Pacific Coast Groundfish Fishery 2023-2024 Harvest Specifications and Management Measures

DRAFT MANAGEMENT MEASURE ANALYTICAL DOCUMENT

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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
ESU	Evolutionary significant unit
F	Fishing mortality
FEIS	Final Environmental Impact Statement
FEP	Fishery Ecosystem Plan
FM	Fathom or fathoms
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
ID	Identification

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
LOF	List of Fisheries
M	Instantaneous rate of natural mortality
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MPA	Marine Protected Area
MRFSS	Marine Recreational Fisheries Statistical Survey
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSE	Management strategy evaluation
MSST	Minimum Stock Size Threshold
MSY	Maximum sustainable yield
MT	Metric ton
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NID	Negligible Impact Determination
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
PBR	Potential biological removal
PMFC	Pacific Fishery Management Council (used in references)
POP	Pacific ocean perch
PR	Private/rental boats
PRD	NMFS Protected Resources Division
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
SFD	Sustainable Fisheries Division
SPR	Spawning potential ratio
SSC	Scientific and Statistical Committee

STAR	Stock Assessment Review
SWFSC	Southwest Fisheries Science Center
USFWS	United States Fish and Wildlife Service
VMS	Vessel monitoring system
WCGOP	West Coast Groundfish Observer Program
WCR	West Coast Region
WDFW	Washington Department of Fish and Wildlife
XDB-SRA	Extended Depletion-based Stock Reduction Analysis
YRCA	Yelloweye rockfish Conservation Area

Executive Summary

The purpose of this document is to provide information regarding management measures for the 2023-2024 biennial groundfish harvest specifications and management measure process for Council decision making. This document analyzes routine management measures for each fishery sector based on preliminary harvest specifications adopted by the Council in November 2021. Additionally, analysis of the Council proposed several new management measures are included in this documents as well.

Harvest Specifications

The adoption of the harvest specifications and management measures to attain but not exceed those specifications is the primary focus of this biennial process. The majority of stocks will use the default harvest control rules (HCRs) to establish both the acceptable biological catch (ABC) and the annual catch limit (ACL). The overfishing limit (OFL) is endorsed by the Scientific and Statistical Committee (SSC) and is the main steering device used to bring stocks up or down toward management targets. The ABC must be set below the OFL, and accounts for uncertainty in the assessment (sigma) as well as the Council's preference on the probability of overfishing (P*). The ACL is typically set equal to the ABC, but can be set lower for more precaution. The alternative harvest specifications being considered in 2021-22 are shown (Table ES 1). Harvest specifications are not covered in this document in detail. That information is provided under Agenda Item F.3, April 2022 and the following information is for reference only.

ES 1. Alternative harvest specifications being considered for 2023-24.

Species	No Action	Alternative 1	Alternative 2
OR Black Rockfish	ACL=ABC P*0.45	ACL= 2020 ABC (P* = 0.45)	N/A
Lingcod north of 40° 10′ N. lat..	ACL < ABC w/ 40-10 adjustment (P* = 0.45).	ACL < ABC w/ 40-10 adjustment (P* = 0.40).	N/A
Lingcod south of 40° 10′ N. lat.	ACL = ABC (P* = 0.45).	ACL = ABC (P* = 0.40).	N/A
Sablefish a/	ACL = ABC (P* = 0.45).	ACL = ABC (P* = 0.40).	ACL = ABC (P* = 0.35)
Pacific spiny dogfish	ACL = ABC (P* = 0.40)	ACL = 1,075 mt for 2023-2024, then ACL = ABC (P* = 0.40) thereafter.	N/A
Vermilion/sunset rockfish north of 40° 10′ N. lat..	ACL = ABC (P* = 0.45).	ACL = ABC (P* = 0.40).	N/A
Vermilion/sunset rockfish south of 40° 10′ N lat.	ACL = ABC (P* = 0.45).	ACL = ABC (P* = 0.40).	N/A

a/ The coastwide sablefish ABCs are apportioned north and south of 36° N. lat. to determine area-specific ACLs.

Oregon black rockfish (in complex with OR blue/deacon rockfish)

The Council is considering two alternate harvest control rules for Oregon black rockfish, Under No Action, the default harvest control rule (DHCR) under consideration is ACL=ABC (P*0.45) which would generate ACLs of 477 mt and 471 mt in 2023 and 2024, respectively. The Alternative 1 harvest control rule is ACL = 2020 ABC (P*0.45), i.e., case-by-case ACL contribution of 512 mt to the Oregon black/blue/deacon rockfish complex, would increase Oregon's unofficial state-specified nearshore landings target for the nearshore fishery from 113 mt and 111.5 mt in 2023-24, respectively, to 121.3 mt in both years of 2023-24.

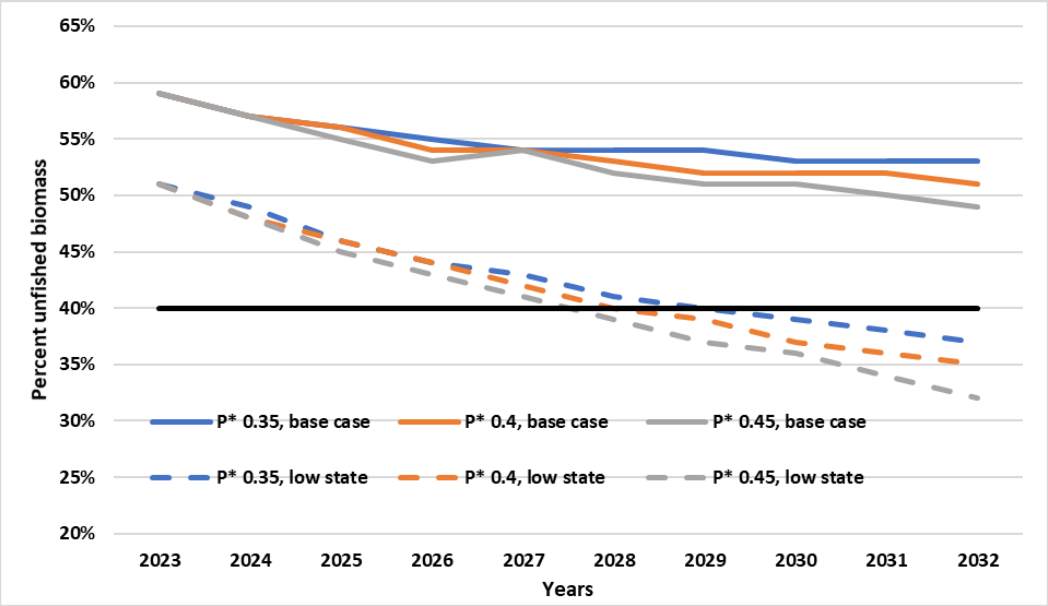
Sablefish

There are three sablefish harvest control rules being considered for 2023-24: ACL=ABC (P* 0.45) (No Action), ACL=ABC (P* 0.4) (Alternative 1), and ACL=ABC (P* 0.35) (Table ES 2) The coastwide ABC and ACLs north and south of 36 North latitude (N. lat.) are provided in Table ES 2 for comparison.

ES 2. 2023-24 sablefish ACL in metric tons (mt)under the three harvest control rule alternatives . 2021 ACLs north and south of 36° N. lat. provided for reference.

Year	Alternative	Coastwide ABC (mt)	N of 36°	S of 36°
2021	Baseline	8,375	6,892	1,889
2023	No Action	10,825	8,486	2,338
	Alt.1	10,107	7,924	2,183
	Alt. 2	9,412	7,379	2,033
2024	No Action	9,923	7,780	2,143
	Alt.1	9,252	7,253	1,998
	Alt. 2	8,608	6,749	1,859

No Action is not expected to negatively impact the stock long-term compared to Alternative 1 or Alternative 2. All three alternatives are projected to keep the stock above the 40 percent of unfished spawning biomass long-term (through 2032) under the base case model (ES Figure 1).. Under a low state of nature, all three alternatives are expected to similarly impact the stock (i.e., low-to-high 30 percent depletion range for both). This means that the stock could eventually end up in the upper precautionary zone under any of the alternatives, if the assessment overestimated the population scale (size of biomass), which was the main source of uncertainty in this and many other assessments. These projections assume the full ABCs would be taken each year. If attainments remain low in the south, then the stock is projected to remain at or above the management target (40%) long-term even under the low state of nature under any of the alternatives.



ES Figure 1. Long-term depletion projections for the coastwide ABC alternatives assuming the full ABCs would be caught each year from 2023-2032; "reduced catch scenarios" (not shown) assume southern attainments remain low and project the stock being near management target (40%) long-term even under the low state of nature.

Lingcod north of 40°10' N. lat.

The 2021 assessment (Agenda Item C.6, Attachment 1, September 2021) on lingcod north of 40° 10' N lat indicated the stock is well above the management target at 62 percent of unfished spawning biomass in 2023. The harvest control rule alternatives for 2023-24 are P* 0.45 (No Action) and P* 0.40 (Alternative 1). Given the stock north of 40° 10' N lat is healthy and the percent attainment of the ACL has been declining over the last five years, continuing to manage the stock north of 40° 10 under a P* 0.45 poses no risk to the stock (Table ES 3) However, the stock was assigned Category 2 status and selecting a P* 0.40 could buffer the uncertainty in the assessment results; therefore, included in the analysis. (Table ES 4) lists the ACLs under each alternative for the 2023-24 biennium.

ES 3. Recent total estimated mortality of lingcod north of 40° 10' N lat compared to the ACL. Data source: WCGOP GEMM and PacFIN/RecFIN.

Year	Total Estimated Mortality (mt)	ACL (mt)	Percent of ACL
2017	1,155.5	3,333	35%
2018	1,021.1	3,110	33%
2019	1,004.1	4,871	21%
2020	815.3	4,541	18%
2021[1]	837	5,369	16%

[1] The average estimated discard mortality from 2017-2020 was added to the 2021 commercial landings for a projected total mortality value. Recreational data through Dec for WA and OR, and through Nov for CA.

ES 4. 2023-24 lingcod north of 40° 10 N. lat. ACLs under the two harvest control rule alternatives. 2021 ACL provided for reference.

Year	Alternative	ACL (mt)
2021	Baseline	5,369
2023	No Action	4,378
	Alt.1	3,817
2024	No Action	3,854
	Alt.1	3,418

Lingcod south of 40° 10' N. lat.

The 2021 assessment (Agenda Item C.6, Attachment 2, September 2021) on lingcod south of 40° 10' N. lat. indicated the stock ins in the precautionary zone at 38 percent of unfished spawning biomass in 2023. The harvest control rule alternatives for 2023-24 are P* 0.45 (No Action) and P* 0.40 (Alternative 1). While the stock south of 40° 10 N. lat. is below the 40 percent management target, the percent attainment of the ACL has been declining over the last five years. Continuing to manage the stock north of 40° 10' N. lat. under a P* 0.45 will likely pose no risk to the stock (Table ES 5). However, similar to the north, the stock south of 40° 10 N. lat. was assigned Category 2 status and by selecting a P* 0.40 could account for the uncertainty in the assessment results; therefore, included in the analysis. Table ES 6 lists the ACLs under each alternative for the 2023-24 biennium.

ES 5. Recent total estimated mortality of lingcod south of 40° 10' N lat compared to the ACL. Data source: WCGOP GEMM and PacFIN/RecFIN

Year	Total Estimated Mortality (mt)	ACL (mt)	Percent of ACL
2017	551.9	1,502	38%
2018	457.1	1,144	40%
2019	397.2	1,039	38%
2020	290.2	977	30%
2021*[2]	319.2	1,102	29%

ES 6. 2023-24 lingcod south of 40° 10' N. lat. ACLs under the two harvest control rule alternatives. 2021 ACL provided for reference.

Year	Alternative	ACL (mt)
2021	Baseline	1,102
2023	No Action	726
	Alt.1	633
2024	No Action	722
	Alt.1	634

Pacific Spiny Dogfish

The harvest control rule alternatives for 2023-24 are P* 0.40 (No Action) and under Alternative 1 is for the ACL to equal 1,075 mt for 2023-2024, then ACL=ABC P* 0.40 thereafter under the

[2] *Id.*

middle state of nature model (ES 7). Pacific spiny dogfish ACLs under the two harvest control rule alternatives. 2021 ACL provided for reference.). Based on the 2021 stock assessment, Pacific spiny dogfish is in the precautionary zone (34 percent unfished biomass)

ES 7. Pacific spiny dogfish ACLs under the two harvest control rule alternatives. 2021 ACL provided for reference.

Year	Alternative	ACL (mt)
2021	Baseline	1,102
2023	No Action	1,456
	Alt.1	1,075
2024	No Action	1,407
	Alt.1	1,075

Vermilion rockfish north of 40° 10' N. lat.

The 2021 vermilion rockfish assessment indicated that the vermilion north of 40° 10' N. lat stock is above 40 percent of unfished spawning biomass (Agenda Item C.6, Attachment 5, Attachment 6, and Attachment 7 September 2021) The harvest control rule alternatives under consideration for 2023-24 are P* 0.45 (No Action) and P* 0.40 (Alternative 1). Although the stock north of 40° 10' N lat is healthy, there are concerns over the recent high levels of mortality; therefore, a more precautionary P* 0.4 may be warranted and thus analyzed. Table ES 8 lists the harvest reference points under each alternative for the 2023-24 biennium.

ES 8. Recent total estimated mortality of vermilion rockfish north of 40° 10' N lat compared to the ACL. Data source: WCGOP GEMM and PacFIN/RecFIN.

Year	Total Estimated Mortality (mt)	OFL contribution (mt)	Percent of OFL contribution
2017	20.6	9.7	212%
2018	22.9	9.7	236%
2019	25.7	9.7	265%
2020	20.2	9.7	208%
2021*[3]	16.8	9.7	173%

ES 9. 2023-24 vermilion rockfish north of 40° 10' N. lat. ACL and OFL contributions to the Shelf Rockfish complex and the ACL and OFL of the Shelf Rockfish Complexes north of 40° 10' N. lat. under the two harvest control rule alternatives. 2021 harvest specifications are presented for reference.

Year	Alternative	ACL contribution (mt)	OFL Contribution (mt)	Shelf Rockfish Complex N ACL (mt)	Shelf Rockfish Complex N OFL (mt)
2021	Baseline	7.5	9.7	1,450	1,821
2023	No Action	19.7	21.3	1,283	1,614
	Alt.1	18.5	21.3	1,281	1,614
2024	No Action	19.8	21.3	1,278	1,278
	Alt.1	18.4	21.4	1,277	1,610

[3]The average estimated discard mortality from 2017-2020 was added to the 2021 commercial landings for a projected total mortality value. Recreational data through Dec for WA and OR, and through Nov for CA.

Vermilion/Sunset rockfish south of 40° 10' N. lat.

The 2021 vermilion south of 40° 10' N. lat. assessments (Agenda Item C.6, Attachment 4, September 2021) on conducted off California indicated is at 48 percent unfished spawning biomass in 2021 (Table ES 10). The harvest control rule alternatives under consideration for 2023-24 are P* 0.45 (No Action) and P* 0.40 (Alternative 1). Although the stock north of 40° 10' N. lat. is healthy, there are concerns over the recent high levels of mortality; therefore, a more precautionary P* 0.4 may be warranted and thus analyzed. Table ES 11 lists the harvest reference points under each alternative for the 2023-24 biennium.

ES 10. Recent total estimated mortality of vermilion rockfish south of 40° 10' N lat compared to the ACL. Data source: WCGOP GEMM and PacFIN/RecFIN.

Year	Total Estimated Mortality (mt)	OFL contribution (mt)	Percent of OFL contribution
2017	341.2	269.3	127%
2018	344.5	269.3	128%
2019	485.0	269.3	180%
2020	259.9	269.3	97%
2021*[4]	309	269.3	114%

ES 11. 2023-24 vermilion north of 40° 10' N. lat. ACL and OFL contributions to the Shelf Rockfish complex and the ACL and OFL of the Shelf Rockfish Complex north of 40° 10' N. lat. under the two harvest control rule alternatives. 2021 harvest specifications are provided for reference

Year	Alternative	ACL contribution (mt)	OFL Contribution (mt)	Shelf Rockfish Complex N ACL (mt)	Shelf Rockfish Complex N OFL (mt)
2021	Baseline	224.6	269.3	1,428	1,832
2023	No Action	277.1	306.8	1,465	1,830
	Alt.1	254	311.2	1,442	1,835
2024	No Action	277.3	309.3	1,465	1,833
	Alt.1	253.4	314.9	1,441	1,839

Quillback Rockfish, Copper Rockfish, and Squarespot Rockfish of California

Length-based data moderate stock assessments for these species were conducted in 2021. The quillback rockfish assessment off California indicated the stock is below Minimum Stock Size Threshold (MSST; i.e., 20 percent of unfished stock spawning biomass) (Agenda Item E.2, Attachment 4, November 2021). For copper rockfish off California, two assessments were conducted, one for the area between 42 and 34 27' N lat which indicated the stock is at 39 percent of unfished stock spawning biomass and one for the area south of 34 17' N lat which indicated the stock is below MSST (Agenda Item E.2, Attachment 2, November 2021; Agenda Item E.2.a, Supplemental SSC Report 1, November 2021). However, the results of the two assessments were combined as per the SSC's recommendation (Agenda Item E.2, Attachment 1, November 2021). The combined result indicated the stock is in what may be referred to as the precautionary zone (between management target of 40 percent of unfished spawning stock biomass and MSST) at 31.7

[4] *Id.*

percent of unfished spawning stock biomass. Lastly for squarespot rockfish of California, the results indicated the stock is also in the precautionary zone at 37 percent of unfished spawning stock biomass.

Given the pessimistic results indicated by the length-based data moderate assessments, precautionary management measures are warranted and were analyzed for quillback and copper rockfish. Precautionary measures for squarespot rockfish were not included in this analysis as they are not as frequently caught as quillback and copper rockfish, thus lower catch limits may not result in any meaningful reduction in impacts. However, inseason monitoring and action on squarespot rockfish can be done should there be a preference to take precautionary measures on the species.

Off-the-Top

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 proposed tribal set-asides increase only for Pacific ocean perch and darkblotched; research set-asides for yelloweye rockfish and cowcod may be set at values other than the historical maximum to account for research needs; EFP set-asides will be adopted to cover approved EFPs needs, and for IOA set-asides are set at historical maximums for all species and species complexes except for darkblotched rockfish, yelloweye rockfish, Nearshore Rockfish Complex north of 40°10’ N. lat., petrale sole, and sablefish south of 36° N. lat.

Annual Catch Targets (ACT)

ACTs are an accountability measure (AM) applied to harvest specifications as an additional measure to reduce the risk of exceeding ACLs. Under the Alternatives, yelloweye rockfish has non-trawl sector ACTs of 50.8 mt and cowcod has an ACT of 50 mt applied under the HG . The Council is considering ACTs for quillback rockfish and copper rockfish

Amendment 21 and Biennial Allocations

No changes were proposed for any fishery allocation under the Alternatives. The allocation changes made to petrale sole, widow rockfish, lingcod south of 40°10′ N. lat., and slope rockfish complex south of 40°10’ N. lat. in in the 2021-2022 harvest specifications and management measure process were not modified.

Rebuilding Species Allocations

Yelloweye rockfish is the only species subject to a rebuilding plan. The Council did not indicate changes to this plan in this biennium.

Harvest Guidelines and State Shares for Stocks in a Complex

Under the Alternatives, HGs and state shares for species in a complex remain status quo. The Council did not propose any changes. The Council is considering HGs for quillback rockfish and copper rockfish.

Trawl: Individual Fishery Quota Fishery and At-Sea Sectors

The groundfish trawl fishery is composed of the at-sea sectors, namely the Mothership (MS) and Catcher/Processor (CP) sectors, and the shorebased Individual Fishery Quota (IFQ) sector. For stocks with a trawl allocation, the trawl amount is allocated to the shorebased IFQ sector after deducting any at-sea set-asides to account for expected at-sea mortality. Under all action alternatives, the principle management measures for the at-sea sectors would remain the same in 2023 and 2024 as those under Baseline. This includes set-asides for 15 non-target, groundfish stocks. At-sea catches of 13 of those 15 stocks in 2021 were below their recent 3-year averages; catches of canary rockfish and slope rockfish north of 40° 10' N. lat. were higher. However, ACL attainments for both canary rockfish and slope rockfish north of 40° 10' N. lat. in 2021 were lower than 50 percent.

The 2021 stock assessment of Pacific spiny dogfish noted the estimated fraction unfished in 2021 was 34 per cent, which is below the Council's management target, and the 2023 and 2024 ACLs under No Action are projected to be the lowest they have been since 2013. Roughly 75-90 percent of total Pacific spiny dogfish mortality is attributed to the groundfish trawl fishery each. Pacific spiny dogfish is not currently managed with a trawl/non-trawl allocation or an at-sea set-aside, and given the high variability of bycatch in both the at-sea and IFQ trawl sectors, neither an allocation nor a set-aside are likely to provide meaningful reductions in bycatch. Though Pacific spiny dogfish bycatch in the next biennium is expected to be lower than in 2018 and 2019, based on recent mortality trends, particularly in the groundfish trawl fishery, these lower ACLs could be at risk of being exceeded. Given the spatial and seasonal nature of Pacific spiny dogfish catch in the groundfish trawl fishery, the Council requested the GMT explored ways to spatially mitigate Pacific spiny dogfish in the trawl sector (e.g., Bycatch Reduction Areas (BRAs), Block Area Closures (BACs) and Rockfish Conservation Areas (RCA).,

Two stocks with at-sea set-asides are being considered for Alternative HCRs: sablefish north of 36° N. lat. and lingcod north of 40° N. lat. The 2023 and 2024 sablefish ACLs under No Action, Alternative 1, and Alternative 2 are all projected to be higher than Baseline 2021 ACLs, with progressively higher ACLs spanning from No Action up to Alternative 2. Under all three action alternatives for sablefish north of 36° N. lat., at-sea catch is expected to remain within the status quo 100 mt set-aside, and even if exceeded, would not pose a risk to the stock's ACL. The lingcod north of 40° N. lat. ACLs in 2023 and 2024 are projected to be lower than the Baseline 2021 ACL under both No Action and Alternative 1, with Alternative 1 reflecting a more conservative HCR (P* 0.40). Given that the at-sea sectors have caught an annual maximum of 3.4 mt of lingcod north of 40° N. lat. since 2018, the 15-mt at-sea set-aside for lingcod north of 40° N. lat. is expected to accommodate at-sea mortality in 2023 and 2024 under both No Action and Alternative 1, and the ACL is not at risk of exceedance due to similarly low attainment in the shorebased IFQ fishery.

Non-Trawl: Limited Entry and Open Access

The limited entry fixed gear (LEFG) and open access (OA) sectors, particularly the non-nearshore fishery, will mainly be affected by the three different sablefish harvest control rule alternatives being considered in 2023-24. The highest allotment is under the No Action alternative, with the allotment decreasing with each alternative. There is a proposal to remove the daily trip limit for open access north of 36 N. lat., which could increase profit and reduce the number of trips needed while maintaining conservation and management goals.

Because of the changes to the sablefish ACLs resulting from the three harvest control rule alternatives, there is a projected increase of Pacific spiny dogfish shark bycatch for No Action, Alternative 1 and Alternative 2. This projection for every alternative is above the 5 year average. If the Council chooses Alternative 1 under Pacific spiny dogfish shark, which is a case-by-case ACL of 1,075 mt (5 year average across all sectors), with the increases in potential sablefish landings it might be at risk of exceedance.

Lingcod north of 36°N. lat. has two alternative harvest control rules, where the Alternative 1 ACL is less than the No Action ACL (Table ES 6 reference. The change is so minimal that there will likely be no difference in fishery behavior, likely due to the fact that yelloweye rockfish impacts are such a constraint to the fixed gear sector that trip limits will not be increased and therefore attainment will remain around 30 percent for 2023-24 regardless of what P* is chosen. However, for lingcod south of 40° 10' N. lat., the ACLs under Alternative 1 are 93 mt (2023) to 88 mt (2024) less than the ACLs under No Action (Table ES 6). While there are no trip limit adjustments proposed at this time as impacts projections are within the non-trawl allocations under each alternative, the lower ACLs under Alternative 1 could result in inseason adjustments to decrease trip limits should there be additional fishing effort redirect to other stocks when trying to reduce the pressure on the nearshore area.

Vermilion rockfish was assessed off all three states in four different assessments. The harvest specifications that resulted from the different assessments were then apportioned to the management areas, north and south of 40° 10' N. lat. There are two harvest control rule alternatives proposed for both management areas, P* 0.45 (No Action) and P* 0.4 (Alternative 1). Alternative 1 was proposed to take a more precautionary approach to managing the stock as mortality north and south of 40° 10' N. lat. has exceeded the OFL contributions to the Shelf Rockfish Complex in multiple years. The 2023-24 harvest specifications under both alternatives are much greater than the 2021 harvest specifications and there is little difference between the two alternatives in the resulting harvest specifications. At this time there are no trip limit adjustments proposed as impacts projections are within the non-trawl allocations for the shelf rockfish complexes under each alternative. However, lower harvest specifications under Alternative 1 could result in inseason adjustments to decrease trip limits should there be additional fishing effort redirected to other stocks when trying to reduce the pressure on the nearshore area.

Quillback and copper rockfish were assessed off all three states (Agenda Item E.2, Attachment 4, November 2021). The assessment for the portion of the quillback stock off California indicated the stock is below Minimum Stock Size Threshold (MSST). The assessment for the portion of the copper rockfish stock off California indicated the stock is in the precautionary zone. For the 2023-24 biennium, under No Action there are proposals to reduce the sub-trip limits for both quillback and copper rockfish in the California Nearshore fishery as a way to further reduce mortality on these stocks of concern; both stocks would remain in the Minor Nearshore Rockfish complexes. Under Alternative 1, quillback rockfish is removed from the Minor Nearshore Rockfish complexes and receive its own set of harvest specifications. The same trip limit reductions are proposed for quillback rockfish off California under Alternative 1 as under No Action; however, the trip limits and impacts are calculated statewide versus for each management area. The proposed trip limits for quillback rockfish are minimal and are a means to continue to collect fishery dependent data for use in the next stock assessment. .

Washington Recreational

The Washington recreational fishery will be open from the second Saturday in March through the third Saturday in October. 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. The key harvest specifications alternatives that will impact the Washington recreational fishery are the annual catch limit (ACL) alternatives for the Washington vermilion rockfish contribution to the Shelf Rockfish Complex north of 40° 10′ N. lat. Under No Action and Alternative 1. The Washington vermilion rockfish ACL contribution to the northern Shelf Rockfish Complex is slightly higher under No Action compared to Alternative 1; however, under both alternatives, the Washington ACL contribution is significantly restrictive to the Washington recreational fishery. Additional management measures are also needed to reduce total mortality of copper rockfish and quillback rockfish, both of which are managed in the Nearshore Rockfish Complex north of 40° 10′ N. lat.

WDFW is still working to understand the advice of the SSC from the 2021 November Council meeting (Agenda Item E.3.a, Supplemental SSC Report 1, November 2021) which includes recommending three separate stock areas for status determination for quillback rockfish in Washington, Oregon, and California. However, for copper rockfish the SSC recommends pooling the biomass estimates from the Oregon and Washington assessments for a northern status determination. Similarly, for vermilion rockfish, the SSC recommends the Washington and Oregon assessments should be combined into a single stock area for status determination because of the lack of a population structure at the northern extent of the range. It's important to highlight that the SSC notes the considerable uncertainty regarding stock structure for the three species and the importance of additional data that may provide clarity but until more data is available, management should be distributed proportional to relative biomass to reduce risk.

The 2023-2024 management cycle presents challenging circumstances for managing vermilion rockfish in particular but also for copper rockfish and quillback rockfish. The management measures analyzed for 2023-2024 utilize the best scientific information available from recent stock assessments in a way that seeks to maintain stability for Washington recreational fisheries in the near term that is in balance with the need to continue the collection of critical data that informs future stock assessments. This data flow is particularly important in Washington given that Washington does not have a nearshore commercial fishery and relies primarily on data from the recreational fishery to inform stock assessments.

Oregon Recreational

The Oregon recreational fishery will be open year-round at all-depths with a general marine fish bag limit of ten fish, two lingcod, 25 flatfish (other than Pacific halibut), and ten longleader gear species under all harvest specifications alternatives. Additional opportunities for anglers participating in the all-depth Pacific halibut fishery to also participate in the longleader gear fishery are included in all of the mortality estimates. The key difference in the harvest specifications alternatives that impacts the Oregon recreational fishery is the annual catch limit (ACL) contribution of black rockfish to the Oregon black/blue/deacon rockfish complex. Under No Action, the state-specified Oregon recreational share of the black rockfish ACL contribution to the complex ACL is projected to be exceeded. This may necessitate inseason action to reduce impacts

to stay within the state-specified share, depending on how the state commercial nearshore catch is proceeding towards that sectors share. Under Alternative 1, the black rockfish contribution to the complex ACL is higher, resulting in a higher share for the Oregon recreational fishery. Total impacts are projected to be within the Oregon recreational state-specified share of black rockfish under Alternative 1, reducing the potential for the need for inseason action, and the species-specific contribution to the complex ACL being exceeded.

California Recreational

Recreational fishing opportunities in California waters are expected to be reduced in 2023 and 2024 in response to new stock assessments for quillback and copper rockfish indicating severe declines in California waters are expected to constrain the California recreational fishery. Yelloweye rockfish will continue to constrain fishing opportunities in the recreational fishery.

Under the No Action Alternative, quillback rockfish will be managed within the nearshore complexes and under Alternative 1, quillback rockfish is removed from the nearshore rockfish complex and managed under a separate specification. Under both alternatives, the harvest specifications for quillback rockfish in waters off California are expected to be extremely constraining for the recreational fishery, especially north of Point Conception.

A suite of new management measures was explored to keep impacts within harvest specifications. New management measure options to reduce quillback rockfish, vermilion rockfish, and copper rockfish mortality include changes in bag limits (including No Action) and novel use of RCA management that would allow fishing seaward of a RCA boundary line represents may be a way to provide additional opportunity to anglers while reducing pressure on nearshore stocks. The options under consideration were designed to maximize the Council's logistical flexibility and are intended to be available for use through routine inseason management adjustments if warranted mid-biennium. These measures 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.

There is increased uncertainty with impact projections for offshore fisheries, especially for yelloweye rockfish and cowcod. A robust inseason tracking and monitoring program by California Department of Fish and Wildlife (CDFW), which has proven successful in prior years to keep impacts within limits, will continue to be used in 2023 and 2024 to further offset uncertainty in model projections and reduce the risk of exceeding harvest specifications.

New Management Measures

Annual Catch Targets for Quillback Rockfish and Copper Rockfish Off of California.

The Council directed development of ACTs for quillback rockfish and copper rockfish off of California. These species are within the Nearshore Rockfish Complexes north and south of 40° 10' N. lat. and have not had this accountability measure applied to them in the past. The ACT analysis explores a method to designate ACTs by fishery sector.

California Recreational Bag Limit Changes

The California recreational fishery new management measures explore methods to reduce impacts to quillback rockfish, vermilion rockfish, and copper rockfish through bag limit analyses This management measure proposes changes to the bag limit for these species

Recreational Rockfish Conservation Area Management Method Modifications off of California

The Council is proposing modifying how Rockfish Conservation Areas management boundaries could be implemented as a means to reduce impacts on nearshore rockfish species. This measure would allow implementing RCA shoreward of a depth contour boundary line. At present, RCAs are implemented seaward of the depth contour boundary line.

Fishery Management Plan Amendment to Establish a Shortbelly Rockfish 2,000 mt Catch Threshold to Initiate Council Review of the Fishery

The FMP amendment would require inseason catch monitoring of the ecosystem component species shortbelly rockfish. The measure would establish a 2,000 mt threshold that if exceeded or projected to be exceeded would trigger Council review of the fishery.

Fishery Management Plan Amendment to Correct the Block Area Closure Definition

The FMP amendment would correct the current definition of block area closures to be consistent with Federal Regulations and meet Council intent of the salmon mitigation measures adopted in 2019.

Limited Entry Fixed Gear Primary 'Tier' Fishery Sablefish Season Extension

The Council is proposing changing the current season close date of the primary tier sablefish fishery from October 31 to December 31.

Modifications to Non-Trawl Rockfish Conservation Area Management

The Council is proposing to allow the non-trawl groundfish fishery to access the Non-Trawl Rockfish Conservation Area with the use of specific gear types.

1. Baseline

The Baseline scenario describes the regulations, management measures, and expected groundfish mortality in 2021. Baseline is not an alternative under consideration for implementation, but a description of the current conditions which can be used to better understand the proposed management measure adjustments under No Action and the Action alternatives for the 2023 -2024 groundfish management measure cycle. This year was selected as baseline as it represents the most recent year of complete fishery data. The analyses that supported the following specifications can be found in Agenda Item F.1, Attachment 8, June 2020.

1.1 Off-the-Top Deductions

Amounts deducted from the annual catch limit (ACL), called off-the-top deductions (Table 1-1) 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[IOA]), and, as necessary, exempted fishing permits (EFPs). Sufficient yield must be available to accommodate the anticipated groundfish mortality from the aforementioned activities to increase the probability that catches will remain at or below the ACLs. These values can be modified inseason based on the best available information. The ACL minus the off-the-top amount results in the harvest guideline (HG) for the species or complex)

Tribal Fishery: Tribal fisheries consist of trawl (bottom, midwater, and whiting), fixed gear, and troll. Tribal values are based allocations established under Treaty provisions (Agenda Item H.8.a, Supplemental Revised Tribal Report 3, November 2019) as well as specific requests (Agenda Item H.8.a, Supplemental Tribal Report 1, November 2019). In 2021-2022 biennial cycle, the Tribal harvest amounts for petrale sole was increased from 290 mt to 350 mt, longnose skate from 130 to 220 mt, yelloweye rockfish increased from 2.3 to 5.0 mt and a 2.0 mt set-aside for cabezon was established

Research: Research activities include the National Marine Fisheries Service (NMFS) trawl survey, International Pacific Halibut Commission (IPHC) longline survey, and other Federal and state research. The Council research ACL deductions were set equal to the maximum historical scientific research catch from 2005 to 2018 for all species except cowcod and yelloweye rockfish (Agenda Item H.8.a, Supplemental GMT Report 1, November 2019). The Council recommended increasing the research set-aside for 10 mt cowcod and 2.92 mt yelloweye rockfish to account for research needs (Agenda Item G.6.a, Supplemental GMT Report 1, April 2020).

Incidental Open Access: Deductions from ACLs are made to account for groundfish mortality in IOA fisheries.[5] IOA ACL deductions were set at the maximum historical values with the exception of petrale sole, sablefish south of 36° N. lat., and darkblotched rockfish (Agenda Item

[5] 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, sea cucumber, and trap spot prawn.

G.6.a, Supplemental GMT report 1, April 2020). All other species[6] were derived from the maximum historical values from 2007 to 2018 in the West Coast Groundfish Observer Program (WCGOP) Groundfish Mortality report.

Exempted Fishing Permits: Deductions from ACLs are made to account for groundfish mortality in EFPs. The Council adopted EFP set-asides for the 2021/2022 biennium as detailed in Agenda Item F.1.a, Supplemental GMT Report 2, June 2020.

Recreational (sablefish north of 36° N. lat. only): The allocation framework 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.

Incidental Groundfish Retention in the Salmon Troll Fishery

The Council established salmon fishery trip limits for yellowtail rockfish south of 40°10' N. lat. and changed the incidental yellowtail rockfish salmon troll limits north of 40°10' N. lat.

Salmon Troll South of 40°10' N. lat.

The Council established salmon troll trip limits for incidentally caught yellowtail rockfish south of 40°10′ N. lat. of 1 lb. of yellowtail rockfish per 2 lb. of Chinook salmon landed, with a cumulative monthly limit of 200 lbs. of yellowtail rockfish, both within and outside the RCA. Yellowtail rockfish south of 40° 10′ N. lat. are within the Shelf Rockfish Complex south, however, the Council did not recommend changes to the IOA set-aside for this complex as impacts were expected to be within open access shelf rockfish complex south of 40° 10′ N. lat. trip limit (Agenda Item G.6, Attachment 3, April 2020)

Salmon Troll north of 40°10' N. lat.

