more risk tolerant, 95 percent if more risk adverse). This inclusion of measures of uncertainty is new, and addresses the main SSC recommendation during the model review.

Finally, MORG is a duel function inseason tracking tool (of actual landings) and projection model combined. When actual catch and effort are added, projections from that timeframe are replaced with the true values and the remainder of the year remains projections. This allows managers to closely monitor and manage the fishery throughout the year.

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5. California Recreational Groundfish Model

5.1 Groundfish Fishery Projection Model

The anticipated mortality for select groundfish in the California recreational fishery under various season structure options are modeled using the RecFISH model. The model was developed in 2004 under contract with MRAG Americas, with subsequent augmentation of catch by depth and time parameters by California Department of Fish and Wildlife (CDFW). RecFISH allows projection of catch by depth and season length in each of the five groundfish management areas.

5.2 Model Description

The model incorporates proportion of catch by depth and time from historical unregulated periods and recent estimates of mortality in each management area to project mortality under given various season structures. The RecFISH model is a catch based model as opposed to an effort based model and has been previously reviewed by the SSC.

5.3 Methods

The model utilizes catch data from a recent regulated year ("base year") and expands that catch for the entire "unregulated" year. The assumption is that the historical proportion of catch by time and depth is representative of what will occur in the future. While this presents some uncertainties (discussed below) measures are available to mitigate this risk. For the 2025-2026 biennial cycle, catch data from the 2017 through 2019 and January through October 2021 recreational fishery was used as the base years, with post-model adjustments to incorporate catch data from the 2022 and 2023 fisheries. Utilizing the most recent years' data captures recent trends and is likely more reflective of future fishing behavior. The COVID-19 pandemic, beginning in 2020 and continuing into 2021, impacted catch data collection. The California Recreational Fisheries Survey (CRFS) program did not conduct sampling activities from mid-March through June 2020. When sampling activities resumed in July 2020, only the minimal necessary data were collected. Catch data for 2020 are not used in the RecFISH model as they are incomplete and do not capture total fishery removals for the year.

The expected magnitude of unregulated catch by depth and time for the base years is back-calculated to reflect mortality during an unregulated year. This is performed for each management area and species within the model by expanding mortality during the regulated period by what would be expected from an unregulated fishery using the historical proportion of catch by depth and time from unregulated years. In expanding baseline catch data from regulated seasons to all depths and months, data from other areas were used to supplement the existing historical data.

Further, historical data for California can only be stratified north and south of Point Conception (34°27' N). However, estimates of catch by time north of Point Conception during this period were dominated by the San Francisco and Central Management Areas where more effort was exerted over more months than north of Point Arena. As a result, for select species the proportion of catch by time from Oregon was used in the Northern and Mendocino Management Areas due to greater similarity in the timing of the fishery than that of the fishery south of Point Arena (38°57.5'). Contemporary depth strata information from the 2019-2020 all depth fishery in the Northern and Mendocino Management Areas, and the boat-based fishery from 2021 in the Southern

Management Area where the depth limit was the 100 fm RCA contour line were used to augment the historic depth strata data.

To account for depth dependent mortality rates, base catch in each month and depth bin is multiplied by the average proportion of catch from discarded fish (reported discarded live + reported discarded dead) in the base years described above for each species and management area. This results in the expected tonnage of discarded fish. The species-specific depth dependent mortality rates (by 10 fm depth bin) derived by the GMT (or suitable proxy) are applied to the discarded catch to provide an estimate of the expected discards for each depth bin. The resulting discard mortality estimate is added to the expected tonnage of retained catch to provide a projection of total mortality for each depth bin and month. This is used as the "base season" reflecting the mortality expected in an unregulated fishery.

The model also takes into account effort shifts that are likely to occur with varying depth restrictions. If depths are restricted to 20 fm or 30 fm, the model accounts for effort which would have occurred in deeper depth bins shifting to the shallower depth bins, by applying an increase of 39.3 percent and 27.6 percent, respectively.

Projected mortality from the desired depth and season is obtained by summing the projected mortality values for each month and depth bin by species or species group in each management area. Projected mortality is then summed by the relevant management areas to obtain the total projected mortality in relation to the relevant management area (i.e., statewide or north and south of Cape Mendocino 40°10' N lat.).

Once mortality projections are complete adjustments can be made to account for increases or decreases in mortality resulting from other management measures (e.g., bag limits). The anticipated percent reduction or increase in mortality expected from such management measures are estimated using recent CRFS data and the RecFIN bag limit analysis tool.

Each management cycle post model adjustments are made to immediate model outputs when review of the output does not align with recent catch trends or expected changes in catch under various management measures. The post model adjustments may be based on recent or historic catch trends when regulations were similar or dis-similar. Post model adjustments for several species were made in this analysis, are primarily based on 2023 projected end of year total mortality, and also take into account the following information:

- All depth fisheries in each of the five Management Areas during part of the year, and "offshore only" fisheries in each of the five Management Areas beginning in 2023

- Sub-bag limits for black rockfish, canary rockfish, and cabezon were removed beginning with the 2021 season, and reduced bag limits for copper rockfish, quillback rockfish, and vermilion rockfish were introduced beginning with the 2022 season and RecFISH outputs are adjusted using the RecFIN bag limit tool and actual 2023 total mortality.
- Inseason action in 2023 to prohibit retention on quillback rockfish, and to shift all Management Area depth constraints in the areas north of Point Conception to "offshore only" (seaward of the 50 fathom RCA line) resulted in reduced impacts for 2023 than initially projected for nearshore rockfish species, cabezon, kelp greenling, and lingcod;

while mortality for several minor shelf rockfish species increased. RecFISH outputs for 2025-2026 for these species are adjusted using the bag limit tool and 2023 total mortality.