The Council adopted an increase to salmon troll trip limits for incidentally caught yellowtail rockfish north of 40°10′ N. lat. to a monthly limit of 500 lbs. of yellowtail rockfish with no ratio (i.e., yellowtail rockfish may be landed as long as salmon is present), both within and outside the RCA.[7] However, the Council did not adjust the set-aside as yellowtail rockfish mortality was expected to remain under that amount. As described in Agenda Item G.6.a, Supplemental GMT Report 1, April 2020, the IOA set aside is based on the historical maximum mortality in 2005.

Shortbelly rockfish

Shortbelly rockfish was designated as an ecosystem component species by the Council at the June 2020 meeting (i.e., Alternative 2). As such, this species neither has harvest specifications nor active management measures associated and, therefore, is not include in the ACL deductions and allocation tables below.

[6] 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.

[7] This limit was within a 200 lb. per month combined limit for widow rockfish, shelf rockfish north of 40° 10' N. lat., and yellowtail rockfish, not in addition. Note that as part of the 2017-2018 biennial cycle, yellowtail rockfish was removed from the open access multi-stock trip limit, and a new separate trip limit was set at 500 lbs. per month; however, the salmon troll yellowtail rockfish trip limit did not reflect this change.

Table 1-1. Baseline: Off-the-top deductions for Tribal, exempted fishing permits (EFP), research and incidental open access (IOA) and resulting fishery harvest guidelines (HG) for 2021 in metric tons (mt). a/

Stock/Complex	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Total (mt)	Fishery HG (mt)
Arrowtooth flounder	Coastwide	9,933	2,041	0.1	12.98	41.00	**2,095.08**	7,837.9
Big skate	Coastwide	1,477	15	0.1	5.49	36.72	**57.31**	1,419.7
Black rockfish	Washington	293	18	0.0	0.10	0.00	**18.10**	274.9
Black rockfish	California	348	-	1.0	0.08	1.18	**2.26**	345.7
Bocaccio	south of 40º10' N. lat.	1,748	-	40.0	5.60	2.22	**47.82**	1,700.2
Cabezon (CA)	south of 42º N. lat.	211	-	1.0	0.02	0.26	**1.28**	209.2
California scorpionfish	south of 34°27' N. lat.	291	-	0.0	0.18	3.71	**3.89**	287.1
Canary rockfish	Coastwide	1,338	50	8.0	10.08	1.31	**69.39**	1,268.6
Chilipepper	south of 40º10' N. lat.	2,358	-	70.0	14.04	13.66	**97.70**	2,260.3
Cowcod	south of 40º10' N. lat.	84	-	1.00	10.00	0.17	**11.17**	72.8
Darkblotched rockfish	Coastwide	882	0.2	0.6	8.46	9.80	**19.06**	862.9
Dover sole	Coastwide	50,000	1,497	0.1	50.84	49.27	**1,597.21**	48,402.8
English sole	Coastwide	9,175	200	0.1	8.01	42.52	**250.63**	8,924.4
Lingcod	north of 40º10' N. lat.	5,369	250	0.1	16.60	11.68	**278.38**	5,090.6
Lingcod	south of 40º10' N. lat.	1,102	-	1.5	3.19	8.31	**13.00**	1,089.0
Longnose skate	Coastwide	1,823	220	0.1	12.46	18.84	**251.40**	1,571.6
Longspine thornyhead	north of 34º27' N. lat.	2,634	30	0.0	17.49	6.22	**53.71**	2,580.3
Longspine thornyhead	south of 34º27' N. lat.	832	-	0.0	1.41	0.83	**2.24**	829.6
Pacific cod	Coastwide	1,600	500	0.1	5.47	0.53	**506.10**	1,093.9
Pacific ocean perch	N of 40º10' N. lat.	3,854	9.2	0.1	5.39	10.04	**24.73**	3,829.3
Pacific whiting	Coastwide	369,400	64,645	1.1	750	1,500.00	**66,686**	302,504
Petrale sole	Coastwide	4,115	350	0.1	24.14	13.30	**387.54**	3,727.5
Sablefish	north of 34º27' N. lat.	6,892	**See Table 1-2**					
Sablefish	south of 34º27' N. lat.	1,890	-	0.0	2.40	25.00	**27.40**	1,862.6
Shortspine thornyhead	north of 34º27' N. lat.	1,428	50	0.1	10.48	17.82	**78.40**	1,349.6
Shortspine thornyhead	south of 34º27' N. lat.	756	-	0.0	0.71	6.00	**6.71**	749.3
Spiny dogfish	Coastwide	1,621	275	1.1	34.27	33.63	**344.00**	1,277.0
Splitnose rockfish	south of 40º10' N. lat.	1,666	-	1.5	11.17	5.75	**18.42**	1,647.6

Stock/Complex	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Set-aside Total (mt)	Fishery HG (mt)
Starry flounder	Coastwide	392	2	0.1	0.57	45.71	**48.38**	343.6
Widow rockfish	Coastwide	14,725	200	28.0	17.27	3.05	**248.32**	14,476.7
YELLOWEYE ROCKFISH	Coastwide	50	5.0	0.24	2.92	0.69	**8.85**	41.2
Yellowtail rockfish	north of 40º10' N. lat.	6,050	1,000	10.0	20.55	7.00	**1,037.55**	5,012.5
Stock Complexes								
Nearshore rockfish	north of 40º10' N. lat.	77	1.5	0.5	0.47	0.61	**3.08**	73.9
Nearshore rockfish	south of 40º10' N. lat.	1,016	-	0.0	2.68	1.74	**4.42**	1,011.6
Shelf rockfish	north of 40º10' N. lat.	1,511	30	1.5	15.32	25.62	**72.44**	1,438.6
Shelf rockfish	south of 40º10' N. lat.	1,438	-	50.0	15.10	67.67	**132.77**	1,305.2
Slope rockfish	north of 40º10' N. lat.	1,595	36	0.5	10.51	18.88	**65.89**	1,529.1
Slope rockfish	south of 40º10' N. lat.	709	-	1.0	18.21	19.73	**38.94**	670.1
Other fish	Coastwide	223	-	0.1	6.29	14.95	**21.34**	201.7
Other flatfish	Coastwide	4,802	60	0.1	23.63	137.16	**220.89**	4,581.1
Oregon black/blue/deacon rockfish	Oregon	603	-	0.5	0.08	1.74	**2.32**	600.7
Oregon cabezon/kelp greenling	Oregon	198	-	0.1	0.05	0.06	**0.21**	197.8
Washington cabezon/kelp greenling	Washington	20	2	0.0	-	-	**2.00**	18.0

a/ dash indicates no value

The Council adopted a sablefish apportionment method (i.e., Method 2 recent five year average), for allocating ACLs north and south of 36° N. lat. and a Preferred Alternative of P* 0.45. Table 1-2 below describes the Baseline off-the-top deductions and resulting commercial HG for 2021.

Table 1-2. Baseline: Sablefish north of 36° N. lat. ACL deductions for 2021 and resulting commercial harvest guideline (HG). All values in metric tons (mt)

Year	ACL	Tribal	Research	Recreational	EFP	Commercial HG
2021	6,892.0	689.2	30.7	6.0	1.1	6,165.0

1.1.1 Annual Catch Target

Annual Catch Targets (ACT) are an additional management measure that can be used to set a harvest target set below the ACL. ACTs can also be used as an accountability measure in cases where there is uncertainty in inseason catch monitoring to ensure against exceeding an ACL. Since the ACT is a target and not a limit it can be used in lieu of harvest guidelines (HGs) or strategically to accomplish other management objectives.

Cowcod was declared rebuilt in 2019. The Council adopted a 50 mt ACT set under the HG for cowcod in order to manage this stock. Additionally, the Council established a formal 50/50 non-trawl allocation split between commercial non-trawl and recreational for cowcod (Table 1-3).

Table 1-3. Baseline: Cowcod allocation structure for 2021 showing the post-harvest guideline (HG) annual catch target (ACT) in metric tons (mt)

Specification	2021 (mt)
ACL	84
Harvest Guideline	72.8
ACT	50
Trawl (36%)	18
Non Trawl (64%)	32
Commercial (50%)	16
Recreational (50%)	16

Additionally, the non-trawl fishery is subject to an ACT for yelloweye rockfish of 29.5 mt; however, that species, and it's allocation structure, is discussed below under Section 1.2.2 Rebuilding Species Allocations.

1.2 Allocations

This section describes allocations for stock and stocks complexes. The fishery HGs for most species are allocated between the trawl and non-trawl fisheries via percentages adopted under Amendment-21 (A-21) to the Pacific Groundfish Fishery Management Plan (FMP) or as part of the groundfish management biennial process. Additionally, Amendment 6 (A-6) specifies allocations for sablefish north of 36° N. lat. Multiple changes were made to allocation structures for the 2021-2022 biennium. A detailed rationale regarding the basis for the changes can be found in the 2021-2022 Analytical Document. For some species, no allocations are implemented.

1.2.1 Amendment 21 and Biennial Allocations

In the 2021-2022 biennium, formal allocations specified under A-21 were removed petrale sole, widow rockfish, lingcod south of 40°10′ N. lat., and slope rockfish complex south of 40°10’ N. lat.; the remaining species allocations classified under A-21 were not modified. The Council adopted a two-year allocation structure for petrale sole whereby 30 mt would be allocated to the non-trawl sector with the remainder to trawl. Historically, petrale sole was managed under A-21 allocation structure of 95 percent trawl, 5 percent non-trawl split. The Council adopted a two-year allocation structure for widow rockfish, allocating 400 mt to the non-trawl sector with the remainder to trawl. Historically, this species was managed under A-21 allocation structure whereby 91 percent was allocated to trawl and 9 percent was allocated to non-trawl. The Council adopted a two-year allocation structure for lingcod south of 40°10′ N. lat. of 40 percent trawl and 60 percent non-trawl, which was 45 percent trawl and 55 percent non-trawl under A-21.

Two-year trawl and non-trawl allocations are decided during the biennial process for those species without long-term allocations or species where the long-term allocation is suspended. The ACLs and allocations for species subject to short-term allocations are indicated below in Table 1-4. For the 2021-2022 biennium, the Council modified biennial allocations of canary rockfish and bocaccio south of 40° 10’ N. lat. The nearshore and non-nearshore allocations for each species were combined (Agenda Item G.6.a, Supplemental GMT Report 1, April 2020) to increase management flexibility.

Table 1-4. Baseline: Trawl and non-trawl allocations for 2021 in percent (%) and metric tons (mt) based on the harvest guideline (HG). Dash indicates no allocation. a/

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Arrowtooth flounder	Coastwide	6,362.9	A-21	95	7446	5	391.9
Big skate	Coastwide	1,331.7	Biennial	95	1,348.7	5	71
Black rockfish	Washington	272.9	-	-	-	-	-
Black rockfish	California	338.7	-	-	-	-	-
Blue/Deacon/Black rockfish	Oregon	597.7	-	-	-	-	-
Bocaccio	south of 40°10' N. lat.	1,676.2	Biennial	39.04	663.8	60.96	1,036.4
Cabezon	California	193.7	-	-	-	-	-
Cabezon/Kelp greenling	Oregon	15	-	-	-	-	-
Cabezon/Kelp greenling	Washington	189.8	-	-	-	-	-
California scorpionfish	Coastwide	271.1	-	-	-	-	-
Canary rockfish	Coastwide	1,237.6	Biennial	72.281	917	27.719	351.6
Chilipepper	south of 40°10' N. lat.	2,161.3	A-21	75	1,695.2	25	565.1
Cowcod	south of 40°10' N. lat.	50	Biennial	36	18	64	32
Darkblotched rockfish	Coastwide	811.9	A-21	95	819.8	5	43.1
Dover sole	Coastwide	48,402.8	A-21	95	4,5982.7	5	2,420.1
English sole	Coastwide	8,850.8	A-21	95	8,477.9	5	446.2
Lingcod	north of 40°10' N. lat.	4,,679.6	A-21	45	2,290.8	55	2,799.8
Lingcod	south of 40°10' N. lat.	159	Biennial	40	435.6	60	653.4
Longnose skate	Coastwide	1,509.6	Biennial	90	1,414.4	10	157.2
Longspine thornyhead	north of 34°27' N. lat.	2,398.3	A-21	95	2,451.3	5	129
Longspine thornyhead	south of 34°27' N. lat.	771.8	-	-	-	-	-
Nearshore Rockfish North	north of 40°10' N. lat.	72.9	-	-	-	-	-
Nearshore Rockfish South	south of 40°10' N. lat.	1,005.6	-	-	-	-	-
Other Fish	Coastwide	201.7	-	-	-	-	-
Other Flatfish	Coastwide	4,617.1	A-21	90	4123	10	458.1
Pacific cod	Coastwide	1,093.9	A-21	95	1,039.2	5	54.7

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Pacific ocean perch	north of 40°10' N. lat.	3,686.3	A-21	95	3,637.8	5	191.5
Pacific whiting	Coastwide	302,504	A-21	100	302,504	0	0
Petrale sole	Coastwide	3,272.5	Biennial	-	3,697.8	-	30
Sablefish	north of 36° N. lat.	6165		See Table 1-5			
Sablefish	south of 36° N. lat.	1,773.6	A-21	60.2	782.3	39.8	1,080.3
Shelf Rockfish north	north of 40°10' N. lat.	1,374.6	Biennial	12.2	864.2	87.8	571.4
Shelf Rockfish south	south of 40°10' N. lat.	1,295.2	Biennial	95	159.2	5	1,146
Shortspine thornyhead	north of 40°10' N. lat.	1,314.6	None	0.067	1,282.1	99.933	67.5
Shortspine thornyhead	south of 40°10' N. lat.	730.3	A-21	81	50	19	699.3
Slope Rockfish north	north of 40°10' N. lat.	1,501.1	A-21	63	1,237.8	37	290.3
Slope Rockfish south	south of 40°10' N. lat.	666.1	A-21	-	526.4	-	143.7
Spiny dogfish	Coastwide	1,241	None	95	-	5	-
Splitnose rockfish	south of 40°10' N. lat.	1,611.6	A-21	50	1,565.2	50	82.4
Starry flounder	Coastwide	343.6	A-21	-	171.8	-	171.8
Widow rockfish	Coastwide	13,539.7	A-21	8	14,076.7	92	400
Yelloweye rockfish	Coastwide	42.2	Biennial	88	3.3	12	37.9
Yellowtail rockfish	north of 40°10' N. lat.	4,783.5	A-21	60.2	4402.2	39.8	600.3

a/ 'dash' is equivalent to zero.

Sablefish North of 36° N. lat.

Sablefish north of 36° N. lat. is allocated under the A-6 framework, which allocates the commercial HG between the limited entry (trawl and fixed gear) and open access sectors (Table 1-5).

Table 1-5. Baseline: Sablefish north of 36° N. lat. commercial 2021 harvest guidelines (HG) and allocations to limited entry trawl, fixed gear (LEFG) and open access (OA) in metric tons (mt).

Year	Commercial HG	Limited Entry HG		Limited Entry Trawl		LEFG		Open Access	
		%	mt	%	mt	%	mt	%	mt
2021	6,165	90.6	5,586	58	3,240	42	2,234	9.4	580

1.2.2 Rebuilding Species Allocation

Under Baseline, yelloweye rockfish was the only groundfish remaining in a rebuilding plan. The Council adopted the No Action allocation structure, including managing the non-trawl sector with both HGs and ACTs at the sector level; however, the Council modified the yelloweye rockfish allocation structure (see Agenda Item G.6.a, Supplemental GMT Report 1, April 2020). This option created a single HG and single ACT for yelloweye rockfish for all commercial non-trawl fisheries by combining the coastwide non-nearshore and nearshore HG and ACTs (Table 1-6). Yelloweye projected mortality impacts, in metric tons (mt), under Baseline are described in the trawl and non-trawl sections below. 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.

Table 1-6. Baseline: Yelloweye rockfish allocations, harvest guideline (HG), and annual catch target (ACT) for 2021 in metric tons (mt)

Year	2021 (mt)	
ABC	83.45	
ACL	50	
Off-the-Top Deduction	8.9	
Fishery HG	41.2	
Trawl (8%)	3.3	
At-Sea	0	
IFQ	3.3	
Non-trawl (92%)	**HG**	**ACT**
	37.9	29.5
Non-nearshore / Nearshore (20.9%)	7.9	6.2
WA Rec (25.6%)	9.7	7.5
OR Rec (23.3%)	8.8	6.9
CA Rec (30.2%)	11.4	8.9

1.3 Harvest Guidelines and State Shares for Stocks in a Complex

Harvest guidelines can be established for stocks within a complex, for stocks that are shared between states and for inter-sector allocations (e.g., non-trawl commercial and recreational).

1.3.1 Slope rockfish south of 40° 10′ N. lat.

The Council recommended an allocation structure based on customized shares of blackgill rockfish and the other southern slope rockfish species based on the percentages considered in Amendment 28 (A-28). Table 1-7 below shows the resulting trawl and non-trawl allocations for the southern slope complex based on the shares for blackgill rockfish and other slope species.

Table 1-7. Baseline allocations for the southern slope rockfish complex and the shares for blackgill rockfish south of 40° 10' N. lat. and other slope rockfish south of 40° 10' N. lat. for 2021 in metric tons (mt)

Category	2021	
	Trawl	Non-trawl
Blackgill rockfish shares (41% trawl; 59% non-trawl) in mt	72.4	104.2
Other slope shares (91% trawl; 9% non-trawl) in mt	484.5	47.9
Total share in mt	556.9	152.1
% of total share	78.5%	21.5%
Total off-top deductions for southern slope complex in mt	38.9	
Apportioned off-the-top deductions based on % of total share in mt	30.5	8.4
Southern slope complex Allocation in mt	526.4	143.7

1.3.2 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 cabezon/greenling complexes in Oregon and Washington.

1.3.3 Nearshore Rockfish

The West Coast states monitor and manage catches of Nearshore Rockfish north of 40°10' N. lat. using state-specific HGs (Table 1-8). The HGs for Washington and Oregon are state HGs and not established in Federal regulations. In California, the HG is specified in Federal regulation and applies only in the area between 42° N. lat. to 40°10' N. lat. In addition to Federal HGs, there are state-specified quotas for nearshore species that further limit harvest in the commercial nearshore and recreational fisheries. Detailed descriptions of the state nearshore fisheries can be found in the 2015-2016 Environmental Impact Statement EIS.

Table 1-8. Baseline: State specific harvest guidelines (HG) for Nearshore Rockfish Complex north of 40°10' N. lat. in 2021 in metric tons (mt).

State	HG (mt)
Washington	18.4
Oregon	22.7
California	37.6

1.3.4 Canary Rockfish

The Council recommended the combination of the non-trawl nearshore and non-nearshore HGs for canary rockfish, which resulted in the HGs shown in Table 1-9

Table 1-9. Baseline. Canary rockfish non-trawl subsector harvest guidelines (HG) for 2021.

Sector	2021 HG
Non-Trawl	351.6
Nearshore	126.6
Non-Nearshore	
WA Recreational	43.3
OR Recreational	65.1
CA Recreational	116.7

1.3.5 Bocaccio South of 40° 10' N. lat.

The Council recommended the combination of the non-trawl nearshore and non-nearshore HGs for bocaccio south of 40° 10' N. lat., which resulted in the HGs shown in Table 1-10.

Table 1-10. Baseline. Bocaccio south of 40° 10' N. lat. non-trawl subsector harvest guidelines (HG) for 2021.

Sector	2021 HG
Non-trawl	1036.4
CA Recreational (69.1%)	716.2
Non-nearshore (30.5%)	320.3
Nearshore (0.4%)	

1.4 Tribal Fishery: Baseline

1.4.1 Tribal Management Measures

The Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) principle management include allocations, set-asides, HGs, trip limits, and management measures as described in Table 1-11. Tribal fisheries consist of trawl (bottom, midwater, and whiting), fixed gear, and troll.

Table 1-11. Baseline. Tribal fishery management measures and regulations.

Category	Management Measures

Allocations and Set-asides	• YELLOWEYE ROCKFISH: 100 lbs. per trip
	• Black Rockfish: Pacific Coast treaty Indian tribes Commercial harvest of black rockfish off Washington State is managed by an HG. A treaty Indian tribes' HG are:
	  o 30,000 lb. for the area north of Cape Alava, WA (48°09.50' N. lat.)
	  o 10,000 lb. for the area between Destruction Island, WA (47°40' N. lat.) and Leadbetter Point, WA (46°38.17' N. lat.)
	  o no tribal harvest restrictions for black rockfish in the area between Cape Alava and Destruction Island.
	• Canary rockfish: tribal HG of 50 mt
	• Lingcod: overall catch of 250 mt for all treaty fishing.
	• Pacific cod: tribal HG of 500 mt.
	• Pacific whiting: tribal allocation for 2021 was 64,645 mt.
	• Petrale sole: fleetwide harvest target of 350 mt. Bottom trawl vessels are restricted to small footrope trawl gear.
	• Rockfish - Full retention. Rockfish taken during open competition tribal commercial fisheries for Pacific halibut would not be subject to trip limits.
	• Sablefish: Pacific coast treaty Indian Tribes allocation is 10 percent of the sablefish ACL for the area north of 36° N. lat. and is reduced by 1.7 percent for estimated discard mortality.
	• Spiny dogfish: managed to an expected total catch of 275 mt per year and within the LE trip limits for non-tribal fisheries.
	• Thornyhead
	  o Shortspine thornyhead is limited to 50 mt annually.
	  o Longspine thornyhead is limited to 30 mt annually.
	• Yellowtail rockfish: the entire tribal directed midwater trawl fishery fleet is limited to 1,000 mt per year.
	• 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: 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. Redstripe rockfish are subject to an 800 lb. trip limit. 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

Allocations and Set-asides *cont.*	• Flatfish and Other Fish (small footrope bottom trawl): For Dover sole, English sole, Other Flatfish, and arrowtooth flounder trip limits are established in tribal regulation only and adjusted in-season to stay within the overall harvest targets and overfished species limits. • Makah Tribe midwater trawl fisheries: widow rockfish landings managed to the tribal HG of 200 mt per year and managed not to exceed 1,000 mt for the fleet.
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 shoreside observer program to monitor and enforce Makah limits

1.4.2 Impact (Groundfish Mortality)

All tribal fisheries were managed to not exceed set-asides and HGs in 2021. Trip limits were subject to inseason adjustments in order to utilize tribal set-asides 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. The projected groundfish mortality is shown in Table 1-12

Table 1-12. Baseline. Projected 2021 groundfish mortality in tribal fisheries.

Species	2021 Treaty HG and Set-Asides (mt)	Total Mortality (mt)
Arrowtooth flounder	2,041	0.65
Black rockfish (WA) a/	18.14	0.0
Cabezon	2	0.0
Canary rockfish	50	3.39
Darkblotched rockfish	0.2	0.16
Dover sole	1,497	6.51
English sole	200	0.0
Lingcod	250	20.94
Longnose skate	130	1.28
Longspine thornyhead	30	0.33
Other flatfish	60	3.53
Pacific cod	500	19.7
Pacific ocean perch	9.2	0.64
Pacific whiting	64,645 (17.5% of TAC)	3,638.04
Petrale sole	350	61.96
Sablefish north of 36° N. lat.	689 (10% of TAC)	426.25
Shortspine thornyhead	50	4.98
Spiny dogfish	275	8.10
Widow rockfish	200	2.92
Yellowtail rockfish	1,000	45.85
Yelloweye rockfish	5.0	0.87

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))

Sablefish Discard Mortality

The tribes have a sablefish discard model that looks at the changing size distribution between a restricted longline fishery (trip limits) for sablefish and an unrestricted longline fishery (no trip limits) for sablefish. It is assumed that the change in the size distribution of fish landed by the fisheries is caused by discard of small fish in the restricted fishery. With the most current data inputs, the data shows the total mortality for sablefish discard is 1.7 percent of the total tribal allocation which is consistent with the estimation for the 2021 – 2022 biennium.

1.5 Shorebased Individual Fishing Quota (IFQ): Baseline

1.5.1 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 share, or QS, of the species-specific IFQ allocation and may fish up to the poundage reflected by that share within a calendar year. The 2021 shore-based IFQ program management measures are incorporated by reference (§660.140) but are summarized in Table 1-13.

Table 1-13. Baseline - IFQ. Summary of IFQ fishery management measures in 2021.

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 Pacific halibut, lingcod, and sablefish discards Vessels are prohibited from participating in the IFQ fishery if 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. 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 stock or stock complex
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. AMP-related criteria for AMP-QP distribution has not been developed, it is issued (i.e., passed through) to permit owners in proportion to their non-whiting QS
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 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 eligible for potential issuance of surplus 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, landings are tracked by electronic fish tickets and verified by catch monitors.
Gear restrictions	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' - 42° N. lat. Midwater trawl gear is prohibited shoreward of the boundary line approximating 150 fathoms south of 40°10' N. lat.

Category	Management Measure
RCAs	Vessels harvesting IFQ stocks 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
Bycatch Reduction Areas (BRAs)	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).. BRAs can also be implemented through routine inseason action.
Block Area Closures (BACs)	BACs are a groundfish conservation area which close are bounded by latitude and depth and can be implemented for 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 fleet, or the entire trawl fishery (at-sea and IFQ). Whiting vessels fishing under an approved Salmon Mitigation Plan (SMP) may be subject to a BAC if implemented for the whiting sector to access the Chinook salmon reserve (3,500 fish; 50 CFR §660.60(i)).
Other Groundfish Conservation Areas (GCAs)	Other GCAs exist to protect overfished species and habitat, including Essential Fish Habitat Conservation Areas (EFHCAs), a deep-water (>700 fathom) bottom trawl closure area, bottom contact closure areas, cowcod conservation areas (CCAs), and yelloweye rockfish conservation areas (YRCAs),

Table 1-14. Trawl RCA configurations in regulation for 2021

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 1-15. Non-trawl RCA configurations in regulation for 2021.

Area	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
north of 46°16' N. lat.	shoreline - 100 fm line					
46°16' N. lat. - 40°10' N. lat.	40 fm line - 100 fm line					
	30 fm line - 40 fm line a/					
40°10' N. lat. - 38°57.5' N. lat.	40 fm line - 125 fm line					
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/ Between 46°16' N. lat. and 40°10' N. lat. and the 30 fm and 40 fm lines, fishing is only allowed with hook-and-line gear except bottom longline and dinglebar.

1.5.2 Impact (Groundfish Mortality)

IFQ Stocks

The 2021 IFQ and IBQ allocations and total mortality for IFQ stocks are listed in Table 1-16. Three of the most economically important stocks to the Shorebased IFQ fishery are sablefish north of 36° N. lat. (Figure 1-1), petrale sole (Figure 1-2), and widow rockfish (Figure 1-3). While all three stocks experienced lower IFQ allocation attainment in 2020 and 2021 compared to 2018 and 2019, the allocations for all three stocks increased from 2020 to 2021. Accounting for anomalous impacts from the COVID-19 pandemic in 2020, catches in 2020 and 2021 did not differ greatly

compared to prior years. The jump in catch of widow rockfish between 2016 and 2018 is attributed to the re-emergence of the mid-water non-whiting fishery in 2017 for which widow rockfish is the primary target species. Yellowtail rockfish is another main target of the mid-water fishery, contributing to its higher attainment in recent years. Other high value IFQ stocks, with 2021 attainments in parentheses, include Pacific whiting (89 percent), Dover sole (9 percent), lingcod (25 percent coastwide), and yellowtail rockfish north of 40°10' N. lat. (61 percent). Attainments of the remaining IFQ stocks were all below 50 percent.

Sablefish south of 36° N. lat. is another notable IFQ stock that was once again subject to low attainment in 2021 (10 percent). This stock 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). This trend is expected to continue in the future given the lack of trawling operations currently in Southern California which are likely to be further constricted as all trawling was closed in the EFHCA in the sablefish grounds of the Southern California Bight in 2020 (84 FR 63966).

Pacific Halibut IBQ north of 40° 10' N. lat.

The 2021 Shorebased IBQ allocation for Pacific halibut north of 40° 10′ N. lat. was 72.3 mt. The stock 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 to 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 2021, 41 percent of the IBQ allocation was taken, and less than 50 percent has been taken since at least 2019.

Table 1-16. Shorebased IFQ. Estimated mortality for IFQ species and Pacific halibut IBQ for 2021 compared to the allocations or set-asides.- Data Source = NMFS Pacific Coast Groundfish IFQ Database

IFQ Species	Area	Baseline 2021		
		Estimated Mortality	SB IFQ Alloc. (mt) a/	% Attain
Arrowtooth flounder	Coastwide	728.8	7,376.1	10%
Bocaccio rockfish	south of 40°10' N. lat.	255.3	663.8	38%
Canary rockfish	Coastwide	367.9	881.0	42%
Chilipepper	south of 40°10' N. lat.	725.3	1,695.2	43%
Cowcod	south of 40°10' N. lat.	2.0	18.0	11%
Darkblotched rockfish	Coastwide	258.4	743.4	35%

IFQ Species	Area	Baseline 2021		
		Estimated Mortality	SB IFQ Alloc. (mt) a/	% Attain
Dover sole	Coastwide	4,022.9	45,973.1	9%
English sole	Coastwide	189.8	8,478.3	2%
Lingcod	north of 40°10' N. lat.	345.3	2,275.8	15%
Lingcod	south of 40°10' N. lat.	43.4	435.6	10%
Longspine thornyhead	north of 34°27' N. lat.	71.7	2,451.3	3%
Shelf rockfish	north of 40°10' N. lat.	402.3	831.1	48%
Shelf rockfish	south of 40°10' N. lat.	28.4	159.2	18%
Slope rockfish	north of 40°10' N. lat.	284.6	938.6	30%
Slope rockfish	south of 40°10' N. lat.	48.0	526.4	9%
Other flatfish	Coastwide	411.5	4,088.0	10%
Pacific cod	Coastwide	1.4	1,039.2	<1%
Pacific halibut b/	north of 40°10’ N. lat.	29.6	72.3	41%
Pacific ocean perch	north of 40°10' N. lat.	442.8	3,337.8	13%
Pacific whiting c/	Coastwide	126,345.0	142,234.4	89%
Petrale sole	Coastwide	2,803.1	3,692.9	76%
Sablefish	north of 36° N. lat.	2,285.2	3,139.6	73%
Sablefish	south of 36° N. lat.	89.5	786.0	11%
Shortspine thornyhead	north of 34°27' N.	329.0	1,212.1	27%
Shortspine thornyhead	south of 34°27' N	0.0	50.0	0%
Splitnose rockfish	south of 40°10' N. lat.	20.1	1,565.2	1%
Starry flounder	Coastwide	0.1	171.8	<1%
Widow rockfish	Coastwide	10,800.2	13,600.8	79%
YELLOWEYE ROCKFISH	Coastwide	0.5	3.3	14%
Yellowtail rockfish	north of 40°10' N. lat.	2,689.1	4,091.2	66%

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.

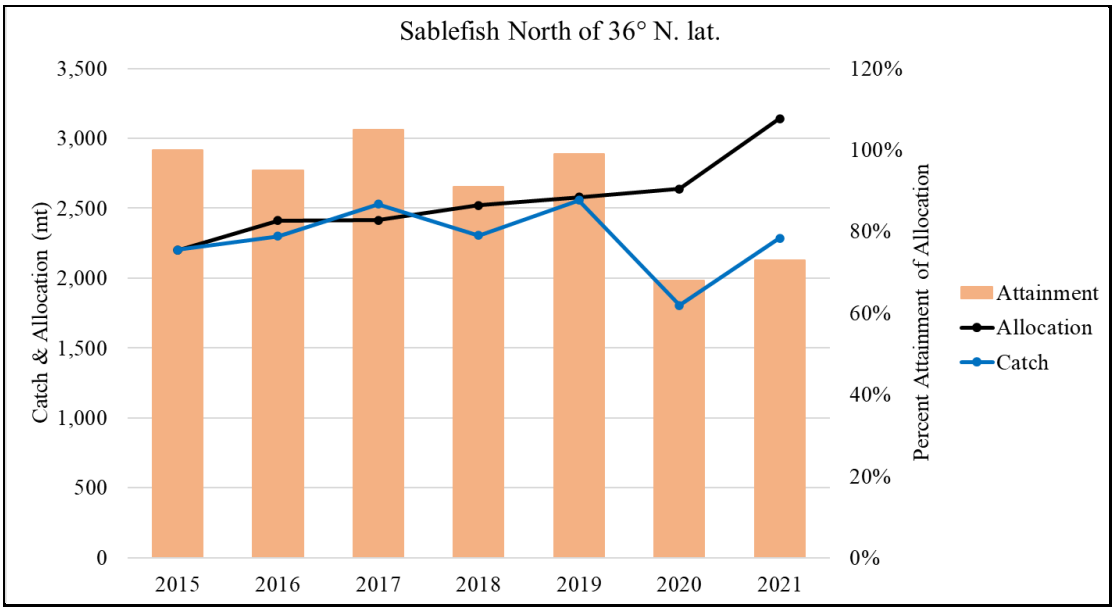


Figure 1-1. Sablefish north of 36° N. lat. catch (mt), allocation (mt), and IFQ attainment percent between 2015 and 2021 in the shorebased IFQ fishery.

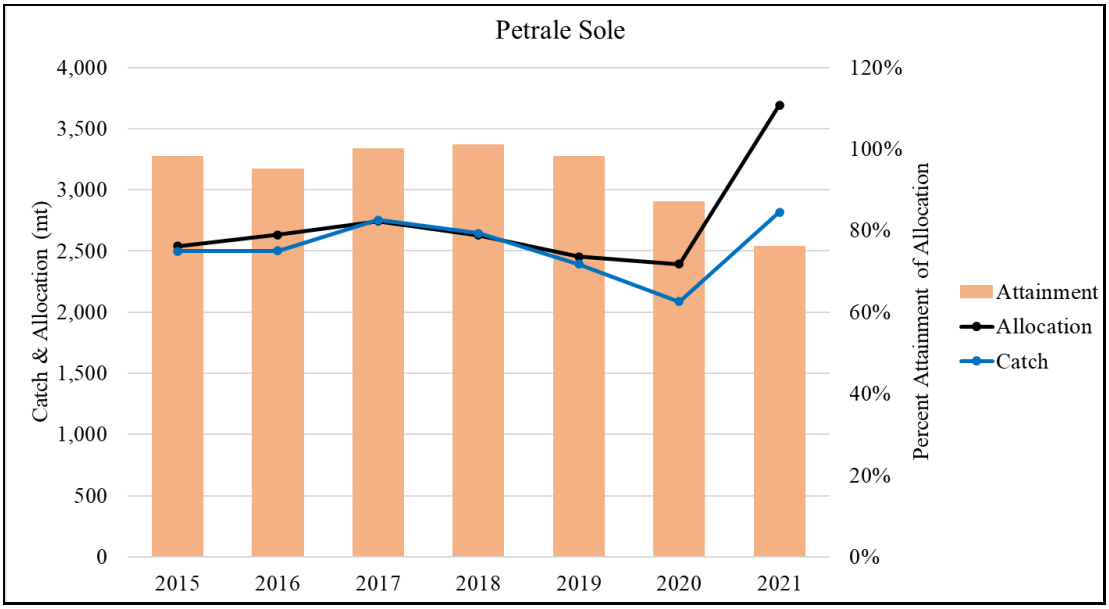


Figure 1-2. Petrale sole catch (mt), allocation (mt), and IFQ attainment percent between 2015 and 2021 in the shorebased IFQ fishery.