A step by step explanation of the methodology used in the RecFISH model can be found in greater detail in Appendix B of the 2015-2016 FEIS; no changes were implemented during this cycle. .

5.4 Model Uncertainty

6. While the RecFISH model is the best available science, there are some known uncertainties which are explained here. For some species, few data are available to inform the model, which is particularly the case for species with deeper depth distributions, such as the shelf and slope rockfish species, or species for which retention is prohibited or encounters are infrequent. For these species and depth bins projected impacts may vary from actual impacts.

7. The model also assumes that fishing behavior during the historic period will be representative of the current fishery. However, many changes have occurred in the fishery which has likely affected behavior and distribution of fishing effort. For example, Marine Protected Areas have been established, closing some areas to recreational fishing which were previously accessible during the "unregulated years."

8. It is also assumed the fishing behavior during the historic period and current fishery will be representative of fishing behavior under proposed management measures. If significant changes to management measures are made to the fishery, substantial changes to angler behavior may occur, which the model cannot predict. Significant changes to management measures were made in 2022, the start of 2023, inseason in 2023, and additional inseason changes are proposed for the 2024 fisheries; all of these changes to management measures increase the uncertainty of the model outputs when projecting impacts for the 2025 and 2026 cycle.

9. Opportunities in other fisheries may also cause model projections to deviate from actual impacts. For example, opportunity in the salmon fishery affects effort and participation in the groundfish fishery. In good salmon years, there is less effort in the groundfish fishery and in poor salmon years groundfish effort is much higher.

10. Along with the availability of other fisheries, changes in oceanographic conditions can cause actual impacts to deviate from projections. For example, in 2015, abnormally warm waters caused a shift in the distribution of many species. In central California, anglers shifted some effort from groundfish to bonito, which are not normally encountered in the region..

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6. Estimating Effort for use in the Input Output Pacific Coast Fishery Model

The Northwest Fishery Science Center (NWFSC) Input Output Pacific Coast Fishery (IO-PAC) is designed to estimate the changes in economic contributions and economic impacts resulting from policy, environmental, or other changes that affect fishery harvest. IO-PAC was built by customizing the Impact Analysis for Planning (IMPLAN) regional input-output software. The original methodology employed in developing this model was similar to that used in the Northeast Region Commercial Fishing Input-Output Model (Steinback and Thunberg, 2006). The development and design of IO-PAC is documented in detail in Leonard and Watson (2011). The model was subsequently updated as part of an ongoing effort to continually improve the IO-PAC model with the latest available data and improvements in regional impact modeling capabilities. Substantial changes were made to model construction, new commercial fishing sectors were added, and a recreational fishing component was added, and these changes are documented in the final environmental impact statement for the 2015-2016 groundfish harvest specifications and management measures (PFMC, 2015). The current version of IO-PAC is detailed therein, except that there have been several data updates. This section summarizes the data updates that have been made since the documentation in PFMC 2015.

The data updates made include the following. One, the underlying IMPLAN data is changed from the 2012 base year to 2014. Two, the fish-ticket (landings) data from PacFIN changed from 2014 to 2016. Three, the commercial vessel production functions incorporate the latest data from the voluntary Limited Entry and Open Access Surveys conducted by the Northwest Fisheries Science Center. Four, it incorporates the latest data collected as part of the EDC program. Five, it incorporates 2012 data from the charter vessel surveys completed by the Northwest and Southwest Fisheries Science Centers. Table 6-1 provides a summary of the data that is currently used in IO-PAC and its application.

Table 1. IO-PAC data sources, applications, and year of data incorporation into the model

Data Year	OA Survey	LEFG Survey	Marine Rec. Exp. Survey	WA and OR Charter Vessel Survey	CA Charter Vessel Survey	EDC DATA	EDC Data	IMPLAN	PacFIN Fish Ticket
	2012	2012	2011	2012	2012	2016	2015	2014	2014
Application									
Commercial Vessels									
Production Functions	X	X				X			X
Vessel Industry Output				X	X	X		X	X
Vessel Employment	X	X				X			X
Processors									
Production Functions						X	X	X	
Processor Industry Output						X	X	X	X
Processor Employment						X	X	X	X
Recreational Fishing									
Expenditures			X						
Charter Prod. Functions				X	X				
Charter Industry Output			X	X	X				
Charter Employment			X	X	X				
Non-Fishing Data								X	

6.1 Commercial Landings Distribution Model

The purpose of the commercial fishery landings distribution model (LDM) is to inform the PFMC's management processes by projecting where PacFIN Port Code Identifier (PCID) landings are likely to occur under a set of alternative scenarios (e.g., alternative ACLs or management measures). The projected landing ports can then be mapped onto Port Area aggregations to allow comparison of the geographic distribution of ex-vessel revenues under the alternatives. Since all the alternatives are modeled consistently, projections from the LDM facilitate comparison of the alternatives in an apples-to-apples fashion.