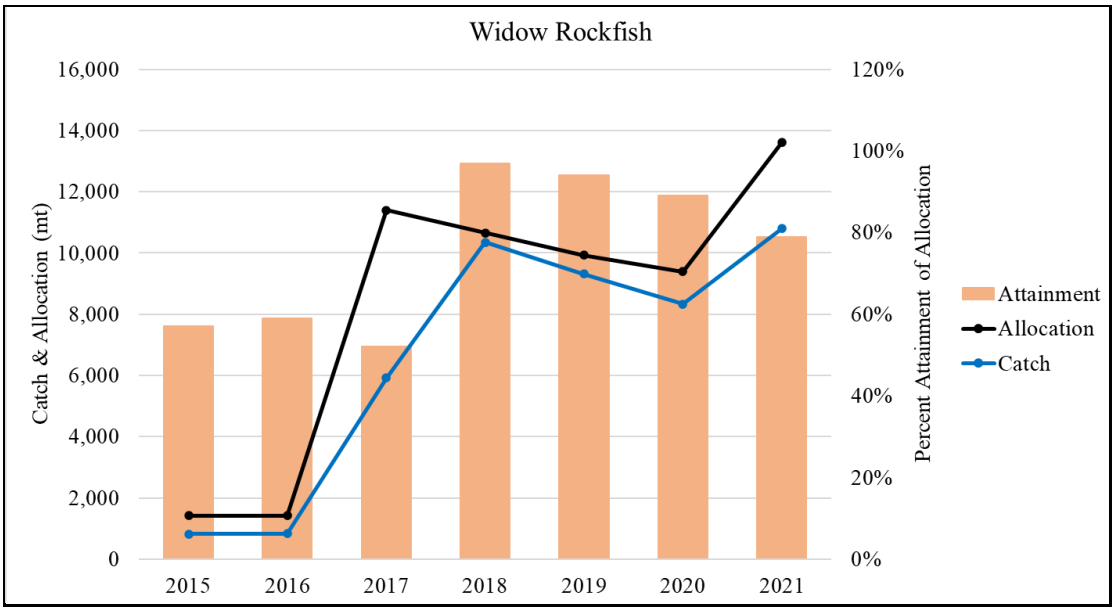


Figure 1-3. Widow rockfish catch (mt), allocation (mt), and IFQ attainment percent between 2015 and 2021 in the shorebased IFQ fishery.

Non-IFQ Species

Recent mortality estimates (2019 and 2020) for non-IFQ species are shown in Table 1-17. 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 stocks 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.

Table 1-17. 2019-2020 mortality estimates (mt) for non-IFQ stocks in the shorebased IFQ fishery. Data Source = GEMM)

Stock	2019	2020
Big Skate	145.3	101.7
California Skate	1.2	0.6
Grenadier Unidentified	0.5	1.0
Groundfish Unidentified	0.7	0.7
Longnose Skate	602.4	510.9
Pacific Flatnose	0.1	0.0
Pacific Grenadier	7.0	2.1
Pacific Spiny Dogfish Shark	835.3	326.2
Shortbelly Rockfish	288.3	549.7
Skate Unidentified	2.4	4.0
Soupfin Shark	1.7	7.0
Spotted Ratfish	87.8	96.3

Shorebased IFQ trip limits for non-whiting, non-IFQ stocks that have trip limits listed in regulation, along with their 2021 landings and ACL attainments, are shown in Table 1-18. Landings of cabezon off California, cabezon/kelp greenling complex off Oregon, and longspine thornyhead south of 34° N. lat. have been minimal to non-existent since the start of the Shorebased IFQ program in 2011. The Shorebased IFQ fishery has landed less than 0.15 mt of longspine thornyhead south of 34° N. lat. since 2011, with zero annual landings since 2017, while the stock's ACL has fluctuated between 347 mt to 1,001 mt during that time. Additionally, there have been no landings of either cabezon off California or the Oregon cabezon/kelp greenling complex in the Shorebased IFQ fishery since 2011.

Table 1-18. Baseline-2021 trip limits in regulation for non-IFQ stocks that do not have an unlimited trip limit. 2021 landings, total estimated mortality across all Council-managed fisheries, and percent attainment of the 2021 ACL. Data Source = PacFIN APEX Groundfish Species Scorecard - Report GMT522; *indicates confidential data

Stock	Trip Limit	IFQ Landings (mt)	Total Estimated Mortality (mt)	Percent Attainment of ACL
Minor nearshore rockfish, Washington black rockfish & Oregon black/blue/deacon rockfish	300 lb./month	0.12	664.5	68% a/
Oregon cabezon/kelp greenling complex	50 lb./month	*	52.5	27%
Cabezon in California	50 lb./month	0.0	45.5	22%
Pacific spiny dogfish	60,000 lb./month	37.4	773.9	48%
Longspine thornyhead south of 34° N. lat.	24,000 lb./2 months	0.0	8.8	1%

a/ The percent attainment is the total estimated mortality for all three stocks divided by the sum of the ACLs for all three stocks in 2021.

Pacific Spiny Dogfish

Pacific spiny dogfish mortality since 2016 in the Shorebased IFQ fishery compared to total mortality across all Council-managed fisheries is shown in Table 1-19, along with recent ACLs and ACL percent attainments. Since 2016, the Shorebased IFQ fishery has contributed 31 to 59 percent of the total Pacific spiny dogfish mortality. The ACL was exceeded in 2018 when the Shorebased IFQ fishery contributed 31 percent of Pacific spiny dogfish mortality. The highest source of Pacific spiny dogfish mortality in 2018, when the ACL was exceeded, came from the at-sea whiting sectors, CP and MS combined, which contributed nearly 50 percent to the total mortality (Agenda Item E.3.a, GMT Report 1, November 2021). Since 2016, an average of 255 mt of Pacific spiny dogfish are landed each year in the Shorebased IFQ fishery and an estimated annual average of 254 mt are discarded. The majority of landings are attributed to shoreside whiting vessels using midwater trawl gear due to maximized retention, and the majority of discards are caught by vessels using bottom trawl gear.

Table 1-19. Annual Pacific spiny dogfish mortality (mt) in the Shorebased IFQ fishery and from all Council-managed fisheries for 2016 to 2021, along with ACLs (mt) and ACL percent attainments. Data Source = PacFIN APEX Groundfish Species Scorecard

Year	Mortality in Shorebased IFQ (mt) a/	Percent of Shorebased IFQ Contribution to Total Mortality	Total Mortality (mt)	ACL (mt)	Percent Attainment of ACL
2016	481.1	52%	918.4	2,085	44%
2017	262.7	47%	554.7	2,094	26%
2018	669.0	31%	2,161.7	2,083	104%
2019	804.8	45%	1,776.6	2,071	86%
2020	326.0	59%	549.8	2,059	27%
2021	308.9 b/	40%	773.9 b/	1,621	48%

a/ Shorebased IFQ includes both non-whiting and whiting IFQ trips.
b/ 2021 estimates include landings and estimated discard mortality calculated as the recent three-year average annual discard mortality using the GEMM.

1.6 At-Sea Whiting: Baseline

1.6.1 Management Measures

The at-sea sector is composed of catcher/processors that target Pacific whiting with midwater trawl gear and process at sea as well as motherships that process catch from catcher vessels which also use midwater trawl gear. Prior to 2018, Pacific ocean perch, 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 Pacific ocean perch and darkblotched rockfish, and Amendment 21-4 did the same for widow and canary rockfishes. Currently, all stocks managed in the at-sea sectors are managed with set-asides, and there are no hard-cap allocations in place. Further, management measures have been established that restrict the Pacific whiting season dates and provide for Bycatch Reduction Areas (BRAs; 50 CFR §660.131).

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 mothership catcher vessels in the co-op system. For the mothership sector (MS), 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-coop fishery. The catcher/processor sector (CP) 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. In addition to the co-op management structure described in the above, the principle management measures for the at-sea fishery in 2021 are shown in Table 1-20

Table 1-20. Baseline - Summary of At-Sea fishery management measures in 2021.

Category	Management Measure
Allocations	If there are any allocations for non-prohibited species, the sector must stop harvesting and processing that species once the sector is projected to meet or exceeds the allocation (50 CFR §660.150(c)(3)(i) and 50 CFR §660.160(c)(6)). Sectors may increase their allocations inseason from a release of non-tribal deductions from the ACL (e.g., IOA set-asides) as described in 50 CFR 660.60(c)(3)(ii) or transfer unused groundfish allocation from the other at-sea sector when a cease fishing agreement has been submitted to NMFS (50 CFR §660.150(c)(5)(ii) and 50 CFR §660.160(c)(6)). However, there are currently no allocations used to manage the at-sea sectors: see Amendments 21-3 and 21-4.
Set-asides	Table 1-21 lists species 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. If one of these circumstances occur, inseason action may be taken. The at-sea fishery is not required to cease harvesting a species if the at-sea set-aside is exceeded.
Bycatch Reduction Area	Described above in Table 1-13. Baseline - IFQ. Summary of IFQ fishery management measures in 2021.
Block Area Closure	Described above in Table 1-13. Baseline - IFQ. Summary of IFQ fishery management measures in 2021.

1.6.2 Impact (Groundfish Mortality)

Table 1-21 shows the 2021 at-sea set-asides in regulation for all non-whiting stocks managed in the at-sea fishery, alongside the at-sea mortality for 2020, 2021, and 2017-2021 (average). All set-asides for stocks listed in Table 1-21 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 stocks 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 stocks 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 stocks 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 2021, mortality from all set-aside stocks were lower than their respective 2017-2021 average annual mortality in the at-sea sector, with the exception of canary rockfish and slope rockfish north of 40°10' N. lat., which were higher than their respective five-year averages.

Table 1-21. 2021 at-sea set-asides in regulation for non-whiting stocks managed in the at-sea fishery along with 2020, 2021, and average 2017-2021 mortality by the at-sea fishery. Data Source = PacFIN NorPAC database

Stock	Area	2021 Set-Aside (mt)	Mortality in At-Sea Fishery (mt)		
			2020	2021	Average 2017-2021
Arrowtooth flounder	Coastwide	70	4.9	20.6	28.4
Canary rockfish	Coastwide	36	0.9	5.9	4.8
Darkblotched rockfish	Coastwide	76.4	39.7	41.0	52.4
Dover sole	Coastwide	10	0.2	1.9	2.3
Lingcod	north of 40°10' N. lat.	15	0.8	1.0	1.6
Longnose skate	Coastwide	5	0.2	0.6	0.9
Other flatfish	Coastwide	35	3.0	12.4	17.7
Pacific ocean perch	north of 40°10' N. lat.	300	4.8	52.2	56.2
Petrale sole	Coastwide	5	0.0	0.0	0.0
Sablefish	north of 36° N. lat.	100	15.2	57.7	82.8
Shelf rockfish	north of 40°10' N. lat.	35	4.8	8.1	10.9
Shortspine thornyhead	north of 34° 27' N. lat.	70	9.5	76.2	171.6
Slope rockfish	north of 40°10' N. lat.	300	56.6	175.2	48.1
Widow rockfish	Coastwide	476	89.2	115.4	217.1
Yellowtail rockfish	north of 40°10' N. lat.	320	166.8	80.5	214.5

Pacific Spiny Dogfish

Recent Pacific spiny dogfish mortality in the at-sea sector compared to mortality from all Council-managed fisheries and ACL attainment is shown in Table 1-22 below. At-sea mortality accounts for roughly 20 to 40 percent of total mortality and was a major contributor to the high total mortality in 2018 when the Pacific spiny dogfish ACL was exceeded. Pacific spiny dogfish in the at-sea whiting fishery are generally caught in small amounts per haul throughout the year. Since 2011, the average amount of Pacific spiny dogfish per haul, among hauls with any amount of

Pacific spiny dogfish catch, was 0.18 mt. However, the amount of Pacific spiny dogfish caught per 1,000 mt of Pacific whiting is heavily skewed toward the Fall months of the season (Table 1-23), suggesting some potential aggregation of the species in the Fall compared to the Spring. Pacific spiny dogfish's population range spans from the Gulf of Alaska to southern Baja California (Agenda Item E.2, Attachment 6, November 2021), and evidence points to a seasonal distribution shift with the stock in its most northerly areas during the summer months and its most southerly areas during the winter months (Taylor et al. 2009).

Table 1-22. Pacific spiny dogfish mortality in the at-sea sector as well as from all sources of mortality compared to the ACL and ACL attainment. Data Source = PacFIN Groundfish Species Scorecard

Year	At-Sea Mortality (mt)	Percent of At-Sea Contribution to Total Mortality	Total Mortality (mt)	ACL (mt)	ACL Attainment
2017	139.7	25%	554.7	2,094	26%
2018	957.5	44%	2,161.7	2,083	104%
2019	614.8	35%	1,776.6	2,071	86%
2020	93.6	17%	549.8	2,059	27%
2021	158.0	20%	773.9 a/	1,621	48%

a/ 2021 total mortality includes estimated discard mortality based on the recent three-year average, whereas all prior years include the WCGOP estimated discard mortality for that year.

Table 1-23. Haul-level rate of Pacific spiny dogfish (mt) per 1,000 mt of Pacific whiting catch. Data Source = PacFIN NorPAC database

Year	May	June	July	August	September	October	November
2016	0.02	0.15	0.00	5.56	1.49	2.67	6.36
2017	0.13	0.08	0.00	0.86	0.56	0.81	13.95
2018	0.88	0.04	0.00	0.00	9.17	18.60	19.59
2019	0.17	0.03	0.04	0.53	0.03	7.38	227.43
2020	0.38	0.08	0.00	0.00	0.86	7.44	0.52
2021	0.47	0.13	0.00	0.00	0.24	2.98	21.46

Shortbelly rockfish

Ecosystem Component (EC) species are considered ecologically important but are not targeted and therefore not considered "in the fishery." As of 2021, shortbelly rockfish is managed as an EC species and is therefore not managed to harvest specifications or management reference points. However, the Council set a monitoring requirement with an annual threshold of 2,000 mt at which further consideration would be given to the groundfish fishery's mortality impacts and its designation as an EC species. Shortbelly rockfish mortality in the at-sea sector averaged 198 mt per year in the most recent five years (2017-2021), compared to 0.64 mt in the prior five years (2012-2016). The GMT uses the North Pacific Groundfish and Halibut Observer (NorPAC) database to monitor shortbelly rockfish mortality in the at-sea fishery on a near-real time basis.

1.7 Non-Trawl: Non-Nearshore —Baseline

1.7.1 Limited Entry and Open Access Fixed Gear Management

Table 1-24 and Table 1-25 summarize the principle management measures for the non-trawl limited entry fixed gear (LEFG) and open access (OA) fixed gear vessels in regulation for 2021. The non-trawl groundfish regulations are incorporated by reference, though are found in detail at 660 Subpart E and Subpart F. The sablefish stock was the primary target, in terms of volume and revenue, for both the LEFG and OA sectors. A variety of nearshore species (e.g., black rockfish, lingcod, Nearshore Rockfish complexes, cabezon, and kelp greenling) were targeted by a large number of vessels, but in relatively low volumes.

While the same limited entry and open access fixed gear trip limits apply across all depths within a given regulatory area, there are separate catch estimates and predictive models for the non-nearshore fisheries and nearshore fisheries. Further, there are specific harvest guidelines (HG) and shares to the non-nearshore and nearshore fisheries from within the non-trawl allocation for select stocks such as canary rockfish and yelloweye rockfish. The remainder of stocks are managed collectively within the non-trawl allocations for the non-nearshore, nearshore, and recreational fisheries. There are separate sections below that discuss the biological and economic impacts for the non-nearshore (seaward of NT-RCA) and nearshore (shoreward of the NT-RCA) components of the limited entry fixed gear (LEFG) and open access (OA) groundfish fisheries.

Since the same trip limits and other regulations (e.g., NT-RCA) apply to both the non-nearshore and nearshore fisheries, analyses focus on impacts to both where applicable. Although the non-nearshore and nearshore each have their own impact sections, the non-nearshore is first and thus the detailed implications of adjustments to management measures for both are discussed in the non-nearshore section. The nearshore section contains summaries and links to the non-nearshore section.

Maximizing opportunity while staying within the yelloweye rockfish bycatch limits has been a main objective for the non-nearshore and nearshore fisheries. Since even minor changes to yelloweye rockfish limits (e.g., 0.1 mt) can affect NT-RCA configurations and trip limits for target stocks, analyses pertaining to the non-nearshore and nearshore fisheries often focus on yelloweye rockfish. As a means to provide more flexibility for the commercial fixed gear fleet, the non-nearshore and nearshore shares of yelloweye rockfish were combined for the 2021-22 biennium.

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. Vessels are required to carry an observer when selected for coverage by the WCGOP. In general, LEFG, notably the primary sablefish tier fishery, have a higher coverage rate than OA vessels. The LEFG sablefish primary fishery had a median coverage rate of 27 percent between 2002 and 2020, while the LE DTL sector has a median coverage rate of 5 percent between 2002 and 2020, and the OA fixed gear sector had a median coverage rate of 4 percent between 2003 and 2020 (no coverage in 2002) (Somers et al. 2021). Discard information for 2021 will not be available until September

2022 and the WCGOP total mortality reports do not show discard estimates based on stratification at 36° N. lat.

Table 1-24. Baseline – Limited Entry Fixed Gear. Summary of limited entry fixed gear fishery management measures in 2021.

Category	Regulation
Cumulative limits	● Cumulative trip limits for most species, specific to geographic area (See regulations Table 2 North and South to Part 660, Subpart E). ● Primary sablefish fishery managed with tier limits ● Yelloweye rockfish landings prohibited coastwide ● South of 40°10' N. lat. landings of cowcod and bronzespotted rockfish are prohibited
Size limits	● Lingcod north of 42° N. lat. minimum size limit 22 inches total length ● Lingcod south of 42° N. lat. minimum size limit 24 inches total length
Gear restrictions and definitions	● Lingcod north of 42° N. lat. minimum size limit 22 inches total length ● Longline, trap or pot marked at the surface, at each terminal end, with a pole, flag, light, radar reflector, and a buoy ● Buoy used to mark gear must be marked with number clearly identifying the owner or operator of vessel ● Must be attended at least once every seven days ● Traps must have biodegradable escape panels Fishing gear, including bottom contact gear, defined at 50 CFR § 660.11[8]
Seasons	● Primary sablefish fishery from noon 4/1 to noon 10/31 ● Permit stacking of up to 3 permits is allowed in primary sablefish fishery. ● Limited exemptions available for ownership limit of three limited entry sablefish endorsed permits Additional seasonal restrictions may be implemented via routine action or the fishery may "close" for some species or some areas during the year through inseason action to keep landings within previously announced harvest levels.
GCA: YRCA (active)	● North Coast Commercial YRCA (WA) closed to commercial fixed gears ● North Coast Recreational YRCA (WA) is a voluntary area to be avoided ● Westport Offshore Recreational YRCA (WA) is a voluntary area to be avoided
GCA: CCA	Fishing is prohibited in CCAs with the following exceptions: ● Fishing for "Other Flatfish" with hook and line gear only ● Fishing for rockfish, cabezon, greenling, California scorpionfish and lingcod shoreward of 40 fm
GCA: Other	● Farallon Islands Commercial fishing for groundfish is prohibited shoreward of 10 fm with the following exceptions: Fishing for "Other Flatfish" with hook & line gear only ● Cordell Bank: Commercial fishing for groundfish is prohibited in depths less than 100 fm
GCA: NT-RCAs	See Table 1-26 Fishing is prohibited in NT-RCAs with the following exception: In California, fishing for "Other Flatfish" with hook and line gear only.

[8] Bottom contact gear means fishing gear designed or modified to make contact with the bottom. This includes, but is not limited to, beam trawl, bottom trawl, dredge, fixed gear, set net, demersal seine, dinglebar gear, and other gear (including experimental gear) designed or modified to make contact with the bottom.

Category	Regulation
EFCA	● Fishing with bottom contact gear is not permitted within the EEZ in the following EFHCAs (50 CFR §§ 660.78 and 660.79): Thompson Seamount, President Jackson Seamount, Cordell Banks (50-fm (91-m) isobath), Harris Point, Richardson Rock, Scorpion, Painted Cave, Anacapa Island, Carrington Point, Judith Rock, Skunk Point, Footprint, Gull Island, South Point, and Santa Barbara Island ● Fishing with bottom contact gear or any other gear that is deployed deeper than 500-fm (914-m) is not permitted within the Davidson Seamount EFHCA (50 CFR § 660.79). ● Fishing with bottom contact gear is not permitted in the DECA, 50 CFR § 660.11).
Monitoring	● VMS required in federal waters[9] ● WCGOP observer when selected for coverage
Reporting	● VMS declarations Electronic fish tickets within 24-hour reporting required when sablefish are landed.

Table 1-25. Baseline – Open Access. Summary of open access fishery management measures in 2021 based on regulations.

Category	Regulation
Cumulative limits	● Cumulative trip limits for most species, specific to gear type and geographic area (See regulations Table 3 North and South to Part 660, Subpart E) ● Yelloweye rockfish landings prohibited coastwide ● South of 40°10' N. lat. landings of cowcod and bronzespotted rockfish prohibited
Gear restrictions and definitions	● Longline, trap, pot, hook-and-line (fixed or mobile), setnet (anchored gillnet or trammel net (south of 38° N. lat. only), spear, and non-groundfish trawl gear for: pink shrimp, ridgeback prawn, and California halibut or sea cucumbers (south of Pt. 38° 57.50’ N. lat.) ● Non-groundfish trawl gear is exempt from the limited entry trawl gear restrictions; however, footrope (<19”) is prohibited in EFH closed areas. ● Fishing gear, including bottom contact gear, is defined at 50 CFR § 660.11[10] ● Fixed gear ○ Must be marked at the surface, at each terminal end, with a pole, flag, light, radar reflector, and a buoy; vertical hook-and-line gear that is closely tended may be marked only with a single buoy of sufficient size to float the gear ○ Must be attended at least once every 7 days ○ Fishing for groundfish with set nets is prohibited in the fishery management area north of 38° N. lat. ○ Traps must have biodegradable escape panels Spears may be propelled by hand or by mechanical means
Seasons	Seasonal restrictions may be implemented via routine action or the fishery may “close” for some species or some areas during the year through inseason action to keep landings within previously announced harvest levels.
GCA: YRCA (active)	● North Coast Commercial YRCA (WA) closed to commercial fixed gears ● North Coast Recreational YRCA (WA) is a voluntary area to be avoided ● Westport Offshore Recreational YRCA (WA) is a voluntary area to be avoided

[9] when fishing in federal waters or transiting through federal waters with groundfish on board

[10] Bottom contact gear means fishing gear designed or modified to make contact with the bottom. This includes, but is not limited to, beam trawl, bottom trawl, dredge, fixed gear, set net, demersal seine, dinglebar gear, and other gear (including experimental gear) designed or modified to make contact with the bottom.

GCA: CCA	Fishing is prohibited in CCAs with the following exceptions: ● Fishing for "Other Flatfish" with hook and line gear only ● Fishing for rockfish, cabezon, greenling, California scorpionfish and lingcod shoreward of 40 fm
GCA: Other	● Farallon Islands commercial fishing for groundfish is prohibited shoreward of 10 fm with the following exceptions: Fishing for "Other Flatfish" with hook and line gear only ● Cordell Bank Commercial fishing for groundfish is prohibited in depths less than 100 fm
GCA: NT-RCAs	See Table 1-26 ● Fishing is prohibited in NT-RCAs with the following exception: In California, fishing for "Other Flatfish" with hook and line gear only.
EFCA	● Fishing with bottom contact gear is not permitted within the EEZ in the following EFHCAs (50 CFR §§ 660.78 and 660.79): Thompson Seamount, President Jackson Seamount, Cordell Bank (50-fm (91-m) isobath), Harris Point, Richardson Rock, Scorpion, Painted Cave, Anacapa Island, Carrington Point, Judith Rock, Skunk Point, Footprint, Gull Island, South Point, and Santa Barbara Island ● Fishing with bottom contact gear or any other gear that is deployed deeper than 500-fm (914-m) is not permitted within the Davidson Seamount EFHCA (§ 660.79). ● Fishing with bottom contact gear is not permitted in the DECA, (§ 660.11).
Monitoring	● VMS required in federal waters[11] ● WCGOP observer coverage when vessel selected by NMFS
Reporting	● VMS declarations ● Electronic fish tickets within 24-hour reporting required when sablefish are landed.

Groundfish conservation areas (GCA), such as rockfish conservation areas (RCA), cowcod conservation areas (CCA), etc., are depth-based management tools can be implemented in order to meet management objectives for "any fishery sector that takes groundfish directly or incidentally" (50 CFR §660.60(c)(3)). The non-trawl fishery is subject to multiple GCAs. The largest, active, GCA for the limited entry fixed gear (LEFG) and groundfish-directed open access (OA) fisheries is the non-trawl RCA (NT-RCA) which extends along the entire coast and prohibits non-trawl groundfish participants from fishing on most of the continental shelf. NT-RCA adjustments may be necessary to implement inseason to protect and/or reduce impacts on overfished stocks, e.g., yelloweye rockfish. Additionally, adjustments may be made to achieve other management objectives, such as to attain, but not exceed ACLs, season reductions or extensions, and other fishery needs. Table 1-26 shows the current NT-RCA boundaries off the west coast.

Other GCAs include the Yelloweye Rockfish Conservation Areas (YRCA)[12]. Most YRCAs are inactive, except off the Washington, North Coast Area B YRCA which has been closed to limited entry and open access fixed gears since 2007. Additionally, the South Coast Areas A and B YRCAs and the "C-shaped" YRCA in waters off northern Washington are voluntary "areas to be avoided." Fishing is not allowed[13] in the Cowcod Conservation Areas (CCAs) under the Baseline, except for rockfish and lingcod shoreward of the boundary line approximating the 40-fathom depth

[11] when fishing in federal waters or transiting through federal waters with groundfish on board

[12] see § 660.70

[13] fishing for other flatfish is allowed with hook and line gear

contour. Detailed descriptions of the state nearshore fisheries can be found in the 2015-2016 EIS (PFMC and NMFS 2015).

Table 1-26. Non-trawl Rockfish Conservation Area boundaries off the U.S. west coast

Area	Depth boundaries
north of 46° 16' N. lat.	shore - 100fm
46° 16' - 45°03.83' N. lat.	30 fm - 100 fm
45°03.83' - 43° 00' N. lat.	30 fm - 100 fm[b]
43° 00' - 42° 00' N. lat.	30 fm - 100 fm[b]
42° - 40°10' N. lat.	30 fm - 100 fm[b]
40°10' - 38° 57' N. lat.	40 fm - 125 fm[b]
38° 57' - 34° 27' N. lat.	50 fm - 125 fm[b]
south of 34° 27' N. lat.	100 fm - 150 fm[b]

a/includes areas around the Channel Islands.
b/30-40 fathoms open to hook and line gear only, except bottom longline, pot/trap, and dinglebar.

1.7.2 Impact (Groundfish Mortality) –Non-Nearshore north of 36° N. latitude

Species of Concern

The non-nearshore fishery describes the LEFG and OA fisheries that occur seaward of the NT-RCA. A primary management focus is limiting yelloweye rockfish mortality. As yelloweye rockfish is a rebuilding species, retention remains prohibited in the LEFG and OA fisheries. Routine adjustments of the NT-RCA (Table 1-26) would occur in the event the projected mortality of yelloweye rockfish is expected to exceed the non-trawl commercial share, non-trawl allocation, or ACL.

Under Baseline, trawl and non-trawl allocations were established for yelloweye rockfish. 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 last remaining overfished stock. The Council primarily manages the non-trawl fisheries to the more conservative ACT, which is based on the SPR 70 percent from the 2018 yelloweye rockfish rebuilding plan. The higher HGs are based on a more aggressive SPR 65 percent 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.

As discard estimates of yelloweye rockfish and other species are on a one-year lag, model-based projections have to be made for Baseline and the other alternatives. Yelloweye rockfish projections from the GMT Non-nearshore and Nearshore models are summed for a non-trawl commercial projected mortality estimate and is then compared to the non-trawl commercial ACT and allocation (Table 1-27) The values in Table 1-27 are for the entire west coast; therefore, the mortality projection and ACT are for the fisheries in both the north and south of 36° N. lat. management areas.

Table 1-27. Baseline – Yelloweye rockfish shares for the non-trawl commercial fixed gear fishery in 2021.

Stock	Area	Estimated projected mortality (mt) a/	Non-trawl commercial ACT (mt)	Non-Trawl Allocation (mt)
YELLOWEYE ROCKFISH b/	Coastwide	3.9	7.8	37.9

a/Yelloweye rockfish are currently prohibited species for landing and therefore these amounts represent the estimated projected mortality based on the 2020 WCGOP mortality estimates.
b/ Yelloweye rockfish is managed to a commercial non-trawl ACT of 6.2 mt, below the non-trawl commercial share of the 7.8 mt HG.

Sablefish North of 36° N. lat.

Baseline management measures and projected mortality for the non-nearshore fishery north of 36° N. lat. are largely influenced by the sablefish ACL, as this is one of the most economically valuable stocks throughout the entire West Coast. Sablefish is currently 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 biomass estimates on either side produced from the bottom trawl survey. Prior to 2021, the long-term average of the biomass estimates was used to apportion the ACLs.

The Baseline sablefish allocations and trip limits are shown in Table 1-28, Table 1-29, Table 1-29. The northern non-nearshore sablefish fisheries include the primary fishery (tier) and the limited entry north (LEN) and open access north (OAN) daily trip limit fisheries (DTL). The Baseline tier 1-3 limits for the primary fishery are shown in Table 1-28**.** The northern DTL fisheries are managed with landed catch shares (Table 1-28**)** and trip limits that are established each biennium project high attainment of the full landed catch share of the LEFG DTL fishery, but are commonly adjusted inseason as price and participation can vary by considerable amounts. Trip limits for other stocks may also be adjusted inseason to achieve conservation and/or management goals. In 2021, LEN is estimated to have landed 50 percent of the LEFG landed catch share and OAN is estimated to have landed 44 percent of the OA landed catch share Table 1-31**.**

Table 1-28. Baseline - Limited entry sablefish FMP allocations north of 36° N. lat. for 2021. Data source: PacFIN APEX Report GMT015 - Final Specifications

Yr.	Non-Tribal Com. HG	LE Share	LE FG Share (mt) a/			Landed Catch Share 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
2021	6,165	5,586	3,240	1,994	352	2,238	1,902	336	58,649	26,659	15,234

a/ Shares are total mortality and include a landed component and a discard mortality component.
b/The limited entry fixed gear landed catch share is the limited entry fixed gear share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2019. In 2021, 23 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.
c/Ratio of limits between the Primary Fishery tiers is approximately 1:1.75:3.85 for Tier 3:Tier 2:Tier 1, respectively.

Table 1-29. Baseline - Open access sablefish FMP allocations north of 36° N. lat. for 2021. Data source: PacFIN APEX Report GMT015 - Final Specifications

Year	OA Share (mt) a/	OA Landed Catch Share (mt) b/
2021	580	553

a/ Shares are total mortality and include a landed component and a discard mortality component.
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 2019. In 2021, 23 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

Table 1-30. Baseline. Sablefish trip limits (lbs.) north of 36° N. lat. for limited entry and open access fixed gears in 2021.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sep-Oct	Nov-Dec	Landed Catch Share (lbs.	Actual Landings (lbs.)
LEN	1,700 lbs. / week, not to exceed 5,100 lbs. / 2 months				4,500 lbs. / wk., not to exceed 9,000 lbs. /2 months		336	169.1
OAN	600 lbs. / day; or one landing per week up to 2,000 lbs., not to exceed 4,000 lbs. / 2 months				600 lbs. daily, or one landing per week up to 3,000 lbs., not to exceed 6,000 lbs./2 months		553	245.7

Non-nearshore Groundfish Landings North of 36° N. lat.

Table 1-31 contains the 2021 non-nearshore landings of other species associated with sablefish landings for the area north of 36° N. lat. from PacFIN. Total non-nearshore landings of sablefish north of 36° N. lat. for 2021 were 1,601.1 mt in the LE fishery (including the primary tier fishery) and 255.2 mt in the OA fishery. The 2021 non-nearshore landings not associated with sablefish landings (i.e., non-nearshore non-sablefish) were 47.3 mt from the LE fishery and 81.1 mt from the OA fishery. The non-nearshore non-sablefish landings account for 2.9 percent of the LE landings and 24 percent of the OA

Table 1-31. Baseline. Non-nearshore groundfish landings for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) in 2021 compared to the non-trawl allocation. Nearshore groundfish are only shown if caught in a non-nearshore ground fish landing. Data Source: GMT015 Final Specifications, PacFIN data pull 1/7/2022.

Stock/Stock Complex	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation (mt) a/
Arrowtooth Flounder	Coastwide	0.8	0.9	1.7	391.9
Big Skate	Coastwide	2.4	1.2	3.6	71
Bocaccio Rockfish	S. of 40° 10′ N. lat.	21.9	3.4	25.3	1,036.4
California Scorpionfish	Coastwide	0	0	0	287.3
Canary Rockfish	Coastwide	3.4	9.1	12.5	351.6
Chilipepper Rockfish	S. of 40° 10′ N. lat.	23.3	3.5	26.8	565.1
Cowcod Rockfish	S. of 40° 10′ N. lat.	0	0	0	32

Stock/Stock Complex	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation (mt) a/
Darkblotched Rockfish	Coastwide	2.8	0.6	3.4	43.1
Dover Sole	Coastwide	0.9	0.1	1.0	2,420.1
English Sole	Coastwide	0	0	0	446.2
Lingcod	N. of 40° 10′ N. lat.	23.1	31.5	54.6	2,799.8
Lingcod	S. of 40° 10′ N. lat.	1.7	9.4	11.1	653.4
Longnose Skate	Coastwide	10.9	3.4	14.3	157.2
Longspine Thornyhead	N. of 34° 27’ N. lat.	1.3	0.3	1.6	129
Pacific Cod	Coastwide	0.5	<0.01	0.5	54.7
Pacific Whiting	Coastwide	0.1	0.03	0.13	0
Pacific Ocean Perch	N. of 40° 10′ N. lat.	0.1	<0.01	0.1	191.5
Pacific Spiny Dogfish Shark	Coastwide	0.2	0.2	0.4	1277b/
Petrale Sole	Coastwide	1.0	0.8	1.8	30
Shortspine Thornyhead	N. of 34° 27’ N. lat.	25.7	1.2	26.9	67.5
Shortspine Thornyhead	S. of 34° 27’ N. lat.	0	0	0	748.8
Splitnose Rockfish	S. of 40° 10′ N. lat.	0	0	0	82.4
Starry Flounder	Coastwide	<0.01	<0.01	<0.02	171.8
Widow Rockfish	Coastwide	0.5	2.6	3.1	400
Yellowtail Rockfish	N. of 40° 10′ N. lat.	0.4	4.7	5.1	601.5
Minor shelf rockfish c/	N. of 40° 10′ N. lat.	2.1	2.7	4.8	572.5
Minor shelf rockfish	S. of 40° 10′ N. lat.	4.3	17.5	21.8	1,146
Minor slope rockfish c/	N. of 40° 10′ N. lat.	35.8	4.4	40.2	290.5
Minor slope rockfish c/	S. of 40° 10′ N. lat.	11.3	2.2	13.5	143.7
Other Fish	Coastwide	0	<0.05	<0.05	201.7
Other flatfish c/	Coastwide	0	0.2	0.2	458.1
Ecosystem component species c/	Coastwide	8.1	5.9	14.0	-

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.
b/Spiny Dogfish Shark is the Fishery Harvest Guideline.
c/Values contain unspeciated specimens from the NA ACL_CODE in PacFIN

Cowcod South of 40° 10' N. lat

Cowcod south of 40° 10′ N. lat., beginning in 2021, was managed as a rebuilt species, under a P* of 0.4 and an ACT of 50 mt under the Fishery HG, with a 16 mt ACT for non-trawl commercial fisheries; however, it remained prohibited in the non-trawl sector. Council chose to take these precautionary measures to account for the uncertainties in the 2019 stock assessment. As mentioned above, discard estimates are on a 1-year lag; therefore, the estimated projected mortality under Baseline for the non-trawl commercial fisheries is 4.1 mt, which is the recent 10-year maximum WCGOP mortality estimate.

1.7.3 Impact (Groundfish Mortality) – Baseline. Non-Nearshore South of 36° N. lat.

Under Baseline, management measures and projected groundfish mortality in the non-nearshore fishery south of 36° N. lat. are largely influenced by the sablefish ACL, much like north of 36° N. lat. Management measures such as trip limits are set each biennium but may also be adjusted inseason to achieve conservation goals or increase yields.

Sablefish South of 36° N. lat.

Baseline conditions for the harvest control rule, coastwide harvest specifications, and ACL apportionment methods are described above in the sablefish north of 36° N. lat. section. Unlike the sablefish fishery north of 36° N. lat., the southern fishery does not have a primary fishery, and is only managed with limited entry south (LES) and open access south (OAS) DTL fisheries. The 2021 sablefish non-trawl allocation, shares and landed catch share are shown in Table 1-32 and LES and OAS trip limits in Table 1-33. The 2021 LES and OAS trip limits are the highest it has been since 2010. In 2021, LES is estimated to have taken 28.6 percent of the LEFG landed catch share and OAS is estimated to have taken 4.3 percent of the OA catch share (Table 1-33). Low attainment is likely due to market driven factors not constraints such as trip limits; therefore, no adjustments to the trip limits are proposed at this time

Table 1-32. Baseline - Short-term sablefish allocations south of 36° N. lat. for the limited entry (70 percent) and open access (30 percent) for 2021. Data source: PacFIN APEX Report GMT015 - Final Specifications.

Year	Commercial HG	Non-Trawl Allocation	LE FG Total Catch Share a/	OA Total Catch Share a/	LE FG Landed Catch Share b/	OA Landed Catch Share b/
2021	1,872	1,086	630	456	601	435

a/ Shares are total mortality and include a landed component and a discard mortality component.
b/ 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 2020 to calculate the landed catch share. In 2021, 11 percent of the sablefish caught were anticipated to be discarded, of which 20 percent are expected to die.

Table 1-33. Baseline. Sablefish trip limits (lbs.) south of 36° N. lat. for limited entry and open access in 2021.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share (mt)	Actual Landings (mt)
LES	2,500 lbs. / week						601	171.8
OAS	2,000 lbs./ week, not to exceed 6,000 lbs. / 2 months						435	18.5

Non-nearshore Groundfish Landings South of 36° N. lat.

Table 1-34 contains the 2021 non-nearshore landings associated with sablefish landings for the area south of 36° N. lat. from PacFIN as there is currently no model available to project landings south of 36° N. lat., nor does the groundfish Total Mortality report provide mortalities at a stratification of 36° N. lat. The 2021 non-nearshore landings not associated with sablefish landings were 23.3 mt from the LE fishery and 48.9 mt from the OA fishery. Total non-nearshore sablefish landings south of 36° N. lat. for 2021 were 173.9 mt in the LE fishery and 20.8 mt in the OA fishery. The non-nearshore non-sablefish landings accounted for 11.8 percent of the LE landings and 70.2 percent of the OA landings south of 36° N. lat., which are higher percentages than to the north meaning the southern LEFG and OA fisheries are more diversified and less dependent on sablefish alone.

Table 1-34. Baseline. 2021 landings for the limited entry and open access fixed gear fisheries south of 36° N. lat. (in mt) compared to the non-trawl allocation. Nearshore groundfish are only shown if caught in a non-nearshore groundfish landing. Data Source: GMT015 Final Specifications, PacFIN data pull 1/7/2022.

Stock/Stock Complex	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation (mt) a/
Arrowtooth Flounder	Coastwide	0	0	0	391.92
Big Skate	Coastwide	0	0	0	71
Bocaccio Rockfish	S. of 40° 10′ N. lat.	2.5	4.3	6.8	1,036.4
California Scorpionfish	Coastwide	0	0	0	287.3-
Canary Rockfish	Coastwide	1.0	2.6	3.6	351.6
Chilipepper Rockfish	S. of 40° 10′ N. lat.	0.2	0.7	0.9	565.1
Cowcod Rockfish	S. of 40° 10′ N. lat.	0	0	0	32
Darkblotched Rockfish	Coastwide	0	<0.01	<0.01	43.1
Dover Sole	Coastwide	0.1	<0.01	0.1	2,420.1
English Sole	Coastwide	0	0	0	446.2
Lingcod	N. of 40° 10′ N. lat.	0	0	0	2,799.8
Lingcod	S. of 40° 10′ N. lat.	0.3	1.4	1.7	653.4
Longnose Skate	Coastwide	0.9	0	0.9	157.2
Longspine Thornyhead	N. of 34° 27’ N. lat.	0.5	0	0.5	129
Longspine Thornyhead	S. of 34° 27’ N. lat.	7.7	0.1	7.8	830
Pacific Cod	Coastwide	0	0	0	54.7
Pacific Whiting	Coastwide	0.1	0	0.1	0
Pacific Spiny Dogfish Shark	Coastwide	0.1	0.1	0.2	1277b/
Pacific Ocean Perch	N. of 40° 10′ N. lat.	0	0	0	191.5
Petrale Sole	Coastwide	<0.01	<0.05	<0.06	30
Shortspine Thornyhead	N. of 34° 27’ N. lat.	4.6	0.1	4.7	67.5
Shortspine Thornyhead	S. of 34° 27’ N. lat.	39.6	1.2	40.8	748.8
Splitnose Rockfish	S. of 40° 10′ N. lat.	<0.01	<0.01	<0.02	82.4
Starry Flounder	Coastwide	0	<0.01	0	171.8
Widow Rockfish	Coastwide	0.2	0.6	0.8	400
Yellowtail Rockfish	N. of 40° 10′ N. lat.	0	0	0	601.5
Minor shelf rockfish	N. of 40° 10′ N. lat.	0	0	0	572.5
Minor shelf rockfish c/	S. of 40° 10′ N. lat.	15.6	34.5	50.1	1,146
Minor slope rockfish	N. of 40° 10′ N. lat.	0	0	0	290.5
Minor slope rockfish	S. of 40° 10′ N. lat.	11.4	3.3	14.7	143.7
Other Fish	Coastwide	0	<0.05	<0.05	201.7
Other flatfish c/	Coastwide	0.7	1.6	2.3	458.1
Ecosystem component species	Coastwide	4.9	0.1	5.0	-

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.
b/Spiny Dogfish Shark is the Fishery Harvest Guideline.
c/Values contain unspeciated specimens from the NA ACL_CODE in PacFIN

1.8 Non-Trawl: Nearshore —Baseline

1.8.1 Management Measures

The principle management measures for the non-trawl nearshore fishery are the same as those for the non-nearshore fishery as described above in Section 1.7.1

1.8.2 Impact (Groundfish Mortality) - Nearshore

The nearshore fishery refers to LEFG and OA that occurs shoreward of the non-trawl rockfish conservation area (NT-RCA) off Oregon and California. Washington has a state prohibition on commercial groundfish fishing inside state waters. The nearshore fishery originated in California with a specialization in live fish markets, but also with a fillet component. The nearshore fishery then spread into Oregon in the early 1990's and predominantly occurs in the southern part of the state. In Oregon, the most commonly used gear in these fisheries are jig and pole gears. In California, pole or other vertical hook and line gears are most commonly used; however, there is some use of bottom longline and pots or traps gears south of 40° 10' N. lat. There is a state nearshore prohibition on pot gear in Oregon to prevent gear conflicts with the recreational sector.

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. Therefore, while these fisheries are considered federal open access fisheries, participation is limited by the states.

Federal management measures for the nearshore commercial groundfish fisheries are typically stratified north and south of 40° 10' N. lat., with some measures stratified north and south of 42° N. lat. and others stratified south of 34° 27' N. lat. 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. Trip limits are designed to stay within nearshore species quotas while providing a year-round opportunity, if possible. Table 1-35 contains actual 2021 nearshore fishery landings without projected mortality.

Projections of discard mortality of targeted stocks and total mortality of species of concern are generated using the Nearshore Projection model, which mirrors the estimation procedures used by the observer program (WCGOP) that estimate the same for total mortality reports. Discard mortality projections and estimates are based on discard ratios from observed trips applied to actual landings for total mortality reports (WCGOP) and projected future landings are used for the harvest specification analyses. One difference between the Nearshore Projection model and WCGOP estimates is that the estimates produced by WCGOP are based on observer data and landings from a given year, whereas the Nearshore Projection model uses all years of WCGOP data (2003-2020). A detailed description of the Nearshore Projection model is contained in previous biennial analyses (Appendix A[14]).

In April 2018, the California Fish and Game Commission (FGC) changed the transfer provisions for the Deeper Nearshore Fishery Permit (DNSFP) and the Nearshore Fishery Permit (NSFP) to allow the transferability for the DNSFP (previously a non-transferable) and the NSFP to be transferable on a one-to-one basis (previously was two-for-one basis). This was the first time any

[14] Appendix A details models used in this process, it will be available at the June 2022 Council meeting

changes to provisions have been made since the permits were implemented in the early 2000s. See the 2015-2016 EIS (PFMC and NMFS 2015) for more of a description of the state nearshore fisheries.

In 2021, length-based data moderate assessments were conducted for two nearshore rockfish species; quillback rockfish and copper rockfish. The results of the quillback rockfish assessment for the portion of the stock off Oregon indicated that it is healthy at 45 percent of the unfished spawning stock biomass in 2023; however, the resulting 2023 OFL contribution to the Minor Nearshore Rockfish complex north of 40° 10' N. lat. of 3.1 mt would not sustain the Oregon commercial or recreation nearshore fishery. Due to the results, Oregon, through state regulatory actions, prohibited retention of quillback rockfish in their commercial and recreational groundfish fisheries starting in 2022 to begin reducing mortality. The results of the assessment for the portion of quillback rockfish stock off California indicated it is below MSST at 10 percent of unfished spawning stock biomass in 2023 and the portion of copper rockfish stock off California is in the precautionary zone at 31.7 percent of unfished spawning stock biomass in 2023. Through inseason action, the Council recommended and NMFS implemented sub trip limits and sub bag limits for quillback and copper rockfish off California to begin reducing mortality in 2022 (86 FR 72863, December 23, 2021). Projected impacts from the trip and bag limits for quillback and copper rockfishes off California can be reviewed in Agenda Item E.7.a, Supplemental CDFW Report 2, November 2021.

Table 1-35. Baseline. Actual 2021 nearshore landings based on 2021 regulations.

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	106.6	106.6	N/A	N/A	N/A
--Black rockfish		100.2	100.2	N/A	N/A	N/A
--Blue/deacon rockfish		6.4	6.4	N/A	N/A	N/A
Black rockfish	CA	38.7	N/A	38.7	35.6	3.1
Bocaccio	S. of 40°10' N. lat.	3.1	N/A	3.1	N/A	N/A
Cabezon/ Kelp greenling	OR	37.5	37.5	N/A	N/A	N/A
--Cabezon		27.4	27.4	N/A	N/A	N/A
--Kelp Greenling		10.1	10.1	N/A	N/A	N/A
Cabezon	CA	19.1	N/A	19.2	1.7	17.4
Canary Rockfish	OR & CA	14.7	2.6	12.1	3.9	8.2
Kelp greenling	CA	2.4	N/A	2.4	0.3	2.1
Lingcod	north of 40°10' N. lat.	72.2	65.3	7.9	7.9	N/A
Lingcod	south. of 40°10' N. lat.	22.3	N/A	22.3	N/A	22.3
California scorpionfish	south of 40°10' N. lat.	1.0	N/A	1.0	N/A	1.0
Nearshore Rockfish N. a/	north of 40°10' N. lat.	18.3	8.8	9.5	9.5	N/A
Nearshore Rockfish S.	south. of 40°10' N. lat.	102.4	N/A	102.4	N/A	102.4
-Shallow Nearshore Rockfish b/		49.4	N/A	49.4	N/A	49.4
-Deeper Nearshore Rockfish c/		53.0	N/A	53.0	N/A	53.0

a/ Nearshore Rockfish from 42°- 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 south 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 south of 40°10' N. lat. However, for trip limits south of 40°10' N lat, black rockfish are included in Deeper Nearshore Rockfish.

All other federal regulations for the nearshore fishery are the same as those for the non-nearshore fishery in the Non-Nearshore section above, which has a detailed description of gear restrictions, area closures, seasons, size limits, etc. Also described in the Non-Nearshore section is the non-trawl commercial fishery and the three state recreational fisheries have separate HGs, ACTs, and shares for yelloweye rockfish. The most common routine management measures used to mitigate yelloweye rockfish impacts and to stay within the non-trawl commercial ACT are modifications to LEFG and OA trip limits and the NT-RCA, which can be implemented through inseason action.

Table 1-36 provides an estimate of projected total mortality of yelloweye rockfish for the non-trawl commercial fisheries based on the most current Nearshore and Non-nearshore model update that includes observed bycatch rates based on all years of WCGOP data (2003-2020). Based on the projections from the nearshore model, California and Oregon nearshore fisheries are both projected to be well within their respective shares for yelloweye rockfish.

Table 1-36. Baseline. Estimated projected mortality of yelloweye rockfish compared to the non-trawl commercial ACT and HG, as well as the non-trawl allocation.

Stock	Estimated projected mortality (mt)	Non-trawl commercial ACT (mt)	Non-trawl commercial HG (mt)	Non-Trawl Allocation (mt)
YELLOWEYE ROCKFISH b/	3.9	6.2	7.8	37.9

1.9 Washington Recreational Fishery: Baseline

1.9.1 2021 Regulations

Primary catch controls for the Washington recreational fishery are season dates, depth closures, bag limits, and GCAs, including Yelloweye Rockfish Conservation Areas (YRCAs). Yelloweye rockfish is the only rebuilding stock caught in the Washington recreational fishery. Seaward adjustments of the recreational YRCAs, which focus fishing effort in the nearshore area where yelloweye rockfish encounters and mortality of discarded fish are lower, are the main management measures for reducing catches of this stock. Under the Baseline, Washington recreational fishery ACLs in 2021 include a 50 mt ACL for yelloweye rockfish, with the associated HG of 9.7 mt and an ACT of 7.8 mt (Table 1-37).

In addition to reducing encounters with yelloweye rockfish, there has been a need to shift some focus on monitoring catch of nearshore rockfish and black rockfish in the Washington recreational fishery to ensure catch does not exceed the Washington HGs. A higher yelloweye rockfish HG in 2021, compared to prior biennium allowed management measures under the Baseline to increase access to deep-water species such as lingcod and healthy mid-water yellowtail rockfish and widow rockfish species and shift groundfish effort away from the nearshore.

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 (Table 1-37), the state of Washington will consult with the other West Coast states and determine if inseason action is needed. The HG for Washington is a state HG and not established in federal regulations. In the event inseason action is needed, the state of Washington will take action through state regulation.

Table 1-37. Baseline – Washington Recreational. Harvest guidelines (HG) in metric tons (mt) for the Washington recreational fisheries under the Baseline in 2021.

Species	2021 HG (mt)
Canary Rockfish	43.2
YELLOWEYE ROCKFISH	9.7 (HG) / 7.8 (ACT)
Black Rockfish	274.9
Nearshore Rockfish Complex	19.3
Washington Cabezon/Kelp Greenling Complex	10.5

Groundfish Seasons and Area Restrictions

Season Structure

Under the Baseline (2021), the Washington recreational season is open from the second Saturday in March through the third Saturday in October (Table 1-38). The lingcod season in Marine Areas 1 – 4 is aligned with the recreational groundfish season and is also open the second Saturday in March through the third Saturday in October.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye rockfish within specified ACTs. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Marine Areas 3 and 4) where yelloweye

rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are fewer in the south coast where incidental catch of yelloweye rockfish is less than in the north coast. Washington coastal management areas are shown in Figure 1-4. Table 1-38 summarizes key features of the Washington recreational regulations under Baseline.

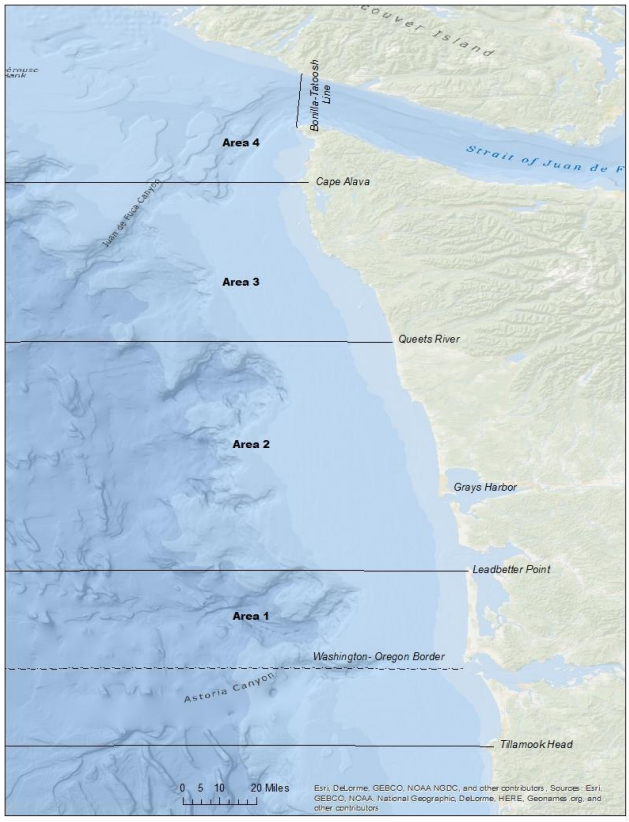


Figure 1-4.. Baseline. Washington Recreational Management Areas.

Table 1-38. Baseline. 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			BF Open < 20 fm a/ b/		BF Open			BF Closed	
2 (S. Coast)	BF Closed		BF Open c/ d/								BF Closed	
1 (Col. River)	BF Closed		BF Open e/ f/								BF Closed	

a/ Retention of lingcod, Pacific cod, sablefish, bocaccio, silvergray, canary, widow and yellowtail allowed >20 fm on days when Pacific halibut is open

b/ Retention of yellowtail and widow rockfish is allowed >20 fm in July.

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

d/ 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.),

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

f/ 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.

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, which can be retained seaward of 20 fathoms on days that Pacific halibut fishing is open. In addition, yellowtail rockfish and widow rockfish retention is allowed seaward of 20 fathoms in August. Fishing for, retention, or possession of groundfish and Pacific halibut is prohibited in the C-shaped YRCA (Figure 1-5).

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 primary Pacific halibut season. When lingcod is open, fishing for, retention, or possession of lingcod is prohibited seaward of a line extending from 47° 31.70' N. lat., 124° 45.00' W. longitude to 46° 38.17' N. lat., 124° 30.00' W. longitude except as allowed on days open to the Pacific halibut fishery and from June 1 through 15 and September 1 through 30 (Figure 1-5b).

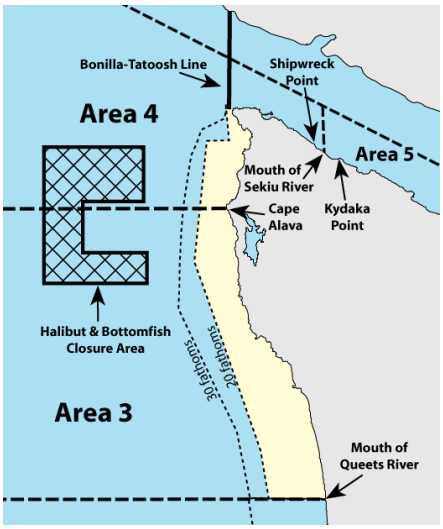
Columbia River (Marine Area 1)

Retention of sablefish, flatfish other than Pacific halibut, Pacific cod, yellowtail rockfish, widow rockfish, canary rockfish, redstripe rockfish, greenstriped rockfish, silvergray rockfish, chilipepper rockfish, bocaccio, 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 deep-water areas seaward of a line extending from 46° 38.17' N. lat., 124° 21.00' W. longitude to 46° 33.00' N. lat., 124° 21.00' W. longitude is prohibited during the lingcod season except from June 1 through June 15 and September 1 through September 30 (Figure 1-5.b).

Area Restrictions

In addition to deep-water lingcod restricted areas described for the South Coast (Marine Area 2) and Columbia River (Marine Area 1) (Figure 1-5b), fishing for, retention, or possession of bottomfish and lingcod is prohibited year-round in the North Coast Recreational YRCA which is a C-shaped area off the northern Washington coast intended to protect yelloweye rockfish (Figure 1-5a).

a.



b.

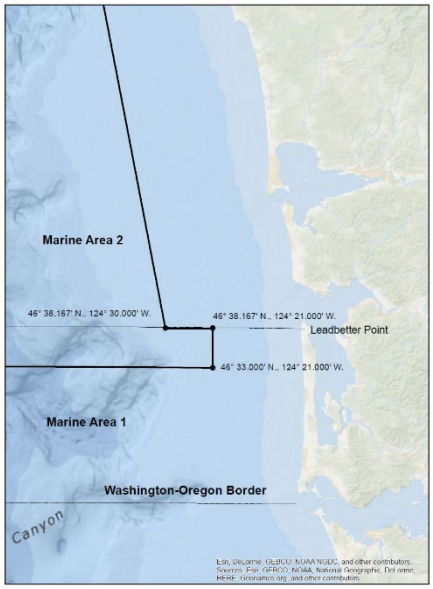


Figure 1-5. Baseline – Washington recreational area restrictions. a. C-Shaped YRCA; b. Lingcod Restricted Area.

Groundfish Bag Limits

Under Baseline, the recreational groundfish bag limit, including rockfish and lingcod, 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 applied in Marine Areas 1-4. Five additional flatfish species, not including Pacific halibut, can be retained in addition to the nine groundfish daily limit. Retention of yelloweye rockfish is prohibited.

Lingcod Seasons and Size Limits

The lingcod season in Marine Areas 1 through 4 (Washington-Oregon border at 46° 16' N. lat.to the U.S.-Canada border) is open from the second Saturday in March through the third Saturday in October. There is no lingcod size limit.

Inseason Management Response

No inseason action was needed to keep catch within state specific HGs under Baseline.

WDFW designs management measures to stay within state-specified HGs and has rarely needed to implement inseason measures to ensure catch does not exceed these HGs. 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. WDFW can respond quickly through the authority of the WDFW director to implement emergency rules if necessary. Management tools such as depth closures, retention restrictions or area closures could be used as inseason tools to ensure that catch remains within state-specified HGs.

1.9.2 Impact (Groundfish Mortality)

Final mortality estimates for overfished and non-overfished species under Baseline are summarized in Table 1-39 and reflect final 2021 total mortality through the end of the season.

Under Baseline (2021), depth restrictions are in place for a shorter period compared to what was in place in 2019-2020. The reduced time for depth restrictions in all areas (Marine Areas 1 – 4) provides access to healthy lingcod and mid-water rockfish species and is possible because of a higher Washington yelloweye rockfish HG. Reduced time when depth restrictions are in place is precautionary to account for uncertainty in projected mortality of yelloweye rockfish and canary rockfish. Washington recreational groundfish fisheries are managed to an ACT for yelloweye rockfish set lower than the HG as an extra precaution to avoid exceeding the ACL. Under the Baseline, two yelloweye rockfish conservation areas off the south coast (Marine Area 2) are removed, providing access to deep-water lingcod and canary rockfish, and shifting effort away from nearshore species including black rockfish. Since 2017, WDFW has taken a precautionary approach to reducing depth restrictions and area closures that were established in order to limit encounters with yelloweye and canary rockfishes. The final canary rockfish estimate for 2021 indicates that anglers are becoming more comfortable retaining canary rockfish after more than fifteen years where retention was either prohibited or limited by small sub bag limits. Half of the canary rockfish catch in 2021 was taken in September and was likely the result of effort shifting to bottomfish opportunities due to poor albacore fishing and early salmon fishery closures.

Fishing effort under Baseline was also likely affected by impacts related to the ongoing COVID-19 pandemic. Ports in Neah Bay and La Push that provide access to recreational fishing in the north coast (Marine Areas 3 and 4) have typically been open to the public but were closed for all or part of 2021. Recreational anglers could only access those fishing grounds from the nearest port in the town of Sekiu, east of Neah Bay, but doing so resulted in significantly more travel to reach the fishing grounds adjacent to Marine Areas 3 and 4. Increased distance from port to fishing grounds may have reduced effort for anglers in these Marine Areas and corresponding catch levels.

Table 1-39. Baseline – Washington recreational mortality estimates for 2021 (in mt).

Stock	**2021 Estimated Mortality (mt)**
Canary Rockfish	39.45
YELLOWEYE ROCKFISH	2.57
Black Rockfish	181.82
Lingcod	173.08
Nearshore Rockfish	7.05
Blue Rockfish	*1.10*
Quillback Rockfish	*1.89*
Copper Rockfish	*2.44*
China Rockfish	*1.62*
Brown Rockfish	--
Grass Rockfish	--
Yellowtail Rockfish	61.50
Vermilion Rockfish	1.44
WA Cabezon/Kelp Greenling	6.65
Cabezon	*5.81*
Kelp Greenling	*0.84*

1.10 Oregon Recreational Fishery: Baseline

1.10.1 Management Measures

Primary catch controls for the Oregon recreational fishery are season dates, depth closures, bag limits, and GCAs, including YRCAs. The Baseline analyzes the Oregon recreational fishery under the 2021 ACLs and Oregon recreational HGs or state quotas shown in Section 1.3.

Table 1-40. Baseline. Oregon recreational Federal harvest guidelines (HG) or state quotas under the Baseline (mt).

Stock	2021 HG or State Quota
Oregon Black/Blue/Deacon Rockfish Complex a/	462.8
Canary Rockfish b/	65.2
Oregon Cabezon/Greenlings Complex c/	55.2
Nearshore Rockfish Complex north of 40° 10' N Lat. d/	10.8
YELLOWEYE ROCKFISH b/	6.9

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 2021 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 2021 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 23.2 mt, of which the recreational fishery is allocated 10.8 mt through state regulations.

The west coast states are responsible for tracking and managing catches of species in the Nearshore Rockfish complex north of 40° 10' N. Lat. If harvest levels in Oregon approach 75 percent of the state-specific HG (Table 4-1), the state of Oregon will consult with the other west coast states via a conference call and determine whether inseason action is needed. The HG for Oregon is a state HG and not established in Federal regulations. Within state regulations, determined by the Oregon Fish and Wildlife Commission (OFWC), the Oregon HG is further divided for the state commercial and recreational fisheries. The values shown in the analysis for all alternatives are the shares based on 2021 recreational and commercial sharing percentages in Oregon State Regulations (OAR 635-039-0090 (2)).

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.

Inseason Management Tools

Oregon has a responsive port-based monitoring program through the Ocean Recreational Boater Survey[15] (ORBS), and regulatory processes in place to track mortality and take actions inseason if necessary. The following are suggested management measures that could be implemented inseason if the fishery does not proceed as expected. Due to the unexpectedly high and rapid catches in Oregon in July and August of 2017 and the OFLs being approached (black rockfish) or exceeded (cabezon), ODFW implemented new inseason tracking of cabezon to minimize future overages. Bottomfish 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 timelier manner. In 2018 through 2020, the State of Oregon prohibited the retention of cabezon from the recreational fishery in mid-August, keeping impact below the state-specified HG. Effort and catches were lower in 2021, allowing cabezon to remain open for the entire year without exceeding the Oregon recreational state-specified HG.

Inseason management tools, designed to mitigate mortality, include bag limit adjustments (including non-retention), length limit adjustments, gear restrictions, and season, days per week, depth, and area closures.

Season, depth, and area closures are the primary inseason tools for keeping total impacts within the Oregon recreational sector-specific harvest targets for yelloweye, canary, and black/blue/deacon rockfish, the cabezon/greenling complex, and the Nearshore Rockfish complex north of 40° 10' N. lat.. If catch rates indicate that the harvest targets for any of these species would be reached prematurely, depth closures may be implemented inseason closing waters shoreward of the 40, 30, 25, or 20 fathom regulatory lines, depending on species. Additionally, days per week may also be closed to reduce mortality. Regulations would depend upon the timing of the determination for their need.

Adjustments to the marine fish daily bag limit to no more than 10 fish may be implemented to achieve season duration goals in the event of accelerated or decelerated black/blue/deacon rockfish complex, cabezon/greenling complex, or Nearshore Rockfish complex species harvest.

The lingcod daily bag limits may be adjusted to no more than three fish in the event the marine bag limit changes or the halibut catch limit changes from 2021 levels. Season and/or area closures may also be considered if harvest targets are projected to be attained. Closing one or more days per week is an inseason tool that could be used to limit mortality. Closing certain days each week could help lengthen the duration of a fishery approaching an HG. However, it could also concentrate effort into the remaining days open each week.

Non-retention and length restrictions are the inseason tools used for the cabezon component of the cabezon/greenling complex, as release survival is very high (93 percent). They may also be used to reduce mortality of nearshore rockfish species, such as black rockfish and individual species within the nearshore rockfish complex.

[15] https://www.dfw.state.or.us/mrp/salmon/docs/ORBS_Design.pdf

Gear restrictions and/or release technique requirements may be implemented to reduce the impact of overfished rockfish since a variety of descending devices are available. The SSC recommended and the Council approved mortality rates for canary and yelloweye rockfish when descending devices are used in 2014. The use of descending devices became mandatory for all released rockfish outside of 30 fathoms through state rule in Oregon beginning in 2017, and will continue in 2023 and 2024. Differential mortality rates for fish descended are not yet available for species other than canary and yelloweye rockfish, off of Oregon. Surface rates will be applied until new rates are developed. Since surface mortality rates are higher than the rates for fish descended, applying surface rates regardless of how the fish was released will add a layer of caution between the inseason tracking estimates and what is happening on the water in terms of actual mortality of released rockfish species.

Directed midwater rockfish (e.g., yellowtail and widow rockfish) and/or flatfish fisheries may be implemented inseason, as were implemented in 2004 and 2017, in the event of a closure of the recreational groundfish fishery due to attainment of Federal or state HGs or targets for the more nearshore rockfish species such as black rockfish. Specific gear restrictions (i.e., longleader gear) may be implemented in the event that midwater rockfish fishing remains open during a groundfish closure. Additionally, the fishery may be expanded to waters seaward of the 40-fathom regulatory line, promoting directed midwater rockfish opportunity offshore and away from the more nearshore rockfish species. Fisheries would be monitored to ensure that mortality of yelloweye rockfish, and all other species, remain within the harvest targets/guidelines.

1.10.2 Impacts (Projected Mortality)

The estimated mortality in 2021 is presented in Table 1-41 and is based on actual 2021 data through October, with estimates for November and December, given the season structure and bag limits in regulation at that time.

Table 1-41. Baseline – Oregon Recreational. Projected mortality (mt) of species with Oregon recreational specific allocations under the Baseline, including estimates for longleader gear fishing and allowing retention of flatfish species outside of the seasonal 4

Stock	Projected Mortality (mt)
Canary Rockfish	37.4
YELLOWEYE ROCKFISH	3.1
Black/Blue/Deacon Rockfish OR	362.6 a/
Cabezon/Greenlings b/	34.3
Lingcod north of 40° 10' N Lat.	144.0
Nearshore Rockfish north of 40° 10' N Lat.	9.3
Yellowtail Rockfish	40.51
Widow Rockfish	8.71

a/ black rockfish = 344.2, blue/deacon rockfish = 18.4 mt

b/ Includes kelp and other greenlings

Since 2019, longleader gear has been a legal gear in any time and area open to recreational groundfish. It is a recreational fishing set-up that includes up to three hooks or flies, with a minimum of 30 feet between the weight and lowest hook, and a non-compressible float above the top hook. Lures larger than five inches and bait are prohibited. At the March 2016 meeting, the

Council approved an alternative that would allow midwater longleader recreational groundfish fishing seaward of a line approximating the 40-fathom depth curve exclusively off the coast of Oregon (42° 00' N. Lat.to 46° 16' N. Lat.) from April-September to target abundant and healthy midwater species (primarily yellowtail and widow rockfish) while avoiding or minimizing interactions with overfished rockfish species. The final federal regulations were in place effective April 1, 2018. (83 FR 13428; March 29, 2018).

In the original analysis (NMFS 2018), to account for impacts from the new longleader opportunity it was assumed there would be 5,000 substitution longleader trips (i.e., traditional recreational groundfish to longleader) and 2,000 new longleader trips (i.e., in addition to current traditional groundfish trips) annually. In 2018 and 2019 the actual number of trips were 4,520 and 2,056 longleader trips, respectively, which are both lower than what was assumed in the original analysis. The projected mortality with the new longleader opportunity is included in the totals shown in Table 1-41. Based on this analysis, no changes are needed to management measures for the alternative harvest specifications, as Oregon recreational fisheries would continue to remain within the respective sector allocations for species encountered by this gear.

Table 1-42 shows the recent mortality, in mt, of the fourteen most landed species in the Oregon recreational fishery, including black rockfish. This table represents recent mortality under similar season structure and bag limits to what will be in place under the Baseline, including any longleader gear trips in 2017 through 2020.

Table 1-42. Recent mortality (mt) of the fourteen most landed species in the Oregon recreational fishery under similar season structure, bag limits, area restrictions, etc. as the Baseline for 2016-2020. Shaded cells indicate species within a complex

Species	2016	2017	2018	2019	2020	Average
Oregon Black/Blue/Deacon Rockfish a/	461.9	438.1	308.6	339.4	356.8	381.0
Black Rockfish	440.4	414.1	294.9	321.1	336.3	361.3
Blue/Deacon Rockfish	21.5	24.1	13.7	18.4	20.5	19.6
Lingcod north of 40° 10′ N. lat.	145.5	176.9	215.6	164.8	165.1	173.6
Nearshore Rockfish north of 40° 10′ N. lat.	2.2	17.1	21.7	18.6	12.6	14.4
Quillback Rockfish	0.8	7.1	9.5	8.5	5.4	6.2
Copper Rockfish	1.1	7.5	9.4	7.3	4.8	6.0
China Rockfish	0.3	2.4	2.7	2.6	2.2	2.0
Brown Rockfish	0.0	0.1	0.0	0.1	0.2	0.1
Grass Rockfish	0.0	0.0	0.0	0.1	0.0	0.0
Oregon Cabezon/Greenling a/	29.2	37.5	31.0	33.2	31.8	32.5
Cabezon	12.1	24.1	13.8	16.4	14.4	16.2
Kelp Greenling	17.1	13.3	17.3	16.8	17.3	16.4
Yellowtail Rockfish north of 40° 10′ N. lat.	7.7	14.0	35.6	30.4	38.4	25.2
Vermilion Rockfish b/	3.7	8.8	9.2	9.3	8.9	8.0
Canary Rockfish	9.7	28.2	43.6	38.7	60.5	36.2
YELLOWEYE ROCKFISH	2.4	4.3	4.0	5.0	6.6	4.5
Sablefish north of 36° N lat.	1.6	2.5	2.2	2.1	4.0	2.5

a/new complex as of 2019; b/part of the Shelf Rockfish Complex north of 40°10’ N. lat.

1.11 California Recreational Fishery: Baseline

1.11.1 Management Measures

Under the Baseline, trawl and non-trawl allocations for overfished species and species of concern were established for the 2021-2022 cycle (Table 1-43). The California recreational fishery was allocated a share of the non-trawl allocation, through use of a HG, for canary rockfish, cowcod south of 40° 10' N lat. and yelloweye rockfish to ensure that total non-trawl catches remained within the non-trawl allocations for those species. Action was taken to increase the cowcod south of 40° 10' N lat. ACL for the 2021-2022 cycle as a result of the stock being declared rebuilt in the 2019 stock assessment. Unless a recreational HG is provided, the non-trawl allocation in California was shared by both commercial and recreational fisheries. Model projections used to calculate fishery impacts for the five recreational groundfish management areas incorporate the RecFIN estimates from 2017 through 2019 and from January through October 2021. 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.

Table 1-43. Baseline – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fishery in 2021/2022.

Stock	Non-Trawl Allocation	California Recreational HG
Bocaccio South of 40º10' N lat.	1036.4/1021.8	716.2/706.1
Canary rockfish	351.6/343.1	116.7/113.9
Cowcod South of 40º10' N lat.	32.0/32.0	-
Darkblotched rockfish	43.1/40.6	-
Nearshore North of 40º10' N lat. a/	75.9/73.9	-
POP	191.5/184.3	-
Petrale sole	30/30	-
Yelloweye rockfish	37.9/38.8	8.9/9.2

a/ The California share is 36.2 mt (2021) and 35.9 mt (2022), which is shared further between the non-trawl commercial and recreation fisheries.

Groundfish Seasons and Area Restrictions

Season Structure

Current regulations specify seasons and depth constraints for the five groundfish management areas off California (Figure 1-6). In 2021, the California recreational fishery season dates remained the same as in 2019 and 2020. (Table 1-44).