A list of Port Areas, and underlying PCIDs, is shown in Table 6-2 and Table 6-3. Although used primarily to inform the groundfish management processes, the LDM methodology can be applied to analyze any west coast fishery. In the case of groundfish, ex-vessel revenue results from the LDM, aggregated by Port Area, are fed directly into the IO-PAC input-output and vessel net revenue projection models, where they are used to calculate and compare economic impacts under the different alternatives[61].

6.2 Data Elements

The core of the LDM is a recent-year commercial fishing landings data report from the PacFIN data system. The standardized PacFIN daily (vdrfd) or monthly (vfcmrfd) vessel landing summary or other summary queried tables can be used for this purpose.

For analyzing the alternative 2023-2024 groundfish management specifications, a table of monthly landings for 2021 was used.

Key data elements of the LDM provided by the PacFIN landings data report include:

- Inventories of all species (SPIDs including nominal and market categories after application of species composition factors), round weights and ex-vessel values landed by port (i.e., PCID).
- Assignment of landing vessel IDs to current groundfish federal limited entry permits, if applicable.
- Assignment of each landing to a fisheries management sector (dahl_sector).
- Distribution of species landings and ex-vessel revenues by landing vessel ID.
- Distribution of species landings and ex-vessel revenues among first receivers (Processor ID).
- This historical information forms one of baselines against which changes under the management alternatives can be measured.

[61] IO-PAC is a set of regional economic impact models constructed using landings data, vessel expenditure estimates, and secondary economic data to estimate income and employment impacts resulting from a change in the distribution of commercial fishery landings. It is maintained by Northwest Fisheries Science Center (NWFSC) and used by the Pacific Fishery Management Council (PFMC) to estimate economic impacts of West Coast fishery management actions.

6.3 Model Description

Groundfish landings records in the vessel landings table are categorized by fisheries sector (PacFIN "dahl_sector"). This categorization is based on limited entry permit status, PFMC catch area, landing port, species and gear used. The fisheries sector categories align with the GMT fishery sector projection models listed below. The GMT models project landings in each of five fishery sectors under the management alternative as part of their overall analysis of harvest specifications and management measure alternatives.

The next step is to compute the base year percentage of landings for each fishery sector by each combination of Area, Vessel (or Permit) ID, Species Identifier (SPID) and PCID. The "area" used for this calculation varies according to the resolution of the corresponding fishery sector projection model, as noted below. The percentages are then applied to the results from the GMT fishery sector projection models to estimate the geographic distribution of landings across ports in each fishery.

To project the geographic distribution of landings under the alternatives, results from the commercial fisheries sector landings projection models are applied to the landings percentages calculated from the landings data as noted above. Unless indicated otherwise (by the GMT model results or the proposed management measures) landings under the alternatives are assumed to occur in the same ports in proportion to landings observed in the base year. Only landings of the main economic groundfish species that are modeled for each fishery sector are of concern in the LDM. Landings of non-groundfish species, incidentally, caught groundfish species, and overfished species such as yelloweye are generally not modeled, as these are not managed under the Groundfish FMP or do not generate significant revenues in federally managed groundfish fisheries.

The level of detail carried over from the GMT models to the LDM varies considerably by fisheries sector. The most detailed results are produced by the TRAT IFQ catch projection model which generates a table of projected landings by species category for each participating vessel/groundfish permit ID.

More aggregated results are used to link the LDM with the non-IFQ fishery sector models. For example, aggregate sablefish catch projected by the Non-nearshore fisheries model is used to model sablefish landings by the non-nearshore LE, OA, and tribal fixed gear sectors north of 36° N. lat. Unless otherwise indicated, each PCID north of 36° N lat. is expected to receive the same proportions of coastwide LEFG, OA, and tribal sablefish landings under each alternative during the biennial cycle as it received in the base year landings data.

Linkage between the LDM and the Nearshore fisheries model is similar, except that additional area detail in the nearshore model is incorporated to distribute projected landings of nearshore groundfish species to ports (PCIDs) in Oregon and in California north and south of 40°10' N. lat. in proportion to where those landings occurred in the base year vdrfd data table.

The main features, model inputs and additional procedures used for integrating landings information in the LDM are described below:

- **TRAT IFQ catch projection model:** Projected groundfish target species landings by each vessel/permit participating in the IFQ fishery. The list of IFQ target species projected includes sablefish, longspine thornyhead, shortspine thornyhead, Dover sole, arrowtooth

flounder, petrale sole, English sole, other flatfish, and Pacific whiting, among others. Incidental landings of non-target IFQ and overfished species are also projected by the model, however these landings are not generally relevant for economic analysis.

- **Non-nearshore fisheries model**: Projected maximum aggregate landings of sablefish by vessels participating in the LEFG, OA DTL, and tribal fisheries north of 36° N lat. Only projected sablefish landings are used in the economic analysis. To date sablefish landings south of 36° N lat. have not been explicitly modeled by the GMT. Instead, the ratios of sablefish ACLs specified under each alternative are compared with landings and ACLs observed in the base year, and the resulting ratios are applied to project sablefish landings in ports south of 36° N lat. under the alternatives.
- **Nearshore fisheries model:** Projected aggregate landings by area (Oregon, California north of 40°10′N lat., and California south of 40°10′ N lat.) of nearshore target species (black rockfish, blue/deacon rockfish, cabezon, kelp greenling, lingcod, and other minor nearshore rockfish) by vessels participating in the fixed gear OA fishery. Catch of canary and yelloweye rockfish are also projected, although landings of those species have not been relevant for economic analysis of the nearshore sector.
- **At sea Pacific whiting fisheries model:** Projected allocations of Pacific whiting to the at-sea catcher processor and mothership fisheries sectors, constrained by allocations of anticipated relevant constraining species and observed bycatch rates, if applicable.
- **Tribal fisheries model:** Projected total Pacific whiting (shoreside and at sea) and non-Pacific whiting groundfish target species landings by the tribal groundfish fisheries off the Washington Coast.

6.4 Sectors in the Landings Distribution Model

6.4.1 IFQ Sector

Information in the final end-of-year run for the most recent year from the IFQ catch projection model is used to adjust base year landings for IFQ fishery participants. This step produces a calibrated landings report that can be linked with IFQ catch projections generated for each groundfish management option or alternative. Projected landings by vessels (i.e., permits) are assumed to be distributed to ports based on where those vessels landed as reported in the base year landings data. Note: Although Pacific whiting harvest is regulated separately from the non-whiting groundfish specifications process, whiting landings by vessels/permits participating in the IFQ fishery are also modeled using this method. For purposes of comparison, sometimes a range of Pacific whiting harvests is associated with the groundfish harvest alternatives being analyzed; or alternatively, a single, fixed Pacific whiting catch scenario is assumed to apply under all the alternatives analyzed.

6.4.2 Non-Nearshore Sectors

Total sablefish landings projected under each option or alternative by the Non-nearshore fisheries model for fixed gear LE, OA-DTL and tribal fisheries north of 36° N. lat. are distributed to participating vessels and PCIDs, as shown in Table 6-2and Table 6-3 in proportion to where sablefish landings were recorded in the base year landings data. For areas south of 36° N. lat. a different procedure is used. The ratio of sablefish landings in the base year to the alternative sablefish ACL is calculated. This ratio is then applied to the corresponding ACL projected under each option or alternative to estimate total sablefish landings south of 36° N. lat. under the

management scenarios. Estimated total landings are then distributed to vessels and associated landing ports south of 36° N. lat. in proportion to where sablefish landings were recorded in the base year landings data.

6.4.3 Nearshore Sector

For the fixed gear OA fishery, total projected nearshore target species landings projected by the nearshore sector model under each option or alternative are distributed to participating vessels and landing ports in the same proportions observed in the base year landings data. Nearshore target species distributed in this manner include black rockfish, blue/deacon rockfish, cabezon, kelp greenling, lingcod, and other Minor Nearshore Rockfish. Nearshore fishery landings projected by the Nearshore OA model are split into three catch area stratifications: California south of 40°10′ N lat., California north of 40°10′ N lat., and Oregon. Note that sablefish landings by the tribal sector are projected using the Non-nearshore sector models

6.4.4 At-sea Pacific Whiting Sectors

Total projected Pacific whiting catch under the alternatives in the two nontribal at-sea Pacific whiting fisheries (catcher processers and motherships) is distributed in proportion to catch during the base year. Pacific whiting harvest is regulated separately from the non-whiting groundfish specifications process, but for purposes of comparison a range of Pacific whiting harvests is sometimes analyzed along with the alternative groundfish harvest specifications.

6.4.5 Tribal Groundfish Sector

Total projected landings and deliveries under each option or alternative by the tribal groundfish fisheries, including shoreside and at-sea Pacific whiting, are distributed among ports that participated in those fisheries in proportion to those ports' participation during the base year.

6.5 Assumptions and Caveats

Major simplifying assumptions used in the analysis include:

- Average ex-vessel prices observed in the base year will carry over to the projection period(s).
- Average annual ex-vessel prices are assumed to apply in each port no matter when during the year the landings occur.
- There is no cross-hauling of raw product. That is, landings in a given port are not shipped elsewhere for processing.

One concern with this approach is that the more ex-vessel prices deviate from the range of prices observed in the base year, the more inaccurate projected revenue impacts may be. However, if better information is available on future ex-vessel price trends, it is certainly possible to incorporate this type of information into the revenue projections.

Landings and revenue impacts projected by the LDM are used with the IO-PAC model to estimate community income impacts under the management alternatives. To the degree that processing activities, vessels' home ports, or the residences of owners and workers are located in the ports of landing, then a larger portion of the economic impacts generated by these landings will accrue to

the port. However, to the extent that processing activities, vessels' home ports, or the residences of workers and owners are located elsewhere historical landings patterns may or may not be representative of the impact of these activities in the local economy. For example, if landings are made in one port but vessels' home ports or crew's residences are elsewhere, or if first receivers transport landings to another place for processing, then at least a portion of the projected income and employment impacts may be attributed to the wrong port or region.