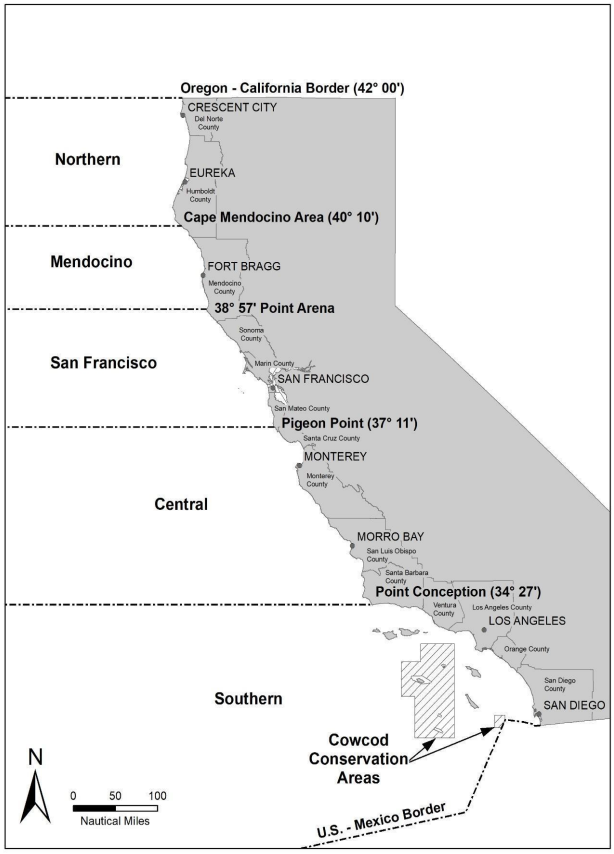


Figure 1-6. Recreational Groundfish Management Areas in California.

Area Restrictions

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 1-44). However, recreational fishing for Other Flatfish[16], petrale sole, and starry flounder is permitted within the RCA (at all depths) year-round. Fishing for leopard sharks is allowed year-round with no depth limit inside Humboldt Bay, San Francisco Bay, Bodega Harbor, Tomales Bay, Bolinas Bay, Drakes Bay, Elkhorn Slough, Newport Bay, Alamitos Bay, San Diego Bay, and Mission Bay.

In 2021, the depth restrictions for RCAs were relaxed to provide more fishing opportunities and align the depth limits across various management areas. The depth limit in the Northern and Mendocino Management Areas was the 30-fm limit from May 1 through October 31, and no depth limit from November 1 through December 31. The depth limit in the San Francisco and Central Management Areas was the 50-fm depth limit from April 1 through December 31. The depth limit in the Southern Management Area was the 100-fm depth limit from March 1 through December 31.

[16] Other Flatfish includes butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, and sand sole

Table 1-44. Baseline California recreational groundfish season structure and RCA boundaries for 2021.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 1 – Oct 31 <30fm						All Depth	
Mendocino	Closed				May 1 – Oct 31 <30fm						All Depth	
San Francisco	Closed			April 1 – Dec 31 <50fm								
Central	Closed			April 1 – Dec 31 <50fm								
Southern	Closed		Mar 1 – Dec 31 <100 fm									

Cowcod Conservation Area

The Cowcod Conservation Areas (CCAs) were established in 2001 to protect cowcod, which had been declared overfished (Figure 1-7). These area closures were intended to close fishing opportunities in the main portion of the species' depth range to reduce encounters and mortality, allowing the stock to rebuild more quickly. The Western CCA encompasses 4,200 square miles and the Eastern CCA encompasses 100 square miles. Limited retention of select groundfish species by recreational and commercial fixed gears is permitted within the CCAs.

Under the Baseline, recreational fishing within the Western CCA is permitted shoreward of the 40 fm boundary from March 1 – December 31 (Figure 1-8) for species in the Nearshore Rockfish Complex, species in the Shelf Rockfish Complex, cabezon, greenlings, lingcod, ocean whitefish, and California sheephead. Recreational fishing for California scorpionfish in the CCAs is open year-round shoreward of 40 fm. Recreational fishing for Other Flatfish, petrale sole, and starry flounder is permitted year-round in all depths. Retention of yelloweye rockfish, bronzespotted rockfish, and cowcod is prohibited within the CCA.

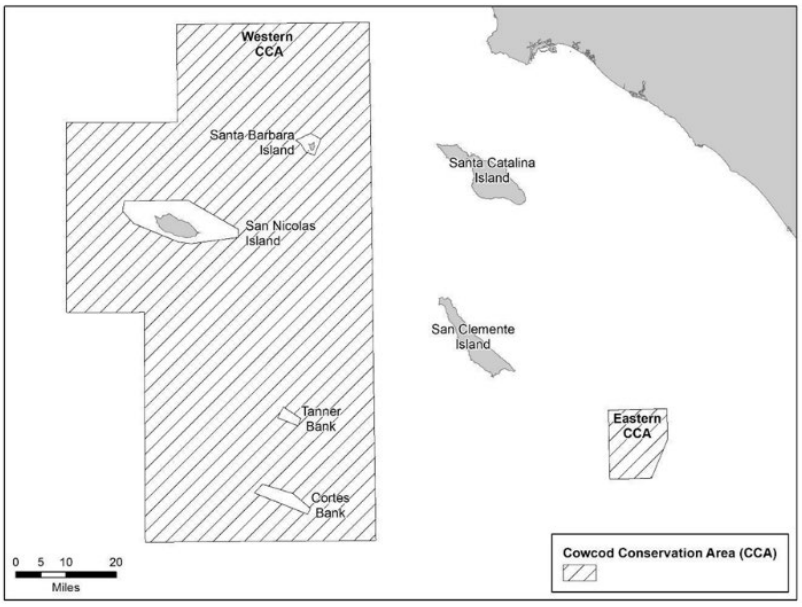


Figure 1-7. Overview of Western and Eastern Cowcod Conservations Areas located in the Southern Management Area.

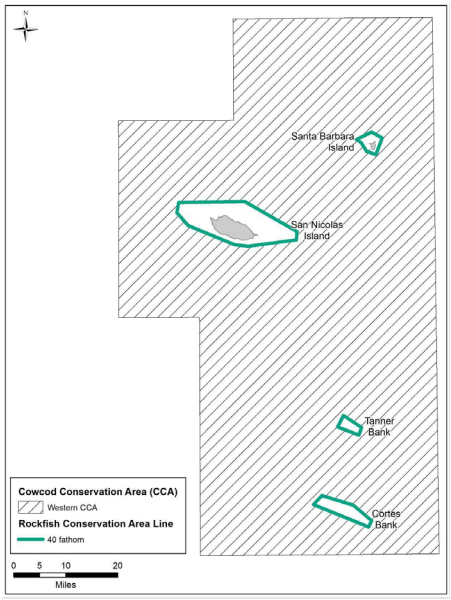


Figure 1-8. Overview of the 40-fathom depth contour inside the Western Cowcod Conservation Area.

Yelloweye Rockfish Conservation Areas

There are four YRCAs in California (2009-2010 FEIS) 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.

Groundfish Bag Limits, Gear Limits and Size Limits

Under the Baseline, a statewide 10 fish rockfish, cabezon and greenling (RCG) complex bag limit would remain in place. 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. Retention of bronzespotted rockfish, cowcod, and yelloweye rockfish would continue to be prohibited. Even though cowcod were declared rebuilt, the 2021-2022 ACLs (84 mt and 72 mt, respectively) was considered too low to support recreational retention based on the uncertainty of the stock assessment. Given the high volume of angler effort in Southern California allowing any retention of cowcod would result in over exploitation of the species in a matter of days.

Catch tracking in 2021 indicated the vermilion rockfish ACL contribution to the minor shelf complex south of 40º10' N lat. would be exceeded despite implementation of a new five fish sub-bag limit during the 2021 fishing season. Results of data moderate stock assessments for quillback rockfish and copper rockfish off California also suggested severe depletions of the stocks. To reduce total mortality inseason action was taken to modify bag limits for these species, effective January 1, 2022 (86 FR 72863). Species subject to sub-bag limits within the overall 10-fish RCG bag limit are as follows:

- Vermilion rockfish - 4 fish
- Quillback rockfish – 1 fish
- Copper rockfish – 1 fish.

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).

Lingcod Seasons, Bag Limits, Hook Limits, and Size Limits

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 with a minimum size limit of 22 inches total length. The RCG Complex gear restrictions apply for lingcod (i.e., no more than one line and two hooks).

California Scorpionfish Seasons, Bag Limits, and Size Limits

The season length for California scorpionfish aligns with that of the RCG complex in all management areas except for the Southern Management Area, where it is open year-round. In all areas, the bag limit is 5 fish with a minimum size of 10 inches total length. The RCG Complex gear restrictions apply for California scorpionfish (i.e., no more than one line and two hooks).

Pacific Halibut Seasons

The recreational Pacific halibut fishery in waters off California occurs primarily from the Oregon/California border to Point Arena . This fishery is structured to provide recreational fishing opportunities between May 1 and November 15. 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. Anglers fishing for Pacific halibut may retain groundfish on the same trip but must abide by all applicable groundfish regulations, and these impacts are accounted for within the California recreational groundfish fishery impacts.

Other Recreational Fisheries

Recreational fisheries for several other non-groundfish species occur statewide or in certain portions of the state, and for which additional bag and size limits may exist. 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. The common non-groundfish directed recreational fishery targets (Table 1-45) include, but are not limited to ocean salmon, California

halibut (*Paralichthys californicus*), sand basses (*Paralabrax* spp.), white seabass (*Atractoscion nobilis*), and yellowtail (*Seriola dorsalis*).

Table 1-45. Other common California recreational fishery targets, areas, and seasons a/

Fishery	Area	Season
Ocean salmon,	Primarily north of San Luis Obispo County	Varies by management region
California halibut	Statewide	Year-round
Sandbasses	Primarily south of 34°27' N. lat. (Pt Conception)	Year-round
White Seabass	Primarily south of 38°57.50' N. lat. (Pt. Arena.)	Year-round
Yellowtail.	Primarily south of 34°27' N. lat. (Pt Conception)	Year-round

a/refer to California recreational fishing regulations for seasons, area, bag, and size limits**.**

Inseason Management Response

CDFW tracks 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 2021 the species tracked weekly included black rockfish, canary rockfish, and yelloweye rockfish. For the 2022 season the list of species was expanded to include quillback and copper rockfish as a result of new stock status information. 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.

1.11.2 Impact (Groundfish Mortality)

Table 1-46 provides projected mortality in the California recreational fishery for 2021.

Table 1-46. Baseline: Mortality in the California recreational fishery for 2021.

Stock	Projected Recreational Mortality (mt)	California Recreational HG 2021/22 (mt)	Non-Trawl Allocation 2021/22 [a] (mt)
Bocaccio S of 40º10' N lat.	142.2	716.2/706.1	1036.4/1021.8
Canary rockfish	85.0	116.9/113.9	351.6/343.1
Cowcod S of 40º10' N lat.	11.0	-	32.0/32.0
Yelloweye rockfish	6.9	8.9/9.2	37.9/38.8
Black rockfish	197.8	-	348/341
Cabezon	26.2	-	208.7/193.7
California scorpionfish	141.2	-	287.3/271.1
Greenlings	6.0	-	[b/]
Lingcod north of 40º10' N lat. [c/]	48.7	-	2799.8/2573.8
Lingcod south of 40º10' N lat.	414.6	-	653.4/695.4
Widow rockfish	13.2	-	400/400
Nearshore rockfish north of 40º10' N lat. [d]	20.0 [e]	-	75.9/73.9
Nearshore rockfish south of 40º10' N lat.	684.6[f]	-	1011.6/1005.6
Minor Shelf rockfish south of 40º10' N lat.	521.6[g]	-	
Petrale sole	6.2	-	30/30.1
Starry flounder	3.5	-	171.8/171.8

a/ Includes non-nearshore, nearshore, and recreational.
b/ Greenling is managed within the Other Fish Complex.
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 36.2/35.9 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 3.5 mt and 3.7 mt, respectively. The species-specific contributions to the California fishery HG are 1.6 mt for quillback rockfish and 2.0 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 4.8 mt and 133.7 mt, respectively. The species-specific contributions to the non-trawl allocation are 4.2 mt for quillback rockfish and 202.0 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 186.2 mt. The vermilion rockfish ACL contribution is 209.5 mt, and is shared between the recreational and commercial non-trawl sectors.

2. No Action

Under the No Action Alternative, ACLs will be determined by applying updated information from stock assessments to the Default Harvest Control Rule (DHCR). The DHCR is defined in section 2.3 of the 2015 EIS. The following list is of the species for which stock assessments were completed for the 2023-2024 biennial cycle.

- Sablefish
- Lingcod north of 40°10' N. lat.
- Lingcod south of 40°10' N. lat.
- Oregon Black Rockfish
- Pacific Spiny Dogfish
- Vermilion/ Sunset Rockfish north of 40°10' N. lat.
- Vermilion/ Sunset Rockfish south of 40°10' N. lat.
- Quillback Rockfish

2.1 Off-the-Top Deductions

This section details the deductions from the ACLs in 2023 and 2024, respectively, under No Action necessary to calculate the harvest guideline (HG). The ACLs were taken from Agenda Item E.3, Supplemental REVISED Attachment 1, November 2021. The Council also recommended applying placeholder off-the-top values for quillback and copper rockfish off of California. In this document, we use values of 0 mt for all set-asides.

Tribal Fishery: The Tribal set-aside values for 2023-2024 are the same as in 2021-2022, except for increases in set-asides for Pacific ocean perch from 9.3mt to 130mt (Agenda Item E.5.a, Supplemental Tribal Report 1, November 2021).and for darkblotched rockfish from 0.2mt to 5.0mt (Agenda Item E.5.a, Supplemental Revised Tribal Report 2, November 2021).

Research: The Council recommended the maximum historical research mortality be used for all species except yelloweye rockfish and cowcod. These values for these species shall be determined by the GMT based on anticipated research needs. Adjustments for yelloweye rockfish and cowcod research set-asides are described in Agenda Item E.5.a, Supplemental GMT Report 1, November 2021. Placeholder values from the 2021-2022 biennium of 2.92 mt for yelloweye rockfish and a 10 mt for cowcod are used in Table 2-5 below until the Council formally adopts set-aside values.

IOA: The Council adopted No Action IOA off-the-top deductions for most species to be set at the maximum historical values (2007-2020) based on recommendations from the GMT (Agenda Item E.5.a, Supplemental GMT Report 1 [Table 1], November 2021) , with the exception of darkblotched rockfish (9.8 mt), petrale sole (34.3 mt), sablefish south of 36° N. lat. (25 mt), yelloweye rockfish (2.66 mt), and nearshore rockfish complex north (1.3 mt) to accommodate expected mortality (Table 2-1).[17]

[17] 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.

Darkblotched Rockfish: In the 2021-2022 biennium, the Council adopted an IOA set-aside for darkblotched rockfish as calculated by the long-term average mortality rather than the historical maximum. (Agenda Item H.8.a, Supplemental GMT Report 1, November 2019) as it better reflected the needs of the IOA and directed groundfish fishery. The GMT recommended the Council continue the use of the long-term average mortality for this biennium (Agenda Item C.5.a, Supplemental GMT Report 1, November 2021).

Petrale Sole: In November 2021, the Council recommended using the average mortality from 2005-2020 of 11.1 mt as the IOA set-aside instead of the historical maximum of 34.3 mt (Agenda Item E.5.a, Supplemental GMT Report 1, November 2021). This amount, the 2005-2020 average value of 11.1 mt, is expected to accommodate annual IOA mortality, as the sector has taken less than that each year during the IFQ era (2011-2020), with the exception of 2017 (Table 2-1). Using 11.1 mt for the IOA set-aside, instead of the maximum of 34.3 mt, would result in an additional 23.2 mt for the IFQ fishery.

Sablefish south of 36° N. lat.: The Council recommended an IOA sablefish south of 36° N. lat. set-aside of 25 mt rather than the 2005-2020 maximum average mortality of 2.37 mt (Table 2-1). This same amount was adopted for the 2021-2022 biennium in response to the potential of a large sablefish year class recruiting to the fishery (Agenda Item F.7, Attachment 7, June 2020). In this management area, sablefish IOA mortality has been less than 2.5 mt annually. The GMT noted there is low risk of constraining groundfish sectors with this amount (Agenda Item C.5.a, Supplemental GMT Report 1, November 2021).

Yelloweye Rockfish: The Council recommended an IOA yelloweye rockfish set-aside of 2.66 mt, which is 1.97 mt higher than the 2021-2022 biennium IOA set-aside (Table 2-1). In Agenda Item C.5.a, Supplemental GMT Report 1, November 2021, the GMT noted the IOA mortality of yelloweye rockfish has largely come from the directed commercial Pacific halibut fishery. The IOA set-aside amount of 2.66mt was discussed in detail in Agenda Item C.7.a, Supplemental GMT report 1, September 2021, wherein they recommended using an average of years with observer data in the directed commercial Pacific halibut (2017-2020) as the IOA set-aside to better manage the yelloweye rockfish mortality from the IOA sector.

Nearshore Rockfish north of 40°10' N. lat.: The Council recommended an IOA set-aside of 1.3 mt for the Nearshore Rockfish north of 40°10' N. lat. complex (Table 2-1). This amount was calculated using an average of years with observer data in the directed commercial Pacific halibut (2017-2020). IOA mortality of species within the Nearshore Rockfish north of 40°10' N. lat. Complex has largely come from the directed commercial Pacific halibut fishery (Agenda Item C.5.a, Supplemental GMT Report 1, November 2021).

Table 2-1. IOA mortality in metric tons (mt) for 2016-2020, including 2005-2020 maximum value (mt), 2022 IOA set-aside (mt), and GMT recommendation (rec.) for the 2023-2024 IOA set-asides (mt) that depart from status quo. (Source, Agenda Item E.5, Supplemental GMT report 1, November 2021)

Species	2016	2017	2018	2019	2020	2005-2020 Max Value	2022 Set-aside	GMT rec.
Darkblotched rockfish	6.41	6.75	3.60	2.89	17.5	24.66	9.8 a/	9.8
Petrale sole	6.60	19.6	5.53	4.31	1.94	34.32	13.3 a/	11.1
Sablefish south of 36° N. lat.	0.29	1.79	2.37	0.35	0.56	2.37	25	25
Yelloweye rockfish	0.0	0.67	0.02	7.37	2.62	7.37	0.69	2.66
Nearshore rockfish north of 40° 10′ N. lat.	0.61	0.04	0.01	4.15	1.0	4.15	0.61	1.3

2.1.1 Set-asides for Copper Rockfish and Quillback Rockfish

At the November 2021 meeting, the Council recommended including placeholder values for copper rockfish and quillback rockfish set-asides in research, IOA, and EFP fisheries off of California. At the March 2022 meeting, the Council gave guidance and instructed that set-asides should not be developed at this time.

EFP: The Council forwarded five EFPs for public review (Table 2-2) and adopted preliminary set-asides to cover anticipated mortality in those EFPs (Table 2-3). Of the five EFPs, only two requested set-asides –the Midwater Jig Fishing in California and Monterey Bay Regional EFP Targeting Chilipepper Rockfish. The amounts of set-asides by species and/or complex for each EFP (Agenda Item E.4.a, Supplemental GMT Report 1, November 2021)

Table 2-2. No Action: Exempted fishing permits forwarded for public review by the Council.

Title/Sponsor	Short Description
Recreational Cowcod Retention in California (CDFW)	CDFW intends to collect cowcod for biological data collection for use in future stock assessments. **No set-aside requested.**
Year-Round Coastwide Midwater Rockfish EFP (West Coast Seafood Processors)	Monitoring and minimizing salmon bycatch when targeting rockfish in the shorebased IFQ fishery. **No set-asides requested**
WDFW Recreational Yelloweye Sampling in Washington WDFW	WDFW collection of yelloweye rockfish from a select group of charter and private fishing vessels during the recreational Pacific halibut fishery in Washington. **No set-aside requested.**
Midwater Jig Fishing in California (Emley/Platt)	Commercial jig fishing targeting yellowtail rockfish in the non-trawl RCA off California
Monterey Bay Regional EFP Targeting Chilipepper Rockfish (Real Good Fish)	Commercial fishery to target chilipepper rockfish in the non-trawl RCA in the Monterey Bay region.

Table 2-3. No Action: Requested exempted fishing permit (EFP) set-aside species by EFP and amounts in metric tons (mt) and a dash indicates a zero.

Species	Area	Emley/Platt	Real Good Fish	Total
Arrowtooth flounder	Coastwide	-	-	-
Big skate	Coastwide	-	-	-
Black (WA)	Washington	-	-	-
Black (CA)	California	1.00	-	1.00
Bocaccio	south of 40º10' N. lat.	10.00	30.00	40.00
Cabezon (CA)	south of 42º N. lat.	1.00	-	1.00
California scorpionfish	south of 34°27' N. lat.	-	-	-
Canary rockfish	Coastwide	2.00	1.00	3.00
Chilipepper	south of 40º10' N. lat.	30.00	40.00	70.00
Cowcod	south of 40º10' N. lat.	0.50	0.50	1.00
Darkblotched rockfish	Coastwide	0.10	0.40	0.50
Dover sole	Coastwide	-	-	-
English sole	Coastwide	-	-	-
Lingcod	north of 40'10º N. lat.	-	-	-
Lingcod	south of 40'10º N. lat.	1.50	-	1.50
Longnose skate	Coastwide	-	-	-
Longspine thornyhead	north of 34º27' N. lat.	-	-	-
Longspine thornyhead	south of 34º27' N. lat.	-	-	-
Pacific cod	Coastwide	-	-	-
Pacific whiting	Coastwide	-	-	-
Petrale sole	Coastwide	1.00	-	1.00
Pacific ocean perch	north of 40º10' N. lat.	-	-	-
Sablefish	north of 36º N. lat.	1.00	-	1.00
Sablefish	south of 36º N. lat.	-	-	-
Shortspine thornyhead	north of 34º27' N. lat.	-	-	-
Shortspine thornyhead	south of 34º27' N. lat.	-	-	-
Spiny dogfish	Coastwide	1.00	-	1.00
Splitnose rockfish	south of 40º10' N. lat.	1.50	-	1.50
Starry flounder	Coastwide	-	-	-
Widow rockfish	Coastwide	9.00	9.00	18.00
YELLOWEYE ROCKFISH	Coastwide	0.06	0.06	1.20
Yellowtail rockfish	north of 40º10' N. lat.	-	-	-
Stock Complexes				
Nearshore rockfish north	north of 40º10' N. lat.	-	-	-
Nearshore rockfish south	south of 40º10' N. lat.	-	-	-
Shelf rockfish north	north of 40º10' N. lat.	30.00	20.00	50.00
Shelf rockfish south	south of 40º10' N. lat.	-	-	-
Slope rockfish north	north of 40º10' N. lat..	1.00	-	1.00
Slope rockfish south	south of 40º10' N. lat.	-	-	-
Other fish	Coastwide	-	-	-

Species	Area	Emley/Platt	Real Good Fish	Total
Other flatfish	Coastwide	-	-	-
Oregon black/blue/deacon	Oregon	-	-	-
Oregon cabezon/kelp greenling	Oregon	-	-	-
Washington cabezon/kelp greenling	Washington	-	-	-

Recreational (sablefish north of 36° N. lat. only): The allocation framework 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. . This stock is the only one with an off-the-top deduction for recreational fishery, it is displayed separately for reference. The deduction would be the maximum historical value from recreational fisheries from 2004 to 2020 (Table 2-4).

Table 2-4. No Action. Estimates of tribal, research, recreational (Rec), and EFP mortality (in mt), used to calculate the fishery sablefish commercial harvest guideline north of 36° N. lat. for 2023 and 2024.

Year	ACL	Tribal	Research	Rec.	EFP	Sum	Commercial HG
2023	8,486	849	30.7	6.0	1.0	886.57	7,599.72
2024	7,780	778	30.7	6.0	1.0	815.68	6,964.34

Table 2-5. No Action. Estimates of tribal, EFP, research, and IOA groundfish mortality (in mt) used to calculate the fishery HG in 2023.a/

Stock/Complex	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Sum (mt)	Fishery HG (mt)
YELLOWEYE ROCKFISH	Coastwide	66	5	0.12	2.92	2.66	10.7	55.3
Arrowtooth flounder	Coastwide	18,632	2041	-	12.98	41	2,094.98	16,537
Big skate	Coastwide	1,320	15	-	5.49	39.31	59.8	1,260.2
Black rockfish	Washington	290	18	-	0.1	0	18.1	271.8
Black rockfish	California	334	-	1	0.08	1.18	2.26	332.1
Blue/Deacon/Black rockfish	Oregon	562	-		0.08	1.74	1.82	560.2
Bocaccio	south of 40°10' N. lat.	1,842	-	40	5.6	2.52	48.12	1,793.9
Cabezon	California	182	-	1	0.02	0.61	1.63	180.4
Cabezon/Kelp greenling	Oregon	20	2	-	-	-	2	18
Cabezon/Kelp greenling	Washington	185	-	-	0.05	0.74	0.79	184.2
California scorpionfish	Coastwide	262	-	-	0.18	3.71	3.89	258.4
Canary rockfish	Coastwide	1,284	50	3	10.08	2.83	65.91	1,218.1
Chilipepper	south of 40°10' N. lat.	2,183	-	70	14.04	13.66	97.7	2,085
Cowcod	south of 40°10' N. lat.	80	-	1	10	0.17	11.17	68.8
Darkblotched rockfish	Coastwide	785	5	0.5	8.46	9.8	23.76	761.2
Dover sole	Coastwide	50,000	1497	-	50.84	49.27	1,597.11	4,8402.9
English sole	Coastwide	9,018	200	-	17	42.52	259.52	8758.5
Lingcod	north of 40°10' N. lat.	4,378	250	-	17.71	11.92	279.63	4,098.4
Lingcod	south of 40°10' N. lat.	726	-	1.5	3.19	8.31	13	713
Longnose skate	Coastwide	1,708	220	-	12.46	18.84	251.3	1,456.7
Longspine thornyhead	north of 34°27' N. lat.	2,295	30	-	17.49	6.22	53.71	2,241.3
Longspine thornyhead	south of 34°27' N. lat.	725	-	-	1.41	0.83	2.24	722.8
Nearshore Rockfish	north of 40°10' N. lat.	88	1.5	0	0.47	1.3	3.27	84.7
Nearshore Rockfish	south of 40°10' N. lat.	889	-	-	2.68	1.86	4.54	884.5
Other Fish	Coastwide	223	-	-	6.29	14.95	21.24	201.8
Other Flatfish	Coastwide	4,862	60	-	23.63	137.16	220.79	4,641.2

Stock/Complex	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Sum (mt)	Fishery HG (mt)
Pacific cod	Coastwide	1600	500	-	5.47	0.53	506	1,094
Pacific ocean perch	north of 40°10' N. lat.	3573	130	-	5.39	10.09	145.48	3,427.5
Pacific whiting b/	Coastwide	TBD	TBD	0	TBD	1,501	1,500	TBD
Petrale sole	Coastwide	3485	350	1	24.14	11.1	386.24	3,098.8
Sablefish	north of 36º N. lat.	6,049.3	Table 2-4					
Sablefish	south of 36° N. lat.	2,338	-	-	2.4	25	27.4	2310.6
Shelf Rockfish	north of 40°10' N. lat.	1,283	30	-	15.32	25.62	70.94	1,212.1
Shelf Rockfish	south of 40°10' N. lat.	1,469	-	50	15.1	67.67	132.77	1,336.23
Shortspine thornyhead	north of 34°27' N. lat.	1,359	50		10.48	17.82	78.3	1,280.7
Shortspine thornyhead	south of 34°27' N. lat.	719	0	0	0.71	6	6.71	712.3
Slope Rockfish	north of 40°10' N. lat.	1,540	36	-	10.51	18.88	65.39	1,474.6
Slope Rockfish	south of 40°10' N. lat.	701	-	1	18.21	19.73	38.94	662.1
Spiny dogfish	Coastwide	1,456	275	1	41.85	33.63	351.48	1,104.5
Splitnose rockfish	south of 40°10' N. lat.	1,592	-	1.5	11.17	5.75	18.42	1,573.4
Starry flounder	Coastwide	392	2	-	0.57	45.71	48.28	343.7
Widow rockfish	Coastwide	12,624	200	18	17.27	3.05	238.32	12,385.7
Yellowtail rockfish	north of 40°10' N. lat.	5,666	1,000	-	20.55	7	1027.55	4,638.5

a/ a '-' indicates no allocation percentage

b/ Pacific whiting ACLs are set by a different process. These amounts will be updated when announced.

Table 2-6, No Action 2021. Estimates of tribal, EFP, research, and IOA groundfish mortality (in mt) used to calculate the fishery HG in 2024

Stock/Complex	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Sum (mt)	Fishery HG (mt)
YELLOWEYE ROCKFISH	Coastwide	66	5	0.12	2.92	2.66	-	10.7
Arrowtooth flounder	Coastwide	14,178	2041	-	12.98	41	2094.98	1,2083
Big skate	Coastwide	1,267	15	-	5.49	39.31	59.8	1,207.2
Black rockfish	Washington	289	18	-	0.1	-	18.1	270.5
Black rockfish	California	329	-	1	0.08	1.18	2.26	326.6
Blue/Deacon/Black rockfish	Oregon	553	-		0.08	1.74	1.82	551.2
Bocaccio	south of 40°10' N. lat.	1,828	-	40	5.6	2.52	48.12	1,779.9
Cabezon	California	171	-	1	0.02	0.61	1.63	169.4
Cabezon/Kelp greenling	Oregon	17	2	-	-	-	2	15
Cabezon/Kelp greenling	Washington	180	-	-	0.05	0.74	0.79	179.2
California scorpionfish	Coastwide	252	-	-	0.18	3.71	3.89	248
Canary rockfish	Coastwide	1,267	50	3	10.08	2.83	65.91	1,201.1
Chilipepper	south of 40°10' N. lat.	2,121		70	14.04	13.66	97.7	2,023.4
Cowcod	south of 40°10' N. lat.	79	-	1	10	0.17	11.17	67.8
Darkblotched rockfish	Coastwide	750	5	0.5	8.46	9.8	23.76	726.2
Dover sole	Coastwide	50,000	1,497	-	50.84	49.27	1,597.11	48,402.9
English sole	Coastwide	8,960	200	-	17	42.52	259.52	8,700.5
Lingcod	north of 40°10' N. lat.	3,854	250	-	17.71	11.92	279.63	3,574.4
Lingcod	south of 40°10' N. lat.	722	-	1.5	3.19	8.31	13	709
Longnose skate	Coastwide	1,660	220	-	12.46	18.84	251.3	1,,408.7
Longspine thornyhead	north of 34°27' N. lat.	2,162	30	-	17.49	6.22	53.71	108.3
Longspine thornyhead	South of 34°27' N. lat.	683	-	-	1.41	0.83	2.24	680.8
Nearshore Rockfish	north of 40°10' N. lat.	87	1.5	-	0.47	1.3	3.27	83.7
Nearshore Rockfish	south of 40°10' N. lat.	894	-	-	2.68	1.86	4.54	889.5
Other Fish	Coastwide	223	-	-	6.29	14.95	21.24	201.8
Other Flatfish	Coastwide	4,874	60	-	23.63	137.16	220.79	4,653.2

Stock/Complex	Area	ACL (mt)	Tribal (mt)	EFP (mt)	Research (mt)	IOA (mt)	Sum (mt)	Fishery HG (mt)
Pacific cod	Coastwide	1,600	500	-	5.47	0.53	506	1,094
Pacific ocean perch	north of 40°10' N. lat.	3,443	130	-	5.39	10.09	145.48	3,297.5
Pacific whiting b/	Coastwide	TBD	TBD	0.0	TBD	1,500	1,500	TBD
Petrale sole	Coastwide	3,285	350	1	24.14	11.1	386.24	2,898.8
Sablefish	north of 36º N. lat.	6,049.3	Table 2-4					
Sablefish	south of 36° N. lat.	2,143	-	-	2.4	25	27.4	2,115.6
Shelf Rockfish	north of 40°10' N. lat.	1,278	30	-	15.32	25.62	70.94	1,207.1
Shelf Rockfish	south of 40°10' N. lat.	1,469		50	15.1	67.67	132.77	1,336.23
Shortspine thornyhead	north of 34°27' N. lat.	1,328	50	-	10.48	17.82	78.3	1,249.7
Shortspine thornyhead	south of 34°27' N. lat.	702	-	-	0.71	6	6.71	695.3
Slope Rockfish	north of 40°10' N. lat.	1,516	36	-	10.51	18.88	65.39	1,450.6
Slope Rockfish	south of 40°10' N. lat.	697	-	1	18.21	19.73	38.94	658.1
Spiny dogfish	Coastwide	1,407	275	1	41.85	33.63	351.48	1,055.5
Splitnose rockfish	south of 40°10' N. lat.	1,553	-	1.5	11.17	5.75	18.42	1,534.3
Starry flounder	Coastwide	392	2	-	0.57	45.71	48.28	343.7
Widow rockfish	Coastwide	11,482	200	18	17.27	3.05	238.32	11,243.7
Yellowtail rockfish	north of 40°10' N. lat.	5,560	1000	-	20.55	7	1,027.55	4,532.5

a/ a '-' indicates no allocation percentage

b/ Pacific whiting ACLs are set by a different process. These amounts will be updated when announced.

2.1.2 Annual Catch Target

Under No Action, the Council adopted ACT's for cowcod and yelloweye rockfish and is considering sector specific ACTs for quillback rockfish and copper rockfish off of CA.

Cowcod: Under No Action Council adopted a single ACT for cowcod of 50 mt ACT with a 36 percent trawl and 64 percent non-trawl status quo allocation method based on recommendations found in Agenda Item E.5.a, Supplemental GMT Report 2, November 2021. The ACT is set under the HG of 72.8 mt and 67.83 mt for 2023 and 2024, respectively (Table 2-7) displays the 2023-2024 ACTs for cowcod under No Action, including the amounts allocated to each fishery.

Table 2-7. No Action: Cowcod allocation structure for 2023 and 2024 showing the post-harvest guideline(HG) annual catch target (ACT) in metric tons (mt)

Specification	2023 (mt)	2024 (mt)
ACL	80	79
Harvest Guideline	72.8	67.83
ACT	50	50
Trawl (36%)	18	18
Non Trawl (64%)	32	32
Commercial (50%)	16	16
Recreational (50%)	16	16

Yelloweye Rockfish: Under No Action, the Council adopted a non-trawl ACT of 39.8 mt for yelloweye rockfish which is 78.3 percent (status quo) of the non-trawl HG for 2023-2024 (Table 2-8). The allocations by fishery for yelloweye rockfish are further described below under the Rebuilding Species Allocations

Table 2-8. No Action: Yelloweye rockfish non-trawl specifications in the 2023-2024 biennium in metric tons (mt)

Year	2023 (mt)	2024 (mt)
ACL	66	66
Fishery HG	55.4	55.4
Non-Trawl HG	50.8	50.8
Non-trawl ACT	39.8	39.8

Copper Rockfish and Quillback Rockfish: The Council recommended including sector specific ACTs for copper rockfish and quillback rockfish off of California. At present, these species are managed under the Nearshore Rockfish Complex north and south of 40°10' N. lat. ACTs have neither been developed for the Complexes nor for the species in the Complex in the past. Section 5 presents an exploratory analysis to develop and set ACTs for these species by fishery.

2.2 Allocations:

2.2.1 Amendment 21 and Biennial Allocations

The Council reviewed the performance of the A-21 and biennial trawl and non-trawl allocations fisheries for the 2023-2024 biennium (Agenda Item E.5.a, Supplemental GMT Report 2,

November 2021). Under No Action, the Council recommended to maintain the status quo A-21 and biennial trawl and non-trawl percentages and allocations for the 2023-2024 biennium as detailed in Table 2-9 and Table 2-10 for 2023 and 2024, respectively.