6.6 Results

Results from the LDM are used as inputs to estimate community income and employment impacts and vessel sector net revenues under the alternatives. Projected landings and ex-vessel revenues by species, fishery sector and port are applied to impact coefficients estimated using the IO-PAC model to generate community personal income and employment impacts under each management alternative. Projected landings and ex-vessel revenues by groundfish fishery sectors coupled with vessel cost estimates derived from IO-PAC are also used to estimate aggregate net revenues accruing to vessel owners participating in west coast groundfish fisheries. The resulting estimates are then used to compare economic impacts across the range of groundfish management alternatives under consideration.

Table 2.. List of California Port Groups and PacFIN PCIDs in the Landings Distribution ModelList of Washington and Oregon Port Groups and associated PacFIN Port Codes (PCIDs) in the Landings Distribution.

Port Group Area	County	PCID	Port Name
WASHINGTON			
Puget Sound	Whatcom	BLN	Blaine
	Whatcom	BLL	Bellingham Bay
	San Juan	FRI	Friday Harbor
	Skagit	ANA	Anacortes
	Skagit	LAC	La Conner
	Snohomish	ONP	Other North Puget Sound Ports
	Snohomish	EVR	Everett
	King	SEA	Seattle
	Pierce	TAC	Tacoma
	Thurston	OLY	Olympia
	Mason	SHL	Shelton
North Washington Coast	Jefferson	TNS	Port Townsend
	Clallam	SEQ	Sequim
	Clallam	PAG	Port Angeles
	Clallam	NEA	Neah Bay
	Clallam	LAP	La Push
South & Central WA Coast	Grays Harbor	CPL	Copalis Beach
	Grays Harbor	GRH	Grays Harbor
	Grays Harbor	WPT	Westport
	Pacific	WLB	Willapa Bay
	Pacific	LWC	Ilwaco/Chinook
	Klickitat	OCR	Other Columbia River Ports
OREGON			
Columbia River	Multnomah	CRV	Pseudo Port Code for Columbia River
Astoria-Tillamook	Clatsop	AST	Astoria
	Clatsop	GSS	Gearhart - Seaside
	Clatsop	CNB	Cannon Beach
	Tillamook	NHL	Nehalem Bay
	Tillamook	TLL	Tillamook / Garibaldi
	Tillamook	NTR	Netarts Bay
	Tillamook	PCC	Pacific City
Newport	Lincoln	SRV	Salmon River
	Lincoln	SLZ	Siletz Bay
	Lincoln	DPO	Depoe Bay
	Lincoln	NEW	Newport
	Lincoln	WLD	Waldport
	Lincoln	YAC	Yachats
Coos Bay	Lane	FLR	Florence
	Douglas	WIN	Winchester Bay
	Coos	COS	Coos Bay
	Coos	BDN	Bandon
Brookings	Curry	ORF	Port Orford
	Curry	GLD	Gold Beach
	Curry	BRK	Brookings

Table 3. List of California Port Groups and associated PacFIN Port Codes (PCIDs) in the Landings Distribution Model

Port Group Area	County	PCID	Port Name
CALIFORNIA			
Crescent City	Del Norte	CRS	Crescent City
	Del Norte	ODN	Other Del Norte County Ports
Eureka	Humboldt	ERK	Eureka (Includes Fields Landing)
	Humboldt	FLN	Fields Landing
	Humboldt	TRN	Trinidad
	Humboldt	OHB	Other Humboldt County Ports
Fort Bragg	Mendocino	BRG	Fort Bragg
	Mendocino	ALB	Albion
	Mendocino	ARE	Arena
	Mendocino	OMD	Other Mendocino County Ports
San Francisco (incl. Bodega Bay)	Sonoma	BDG	Bodega Bay
	Marin	BOL	Bolinas
	Marin	TML	Tomales Bay
	Marin	RYS	Point Reyes
	Marin	OSM	Other Son. and Mar. Co. Outer Coast Ports
	Marin	SLT	Sausalito
	Alameda	OAK	Oakland
	Alameda	ALM	Alameda
	Alameda	BKL	Berkely
	Contra Costa	RCH	Richmond
	San Francisco	SF	San Francisco
	San Mateo	PRN	Princeton
	San Francisco	SFA	San Francisco Area
	San Francisco	OSF	Other S.F. Bay and S.M. Co. Ports
Monterey	Santa Cruz	CRZ	Santa Cruz
	Monterey	MOS	Moss Landing
	Monterey	MNT	Monterey
	Monterey	OCM	Other S.C. and Mon. Co. Ports
Morro Bay	San Luis Obispo	MRO	Morro Bay
	San Luis Obispo	AVL	Avila
	San Luis Obispo	OSL	Other S.L.O. Co. Ports
Santa Barbara	Santa Barbara	SB	Santa Barbara
	Santa Barbara	SBA	Santa Barbara Area
	Ventura	HNM	Port Hueneme
	Ventura	OXN	Oxnard
	Ventura	VEN	Ventura
	Ventura	OBV	Other S.B. and Ven. Co. Ports
Los Angeles	Los Angeles	TRM	Terminal Island
	Los Angeles	SPA	San Pedro Area
	Los Angeles	SP	San Pedro
	Los Angeles	WLM	Willmington
	Los Angeles	LGB	Longbeach
	Orange	NWB	Newport Beach
	Orange	DNA	Dana Point

Port Group Area	County	PCID	Port Name
	Orange	OLA	Other LA and Orange Co. Ports
San Diego	San Diego	SD	San Diego
	San Diego	OCN	Oceanside
	San Diego	SDA	San Diego Area
	San Diego	OSD	Other S.D. Co. Ports

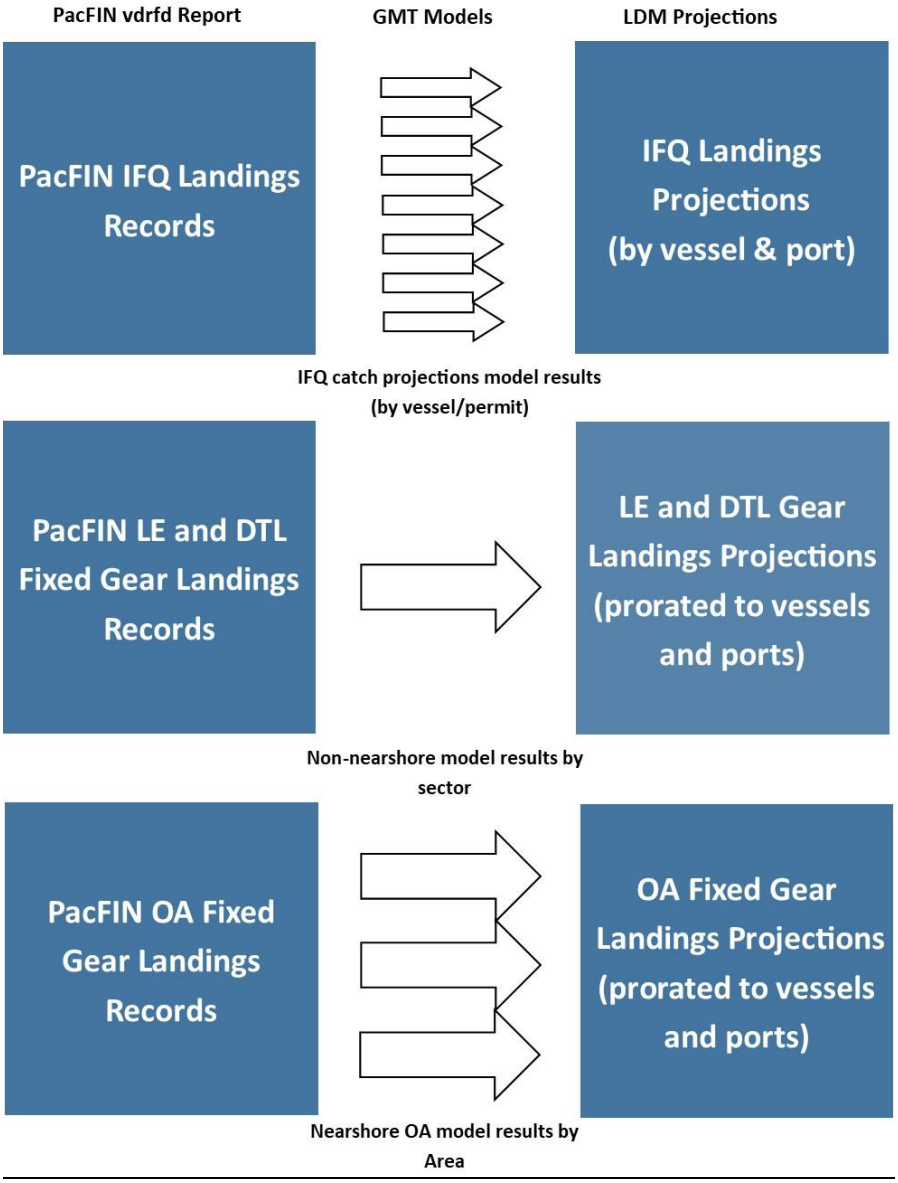

Figure 1. Illustration of linkages between base year data and GMT landings projections used in the LDM.

Note: Results from the at-sea Pacific whiting fisheries and tribal fisheries models are incorporated in similar fashion.

6.7 Estimated Commercial Vessel Net Revenue Impacts of the Alternatives

In order to project how changes in future landings may affect costs, we form a model where the landings (*L)* for each groundfish species (*s*), as well as their respective interactions, are associated with the natural log of non-labor variable costs (*VC*), for each vessel (*i*) and year (*t*) (equation 1). Key variable costs vary by sector and include fuel, bait, ice, food, observer coverage, and electronic monitoring. Intuitively, we would expect costs to increase when a vessel catches a greater quantity of fish, and interactions allow for cost complementarities between species. The economic rationale behind using a logarithmic function to model non-labor variable costs is that marginal costs increase with landings.

$$ln\ ln\ (VC_{it})\ = \sum_{s}^{} L_{its} + \sum_{s}^{} \sum_{r,r\neq s}^{} L_{its}L_{itr} + \epsilon_{it}\ (1)$$

First, we project non-labor variable costs for each alternative by inputting forecasted landings by species into the regression estimates from equation (1). Then, to obtain projected wages, we calculate the historical proportion of wages (*wp*) to variable costs net revenues based on actual recorded wages, and apply them to projected variable cost net revenues. The intuition here is that wages are typically paid out as shares of variable costs net revenues. Wage projections are based on actual recorded wages.