Table 2-9. No Action: 2023 stock-specific fishery harvest guidelines and allocation percentages (%) and calculated amounts (mt) a/

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Arrowtooth flounder	Coastwide	16,537	A-21	95	15,710.2	5	826.9
Big skate	Coastwide	1,260.2	Biennial	95	1,197.2	5	63
Black rockfish	Washington	271.8	-	-	-	-	-
Black rockfish	California	332.1	-	-	-	-	-
Blue/Deacon/Black rockfish	Oregon	560.2	-	-	-	-	-
Bocaccio	south of 40°10' N. lat.	1,793.9	Biennial	39.04	700.3	60.96	1,093.5
Cabezon	California	180.4	-	-	-	-	-
Cabezon/Kelp greenling	Oregon	18	-	-	-	-	-
Cabezon/Kelp greenling	Washington	184.2	-	-	-	-	-
California scorpionfish	Coastwide	258.4	-	-	-	-	-
Canary rockfish	Coastwide	1,218.1	Biennial	-	880.4	-	337.6
Chilipepper	south of 40°10' N. lat.	2,085	A-21	75	1,563.8	25	521.3
Cowcod	south of 40°10' N. lat.	68.8	Biennial	36	18	64	32
Darkblotched rockfish	Coastwide	761.2	A-21	95	723.2	5	38.1
Dover sole	Coastwide	48,402.9	A-21	95	45,982.7	5	2,420.1
English sole	Coastwide	8,758.5	A-21	95	8,320.6	5	437.9
Lingcod	north of 40°10' N. lat.	4,098.4	A-21	45	1,844.3	55	2,254.1
Lingcod	south of 40°10' N. lat.	713	Biennial	40	285.2	60	427.8
Longnose skate	Coastwide	1,456.7	Biennial	90	1311	10	145.7
Longspine thornyhead	north of 34°27' N. lat.	2,241.3	A-21	95	2,129.2	5	112.1
Longspine thornyhead	south of 34°27' N. lat.	722.8	-	-	-	-	-
Nearshore Rockfish N.	north of 40°10' N. lat.	84.7	-	-	-	-	-
Nearshore Rockfish S.	south of 40°10' N. lat.	884.5	-	-	-	-	-
Other Fish	Coastwide	201.8	-	-	-	-	-
Other Flatfish	Coastwide	4,641.2	A-21	90	4,177.1	10	464.1
Pacific cod	Coastwide	1,094	A-21	95	1,039.3	5	54.7
Pacific ocean perch	north of 40°10' N. lat.	3,427.5	A-21	95	3,256.1	5	171.4
Pacific whiting	Coastwide	TBD	A-21	100	TBD	0	0
Petrale sole	Coastwide	3,098.8	Biennial	-	3,068.8	-	30

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Sablefish	north of 36° N. lat.	8,486	See Table 2-11				
Sablefish	south of 36° N. lat.	2,310.6	A-21	42	970.5	58	1,340.1
Shelf Rockfish	north of 40°10' N. lat.	1,212.1	Biennial	60.2	729.7	39.8	482.4
Shelf Rockfish	south of 40°10' N. lat.	1,336.23	Biennial	12.2	163.0	87.8	1,173.2
Shortspine thornyhead	north of 34°27' N. lat.	1,280.7	-	95	1,216.7	5	64
Shortspine thornyhead	south of 34°27' N. lat.	712.3	A-21	-	50	-	662.3
Slope Rockfish	north of 40°10' N. lat.	1,474.6	A-21	81	1,194.4	19	280.2
Slope Rockfish	south of 40°10' N. lat.	662.1	A-21	63	417.1	37	245
Spiny dogfish	Coastwide	1,104.5	None	-	-	-	-
Splitnose rockfish	S of 40°10' N. lat.	1,573.4	A-21	95	1,494.7	5	78.7
Starry flounder	Coastwide	343.7	A-21	50	171.9	50	171.9
Widow rockfish	Coastwide	12,385.7	Biennial	-	11,985.7	-	400
Yelloweye rockfish	Coastwide	55.3	Biennial	8	4.4	92	50.9
Yellowtail rockfish	north of 40°10' N. lat.	4,638.5	A-21	88	4,081.8	12	556.6

a/ a '-' indicates no allocation percentage

Table 2-10. No Action: 2024 stock-specific fishery harvest guidelines, allocation type, and allocation percentages (%) and calculated amounts (mt).

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Arrowtooth flounder	Coastwide	12,083	A-21	95	11,478.9	5	604.2
Big skate	Coastwide	1,207.2	Biennial	95	1,146.8	5	60.4
Black rockfish	Washington	270.5	-	-	-	-	-
Black rockfish	California	326.6	-	-	-	-	-
Blue/Deacon/Black rockfish	Oregon	551.2	-	-	-	-	-
Bocaccio	south of 40°10' N. lat.	1,779.9	Biennial	39.04	694.9	60.96	1,085
Cabezon	California	169.4	-	-	-	-	-
Cabezon/Kelp greenling	Oregon	15	-	-	-	-	-
Cabezon/Kelp greenling	Washington	179.2	-	-	-	-	-
California scorpionfish	Coastwide	248	-	-	-	-	-
Canary rockfish	Coastwide	1,201.1	Biennial	72.3	868.2	27.7	332.9
Chilipepper	south of 40°10' N. lat.	2,023.4	A-21	75	1,517.6	25	505.9
Cowcod	south of 40°10' N. lat.	67.8	Biennial	36	18	64	32
Darkblotched rockfish	Coastwide	726.2	A-21	95	689.9	5	36.3
Dover sole	Coastwide	48,402.9	A-21	95	45,982.7	5	2,420.1

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
English sole	Coastwide	8,700.5	A-21	95	8,265.5	5	435
Lingcod	north of 40°10' N. lat.	3,574.4	A-21	45	1,608.5	55	1,965.9
Lingcod	south of 40°10' N. lat.	709	Biennial	40	283.6	60	425.4
Longnose skate	Coastwide	1,408.7	Biennial	90	1,267.8	10	140.9
Longspine thornyhead	N of 34°27' N. lat.	2,108.3	A-21	95	2,002.9	5	105.4
Longspine thornyhead	S of 34°27' N. lat.	680.8	-	-	-	-	-
Nearshore Rockfish	north of 40°10' N. lat.	83.7	-	-	-	-	-
Nearshore Rockfish	south of 40°10' N. lat.	889.5	-	-	-	-	-
Other Fish	Coastwide	201.8	-	-	-	-	-
Other Flatfish	Coastwide	4,653.2	A-21	90	4,187.9	10	465.3
Pacific cod	Coastwide	1,094	A-21	95	1,039.3	5	54.7
Pacific ocean perch	north of 40°10' N. lat.	3,297.5	A-21	95	3,132.6	5	164.9
Pacific whiting	Coastwide	TBD	A-21	100	TBD	-	-
Petrale sole	Coastwide	2,898.8	Biennial	-	2868.8	-	30
Sablefish	north of 36° N. lat.	7,780	See Table 2-11				
Sablefish	south of 36° N. lat.	2,115.6	A-21	42	888.6	58	1,227
Shelf Rockfish	north of 40°10' N. lat.	1,207.1	Biennial	60.2	726.7	39.8	480.4
Shelf Rockfish	south of 40°10' N. lat.	1,336.2	Biennial	12.2	163.0	87.8	1,173.2
Shortspine thornyhead	north of 34°27' N. lat.	1,249.7	A-21	95	1,187.2	5	62.5
Shortspine thornyhead	south of 34°27' N. lat.	695.3	Biennial	-	50	-	645.3
Slope Rockfish	north of 40°10' N. lat.	1,450.6	A-21	81	1,175	19	275.6
Slope Rockfish	south of 40°10' N. lat.	658.1	Biennial	63	414.6	37	243.5
Spiny dogfish	Coastwide	1,055.5	-	-	-	-	-
Splitnose rockfish	S of 40°10' N. lat.	1,534.3	A-21	95	1,457.6	5	76.7
Starry flounder	Coastwide	343.7	A-21	50	171.9	50	171.9
Widow rockfish	Coastwide	11,243.7	Biennial	-	10,843.7	-	400
Yelloweye rockfish	Coastwide	55.3	Biennial	8	4.4	92	50.9
Yellowtail rockfish	north of 40°10' N. lat.	4,532.5	A-21	88	3,988.6	12	543.9

Sablefish north of 36° N. lat.: Sablefish north of 36° N. lat. is allocated under the A-6 framework. The No Action allocations for sablefish north are found in Table 2-11, which shows the LEFG, limited entry trawl, and OA allocations within the limited entry HG for sablefish north of 36° N. lat., assuming the status quo at-sea set aside of 100 mt.

Table 2-11. No Action: Sablefish north of 36° N. lat. commercial harvest guideline (HG) in 2022-2023 and allocations to limited entry and open access in metric tons (mt).

Year	Commercial HG	Limited Entry HG		Limited Entry Trawl		Limited Entry FG		Open Access HG	
		%	mt	%	mt	%	mt	%	mt
2023	7,600	90.6	6,885	58	3,994	42	2,892	9.4	714
2024	6,964	90.6	6,300	58	3,660	42	2,650	9.4	655

2.2.2 Rebuilding Species Allocation

For the 2023-2024 biennium, yelloweye rockfish subject is to a rebuilding plan. Table 2-12 shows the No Action yelloweye rockfish harvest specifications, ACL, HG rockfish allocations, as well as the Council specified non-trawl 39.8 ACT. Yelloweye rockfish in the non-trawl sector is managed with both HGs and ACTs.

Table 2-12. No Action: Yelloweye rockfish allocations, harvest guideline (HG), and annual catch target (ACT) for 2023 and 2024 in metric tons (mt).

Year	2021 (mt)		2022 (mt)	
ABC	103.1		102.6	
ACL	66		66	
Off-the-Top Deduction	10.7		10.7	
Fishery HG	55.3		55.3	
Trawl (8%)	4.42		4.42	
At-Sea	0		0	
IFQ	4.4		4.4	
Non-trawl (92%)	**HG**	**ACT**	**HG**	**ACT**
	50.9	39.8	50.9	39.8
Non-nearshore / Nearshore (20.9%)	10.6	8.3	9.1	8.3
WA Rec (25.6%)	13.0	10.2	11.3	10.2
OR Rec (23.3%)	11.9	9.3	11.9	9.3
CA Rec (30.2%)	15.4	12.0	15.4	12.0

2.3 Harvest Guidelines and State Shares for Stocks in a Complex

This section describes HGs that are implemented for stocks managed in complexes or HGs that apply across multiple sectors under No Action.

2.3.1 Slope rockfish south of 40° 10′ N. lat.

The Council recommended status quo allocation method for slope rockfish south of 40°10' N. lat., including blackgill rockfish (Table 2-13) as detailed in Agenda Item E.5.a, Supplemental GMT Report 2, November 2021

Table 2-13. 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) (Source: Agenda Item E.5.a, GMT Report 2, Nov. 2021)

Category	2023		2024	
	Trawl (mt)	Non-trawl (mt)	Trawl (mt)	Non-trawl (mt)
Blackgill rockfish share	70.7	101.7	69.7	169.9
Other rockfish slope share	330.5	197.1	334.6	196.5
Subtotal share	401.2	298.8	404.3	296.7
Total	700		770.7	
% of total share	57.31%	42.69%	65.46%	34.54%
Total combined off-top	39		39	
Apportioned off-top	22.4	16.6	25.5	13.5
Final two-year allocation	378.8	282.2	479.0	252.7

2.3.2 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 cabezon/greenling complexes in Oregon and Washington.

2.3.3 Nearshore Rockfish

The Council recommended the status quo sharing agreement to set state-specific HG's for the nearshore rockfish complex N. of 40°10' N. lat. as described in Agenda Item E.5.a, Supplemental GMT Report 2, November 2021

2.3.4 Non-trawl HGs for Canary Rockfish and Bocaccio South of 40° 10' N. lat.

The Council recommended status non-trawl HGs for canary and bocaccio south of 40° 10' N. lat the status quo intersector allocations for canary rockfish are show in Table 2-14. The overall HG for canary rockfish non-trawl allocation decreases by 4.71 mt from 2023 to 2024, within the sector, the HGs decrease by approximately 1 mt between years.

For bocaccio south of 40°10' N. lat. (Table 2-15), the status quo non-trawl allocation decreases between 2023 and 2024 by 8.02 mt. Within the non-trawl sector, recreational decreases by 5.9 mt between 2023 and 2024; whereas, the commercial non-trawl decreases by 2.6 mt between 2023 and 2024

Table 2-14. No Action: Canary rockfish non-trawl HGs for 2021-2022.

Sector	2023	2024
Non-Trawl Allocation	337.64	332.93
Nearshore	121.5	119.7
Non-Nearshore		
WA Recreational	41.5	40.9
OR Recreational	62.4	61.5
CA Recreational	112	110.5

Table 2-15. No Action: Bocaccio south of 40° 10' N. lat. non-trawl HGs for 2021-2022.

Sector	2023	2024
Non-trawl	1093.55	1,085.02
CA Recreational (69.1%)	755.6	749.7
Non-nearshore (30.5%)	333.5	330.9
Nearshore (0.4%)		

2.3.5 Quillback Rockfish and Copper Rockfish

The Council made no recommendations regarding potential HGs and state shares for these species. Decisions regarding any potential amounts for these species will be made at the April 2022 meeting based on information analyzed over the winter.

2.4 Tribal Fishery: No Action

2.4.1 Tribal Management Measures

The Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) will manage their groundfish fisheries in 2024-2025 with the allocations, and set-asides, and management measures as described under Baseline(Table 1-11). Principle management controls in the tribal fisheries include allocations, set-asides, HGs, and trip limits. As described in Agenda Item E.5.a, Supplemental Tribal Report 1, November 2021 and Agenda Item E.5.a, Supplemental Tribal Repot 2, November 2021 the requested treaty harvest guidelines and set-asides are identical to the Baseline for all fisheries with the exception of Pacific ocean perch and darkblotched rockfish (Table 2-16) .

2.4.2 Impacts (Projected Mortality

The Tribes have requested an increase from 9.3 mt to 130.0 mt of Pacific ocean perch as this species has become more commonly encountered in recent years by trawlers. Reclassification of the stock to rebuilt status has also led to an increase in market demand for this species.

The Tribes have requested an increase within the treaty set-aside for darkblotched rockfish from 0.2 mt to 5.0 mt. In recent years, treaty harvest of darkblotched rockfish has increased, and the 0.2 mt limit has become constraining to some tribal fisheries.

Table 2-16. No Action. Requested Treaty harvest guidelines and set-asides for 2023-2024.

Species	2023-2024 Treaty HG and Set-Asides (mt)
Arrowtooth flounder	2,041
Black rockfish (WA) a/	18.14
Cabezon	2.0
Canary rockfish	50
Darkblotched rockfish	5.0
Dover sole	1,497
English sole	200
Lingcod	250
Longnose skate	130
Longspine thornyhead	30
Other flatfish	60
Pacific cod	500
Pacific ocean perch	130
Pacific whiting	17.5% of TAC
Petrale sole	350
Sablefish north of 36° N. lat.	10% of TAC
Shortspine thornyhead	50
Spiny dogfish	275
Widow rockfish	200
Yellowtail rockfish	1,000
Yelloweye rockfish	5.0

a/ Treaty black rockfish HG is set at 30,000 lbs. north of Cape Alava and 10,000 lbs. between Destruction Island and Leadbetter Point (50 CFR 660.050(f)(1))

2.5 Shorebased IFQ: No Action

2.5.1 Management Measures

The shorebased IFQ fishery has the same principle management measures as under the Baseline, except for proposals to:

- Remove the 50 mt ACT for cowcod south of 40°10' N. lat. The IFQ fishery is allocated 36 percent of the fishery HG, or ACT if in place. Removing the 50 mt ACT would increase the IFQ allocation from 18 mt in 2023-24 with a 50-mt ACT to 24.8 mt in 2023 and 24.4 mt in 2024 without an ACT (Agenda Item G.2.a, GMT Report 1, April 2022)
- Evaluate potential management measures to control catch of Pacific spiny dogfish if the ACL is exceeded or projected to be exceeded, including but not limited to the use of BACs and BRAs.
- Allow the use of hook-and-line gear, except vertical hook-and-line anchored to the bottom, dinglebar, and longline within the Non-trawl RCA from the OR/WA border to the U.S./Mexico border. Fixed gear vessels in the Shorebased IFQ fishery (i.e., "gear switchers") would be eligible to access the Non-trawl RCA with approved gear.

2.5.2 Impact (Groundfish Mortality)

The No Action Alternative analyzes the shorebased IFQ fishery under the default HCR ACLs and associated status quo allocations (Table 2-17 and Table 2-10). Notable changes to No Action from the 2021 Baseline under status quo management measures and allocations include:

- New 2021 stock assessments, catch-only updates, and rebuilding plans in the case of yelloweye rockfish resulted in notable increases to the 2023-2024 shorebased IFQ allocations for arrowtooth flounder (112 percent and 55 percent, respectively), sablefish north of 36° N. lat. (24 percent and 13 percent, respectively), sablefish south of 36°N. lat. (23 percent and 13 percent, respectively), and yelloweye rockfish (34 percent for both 2023 and 2024).
- The 2021 stock assessment of Pacific spiny dogfish, which is largely caught in the at-sea and IFQ trawl fisheries, estimated a reduced unfished spawning biomass relative to the previous assessment resulting in ACLs under No Action that are projected to decrease in 2023 and 2024 (Agenda Item E.2, Attachment 6, November 2021).

Under No Action, the IFQ fishery is affected by the integrated effects of the harvest specifications and the alternative management measures (i.e., trawl and non-trawl allocations, cowcod ACT, at-sea set-asides, and trip limits). As such, the IFQ section is structured into the following sections:

Impacts of the No Action harvest specifications under status quo management measures

a) Pacific halibut
b) Sablefish
c) Lingcod north of 40°10' N. lat.
d) Lingcod south of 40°10' N. lat.
e) Pacific spiny dogfish
f) Quillback rockfish

Impacts sections that include new management measures:

g) Cowcod south of 40°10' N. lat.[18]

h) Non-trawl RCA

Table 2-17 below shows the projected IFQ allocations and attainments for 2023 and 2024 under the No Action harvest specifications and status quo management measures, with baseline allocations and catch for comparison. Projections are made based on input data from the IFQ fishery from 2016-2021, but heavily weighted on 2019-2021 (uniformly among the most recent three years). Compared to Baseline catch, the shorebased IFQ fishery is projected to show very similar attainment of their No Action allocations (generally within two percent, aside from arrowtooth flounder). Catch is predicted to either stay the same or increase in 2023 and 2024 for 11 IFQ stocks under No Action, including arrowtooth flounder, bocaccio south of 40° 10' N. lat., cowcod south of 40°10' N, lat., Dover sole, English sole, minor shelf rockfish south of 40° 10' N. lat., other flatfish, Pacific cod, Pacific halibut north of 40° 10' N. lat., sablefish north and south of 36° N. lat., and yelloweye rockfish. Catch of the remaining IFQ-managed stocks is projected to decrease, compared to Baseline; IFQ allocations of these stocks will also decrease due to lower ACLs under default HCRs. Projections for all IFQ stocks generally follow fluctuations in allocation amounts, with varying correspondence. The IFQ allocation of arrowtooth flounder in 2023 will be more than double the 2021 allocation, but due to the typical lack of responsiveness to this species' catch versus allocation, catch is projected to increase by approximately four percent, compared to Baseline (Table 2-17). No Action allocations of sablefish north and south of 36° N. lat. increase in 2023 and 2024 by 24 and 13 percent, respectively, compared to 2021. Catch is also projected to increase by roughly the same degree in 2023 and 2024 under No Action, as sablefish catch is typically responsive to changes in the allocation. The allocation for yelloweye rockfish, a stock currently under a rebuilding plan, is projected to increase by 33 percent in 2023 and 2024 compared to the 2021 allocation, and IFQ catch is projected to decrease by 10 percent under No Action, compared to Baseline. Increases in projected catch for bocaccio south of 40° 10' N. lat., the minor shelf rockfish complex south of 40° 10' N. lat., and other flatfish are all below 7 percent.

Projections for the Pacific whiting sector were constrained to 2021 levels since the Pacific whiting allocation was fixed (as a placeholder) at the 2021 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 2021 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.

[18] The Council gave guidance in March 2022 to consider removing the cowcod ACT. If ACT is removed, it may result in additional analysis. Thus, this is a temporary placeholder.

Table 2-17. No Action - Shorebased IFQ. 2023-24 allocations (mt), projected catch (mt), and percent attainment under No Action. Baseline 2021 allocations and catch are provided for reference.

Species	Baseline 2021		2023 No Action			2024 No Action		
	Allocation (mt)	Catch (mt)	Allocation (mt)	Projected Catch(mt)	% Attain.	Allocation (mt)	Projected Catch (mt)	% Attain.
Arrowtooth flounder	7,376.0	728.8	15,640.2	756.4	5%	11,408.9	748.9	7%
Bocaccio south of 40°10' N.	663.7	255.3	700.3	269.4	38%	694.9	267.3	38%
Canary rockfish	881.0	367.9	844.5	356.9	42%	832.2	353.2	42%
Chilipepper rockfish south of 40°10' N.	1,695.2	725.3	1,563.8	669.1	43%	1,517.6	649.3	43%
Cowcod south of 40°10' N.	18.0	2	18.0	2.0	11%	18.0	2.0	11%
Darkblotched rockfish	743.4	258.4	646.8	231.3	36%	613.5	222.0	36%
Dover sole	45,972.6	4,022.9	45,972.8	4,047.9	9%	45,972.8	4,047.9	9%
English sole	8,478.2	189.8	8,320.6	190.7	2%	8,265.5	190.6	2%
Lingcod north of 40°10' N.	2,275.8	345.3	1,829.3	282.3	15%	1,593.5	248.8	16%
Lingcod south of 40°10' N.	435.6	43.4	285.2	28.4	10%	283.6	28.3	10%
Longspine thornyhead north of 34°27' N.	2,451.3	71.7	2,129.2	65.4	3%	2,002.9	62.9	3%
Minor shelf rockfish north of 40°10' N.	831.1	402.3	694.7	342.2	49%	691.7	340.9	49%
Minor shelf rockfish south of 40°10' N.	159.2	28.4	163.0	28.8	18%	163.0	28.8	18%
Minor slope rockfish north of 40°10' N.	938.6	284.6	894.4	278.3	31%	875.0	275.6	31%
Minor slope rockfish south of 40°10' N.	526.4	48	417.1	46.2	11%	414.6	46.1	11%
Other flatfish	4,088.0	411.5	4,142.1	413.0	10%	4,152.9	413.1	10%
Pacific cod	1,039.2	1.4	1,039.3	1.4	0%	1,039.3	1.4	0%
Pacific halibut (IBQ) north of 40°10' N.	72.3	29.6	72.3	31.0	43%	72.3	30.1	42%
Pacific ocean perch north of 40°10' N.	3,337.7	442.8	2956.1	406.2	14%	2,832.6	393.7	14%
Pacific whiting	142,232.9	126,345.0	142,232.9	126,330.7	89%	142,232.9	126,330.7	89%
Petrale sole	3,692.9	2,803.1	3,063.8	2,325.5	76%	2,863.8	2,173.7	76%
Sablefish north of 36° N.	3,139.6	2,285.2	3,893.5	2,787.9	72%	3,559.6	2,565.3	72%
Sablefish south of 36° N.	786.0	89.5	970.0	108.0	11%	889.0	99.0	11%
Shortspine thornyhead north of 34°27' N.	1,212.1	329	1,146.7	311.3	27%	1,117.2	303.5	27%
Shortspine thornyhead south of 34°27' N.	50.0	0.00	50.0	0.00	0%	50.0	-	0%
Splitnose rockfish south of 40°10' N.	1,565.2	20.1	1,494.7	19.6	1%	1,457.6	19.6	1%
Starry flounder	171.8	0.10	171.9	0.1	0%	171.9	0.1	0%
Widow rockfish	13,600.7	10,800.2	11,509.7	9,217.2	80%	10,367.7	8,352.6	81%
YELLOWEYE ROCKFISH	3.3	0.50	4.4	0.42	9%	4.4	0.40	9%
Yellowtail rockfish north of 40°10' N.	4,091.1	2,689.1	3,761.8	2,550.4	68%	3,668.6	2,511.2	68%

a) Pacific Halibut

Pacific halibut was modeled as a bycatch species in the IFQ model. The current four-year agreement setting the TCEY for IPHC Regulatory Area 2A at 1.65 million lbs. is scheduled to end in 2022. Management of Area 2A Pacific halibut is currently transitioning from IPHC to the Council. The transfer is not expected to impact Pacific halibut IBQ in the Shorebased IFQ fishery as that allocation was set in the trawl rationalization regulations. However, it is unclear what the Area 2A TCEY will be in 2023 and 2024, and similar to past harvest specifications cycles, the 2021 IBQ allocation was used in 2023 and 2024 as a placeholder to compare projected bycatch. Under the No Action harvest specifications and status quo IFQ allocations, the Shorebased IFQ fishery is projected to catch 31 mt in 2023 and 30 mt in 2024, amounting to 43 and 42 percent of the placeholder allocation.

b) Sablefish

Under the No Action DHCR, sablefish would be managed with a P* 0.45, and the 2023 and 2024 ACLs for sablefish north of 36° N. lat. would be 8,486 mt and 7,780 mt, respectively. These are 23 percent and 13 percent higher than the 2021 Baseline ACL allocated north of 36° N. lat. of 6,892 mt. Under status quo management measures, the sablefish IFQ allocations, both north and south of 36° N. lat., are expected to increase by roughly 24 percent in 2023 and 13 percent in 2024 from the 2021 Baseline IFQ allocations. Sablefish is generally responsive to changes in IFQ allocations, so catches are also projected to increase roughly 22 percent in 2023 and 11 percent in 2024 for both stocks.

The No Action IFQ allocations of 3,894 mt in 2023 and 3,560 mt in 2024 for sablefish north of 36° N. lat. are expected to accommodate Shorebased IFQ mortality, as historical mortality in the Shorebased IFQ fishery since 2011 averaged 2,188 mt, and the maximum mortality during that time was 2,548 mt (2019). The IFQ model predicts that the fishery will attain 72 percent of the sablefish north of 36° N. lat. allocation in 2023 and 2024 under No Action. Similarly, the No Action IFQ allocations of 970 mt in 2023 and 889 mt in 2024 for sablefish south of 36° N. lat. are expected to accommodate Shorebased IFQ mortality, as historical mortality in the Shorebased IFQ fishery since 2011 has averaged 452 mt. The maximum mortality during that time was 449 mt, but that occurred in 2011, and the recent five-year (2016-2020) average mortality is 100 mt. The IFQ model predicts that the fishery will catch roughly the same amount as the recent five-year average, which equates to 11 percent of the No Action 2023 and 2024 allocations for sablefish south of 36° N. lat.

In November 2021, the GMT provided the Council with projected economic impacts across all fisheries associated with the sablefish alternative HCRs (Agenda Item E.3.a, GMT Report 1, November 2021). The Council requested that the GMT examine economic impacts from each of the alternatives compared to the Baseline year (2021) in addition to the No Action projections. Table 2-18 below shows projected gains in ex-vessel revenue, income, and jobs for the shorebased IFQ fishery under No Action and Alternative 1 HCRs compared to Baseline 2021 catch and revenue. Table 2-19 compares the Alternative 1 and Alternative 2 projected catch and potential ex-vessel revenue, income, and jobs with those of the No Action Default HCR. Both tables show these comparisons for sablefish north of 36° N. lat. and, separately, sablefish south of 36° N. lat.

Economic impacts under sablefish HCR Alternatives 1 and 2, compared to No Action, are described under the sections for those action alternatives below.

Table 2-18. 2023 projected increases in sablefish IFQ ex-vessel revenue, income, and jobs for each of the action alternatives compared to actual Baseline 2021 revenue.

Alternative	ACL (mt)	Shorebased IFQ Allocation (mt)	Projected Catch (mt)	Projected Ex-vessel Revenue ($USD)	Potential Gain in Revenue ($USD)	Potential Gain in Income ($USD)	Potential Gain in Jobs
Sablefish north of 36° N. lat.							
Baseline a/	6,892	3,140	2,285	$4,152,718	-	-	-
No Action (P* 0.45)	8,487	3,894	2,788	$5,285,925	$1,133,207	$2,357,555	30
Alt. 1 (P* 0.40)	7,924	3,628	2,611	$4,950,341	$797,623	$1,659,397	21
Alt. 2 (P* 0.35)	7,379	3,370	2,439	$4,624,237	$471,519	$980,961	12
Sablefish south of 36° N. lat.							
Baseline a/	1,899	786	90	$272,531	-	-	-
No Action (P* 0.45)	2,338	970	108	$342,859	$70,328	$146,312	2
Alt. 1 (P* 0.40)	2,183	905	101	$320,637	$48,106	$100,081	1
Alt. 2 (P* 0.35)	2,033	842	94	$298,415	$25,884	$53,850	0

a/ 2021 baseline values are provided only for comparison. "Projected Catch" is actual 2021 catch and "Projected Ex-vessel Revenue" is actual 2021 revenue.

Table 2-19. 2023 projected potential losses in sablefish IFQ ex-vessel revenue, income, and jobs for Alternatives 1 and 2 compared to No Action projections.

Alternative	ACL (mt)	Shorebased IFQ Allocation (mt)	Projected Catch (mt)	Projected Ex-vessel Revenue ($USD)	Potential Loss in Revenue ($USD)	Potential Loss in Income ($USD)	Potential Loss in Jobs
Sablefish north of 36° N. lat.							
No Action (P* 0.45)	8,487	3,894	2,788	$5,285,925	-	-	-
Alt. 1 (P* 0.40)	7,924	3,628	2,611	$4,950,341	$335,584	$698,158	9
Alt. 2 (P* 0.35)	7,379	3,370	2,439	$4,624,237	$661,688	$1,376,594	17
Sablefish south of 36° N. lat.							
No Action (P* 0.45)	2,338	970	108	$342,859	-	-	-
Alt. 1 (P* 0.40)	2,183	905	101	$320,637	$22,222	$46,231	0
Alt. 2 (P* 0.35)	2,033	842	94	$298,415	$44,444	$92,463	1

a/ 2021 baseline values are provided only for comparison. "Projected Catch" is actual 2021 catch and "Projected Ex-vessel Revenue" is actual 2021 revenue.

c) *Lingcod north of 40° 10' N. lat.*

The default HCR to manage lingcod north of 40° 10' N. lat. is P* = 0.45. 2023 and 2024 projected catches in the shorebased IFQ fishery under No Action are projected to be roughly 16 percent of their respective IFQ allocations. Historical catch (2013-2021) of lingcod north of 40° 10' N. lat. in the IFQ fishery has ranged from 166 mt to 593 mt per year, well within the 1,829 mt and 1,594 mt allocations for 2023 and 2024 under No Action. Therefore, the No Action lingcod north of 40° 10' N. lat. alternative is not expected to constrain or negatively impact the shorebased IFQ fishery.

d) *Lingcod south of 40° 10' N. lat.*

The default HCR to manage lingcod south of 40° 10' N. lat. is also P* = 0.45. 2023 and 2024 projected catches in the shorebased IFQ fishery under No Action are projected to be roughly 10 percent of their respective IFQ allocations. Historical catch (2013-2021) of lingcod south of 40° 10' N. lat. in the IFQ fishery has ranged from 11 mt to 76 mt per year, well within the 285 mt and 284 mt allocations projected for 2023 and 2024, respectively, under No Action. Therefore, the No Action lingcod south of 40° 10' N. lat. alternative is not expected to constrain or negatively impact the shorebased IFQ fishery.

e) *Pacific spiny dogfish*

The 2021 stock assessment of Pacific spiny dogfish estimated a lower unfished spawning biomass and scale relative to the previous assessment resulting in lower ACL projections under the default HCR in 2023 and 2024 (1,456 mt and 1,407 mt, respectively) than there have been since at least 2015. The 2023 and 2024 No Action ACLs are projected to be 10 and 13 percent lower than the 2021 ACL of 1,621 mt. Pacific spiny dogfish does not have an IFQ allocation, but roughly 30 to 60 percent of its mortality is attributed to incidental catch by the shorebased IFQ fishery.

Within the shorebased IFQ fishery, 30 to 40 percent of total IFQ mortality has been attributed to bottom trawl gear in the last four years (2017-2020), but that proportion declined since the start of the IFQ program when it was roughly 95 percent (Figure 2-1). The amount of Pacific spiny dogfish caught by bottom trawl gear also declined during that time, while the amount and proportion taken by midwater trawl gear has increased. The IFQ sector as a whole had the largest amount of spiny dogfish catch in 2018 and 2019, with the majority coming from the shoreside whiting fishery. These large amounts of bycatch are likely attributed to the higher overall Pacific whiting TACs during those years.

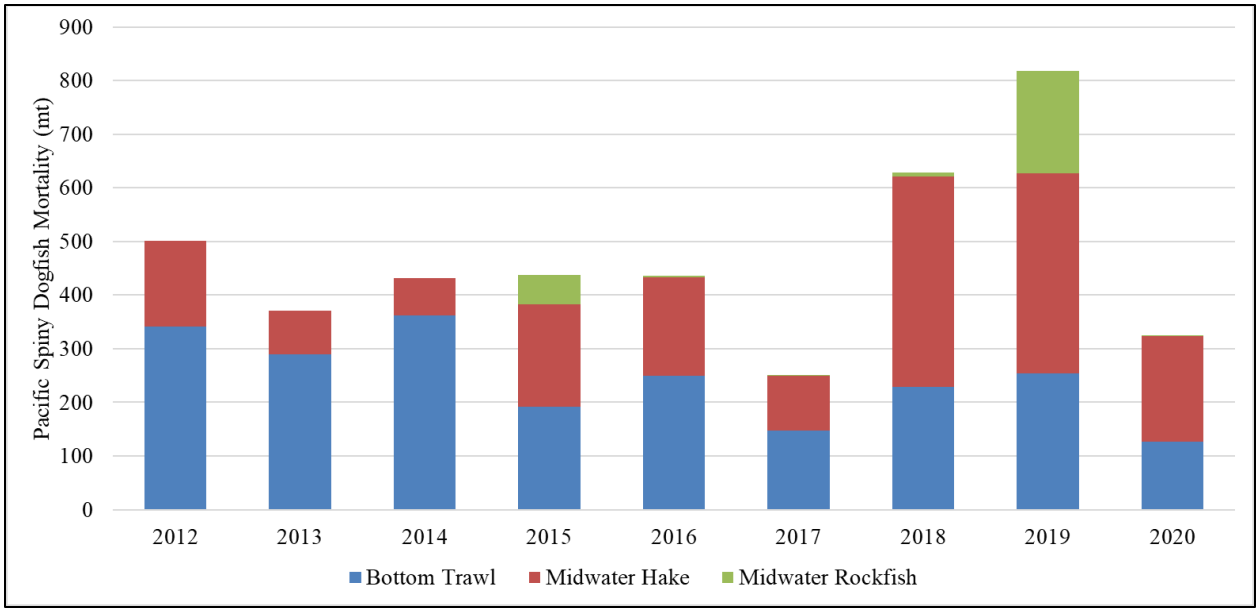


Figure 2-1. Pacific spiny dogfish mortality in the shorebased IFQ sector by trawl gear type and by target stocks for midwater trawl gear (i.e., midwater hake vs. midwater rockfish). All gear types include their respective EM data. Non-trawl gear in the IFQ fishery was not included, as an average of 4 percent of Pacific spiny dogfish mortality is attributed to non-trawl IFQ gear yearly. Data Source = GEMM

As noted above, more than 95 percent of bottom trawl catch is discarded and nearly 100 percent of midwater hake catch is landed due to maximized retention. The midwater rockfish fishery was essentially nonexistent prior to 2017, and while midwater rockfish vessels caught 191 mt of Pacific spiny dogfish in 2019, 71 percent of that catch was discarded, and less than 10 mt were caught in total during 2017, 2018, and 2020 combined. This suggests that midwater rockfish vessels, in addition to bottom trawl vessels, are generally not interested in retaining large quantities of Pacific spiny dogfish when caught. Midwater hake vessels are also likely not interested in retaining Pacific spiny dogfish, because their target stock is the more valuable Pacific whiting, but maximized retention requires them to land Pacific spiny dogfish catch.

Pacific spiny dogfish are generally caught chronically by the shorebased IFQ fishery in amounts smaller than one metric ton per haul (Table 2-20), but since 2011 an average of 7 hauls per year have caught more than 5 mt of Pacific spiny dogfish. Hauls with greater than 5 mt of Pacific spiny dogfish generally occurred north of 47° N. lat. and shallower than 150 fathoms compared to hauls that caught less than 5 mt. This is consistent with known population dynamics, which estimate that the stock is extremely abundant in waters off British Columbia and Washington but decline in abundance southward along the Oregon and California coasts (Agenda Item E.2, Attachment 6, November 2021). The stock is also known to prefer areas in which the water temperature ranges from 5° to 15° C, often making latitudinal and depth migrations to follow this optimal temperature gradient (Brodeur et al. 2009). Shorebased IFQ observer data (WCGOP) indicates that the largest concentrations of catch tend to occur in September to January. Based on evidence of seasonal migration patterns (Taylor et al. 2008), this suggests that the IFQ fishery may be encountering the stock as it migrates southward during the Fall.