Finally, fixed costs, including vessel and on-board equipment, fishing gear, moorage, and insurance are aggregated from survey data by sector for all vessels that fished in 2020. We impute these fixed costs using sector-specific means for any vessels not in the survey sample

Total costs net revenues (*TCNR*) are calculated as revenues (*R*), less projections of non-labor variable costs (*VC*), wages (labor), cost recovery fees (*CR*), buyback fees (*BB*), and fixed costs (*FC*) in equation (2). Cost recovery fees and buyback fees were calculated using rates of 3.0percent and 3.5percent of revenue, respectively.

$$TCNR = R - VC - (R - VC) * wp - FC - CR - BB\ (2)$$

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Literature Cited

Adams, G.D., M. S. Kapur, M.S., McQuaw, K., Thurner, S, Hamel, O.S, Stephens, A. & Wetzel, C.R. 2019.Stock Assessment Update: Status of Widow Rockfish (*Sebastes entomelas*) Along the U.S. West Coast in 2019. Pacific Fishery Management Council, Portland, Oregon.

Bellquist, L., Beyer, S., Arrington, M., Maeding, J., Siddall, A., Fischer, P., Hyde, J, & Wegner, N. C. (2019). Effectiveness of descending devices to mitigate the effects of barotrauma among rockfishes (Sebastes spp.) in California recreational fisheries. *Fisheries Research*, *215*, 44-52.

Cope, J.M., L.K. Hillier, C.B. Niles , T. Tsou, K.E. Hinton, F.P. Caltabellotta. 2023a. Status of Black Rockfish (*Sebastes melanops*) in 2023 in state and federal waters off Washington state. Pacific Fishery Management Council, Portland, Oregon. 220 p.

Cope, J.M., A.D. Whitman, A.M. Berger, L.K. Rasmuson, C. Rosemond. 2023b. Status of Black Rockfish (*Sebastes melanops*) in 2023 in state and federal waters off Oregon. Pacific Fishery Management Council, Portland, Oregon. 252 p

Davis, M. W., B. L. Olla, and C. B. Schreck. 2001. Stress induced by hooking, net towing, elevated sea water temperature and air in sablefish: lack of concordance between mortality and physiological measures of stress. Journal of Fish Biology 58:1-15.

Dick, E.J., C. Barnes, J. Coates, N. Grunloh, M. Monk, and T. Rogers. 2023. The Status of Black Rockfish in U.S. Waters off California in 2023. Pacific Fishery Management Council, Portland, OR.

Ebert, David A., William T. White, Kenneth J. Goldman, Leonard JV Compagno, Toby S. Daly-Engel, and Robert D. Ward. 2010: Resurrection and redescription of Squalus suckleyi (Girard, 1854) from the North Pacific, with comments on the Squalus acanthias subgroup (Squaliformes: Squalidae). Zootaxa 2612, no. 1 https://www.biotaxa.org/Zootaxa/article/view/zootaxa.2612.1.2

Gertseva, V., I. Taylor, J. Wallace, and S. E. Matson. 2021. Status of the Pacific Spiny Dogfish shark resource off the continental U.S. Pacific Coast in 2021. Pacific Fishery Management Council, Portland, OR.

Haggarty, D. R. (2019). A review of the use of recompression devices as a tool for reducing the effects of barotrauma on rockfishes in British Columbia. Ottawa: Canadian Science Advisory Secretariat.

Monk, M.H., C.R. Wetzel, J. Coates. 2023. Status of copper rockfish (*Sebastes caurinus*) along the U.S. California coast north of Point Conception in 2023. Pacific Fishery Management Council, Portland, Oregon. 289 p

Johnson, K.F., C.R. Wetzel, and N. Tolimieri. 2023. Status of sablefish (*Anoplopoma fimbria*) along the U.S. West Coast in 2023. Pacific Fishery Management Council, Portland, Oregon. 171 p.

Kapur, M. S., Lee, Q., Correa, G. M., Haltuch, M., Gertseva, V., and Hamel, O. S. 2021. DRAFT Status of Sablefish (Anoplopoma fimbria) along the US West coast in 2021. Pacific Fisheries Management Council, Portland, Oregon. 136p.

Langseth, B.J., K.L. Oken, A.D. Whitman, J.E. Budrick, T.S. Tsou. 2023. Status of Canary Rockfish (*Sebastes pinniger*) along the U.S. West Coast in 2023. Pacific Fishery Management Council, Portland, Oregon. 259 p.

Langseth, B.J., C.R. Wetzel, J.M. Cope, J.E. Budrick. 2021. Status of quillback rockfish (*Sebastes maliger*) in U.S. waters off the coast of California in 2021 using catch and length data. Pacific Fishery Management Council, Portland, Oregon. 127 p.

Langseth, B.J. 2023. DRAFT 2023 Rebuilding analysis for quillback rockfish (*Sebastes maliger*) in U.S. waters off the coast of California based on the 2021 stock assessment. Pacific Fishery Management Council, Portland, Oregon. 45 p.

Leonard, J. and P. Watson. 2011. Description of the input-output model for Pacific Coast fisheries. U.S. Dept. Commer., Seattle, June 2011.

Love, M. S., M. Yoklavich, and L. Thorsteinson. 2002. The rockfishes of the northeast Pacific. University of California Press, Berkeley, California.

Matson, S.E., Taylor, I.G., Gertseva, V.V. and Dorn, M.W., 2017. Novel catch projection model for a commercial groundfish catch shares fishery. Ecological modelling, 349, pp.51-61

Min, M., E. Sellinger, T. Wang, S.G. Beyer, A. Rovellini, M. Véron, S.N. Wassermann, V. Gertseva, K.L. Oken, O.S. Hamel, M.A. Haltuch. 2023. *Status of Rex Sole (Glyptocephalus zachirus)* along the U.S. West Coast in 2023. Pacific Fishery Management Council, Portland, Oregon. 132 p.

NMFS (National Marine Fisheries Service). 2018. Authorization of an Oregon Recreational Fishery for Midwater Groundfish Species. Final Environmental Assessment.)

Orr, J. W., Wildes, S., Kai, Y., Raring, N., Nakabo, T., Katugin, O., and J. Guyon. 2015. Systematics of North Pacific sand lances of the genus *Ammodytes* based on molecular and morphological evidence, with the description of a new species from Japan. Fish. Bull. 113, 129–156. doi: 10.7755/fb. 113.2.3. https://spo.nmfs.noaa.gov/sites/default/files/orr.pdf

Pacific Marine Fishery Management Council (PFMC) and National Marine Fisheries Service (NMFS). 2014. Final Environmental Impact Statement. Harvest Specifications And Management Measures For 2015-2016 And Biennial Periods Thereafter: Includes the Reorganization of Groundfish Stock Complexes, Designation of Ecosystem Component Species and Amendment 24 to the Pacific Coast Groundfish Fishery Management Plan to Establish a Process for Determining Default Harvest Specifications. 80 FR 12567, February 10, 2015. 1089p

PFMC. 2023. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery. Portland, OR. 159p

Page, L. M. , Espinosa-Pérez , H. , Findley, L. T. , Gilbert, C. R. , Lea, R. N. , Mandrak, N. E. , Mayden, R. L. and J. S. Nelson. 2013. Common and scientific names of fishes from the United States, Canada, and Mexico , Bethesda , Maryland : American Fisheries Society. 7th edition., Special Publication 34.

Schirripa, M. and J. J. Colbert. 2006. Status of the sablefish resource off the continental U.S. Pacific coasts in 2005. in Volume 4: Status of the Pacific Coast groundfish fishery through 2005, Stock assessment and fishery evaluation. Pacific Fishery Management Council, Portland, OR.

Schirripa, M. J. 2008. Status of the sablefish resource off the continental U.S. Pacific coast in 2007. Status of the Pacific Coast groundfish fishery through 2007. Pacific Fishery Management Council, Portland, OR.

Somers, K. A., K. E. Richerson, V. J. Tuttle, and J. T. McVeigh. 2023a. Estimated Discard and Catch of Groundfish Species in the 2021 U.S. West Coast Fisheries. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-182.

Somers, K. A., K. E. Richerson, V. J. Tuttle, and J. T. McVeigh. 2023b. Fisheries Observation Science Program Coverage Rates, 2002–22. U.S. Department of Commerce, NOAA Data Report NMFS-NWFSC-DR-2023-01.

Somers, K. A., J. Jannot, K. Richerson, V. Tuttle, and J. McVeigh. 2021. Estimated discard and catch of groundfish species in the 2020 U.S. west coast fisheries. NOAA Fisheries, NWFSC Observer Program, 2725 Montlake Blvd E., Seattle, WA 98112.

Steinback, S. R. and E. M. Thunberg. 2006. Northeast Region Commercial Fishing Input-Output Model. U.S. Dept. of Commerce, Woods Hole, MA.

Taylor, I. G., V. Gertseva, and N. Tolimieri. 2023 Status of petrale sole (Eopsetta jordani) along the U.S. West Coast in 2023. Pacific Fishery Management Council, Portland, Oregon. 198 p/

Wegner, N. C., Portner, E. J., Nguyen, D. T., Bellquist, L., Nosal, A. P., Pribyl, A. L., .. & Hyde, J. R. (2021). Post-release survival and prolonged sublethal effects of capture and barotrauma on deep-dwelling rockfishes (genus Sebastes): implications for fish management and conservation. *ICES Journal of Marine Science*, *78*(9), 3230-3244.

Wetzel, C.R., M.H. Monk, J. Coates. 2023. Status of copper rockfish (*Sebastes caurinus*) along the U.S. California coast south of Point Conception in 2023. Pacific Fishery Management Council, Portland, Oregon. 322 p.

Zahner. J.A, M.A. Heller-Shipley, H.A. Oleynik, S.G. Beyer, P-Y. Hernvann, M. Véron, A.N. Odell, J.Y. Sullivan, A.L. Hayes, K.L. Oken, V.G. Gertseva, M.A. Haltuch, O.S. Hamel,. 2023. Status of Shortspine Thornyhead (*Sebastolobus alascanus*) along the US West coast in 2023. Pacific Fishery Management Council, Portland, Oregon. 131 p.