Table 2-20. Count of shorebased IFQ hauls that caught Pacific spiny dogfish in amounts of 0-1, 1-5, or 5+ mt, along with their average latitudes, by year (2011-2021). Data Source = WCGOP a/; *indicates confidential data.

Year	Count of Hauls within Three Metric Ton Bins			Avg. Latitude (DD) within Three Metric Ton Bins		
	0-1 mt	1-5 mt	5+ mt	0-1 mt	1-5 mt	5+ mt
2011	5,928	98	9	45.4	46.5	47.2
2012	5,845	90	5	45.4	46.8	47.4
2013	4,861	59	7	45.2	45.7	47.1
2014	4,884	46	10	44.8	44.9	45.6
2015	3,498	16	3	44.9	45.6	47.3
2016	3,265	26	10	45.6	47.1	47.2
2017	2,641	23	3	45.4	46.8	47.1
2018	2,980	31	7	45.0	46.6	47.9
2019	2,890	41	7	45.0	47.1	47.1
2020	1,944	17	*	44.8	45.9	47.2
Average	3,874	45	7	45	46	47

a/ From 2017 to 2020, WCGOP observed only 80 percent of the fleet, as the other 20 percent utilize EM.

At-sea discards of quota-managed species in the shorebased IFQ fishery are monitored 100% via an observer or EM. In the 100% observed portion of the fleet and on EM trips selected for scientific observer coverage, discards of all species are recorded by an observer. EM video reviewers do not estimate discards of non-quota species, so EM trips that do not carry an observer do not have available information about non-quota discards. Therefore, annual discard estimates of non-quota-managed species, including Pacific spiny dogfish, on EM trips are derived from the ~20 percent of EM trips that carry a scientific WCGOP observer. Unlike the at-sea sectors, inseason tracking of Pacific spiny dogfish discards in the shorebased IFQ fishery is not currently possible. The earliest the GMT could analyze total mortality estimates would be at the September Council meeting of the following year, via the WCGOP's Groundfish Mortality Report. However, the GMT would be able to track Pacific spiny dogfish landings by midwater hake vessels, given they are required to maximize retention of their catch, in combination with at-sea total catch data to determine if there may be a risk to the ACL as a result of impacts from all trawl sectors.

BACs, BRAs, and RCAs are the primary spatial management tools used to reduce or minimize bycatch in Council-managed fisheries (50 CFR 660.60(c)(3)(i)). BACs may be implemented through routine inseason action and for specific trawl gear types (e.g., midwater trawl, bottom trawl, or bottom trawl using selective flatfish trawl) and/or specific programs within the trawl fishery (e.g., Pacific whiting fishery, IFQ program, etc.) (50 CFR 660.111). However, BACs have only been analyzed for use with midwater trawl gear to mitigate salmon bycatch, not groundfish bycatch, off all three states. For bottom trawl gear, BACs are available for use to reduce impacts of fishing on groundfish or protected species (i.e. salmon) off Oregon and California (84 FR 63966; 85 FR 66519). BACs were not developed off of Washington for bottom trawl gear during Amendment 28 since the trawl RCA was to remain in place year-round at 100-150 fathoms (Table 1-14). RCA boundaries may only be modified, not established, through inseason action.

BRAs are also available for routine inseason action and apply to vessels using midwater groundfish trawl gear coastwide. Unlike BACs, which are bounded by both depth and latitude, BRAs are only bounded by a depth contour, meaning that it would be more difficult for the Council to respond to seasonal latitudinal distribution patterns of Pacific spiny dogfish. BRAs may be implemented shoreward of the boundary lines approximating the 75 fm, 100 fm, 150 fm, or 200 fm depth contours. Midwater trawl gear in the shorebased IFQ fishery is largely used by shoreside whiting vessels, with some additional use by vessels targeting midwater rockfish stocks. To limit bycatch by these vessels, a BRA shoreward of either the 75 fm, 100 fm, or 150 fm depth contours would be most effective, because the average fishing depth of midwater trawl observed hauls that caught any amount of Pacific spiny dogfish since 2011, excluding EM hauls, was 126 fm. The average fishing depth has been under 115 fm since 2017. However, given that WCGOP only records fishing depth, it is difficult to say precisely how deep midwater trawl vessels tend to catch Pacific spiny dogfish. As noted above in the at-sea section, analysis of BRAs within the 75 fm, 100 fm, and 150 fm depth contours is potentially outdated. Additionally, the original analysis of those BRAs was conducted with the intention of protecting overfished rockfish stocks, and thus the analytical considerations may differ from those presented for reducing bycatch of Pacific spiny dogfish. Given that BRAs are a coastwide restriction, a BRA to limit Pacific spiny dogfish catch may impact shoreside vessels that fish off southern areas of the West Coast but are less likely to catch Pacific spiny dogfish. Given that a 200-fm BRA is likely the only mitigation measure available, it would also effectively close the fishery by pushing vessels out beyond their usual fishing grounds.

Therefore, the Council's current options for mitigating or reducing Pacific spiny dogfish in the shorebased IFQ fishery if the ACL were projected to be or is exceeded are shown in Table 2-21. As with any routine inseason action, analysis would need to be completed for a routine inseason action item at one of the five scheduled Council meetings, and the Council would provide a recommendation of the closure to NMFS. However, as noted above, tracking Pacific spiny dogfish catch inseason would provide an incomplete picture of total mortality within the IFQ program and across all trawl sectors, because discards, which are primarily from bottom trawl gear (an estimated 30 to 50 percent of IFQ mortality), are not recorded.

Table 2-21. Spatial management options to minimize Pacific spiny dogfish bycatch in the Shorebased IFQ fishery off of the three West Coast states (WA, OR, and CA).

State	BACs	BRAs	RCAs
WA	Currently not available	Available for inseason action for midwater trawl gear	Modify the trawl RCA line inseason (currently 100-150 fm)
OR	Available for inseason action for bottom trawl gear	Available for inseason action for midwater trawl gear	N/A
CA	Available for inseason action for bottom trawl gear	Available for inseason action for midwater trawl gear	N/A

While there is a year-round 60,000 lb. per month landing limit of Pacific spiny dogfish in the limited entry trawl fisheries that can be adjusted inseason, as shown in Table 1 (North) to Part 660, Subpart D, bottom trawl vessels are largely discarding Pacific spiny dogfish at sea and midwater whiting vessels are required to retain and land non-whiting species as part of the maximized retention requirement. Bottom trawl vessels, therefore, would not be affected by changes to the trip limit, and it is unclear whether adjusting the landing limit would alter the behavior of shoreside

whiting vessels given that they are not targeting Pacific spiny dogfish and are actively minimizing their time spent fishing to avoid spoilage of Pacific whiting before shoreside offload. A limit low enough to encourage avoidance measures would likely only impact the value of their Pacific whiting catch. As noted in the at-sea section, depending on whether the Council takes action to adjust the primary whiting season start date to an earlier May 1st for all whiting sectors under the stand-alone Pacific Whiting Utilization item, shoreside whiting vessels may shift effort earlier in the season, as industry indicated may be the case, and thereby potentially reduce their catch of Pacific spiny dogfish. The lower Pacific whiting TACs expected in 2023 and 2024, compared to those of 2018 and 2019, also suggest that shoreside whiting catch of Pacific spiny dogfish may be less likely to reflect the high catches of 2018 and 2019.

f) *Quillback Rockfish*

As discussed in the Nearshore analysis section of this document (Section 2.8), quillback rockfish is a species of concern due to the results of the 2021 length-based data moderate stock assessment for quillback rockfish off California. Since 2011, landings of quillback rockfish in the Shorebased IFQ fishery have been between 0.03 mt and 0.17 mt annually, all of which was landed north of 40° 10' N. lat. There have been no landings of quillback rockfish south of 40° 10′ N. lat. in the Shorebased IFQ fishery since the start of the IFQ program. In total since 2003, less than 0.02 mt of quillback rockfish have been caught between 42° N. lat. and 40° 10′ N. lat. in waters off of California (annual average of 0.004 mt). Quillback rockfish are not managed with IFQ quota, but the stock's harvest specifications are managed within the Minor Nearshore Rockfish complex. Along with Washington black rockfish and Oregon black/blue/deacon rockfish, there is a 300 lb. per month trip limit for the Minor Nearshore Rockfish complex in the shorebased IFQ fishery (Table 1-18 under Section 2.8).

2.5.3 New management measures

g) **Cowcod South of 40° 10' N. lat.**

While cowcod south of 40° 10' N. lat. does not have an alternative harvest control rule for 2023-2024, the Council chose as PPA in November 2021 continuing to use a precautionary ACT of 50 mt due to stock assessment uncertainty. This ACT is the basis for setting the trawl and non-trawl allocations. The shorebased IFQ projected catch of 2 mt is expected to remain well within the No Action IFQ allocation (18 mt) if a 50-mt ACT is used to manage cowcod south of 40° 10' N. lat. in 2023 and 2024. After the November 2021 Council meeting, a new option was added (Option 2), which would remove the 50-mt ACT thereby increasing the amount allocated to the shorebased IFQ fishery by 27 percent compared to Option 1 (Table 2-22). Option 2 was only recently added to the range of alternatives, new projections of shorebased IFQ catch under this new option will be conducted prior to the June 2022 Council meeting.

Table 2-22. 2023-2024 cowcod south of 40° 10' N. lat. IFQ allocations under No Action and with a 50 mt ACT compared to projected catch.

Option	Year	ACL	Set-Aside	Fishery HG	ACT	IFQ Allocation (36%)
Option 1 (SQ)	2023	80	11.2	68.8	50	18
	2024	79	11.2	67.8	50	18
Option 2	2023	80	11.2	68.8	N/A	24.8
	2024	79	11.2	67.8	N/A	24.8

Non-Trawl RCA

As part of the 2023-24 harvest specifications and management measures package, the Council is considering allowing the use of select hook and line gear within the Non-trawl RCA (NT_RCA) for vessels in the OA, LEFG, and IFQ gear switching sectors from the OR/WA border to the US/Mexico border. The purpose of this action is to provide additional opportunity to access healthy, underutilized midwater rockfish stocks. Many of these stocks are economically important to the shorebased IFQ fishery, but only IFQ vessels that use fixed gear (i.e., "gear switchers") would be allowed to access the NT_RCA. There have been no records of gear switchers using hook and line gear since 2014, and minimal amounts (<0.5 mt on average) of canary, widow, bocaccio, chilipepper, and yellowtail rockfishes have been landed since the start of the IFQ program. This is likely due to gear switching vessels generally fishing in deeper waters beyond 150 fathoms targeting primarily sablefish. Although the ability to access the NT_RCA would give gear switching vessels in the IFQ program the opportunity for additional revenue from these midwater rockfish species, it is uncertain how many or even if gear switching vessels would take advantage of the opportunity given the higher price per pound of sablefish (average of $4.41 for sablefish north of 36° N. lat. and $2.71 for sablefish south of 36° N. lat. in 2021, compared to less than $1.00 per pound for midwater rockfishes).

Shortbelly Rockfish

The Council is also considering an amendment to the FMP for monitoring shortbelly rockfish as part of the 2023-24 harvest specifications and management measures process. This management measure would set a catch threshold of shortbelly rockfish at 2,000 mt. If the threshold was exceeded or projected to be exceeded, the amendment also specifies that the Council would review all available fishery data and could recommend implementation of management measures to slow and/or curtail the shortbelly catch. The amendment does not specify the neither the management measures nor if management measures must be implemented. As discussed in Section 6, shortbelly are predominantly caught in the trawl fishery, primarily in groundfish midwater trawl gear. While the IFQ fishery does not catch the majority of this species, it may be subject to management measures if the groundfish fishery exceeds or is projected to exceed the 2,000 mt threshold. The impacts of this amendment are highly uncertain as the Council has many options to choose from as to what, or if, it could implement. Impacts would be analyzed if and when the Council considers action.

2.6 At-Sea Whiting: No Action

2.6.1 Management Measures

Under the No Action Alternative, DHCR ACLs would be implemented for 2023-24. Set-asides and principle management measures for the at-sea sectors would be the same as described under the Baseline (Table 1-21).

2.6.2 Impact (Groundfish Mortality)

Pacific Spiny Dogfish

Under the No Action harvest control rule, Pacific spiny dogfish would be managed with a P* 0.40, and the ACLs for 2023 and 2024 would be 1,456 mt and 1,407 mt, respectively. Trawl-based mortality of Pacific spiny dogfish has contributed a consistent 75 to 90 percent of total mortality from all groundfish fisheries since the start of the trawl rationalization program (2011). Since 2017, roughly 40 percent of trawl-based mortality of Pacific spiny dogfish has been attributed to the at-sea sectors. Pacific spiny dogfish is not managed with an at-sea set-aside.

Pacific spiny dogfish catch is highly variable in the at-sea sectors, and if 2023 and 2024 catches reflect recent historical maximums (957 mt in 2018 and 615 mt in 2019), the ACL could be at risk of exceedance, especially if similarly high catch also occurs in the shorebased IFQ fishery. However, there were several factors likely driving the high at-sea bycatch events in 2018 and 2019. During those years, the at-sea sectors were managed to hard cap allocations for some stocks which, if exceeded, would require the sectors to cease fishing for the year. The sectors were also actively taking measures to avoid other stocks not managed to hard caps, which were constraining to the fleet given their economic or ecological significance, such as sablefish and shortbelly rockfish. The fleet took measures to avoid certain areas where these stocks were known to occur, and thus fishing behavior in 2018 and 2019 was different than what might be expected in 2023 and 2024. The fishery is no longer managed to any hard cap allocations but only set-asides which do not require the fishery to close if exceeded (noting exceptions described in "principle management measures" section above) but which are used to account for expected mortality, particularly if there is an IFQ allocation of the stock. The at-sea sectors have a track record of good communication amongst the co-ops as well as with managers, and inseason tracking through Sea State allows for timely response to high bycatch events using move-along measures.

Additionally, the Pacific whiting Total Allowable Catch (TAC), which is established through a separate unilateral treaty process between the United States and Canada, was higher in 2017 through 2019 than it had been since the start of the trawl rationalization program (Agenda Item D.2.a, Supplemental GMT Report 3, September 2020). During those years, with the exception of 2017, at-sea Pacific whiting catch, particularly in the CP sector, was generally higher than prior years. Pacific spiny dogfish bycatch tends to generally follow the pattern of Pacific whiting catch, year-to-year (Figure 2-2).

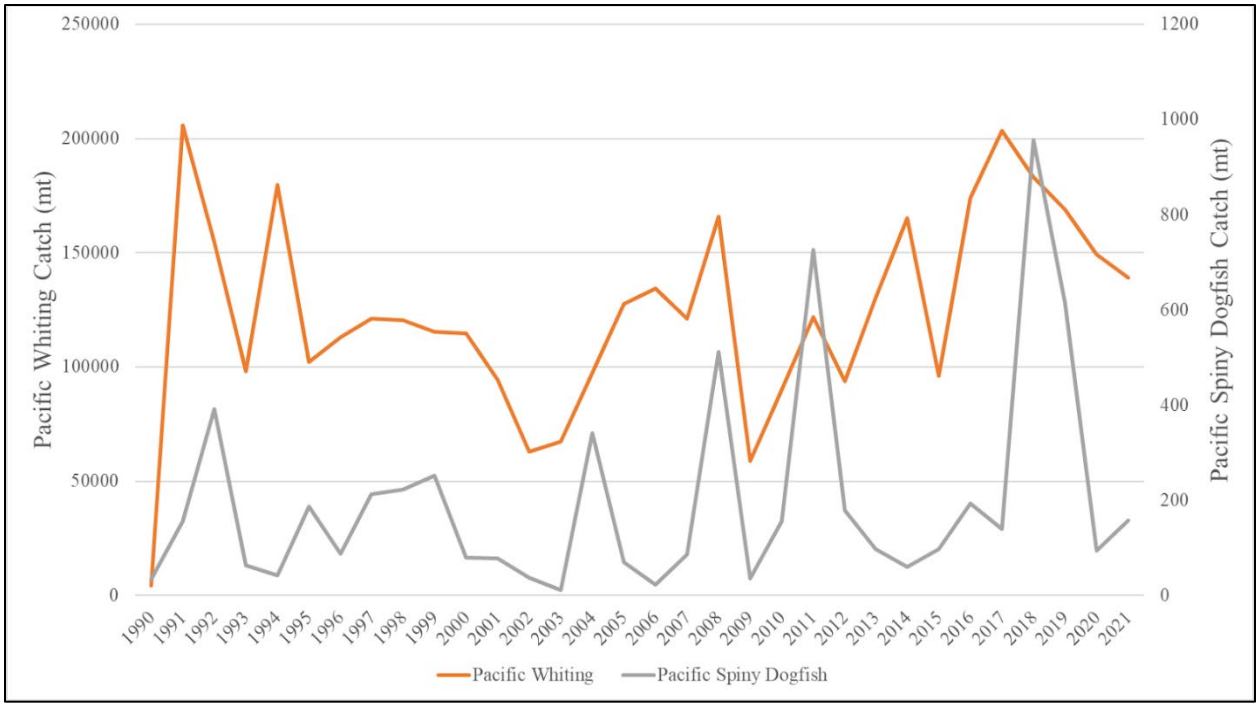


Figure 2-2. Annual trends in Pacific whiting and Pacific spiny dogfish catch by the at-sea sectors. Data Source = PacFIN NorPAC Database

The at-sea fishery is expected to operate somewhat differently in 2023 and 2024 compared to Baseline (2021). The 2023 and 2024 Pacific whiting TACs are likely to be much lower than current levels, given recent declines in the spawning stock biomass estimated by the 2021 assessment (Johnson et al. 2021). In March 2022, the Council adopted a Final Preferred Alternatives to change the Pacific whiting season start date from May 15 to May 1 to provide two weeks of additional fishing opportunity that may increase Pacific whiting utilization in the at-sea sectors (Agenda Item E.2, Attachment, March 2022) and although Pacific whiting catch may increase if the start date is revised effort is likely to shift from the Fall to the Spring to take advantage of the two additional weeks. If this is the case, Pacific spiny dogfish mortality is likely to see a net decrease in the at-sea sectors due to the high seasonality of bycatch in the Fall and particularly November (Agenda Item C.3.a, Supplemental GMT Report 1, September 2021). For these reasons, risk of high bycatch in the at-sea sectors and consequently risk of exceeding the ACL is expected to be lower in 2023 and 2024 than was the case in prior years.

In November 2021, the Council tasked the GMT with "evaluat[ing] potential management measures to control catch of spiny dogfish in groundfish fisheries if the ACL is exceeded or projected to be exceeded, including but not limited to BACs and BRAs" (November 2021 Draft Motions in Writing). If the Pacific spiny dogfish ACL is projected to be or is exceeded, depth-based closures (i.e., BRAs) are an option for the Council to implement through routine inseason action for the purpose of minimizing bycatch of Pacific spiny dogfish coastwide by midwater trawl gear, which all at-sea sector vessels use. BRAs could be implemented for certain times of the Pacific whiting season and would prohibit fishing with midwater trawl gear shoreward of a boundary line approximating the 75 fm, 100 fm, 150 fm, or 200 fm depth contours coastwide (50 CFR 660.130(e)(6)). However, analysis of BRAs within the 75 fm, 100 fm, and 150 fm depth

contours was last conducted in the 2009-2010 harvest specifications cycle and therefore may not be applicable to current circumstances (74 FR 9873). The use of BRAs within the 200 fm depth contour was considered and analyzed under the 2019-2020 harvest specifications process, and given that the majority of Pacific spiny dogfish encounters tend to occur around 250 fm, the 200-fm depth contour is the only option that the Council could reasonably use to reduce Pacific spiny dogfish. Since 2011, the at-sea fleet has caught an average of 14 percent of the annual at-sea Pacific spiny dogfish mortality within 200 fm. In 2021, that proportion was 33 percent, the highest proportion during that time period. Given these generally low proportions, and that a coastwide BRA could potentially shut down activity for much of the fleet by requiring vessels to fish farther offshore than they generally do, a BRA within 200 fm may not provide an effective means of minimizing Pacific spiny dogfish bycatch, compared to move-along measures the fleet already uses.

BACs are another area-based management measure available to the Council for inseason action. However, BACs have only been analyzed for vessels using midwater trawl gear off of Washington to mitigate salmon bycatch. Off of Oregon and California, BACs can only be used for groundfish bycatch mitigation by vessels using bottom trawl gear, which does not apply to the at-sea fishery. Unlike BRAs, BACs are bounded by both depth and latitude, making them more spatially flexible and specific, especially for a migratory stock like Pacific spiny dogfish. While a BAC could be defined north of a specific latitude, a coastwide BRA would likely impact midwater trawl vessels operating in southern areas of the West Coast that do not catch Pacific spiny dogfish. If the Council wished to have BACs available for use to mitigate bycatch of Pacific spiny dogfish or other groundfish stocks by midwater trawl gear, whether state-specific or coastwide, additional analysis of potential impacts from such closures would need to be conducted.

At the March 2022 Council meeting, the Council signaled their interest in analyzing spatial management tools that are not currently available for inseason use, potentially making them available in 2023 and 2024. The GMT will conduct this analysis with the intent of providing results in the April and/or June briefing book. The analysis could include spatial patterns of Pacific spiny dogfish bycatch in all trawl sectors, accounting for seasonal and interannual variability, and potential economic impacts of the spatial closures. However, preliminary assessments of NorPAC data and past experience with BAC analyses indicate that such up-front analyses are likely to provide much less useful and effective quantitative predictions as inseason analyses would, especially given the wide variability in Pacific spiny dogfish catch. Aside from area-based management measures, the Council could also choose to implement seasonal closures of specific sectors in the at-sea fishery (i.e., CP or MS), the entire at-sea fishery, or all trawl sectors (i.e., CP, MS, and IFQ) to prevent exceeding the Pacific spiny dogfish ACL (50 CFR 660.150(a)(5)).

The at-sea fleet is required to have scientific observers on board at a 100 percent observer coverage rate, and the At-Sea Hake Observer Program (A-SHOP) reports robust, timely inseason data into PacFIN's NorPac database. Along with timely communication amongst and from co-op representatives, the Council is able to closely monitor Pacific spiny dogfish bycatch and respond with select inseason management measures if the ACL is at risk. As with any routine inseason action, analysis would need to be completed for a routine inseason action item at one of the five scheduled Council meetings, and the Council would provide a recommendation of the action to NMFS.

An at-sea set-aside for Pacific spiny dogfish was explored, but given the variability in catch from year-to-year and its dependency on the whiting TAC and season start date, setting a specified number at this time would likely be made with an incomplete understanding of potential impacts. Additionally, at-sea set-asides are typically set for stocks which have an IFQ allocation so that an amount of expected at-sea mortality is set aside before allocating the rest of the trawl allocation to the IFQ fishery. The IFQ fishery does not have a Pacific spiny dogfish allocation and therefore does not require that expected at-sea mortality be set aside. An at-sea Pacific spiny dogfish set-aside would likely not induce changes to at-sea vessel behavior, because the at-sea sectors already take measures to avoid any stocks that are not Pacific whiting.

Sablefish north of 36° N. lat.

Under the No Action DHCR, sablefish would be managed with a P* 0.45, and the 2023 and 2024 ACLs for sablefish north of 36° N. lat. would be 8,486 mt and 7,780 mt, respectively. These are 23 percent and 13 percent higher than the 2021 Baseline ACL allocated north of 36° N. lat. of 6,892 mt. Under status quo management measures, sablefish would be managed in the at-sea sector with a 100 mt set-aside. Both the 2021 catch of 57.7 mt of sablefish north of 36° N. lat. in the at-sea sector and the recent (2017-2021) annual average catch of 82.8 mt are within the 100 mt set-aside. Catches in both 2017 (153 mt) and 2018 (117 mt) were higher than 100 mt, but as mentioned in the Pacific spiny dogfish analysis, these were years in which the U.S. Pacific whiting TAC jumped from 325,072 mt in 2016 to 441,433 mt in 2017-2019. As noted above, the U.S. TAC is expected to be lower in 2023 and 2024 based on the 2021 stock assessment (Johnson et al. 2021). Even if the at-sea sector were to catch over 100 mt of sablefish north of 36° N. lat. in 2023 or 2024, the shorebased IFQ fishery is projected to attain 72 percent of its sablefish north of 36° N. lat. allocation under all HCR alternatives. Therefore, while the likelihood of the at-sea fleet exceeding the set aside is low, in the scenario that it does occur, the total trawl allocation and ACL are not at risk of being exceeded.

Lingcod north of 40° 10' N. lat.

Under the No Action harvest control rule, lingcod north of 40° 10' N. lat. would be managed with a P* of 0.45, and the 2023 and 2024 ACLs of 4,378 mt and 3,854 mt, respectively, are projected to be lower than that of Baseline 2021 (ACL = 5,269 mt). Under status quo management measures, lingcod north of 40°10' N. lat. is managed to a 15 mt at-sea set-aside and the remainder of the trawl allocation is allocated to the Shorebased IFQ fishery. Estimated mortality of lingcod north of 40° 10' N. lat. from all sources combined has been around 1,000 mt in the last three years, and an annual average of 1.9 mt was attributed to the at-sea sectors. The maximum catch of lingcod north of 40° 10' N. lat. in the last five years was 3.4 mt in 2018. The status quo 15-mt at-sea set-aside for lingcod north of 40° 10' N. lat. is expected to accommodate at-sea mortality in 2023 and 2024 under the No Action alternative. The IFQ fishery is also projected to attain only 15-16 percent of the IFQ allocation, so the status quo at-sea set-aside is not expected to pose a risk of exceeding the lingcod north of 40° 10' N. lat. trawl allocation or ACL.

Quillback Rockfish

As discussed in the Nearshore section (Section 2.8), quillback rockfish is a species of concern due to the results of the 2021 length-based data moderate stock assessment for quillback rockfish off California. The at-sea sectors do not catch any quillback rockfish given that quillback rockfish is

a nearshore species and the at-sea fleet fishes further offshore than the stock's habitat. Catch has been zero in the at-sea sectors since at least 2002.

2.7 Non-Trawl: Non-Nearshore —No Action

2.7.1 Limited Entry and Open Access Fixed Gear Management

Under the No Action Alternative, DHCR ACLs would be implemented for 2023-24 and principle management measures for the non-trawl fishery are the same as described under the Baseline.

2.7.2 Impact (Groundfish Mortality) –Non-Nearshore north of 36° N. lat.: Species of Concern

Yelloweye Rockfish

As described under Baseline, each of the non-trawl sectors, including the non-nearshore, has a sector-specific ACT for yelloweye rockfish that the Council manages to; however, if the ACT was exceeded or projected to be exceeded, the Council could manage to the stock's HG, which is set above the ACT, but below the ACL. Yelloweye rockfish estimated mortality for the 2023-2024 non-trawl commercial fisheries is projected to be between 3.9-4.8 mt. The range includes the projections generated by the GMT Non-Nearshore Projection model plus the Nearshore Projection model and the recent 10-year maximum WCGOP mortality estimate for all non-trawl commercial fisheries. Table 2-23 provides the breakdown of impacts projected from the models and the 10-year maximum mortality estimate. The total projection is within the yelloweye rockfish non-trawl commercial ACT of 8.4 mt in 2023-24 for No Action as well as for Alternatives 1 and 2.

Quillback Rockfish of California

The non-nearshore fishery is responsible for very little mortality of quillback rockfish; however, it is greater than zero, therefore it is a relevant consideration (see Section 2.8). The harvest reference points for quillback rockfish off California are to be determined, .

Table 2-23. No Action. 2023-24 Non-trawl commercial fisheries (non-nearshore + nearshore) projected mortality, harvest guidelines, and annual catch targets compared to the non-trawl allocations for species of concern.

Species	Year	Non-trawl Commercial Fishery	Projected mort (mt)	Total projected mort. (mt)	HG (mt)	ACT (mt)	Non-Trawl Allocation (mt)
Yelloweye rockfish	2023	Nearshore	2.5	3.9-4.8	10.6	8.4	50.9
		Non-Nearshore	1.4				
		10 yr. max	4.8				
	2024	Nearshore	2.5	3.8-4.8	10.6	8.4	50.9
		Non-Nearshore	1.3				
		10 yr. max	4.8				
CA Quillback rockfish	2023	Nearshore	2.2-2.3	2.2-2.3	TBD	TBD	TBD
		Non-Nearshore	<0.01				
	2024	Nearshore	2.2-2.3	2.2-2.3	TBD	TBD	TBD
		Non-Nearshore	<0.01				

2.7.3 Impact (Groundfish Mortality) –Non-Nearshore north of 36° N. lat.:

Under No Action Alternative, the LEFG and OA fisheries under the default HCR ACLs and associated management measures (Table 2-4 and Table 2-5). The economic impacts of the non-

nearshore fisheries under this action are mainly driven by sablefish ACLs of which the default harvest control rule (ACL = ABC, P*0.45) and is the basis of the allocations and trip limit alternatives for 2023-2024. For non-sablefish stocks, the LEFG and OA fisheries under No Action for 2023-2024 have the same principle management measures as under the Baseline with respect to closed areas, stock complexes, gear restrictions, permitting requirements, etc.

Additional discussion will be provided in this section for those species that have alternative harvest controls rules analyzed in the document. Those select species and their default harvest control rules are:

- Sablefish: ACL = ABC, P* 0.45
- Lingcod north of 40° 10′ N. lat.: ACL = ABC, P* 0.45
- Lingcod south of 40° 10′ N. lat.: ACL = ABC, P* 0.45
- Pacific Spiny Dogfish: ACL = ABC, P* = 0.4
- Vermilion north of 40° 10′ N. lat.: ACL = ABC, P* 0.45
- Vermilion south of 40° 10′ N. lat.: ACL = ABC, P* 0.45

Sablefish North of 36° North latitude

The No Action sablefish allocations and trip limits are shown in Table 2-24**,** Table 2-25, and Table 2-26**)**. The No Action tier 1-3 limits for the primary fishery and landed catch share for the LEN and OAN fisheries are the highest among all the alternatives under consideration, and are shown in Table 2-24. For the 2023-2024 harvest specifications cycle, the mortality estimates were recalculated using the GEMM product to be a 19 percent discard rate (average of total discard/total landings from 2002-2020), a 20 percent mortality rate is then applied to that value and used to calculate the landed catch share for sablefish from the catch share value.

The daily trip limit for Sablefish north of 36° N. latitude is 2,400 lbs. per week, not to exceed 4,800 lbs. per 2 months as a result of the November 2021 action (Supplemental GMT Report 1, November 2021) which set the weekly limit at half of the bimonthly limit so that vessels can attain their bimonthly limit within two weeks instead of three. This action changed the bimonthly: weekly ratio from 3 to 2, in an effort to allow for less trips, and still provide for high average projected attainment. According to the model, 2023 attainment is projected to be 62-78 percent of the landed catch share and 2024 attainment will be 67-86 percent under the No Action alternative (Table 2-26**)**.

The Council also forwarded a proposal that would remove the OAN daily trip limit, but keep the weekly and monthly limit. At this time, the GMT's model that projects landings in the daily trip limit fishery cannot project a difference between having a daily limit or not, since there are no historical years of data that do not include a daily limit for OAN. This proposal could make the fishery more economically profitable (i.e., fewer trips to catch the weekly and bimonthly limits) for OAN which may increase participation from the existing fleet as well as encourage new entrants to join the OAN fishery. A weekly limit could potentially reduce the risk of an influx of new vessels that could negatively impact current participants, by crowding fishing grounds and spreading the allocation amongst a greater number of vessels. This change could also reduce the amount of regulatory discard that is associated with a daily limit, because they would no longer have to discard the excess of 600 pounds daily. However, VMS remains a big barrier to entry for

new vessels wanting to fish in federal waters and individuals would have to weigh the potential gain with the initial and ongoing expense of VMS.

As a proxy for determining whether an increase in effort could be expected as a result of removing the daily trip limit, the changes in the number of active vessels after the OAN daily trip limit increased from 300 lbs. to 600 lbs. in late 2020 were investigated. The GMT also analyzed data regarding before and after elimination of the OAS sector's daily limit to see if it would be an appropriate proxy and determined that, given the substantial differences between the two sectors, it would not appropriately reflect any potential change in the OAN sector. The increase in OAN daily trip limit daily limit did not appear to entice new vessels into the fishery, but did show that on average vessels already active in the OAN sector were able to attain more sablefish toward their bimonthly limit. While not certain, this information may be indicative of potential impacts from eliminating the OAN daily trip limit, namely providing more opportunity for greater attainment by currently active OAN vessels. However, it is still difficult to fully predict changes in the fishery from full elimination of the daily trip limit.

The projected attainment of the OAN status quo trip limits for the No action Alternative is 41-55 percent between the low and average price scenarios which allows for a significant buffer of the allotment that could be attained by any increase in effort in option 1. This mid-range projected attainment, and the knowledge that the model has overpredicted landings for 2020 and 2021, means that there is a buffer to account for unknown effort increases, as a result of the elimination of the daily trip limit, is likely larger than we think. However, if unforeseen circumstances happen and effort increases dramatically, inseason action can be taken to keep the OAN fishery within their fishery target. No new trip limits for OAN of 36° N. lat. are proposed under the different alternatives, both due to the uncertainty around effort change with the elimination of the daily trip limit, and in an effort to maintain equity in changes to LEN and OAN., as well as projections being within the target landings for each alternative. Long-term effort changes may be difficult to detect initially as this proposed change does not have a projection model. However, the Council could take action inseason per the usual process whereby the GMT reports fishery data during each inseason agenda item.

Table 2-24. No Action - Limited entry sablefish FMP allocations of sablefish north of 36° N. lat., based on the default harvest control rule of a P* 0.45. Data source: PacFIN APEX Report GMT012 - Draft Annual N. Sablefish Specifications.

Yr.	Non-Tribal Com. HG	LE Share	LE FG Share (mt) a/			Landed Catch Share 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
2023	7,600	6,886	2,892	2,458	434	2,782	2,365	417	72,904	33,138	18,936
2024	6,964	6,309	2,650	2,149	379	2,549	2,167	382	66,805	30,366	17,352

a/Shares are total mortality and include a landed component and a discard mortality component.
b/The limited entry fixed gear landed catch share is the limited entry fixed gear share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2020. For the 2023-2024 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.
c/Ratio of limits between the Primary Fishery tiers is approximately 1:1.75:3.85 for Tier 3:Tier 2:Tier 1, respectively.

Table 2-25. No Action. Open access FMP allocations of sablefish north of 36° N. lat., based on the default harvest control rule of a P* 0.45. Data source: PacFIN APEX Report GMT012 - Draft Annual N. Sablefish Specifications.

Year	OA Share (mt) a/	OA Landed Catch Share (mt) b/
2023	714	687
2024	655	630

a/ Shares are total mortality and include a landed component and a discard mortality component.
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 2020. For the 2023-2024 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be

Table 2-26. No Action. Sablefish trip limits (lbs.) north of 36° N. lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2023. Catch shares are based on the default harvest control rule of a P* 0.45. Status Quo (SQ) values are period 1, 2022 trip limits.

Option	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	2023 Landed Catch Share (mt)	Projected Landings 2023 (mt)
LEFG (SQ)	2,400 lbs./ week, not to exceed 4,800 lbs. / 2 months						417	257-327 a/
OA (SQ)	600 lbs. daily, or 1 landing / week up to 2,000 lbs., not to exceed 4,000 lbs./ 2 months						687	283-377 a/
OA (Opt 1)	2,000 lbs./week, not to exceed 4,000 lbs./ 2 months						687	b/

a/ Range is projected landings under two price scenarios (low and average).
b/ Currently, there is no trip limit model that can project a landing value for the proposed trip limit. However, through routine inseason monitoring, landings will be tracked against the landed catch share of 687 mt, so that represents the maximum value of a projected landing.

Economic Comparison

The primary tier fishery limits are the only limits that will change depending on the different alternative P* for sablefish. Therefore, we provide a comparison of the action alternatives to baseline, as well as to the no action alternative. These changes in income and jobs are for the LEFG (primary and DTL sectors) N of 36° N. latitude only. Table 2-27 shows the changes relative to 2021, and showcases that all alternatives including no action will be a potential gain in income relative to the baseline. However, for Council decision making purposes comparing alternatives relative to the no action P* of 0.45, shows that any change would be a decrease in potential revenue/income and a loss of jobs (Table 2-28).

Table 2-27. 2023 projected increases in sablefish north of 36° N. lat. LEFG (primary and DTL) ex-vessel revenue, income, and jobs for each of the action alternatives compared to actual Baseline 2021 revenue.[19]

Alternative	Non-Tribal Commercial HG	Non-trawl Alloc	Proj. Catch b/	Proj. Ex-vessel Revenue	Potential Gain in Revenue	Potential Gain in Income	Potential Gain in Jobs
Sablefish north of 36° N. lat.							
Baseline a/	6,165	5,586	1683	$7,846,211	-	-	-
No Action (P* 0.45)	7,600	6,885	2,672	$11,740,768	$3,894,557	$7,897,842	+110
Alt. 1 (P* 0.40)	7,094	6,427	2,516	$11,055,304	$3,209,093	$6,507,777	+90
Alt. 2 (P* 0.35)	6,604	5,983	2,365	$10,391,810	$2,545,599	$5,162,266	+72

a/ 2021 baseline values are provided only for comparison. "Projected Catch" is actual 2021 catch and "Projected Ex-vessel

Table 2-28. 2023 projected increases in sablefish north of 36° N. lat. LEFG (primary and DTL) ex-vessel revenue, income, and jobs for each of the action alternatives compared to actual Baseline 2021 revenue.[20]

Alternative	Non-Tribal Commercial HG	Non-trawl Alloc	Proj. Catch b/	Proj. Ex-vessel Revenue	Potential Gain in Revenue	Potential Gain in Income	Potential Gain in Jobs
Sablefish north of 36° N. lat.							
No Action (P* 0.45)	7,600	6,885	2,672	$11,740,768	-	-	-
Alt. 1 (P* 0.40)	7,094	6,427	2,56	$11,055,304	$685,464	$1,390,065	20
Alt. 2 (P* 0.35)	6,604	5,983	2,365	$10,391,810	$1,348,958	$2,735,576	38

a/ 2021 baseline values are provided only for comparison. "Projected Catch" is actual 2021 catch and "Projected Ex-vessel

Lingcod north of 40° 10' North latitude.

The No Action or default HCR for lingcod north of 40° 10′N. lat. is to apply a P* 0.45 and set the ACL equal to the ABC resulting in ACLs of 4,378.4 mt and 3,853.8 mt for 2023 and 2024, respectively. According to the 2021 lingcod stock assessment for north of 40° 10′ N. lat., the fraction unfished is 64 percent, which indicates that the stock is above the management target. Under No Action, the non-trawl sector is expected to attain 25.6 percent and 29.4 percent in 2023 and 2024 respectively (Table 2-29). It is important to note yelloweye rockfish constraints may prevent increasing the lingcod north of 40° 10′ N. lat. trip limits to provide full attainment of the non-trawl lingcod allocation in this area,

[19] Assumptions: Applies IO-PAC income and employment ratios (calculated with 2021 prices from sablefish landed north of 36° N. lat. caught with fixed gear).
[20] *Id.*

Table 2-29. No Action. 2023 and 2024 lingcod ACLs, Non-trawl allocations, and projections under status quo commercial and recreational catch limits for north of 40° 10′ N. lat.

Year	P*	ACL (mt)	Non-trawl Allocation (mt)	Projected mortality in LE/OA sectors a/	Projected mortality from Recreational Sector b/	%Non-Trawl Attainment
2023	0.45	4,378.4	2,254.1	135	442.7	25.6
2024	0.45	3,854	1965.9	135	442.7	29.4

a/ Estimated mortality projected from lingcod north of 40° 10′N. lat. trip limit models. Estimated impacts from north of 42° N. lat. are 109.9 mt and from 42° - 40° 10′N. lat. are 25.1 mt.
b/ Estimated mortality projected from the lingcod recreational fishery is 41.1 mt from 42° - 40° 10′ N. lat, 226.5 mt from OR, and 175.1 from WA.

Lingcod South of 40° 10' N. lat.

The No Action or default HCR for lingcod south of 40° 10′N. lat. is to apply a P* 0.45 resulting in ACLs of 427.84 mt and 425.4 mt for 2023 and 2024, respectively. However, the results of the 2021 lingcod south of 40° 10′ N. lat. stock assessment indicates it is in the precautionary zone at 38 percent of unfished spawning stock biomass in 2023. Because the stock is projected to be under the management target of 40 percent of the unfished spawning stock biomass, the 40:10 HCR was also applied. Additionally, a Category 2 designation was given to the stock (i.e., a higher sigma value). The resulting 2023-24 ACLs and non-trawl allocations under No Action are shown in Table 2-30. The associated 2023-24 non-trawl projections from status quo trip limits and bag limits are also shown in Table 2-30. As 92-93 percent of the non-trawl allocation is projected to be attained, no further adjustments to trip limits are proposed under this alternative.

Table 2-30. No Action. 2023 and 2024 lingcod ACLs, Non-trawl allocations, and projections under status quo commercial and recreational catch limits for south of 40° 10′N. lat.

Year	ACL (mt)	Non-trawl Allocation (mt)	Projected mortality in LE/OA sectors (mt)	Total projected mortality a/	% of Non-Trawl Allocation
2023	726	427.8	38.3	396.3	92%
2024	722	425.4	38.3	396.3	93%

a/ projected recreational impact under No Action is 358 mt.

Pacific Spiny Dogfish

Based on the assessment from 2021, Pacific spiny dogfish is in the precautionary zone with two alternative ACLs that are both the lowest since 2015. Roughly 12 percent of the average mortality of pacific spiny dogfish is associated with being bycatch in the non-nearshore fixed gear sector. Therefore, the total mortality of Pacific spiny dogfish will be affected with the various alternatives for sablefish. Under the no action sablefish alternative, the bycatch is expected to be 204.03 mt (Table 2-33**).** This is above the recent five-year average (124.7 mt) of the recent mortality in the non-nearshore fixed gear sector (Table 14; GMT Report 1, November 2021), but below the maximum value from 2016-2020 of 231.8 mt in 2018. The No Action alternative for Pacific Spiny Dogfish has a higher ACL (1,456) than the alternative 1 (ACL=1,075), which may help buffer some of the bycatch associated with changing sablefish p values.

Vermilion Rockfish within the Minor Shelf Rockfish Complex north of 40°10' North latitude

The No Action Alternative for vermilion rockfish within the Minor Shelf Rockfish Complex north of 40° 10′ N. lat., would be to apply a P* 0.45 and set the ACL to the ABC. The resulting 2023 and 2024 vermilion OFL and ACL contribution to the Minor Shelf Rockfish Complex south of 40° 10′ N. lat., ACLs for the Minor Shelf Rockfish Complex north of 40°10' N. lat. (Table 2-31. No Action. 2023 and 2024 vermilion ACL contribution, Minor Shelf Complex ACL, and Minor Shelf Complex Non-trawl allocation for north of 40° 10′ N. lat.)

During the 2021 Vermilion/Sunset Rockfish Stock Assessment Review (STAR) panel, concerns were raised over the vermilion/sunset rockfish OFL contribution to the Minor Shelf Rockfish Complex north of 40° 10′N. lat. being exceeded more than twice in the last several years. However, it should be noted that the Council has taken efforts to reduce mortality in the California recreational fishery by implementing and subsequently reducing sub bag limits for vermilion rockfish through the 2021-22 biennial management measures (January 2021 [85 FR 79880]) and inseason action (December 2021 [86 FR 72863]). Additional discussion of impacts from the California recreational fishery can be found in the California Recreational Fishery Section 2.11.

As for northern California, the area between 42° and 40° 10′N. lat., impacts from the non-trawl commercial fishery are minor (approximately 2 mt); therefore, trip limit adjustments are not proposed for this area. Similarly, in Oregon, impacts from the non-trawl commercial fishery are minor (<1 mt); therefore, trip limit adjustments are not proposed. In an effort to reduce mortality, Washington is discussing reductions in sub-bag limits in the recreational fishery (see Section 2.9).

Table 2-31. No Action. 2023 and 2024 vermilion ACL contribution, Minor Shelf Complex ACL, and Minor Shelf Complex Non-trawl allocation for north of 40° 10′ N. lat.

Year	Vermilion Rockfish OFL cont. (mt)	Vermilion Rockfish ACL cont. (mt)	Minor Shelf Rockfish Complex N. ACL (mt)	Minor Shelf Rockfish Complex N. Non-Trawl alloc. (mt)
2023	21.3	19.8	1,283	482.4
2024	21.3	19.7	1,278	480.4

Vermilion/Sunset Rockfish within the Minor Shelf Rockfish Complex South of 40°10' N. Lat.

Vermilion rockfish was assessed in 2021 and under No Action is split into two management areas, (40° 10′ to 34° 27" N. lat. and South of 34° 27" N. lat.). The 40° 10′ to 34° 27" N. lat. stock is considered a category 1 stock and the South of 34° 27" N. lat. stock is considered a category 2 stock. The Oregon and Northern California portions are considered category 1 stocks; whereas the Washington stock is considered category 2. Under the No Action Alternative, the DHCR for vermilion/sunset rockfish within the Minor Shelf Rockfish Complex south of 40° 10′ N. lat. would be to apply a P* 0.45 and set the ACL to the ABC. The resulting 2023 and 2024 vermilion ACL contribution to the Minor Shelf Rockfish Complex south of 40° 10′ N. lat., ACLs for the Minor Shelf Rockfish Complex south of 40° 10′ N. lat., and the non-trawl allocations are shown in Table 2-32.

As the Council is aware, similar concerns were raised during the 2021 Vermilion/Sunset Rockfish STAR panel over the high mortality of vermilion/sunset rockfish south of 40° 10′ N. lat. However,

it should be noted that the Council has continued to make efforts in reducing the mortality of vermilion/sunset rockfish south of 40° 10′ N. lat. through inseason actions and biennial management measures (June 2020 [85 FR 35210], January 2021 [85 FR 79880], December 2021 [86 FR 72863]). The most recent action (December 2021, 86 FR 72863) reduces projected non-trawl mortality from 270.5 mt to 251.2 mt by reducing the sub-bag limit from 5-fish to 4-fish (E.7.a, Supplemental CDFW Report 2, November 2021). No additional changes are proposed to the vermilion rockfish sub trip limits under this alternative, as projections from status quo trip limits are approximately 68 mt.

Table 2-32. No Action. 2023 and 2024 vermilion ACL contribution, Shelf Complex ACL, and Shelf Complex Non-trawl allocation for south of 40° 10′ N. lat.

Year	Vermilion Rockfish OFL cont. (mt)	Vermilion/Sunset Rockfish ACL contr. (mt)	Shelf Rockfish Complex S. ACL (mt)	Shelf Rockfish Complex S. Non-Trawl alloc. (mt)
2023	316.1	285.5	1,473	1,176.7
2024	318.4	285.5	1,473	1,176.7

Projected Non-nearshore Groundfish Mortality north of 36° North latitude

The non-nearshore model uses 2002-2020 WCGOP data to project the 2023 and 2024 estimated mortality of overfished and non-overfished species for the LEFG (Primary and LEN DTL) and the OAN DTL fisheries north of 36° N. lat. and seaward of the NT-RCA (Table 1-26) based on the northern sablefish ACL under No Action ACL Table 2-11. The sablefish north of 36° N. lat. stock is the primary target and provides the main source of revenue in both LEFG and OA fisheries. The bycatch projections are based on the assumption that the LEFG and OA allocations for sablefish are completely harvested. Table 2-33 and Table 2-34 show the projected species mortality. The non-trawl commercial sector is projected to be within their yelloweye rockfish ACTs of 8.4 mt in 2023-24 under No Action (Table 2-23). Currently, the Council has a proposal to remove the 50 mt ACT for Cowcod and proceed with the non-trawl allocation being 44.1 mt in 2023 and 43.4 mt in 2024, which is why in the tables below the non-trawl allocation is TBD. The Council has been presented with an alternative harvest control rule for pacific spiny dogfish which is also why the non-trawl allocation is too be determined (TBD) in Table 2-33 and Table 2-34

Table 2-33. No Action. Projected non-nearshore groundfish mortality for the limited entry (LE) and open access (OA) fixed gear fisheries north of 36° N. lat. (in mt) for 2023 compared to the non-trawl allocation (NT_Alloc)[21]. Projections are based on a sablefish default harvest control of P* 0.45

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	NT_Alloc a/ (mt)
Arrowtooth flounder	72.50	12.30	84.80	826.9
Big skate	7.66	1.32	8.99	63.0
Black rockfish (California)	0.02	0.00	0.02	271.8
Black rockfish (Washington)	0.00	0.00	0.00	332.1
Black/blue/deacon rockfish (Oregon) b/	0.01	0.00	0.02	560.2
Bocaccio rockfish (south of 40°10' N. lat.)	0.57	0.16	0.72	1,093.5
Cabezon (California)	0.00	0.00	0.00	180.4

[21] excluding proposed routine adjustments

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	NT_Alloc a/ (mt)
Cabezon/kelp greenling (Oregon) b/	0.01	0.00	0.01	184.2
Canary rockfish c/	1.59	0.27	1.87	337.6
Chilipepper rockfish (south of 40°10' N. lat.)	0.59	0.16	0.75	521.3
Cowcod rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	TBD
Darkblotched rockfish	7.17	1.35	8.52	38.1
Dover sole	7.87	1.65	9.52	2,420.1
Ecosystem component species	96.59	24.52	121.11	--
English sole	0.04	0.01	0.05	437.9
Lingcod (north of 40°10' N. lat.)	20.29	2.80	23.09	2,254.1
Lingcod (south of 40°10' N. lat.)	2.41	2.49	4.90	427.8
Longnose skate	90.84	16.76	107.59	145.7
Longspine thornyhead (north of 34°27' N. lat.)	2.60	0.64	3.24	112.1
Minor nearshore rockfish (north of 40°10' N. lat.)	0.16	0.03	0.18	84.7
Minor nearshore rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	884.5
Minor shelf rockfish (north of 40°10' N. lat.)	7.20	1.23	8.43	482.4
Minor shelf rockfish (south of 40°10' N. lat.)	0.16	0.05	0.20	1,176.7
Minor slope rockfish (north of 40°10' N. lat.)	130.51	21.94	152.45	280.2
Minor slope rockfish (south of 40°10' N. lat.)	27.47	9.54	37.01	245.0
Mixed thornyhead	1.14	0.30	1.43	--
Other flatfish	0.33	0.06	0.39	464.1
Other groundfish	0.00	0.00	0.00	--
Other rockfish	0.15	0.04	0.19	--
Pacific cod	2.94	0.51	3.45	54.7
Pacific whiting	1.04	0.18	1.23	0.0
Pacific ocean perch (north of 40°10' N. lat.)	0.86	0.14	1.00	171.4
Petrale sole	2.39	0.42	2.81	30.0
Shortspine thornyhead (north of 34°27' N. lat.)	40.33	8.72	49.05	64.0
Spiny dogfish	173.88	30.15	204.03	TBD
Splitnose rockfish (south of 40°10' N. lat.)	0.06	0.03	0.10	78.7
Starry flounder	0.01	0.00	0.01	171.9
Widow rockfish	0.27	0.05	0.32	400.0
Yellowtail rockfish (north of 40°10' N. lat.)	1.34	0.23	1.57	556.6

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.

b/ In 2019, new complexes were formed for OR black/blue/deacon rockfish, OR cabezon and kelp greenling, and WA cabezon and kelp greenling.

c/ The non-trawl commercial share for canary rockfish in 2023 is 121.5 mt.

Table 2-34. No Action. Projected non-nearshore groundfish mortality for the limited entry (LE) and open access (OA) fixed gear fisheries north of 36° N. lat. (in mt) for 2024 compared to the non-trawl allocation (NT_Alloc)[22]. Projections are based on a sablefish default harvest control rule of P* 0.45.

Stock/Stock Complex (Management Area)	LE (mt)	OA (mt)	Total (mt)	NT_Alloc a/ (mt)
Arrowtooth flounder	66.44	11.27	77.71	604.2

[22] excluding proposed routine adjustments

Big skate	7.02	1.21	8.24	60.4
Black rockfish (California)	0.02	0	0.02	270.5
Black rockfish (Washington)	0	0	0	326.6
Black/blue/deacon rockfish (Oregon) b/	0.01	0	0.01	551.2
Bocaccio rockfish (south of 40°10' N. lat.)	0.52	0.14	0.66	1,085.00
Cabezon (California)	0	0	0	169.4
Cabezon/kelp greenling (Oregon) b/	0.01	0	0.01	179.2
Canary rockfish c/	1.46	0.25	1.71	332.9
Chilipepper rockfish (south of 40°10' N. lat.)	0.54	0.15	0.69	505.9
Cowcod rockfish (south of 40°10' N. lat.)	0	0	0	TBD
Darkblotched rockfish	6.57	1.24	7.81	36.3
Dover sole	7.21	1.51	8.73	2,420.10
Ecosystem component species	88.51	22.47	110.98	--
English sole	0.04	0.01	0.04	435
Lingcod (north of 40°10' N. lat.)	18.59	2.57	21.16	1,965.90
Lingcod (south of 40°10' N. lat.)	2.21	2.28	4.49	425.4
Longnose skate	83.24	15.36	98.6	140.9
Longspine thornyhead (north of 34°27' N. lat.)	2.39	0.59	2.97	105.4
Minor nearshore rockfish (north of 40°10' N. lat.)	0.14	0.02	0.17	83.7
Minor nearshore rockfish (south of 40°10' N. lat.)	0	0	0	889.5
Minor shelf rockfish (north of 40°10' N. lat.)	6.6	1.12	7.73	480.4
Minor shelf rockfish (south of 40°10' N. lat.)	0.14	0.04	0.18	1,176.70
Minor slope rockfish (north of 40°10' N. lat.)	119.6	20.11	139.7	275.6
Minor slope rockfish (south of 40°10' N. lat.)	25.17	8.74	33.91	243.5
Mixed thornyhead	1.04	0.27	1.31	--
Other flatfish	0.31	0.05	0.36	465.3
Other groundfish	0	0	0	--
Other rockfish	0.13	0.04	0.17	--
Pacific cod	2.7	0.46	3.16	54.7
Pacific whiting	0.96	0.17	1.13	-
Pacific ocean perch (north of 40°10' N. lat.)	0.78	0.13	0.92	164.9
Petrale sole	2.19	0.38	2.57	30
Shortspine thornyhead (north of 34°27' N. lat.)	36.96	7.99	44.95	62.5
Spiny dogfish	159.34	27.63	186.97	TBD
Splitnose rockfish (south of 40°10' N. lat.)	0.06	0.03	0.09	76.7
Starry flounder	0.01	0	0.01	171.9
Widow rockfish	0.25	0.04	0.29	400
Yellowtail rockfish (north of 40°10' N. lat.)	1.23	0.21	1.44	543.9

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.

b/ In 2019, new complexes were formed for OR black/blue/deacon rockfish, OR cabezon and kelp greenling, and WA cabezon and kelp greenling.

c/The non-trawl commercial share for canary rockfish in 2023 is 121.5 mt.

2.7.4 Impact (Groundfish Mortality) –Non-Nearshore South of 36° N. Lat.

Similar to Baseline, the No Action management measures and projected groundfish mortality for the non-nearshore fishery south of 36° N. lat. are largely influenced by the sablefish ACL.

Sablefish is currently 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 ACL apportionment method is described above in the Baseline Sablefish north of 36° N. lat. section.

Sablefish South of 36° N. Lat.

The No Action sablefish allocations and trip limits are shown in Table 2-35 and Table 2-36. The southern sablefish fishery is managed with the limited entry south (LES) and open access south (OAS) DTL fisheries. The LES and OAS fisheries are managed with landed catch share (Table 2-35and trip limits that are established each biennium to catch the full landed catch share, but are commonly adjusted inseason as price and participation can vary by considerable amounts. During the 2023-2024 harvest specifications cycle, the mortality estimates were recalculated using the GEMM data product to be a 9 percent discard rate (average of total discard/total landings from 2002-2020), that value then had a 20 percent mortality rate applied to it to calculate the landed catch share for sablefish south of 36 ° N. lat. from the catch share. Trip limits for other stocks may also be adjusted inseason to achieve conservation goals or increase yields. In 2023, LES is estimated to have taken between 16.5 -18.3 percent of the LEFG landed catch share and OAS is estimated to have taken <25.3 percent of the OA landed catch share Table 2-36.

Table 2-35. No Action - Short-term sablefish allocations south of 36° N. lat. for the non-trawl sector, based on the default harvest control rule of P* 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	Non-Trawl Allocation	LE FG Total Catch Share a/	OA Total Catch Share a/	LE FG Landed Catch Share b/	OA Landed Catch Share b/
2023	2,311	1,340	938	402	921	395
2024	2,116	1,227	859	368	844	362

a/ Shares are total mortality and include a landed component and a discard mortality component.

b/ 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 2020 to get the landed catch share. For the 2023-2024 Harvest Specification cycle, 9 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

Table 2-36. No Action. Sablefish trip limits (lbs.) south of 36° N. lat. for limited entry and open access fixed gears, with landed catch share and projected attainment for 2023. Catch shares are based on the default harvest control rule of P* 0.45. Status Quo is based on period 1, 2022 daily trip limits.

Fishery	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	2023 Landed Catch Share (mt)	Projected Landings 2023 (mt)
LEFG SQ	2,500 lbs. / week						921	152-169 a/
OA SQ	2,000 lbs. / week, not to exceed 6,000 lbs. / 2 months						395	< 100

a/ Range is projected landings under two price scenarios (low and average).

Projected Non-nearshore Groundfish Mortality South of 36° N. Lat.

Due to a lack of a projection model, mortality is expected to be the same as shown in Table 1-34.

New Management Measures

Two new management measures the Council is considering that are relevant to the Non-Trawl Fishery in this biennium are 1) extension of the primary sablefish 'tier' fishery and 2) modifications to NT_RCA gear allowances. These analyses are found below in Chapter 10 and Chapter 11 respectively.

2.8 Non-Trawl: Nearshore —No Action

2.8.1 Management Measures

Under the No Action Alternative, DHCR ACLs would be implemented for 2023-24 and principle management measures for the non-trawl fishery are the same as described under the Baseline.

2.8.2 Impact (Groundfish Mortality) – Nearshore: Species of Concern

Yelloweye Rockfish

As described above, the Council manages yelloweye rockfish in each of the non-trawl sectors (i.e., non-trawl commercial, WA recreational, OR recreational, and CA recreational) to sector-specific ACTs. Total estimated mortality of yelloweye rockfish for 2023-24 from the non-trawl commercial fisheries (non-nearshore and nearshore) is projected to be between 3.9 mt - 4.8 mt. The range includes the projections generated by the GMT Non-Nearshore Projection model, the Nearshore Projection model, and the recent 10-year maximum WCGOP mortality estimate for all non-trawl commercial fisheries. The range of projected impacts is provided due to the potential for increased interactions with yelloweye rockfish in the non-trawl commercial fisheries from the two pending NT-RCA items that propose limited fishing within the NT-RCA (Chapter 11).[23] Table 2-37 provides the breakdown of impacts projected from the models and the 10 year maximum mortality estimate. The nearshore and non-trawl fisheries are projected to be well within the 2023-24 No Action yelloweye rockfish ACTs, with Oregon nearshore fishery projected to take 1.5 mt and California nearshore fishery projected to take 1 mt.

Table 2-37. No Action. 2023-24 Non-trawl commercial fisheries (non-nearshore + nearshore) projected mortality, harvest guidelines, and annual catch targets compared to the non-trawl allocations for yelloweye rockfish.

Species	Year	Non-trawl Commercial Fishery	Projected estimated mort (mt)	Total projected estimated mort. (mt)	HG (mt)	ACT (mt)	Non-Trawl Allocation (mt)
Yelloweye rockfish	2023	Nearshore	2.5	3.9 - 4.8	10.6	8.4	50.9
		Non-Nearshore	1.4				
		10 yr. max a/	4.8				
	2024	Nearshore	2.5	3.9 - 4.8	10.6	8.4	50.9
		Non-Nearshore	1.3				
		10 yr. max	4.8				

a/10 yr. max includes both Nearshore and Non-nearshore estimates from the GEMM

Quillback Rockfish off California

Under No Action, quillback rockfish off California will be discussed as a species of concern that is still managed as part of the Minor Nearshore Rockfish Complexes. The results of the recent length-based data moderate stock assessment for quillback rockfish off California indicated the stock is below the MSST of 20 percent. Historically, the typical management response to this condition is to prohibit retention; however, the Research and Data Needs section in the length-

[23] In April 2022, a stand-alone Council meeting agenda item is scheduled to select an PPA for additional NT_RCA modifications.

based data moderate stock assessment for quillback rockfish off California states there is a need for length and otolith samples to inform growth of the entire west coast. Therefore, the Council may want to consider allowing minimal retention of quillback rockfish in the California Nearshore Fishery for the purposes of continuing the collection of fishery-dependent data, specifically biological data

If the Council were to continue to allow limited retention in the California Nearshore Fishery, the following established live fish market management measures and elements may keep mortality to a minimum: 1) quillback rockfish are part of the restricted accessed commercial Nearshore Fishery with a limited number of participants; 2) 2022 quillback rockfish restrictions in California will limit the amount of product supplied to the live market, potentially shifting effort toward other deeper nearshore rockfish or toward other opportunities outside the Nearshore Fishery; and 3) Council has the option to further reduce sub trip limits in 2023, which would provide less incentive to encounter a limited resource.

As mentioned above, the DNSF permit is one of two state permits used to restrict landings of nearshore groundfish in California. The DNSF permit is a statewide permit that was established in 2003 to mitigate statewide impacts on black, blue, brown, calico, copper, olive, quillback and treefish rockfishes by allowing limited participation in the fishery. In California, a majority of quillback rockfish are landed in the port areas of Crescent City, Eureka, and Fort Bragg as shown in Table 6 from the CDFW Report 2 from the November 2021 Inseason agenda item (Agenda Item E.7.a. CDFW Report 2, November 2021).

Table 2-38 shows the number of DNSF permits per year from 2017 to 2021. The average number of active DNSFP holders that landed into the port areas of Crescent City south to Fort Bragg, is approximately 33 percent of the active statewide permits. Of the 33 percent of active DNSFP holders landing into those ports, approximately 21 percent landed quillback rockfish. However, the average number of active statewide DNSFP holders that landed at least 50 percent of quillback rockfish into these port areas, was approximately three percent. This indicates a majority of DNSFP holders were catching quillback rockfish incidentally to other targets, while only a few were selecting quillback rockfish specifically, likely due to their participation in the live fish market. For reference, landings of quillback rockfish in 2021 were 4.4 mt.

Table 2-38. No Action. The annual number of DNSFP holders statewide and from Crescent City to Fort Bragg. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Year	# of DNSFP statewide	# of active* DNSFP statewide	# of active* DNSFP Crescent City to Ft Bragg landing all DNS spp.	# of active*DNSFP Crescent City to Ft Bragg landing quillback rf	# of active*DNSFP Crescent City to Ft Bragg landing 50 % of quillback rf
2017	178	123	38	26	c
2018	215	131	44	24	4
2019	192	124	40	26	4
2020	183	115	39	25	c
2021	188	120	43	30	c

* Active = made at least 1 landing of deeper nearshore rockfish under the permit per year
c = confidential

With the 2022 quillback rockfish sub trip limits south of 42° N. lat., the number of DNSFP holders landing incidentally caught quillback rockfish are likely to decrease, along with the number of permit holders targeting quillback rockfish. Additionally, with the copper rockfish sub trip limit south of 42° N. lat., bycatch or targeting of quillback rockfish would likely be reduced further as live quillback rockfish is often landed with live copper rockfish in the port areas of Crescent City south to Fort Bragg.

Quillback rockfish and copper rockfish have been two of the main rockfish in recent years that were delivered from the northern California ports to the live markets in the San Francisco area as they are hardy fish and easy to keep alive during travel. Table 2-39 shows the live nearshore rockfish landings and ex-vessel revenue from Crescent City, Eureka, and Fort Bragg port areas (2017-2021). Through discussions with industry in early January 2022, the GMT has learned that some deliveries of live rockfish from the northern California ports to the San Francisco area have ceased limiting future opportunities to participate in the live market.

Therefore, between the restrictive sub trip limits for both quillback and copper rockfish and limited access to the live market, there is less incentive to land quillback rockfish. With a pending status determination for quillback rockfish, there will also likely be a concerted effort by the DNSFP holders to actively avoid areas in which quillback rockfish are known to be found shoreward of the 30 fm NT-RCA boundary line and outside of state MPAs. This effort shift away from quillback rockfish is expected to continue in 2023 and beyond. Moreover, there is a possibility that some DNSFP holders may opt out of utilizing their DNSFP due to the catch restrictions, pending status determination, and live market access.

Table 2-39. No Action. Live nearshore rockfish landings and ex-vessel revenue (not adjusted for inflation) from Crescent City, Eureka, and Fort Bragg port areas (2017-2021). Data source: PacFIN, Jan 07, 2022.

Port/species	**2017**		**2018**		**2019**		**2020**		**2021**	
Crescent City	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**
Black rockfish	33.5	$165,100	26.3	$132,428	28.7	$146,675	20.1	$96,708	16.2	$97,493
Quillback rockfish	1.1	$12,277	0.8	$8,414	1.3	$13,944	1.1	$11,096	1.6	$13,568
Copper rockfish	1.3	$13,306	1.1	$10,729	1.2	$11,748	1.0	$9,150	1.6	$13,266
Grass rockfish	0.0	$720	0.2	$2,776	0.2	$3,780	0.2	$3,761	0.3	$5,320
China rockfish	0.2	$3,056	0.1	$1,665	0.2	$2,352	0.2	$2,408	0.3	$5,450
Blue rockfish	0.6	$3,054	0.7	$4,009	0.4	$2,319	0.2	$1,066	0.2	$1,397
Brown rockfish	0.0	$15	0.0	$67	0.0	$482	0.1	$771	0.1	$1,483
Black & yellow rockfish	0.0	$36	0.0	$322	–	–	0.0	$29	0.0	$615
Gopher rockfish	–	–	–	–	–	–	0.0	$61	0.0	$189
Olive rockfish	–	–	0.0	$4	0.0	$90	0.0	$5	0.0	$22
Total	*36.8*	*$197,564*	*29.2*	*$160,413*	*32.1*	*$181,390*	*22.9*	*$125,055*	*20.5*	*$138,801*
Eureka	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**
Quillback rockfish	–	–	0.1	$1,596	0.1	$1,104	0.1	$1,879	0.1	$2,126
Copper rockfish	–	–	0.2	$1,507	0.1	$757	0.1	$591	0.3	$2,497
Black rockfish	–	–	0.2	$1,173	0.1	$628	0.0	$263	0.0	$152
Grass rockfish	–	–	–	–	0.1	$1,739	–	–	–	–
Blue rockfish	–	–	–	–	0.1	$347	–	–	–	–
Gopher rockfish	–	–	–	–	–	–	–	–	0.0	$144
China rockfish	–	–	–	–	–	–	–	–	0.0	$20
Total			*0.5*	*$4,276*	*0.5*	*$4,574*	*0.3*	*$2,732*	*0.4*	*$4,938*
Fort Bragg	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**
Quillback rockfish	0.6	$8,070	0.8	$10,820	1.1	$16,184	1.4	$19,853	1.6	$22,696
Copper rockfish	1.4	$13,325	2.4	$22,112	3.4	$35,228	4.3	$45,951	4.2	$47,284

Fort Bragg	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**	**mt**	**Ex-vessel revenue**
China rockfish	0.5	$9,538	0.3	$5,567	0.2	$4,024	0.3	$4,770	1.2	$22,331
Gopher rockfish	0.5	$8,881	0.4	$6,323	0.1	$1,584	0.3	$4,801	1.3	$24,213
Black & yellow rockfish	0.5	$7,560	0.2	$3,641	0.1	$2,120	0.3	$4,490	–	–
Grass rockfish	0.1	$1,635	0.0	$877	0.1	$1,388	0.1	$1,881	0.4	$7,496
Brown rockfish	0.0	$512	0.1	$966			0.1	$1,240	0.3	$3,711
Black rockfish	0.1	$247	0.0	$108	0.0	$58	0.0	$175	0.5	$2,743
Blue rockfish	0.1	$462	0.0	$94	0.0	$204	0.0	$191	0.2	$1,174
Olive rockfish	0.0	$27	–	–	0.1	$458	0.0	$28	0.0	$13
Total	*3.8*	*$50,257*	*4.2*	*$50,508*	*5.2*	*$61,248*	*6.8*	*$83,381*	*9.7*	*$131,662*

If the Council would like to move forward with the status quo quillback rockfish sub-trip limits for minimal retention in the California Nearshore Fishery as a means to collect fishery dependent, those projected impacts are shown in Table 2-40 and

Table 2-41. Should the Council want to allow minimum retention of quillback rockfish in the California Nearshore Fishery but would prefer to reduce the sub-trip limits, those projected impacts are also shown in Table 2-40 and

Table 2-41. The projected impacts from zero retention are provided in Table 2-40and

Table 2-41 are not presented as an option for future use (e.g., inseason action) but to merely show the similarities in projected impacts between minimal and zero retention. It should be noted that the projections for the status quo and reduced sub trip limits were modeled with landings data through 2021, WCGOP data through 2020 by using the same methods and assumptions described in the CDFW Report 2 (Agenda Item E.7.a. CDFW Report 2, November 2021), and depth-dependent mortality rates based on proportion of gear type (i.e., higher rates applied to discards from longline gear; Agenda Item I.2.a, GMT Report 2, March 2017). Therefore, until data are gathered from the 2022 season, there is a high degree of uncertainty with the projected impacts, both landings and discards, for quillback rockfish off California in 2023 and 2024.

With those caveats in mind, the projections compared to the 2023-204 ACL and OFL contributions, the CA share, and the ACL of Nearshore Rockfish Complex north of 40° 10' N. lat. for the area between 42-40 10' N. lat. can be seen in Table 2-42. The projections compared to the ACL and OFL contributions and the ACL of Nearshore Rockfish Complex south of 40° 10' N. lat. are shown in Table 2-43. The projected impacts from zero retention are provided in Table 2-42andTable 2-43are not presented as an option for future use (e.g., inseason action) but to merely show the similarities in projected impacts between minimal and zero retention. Total estimated mortality projections from the non-trawl sector are not shown as there are several management measure options in the California Recreational section that result in varying degrees of projected impacts. Once those are decided upon, a total mortality estimate for the non-trawl sector can be provided.

Table 2-40. No Action. Proposed sub-trip limit options and estimated mortality for quillback rockfish within the Minor Nearshore Rockfish trip limit for the area between 42° - 40° 10' N. lat. Table includes projections for no retention for context. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Option	Sub trip limit	Landings Projection (mt)	Discard Estimate with Mortality Rates Applied (mt)	Total Estimated Mortality (mt)
Alt1 Opt 1 (SQ)	75 lbs. / 2 months	1.0	0.6	1.7
Atl1 Opt 2	50 lbs. / 2 months	0.8	0.8	1.5

Alt1 Opt 3	25 lbs. / 2 months	0.4	0.9	1.3
No retention	CLOSED	0	1.1	1.1

Table 2-41. No Action. Proposed sub-trip limit options and estimated mortality for quillback rockfish within the Deeper Nearshore Rockfish trip limit South of 40° 10' N. lat. Table includes projections for no retention for context. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Option	Sub trip limit	Landings Projection (mt)	Discard Estimate with Mortality Rates Applied (mt)	Total Estimated Mortality (mt)
Alt1 Opt 1 (SQ)	75 lbs. / 2 months	1.1	1.2	2.3
Atl1 Opt 2	50 lbs. / 2 months	0.9	1.4	2.3
Alt1 Opt 3	25 lbs. / 2 months	0.4	1.8	2.2
Zero Retention	CLOSED	0	2.2	2.2

Table 2-42. No Action. Sub-trip limit options and estimated mortality for quillback rockfish within the Minor Nearshore Rockfish (MNRF) trip limit for the area between 42° - 40° 10' N. lat. compared to the 2023-24 CA quillback rockfish ACL and OFL contributions, the California share and the ACL for the Minor Nearshore Rockfish Complex north of 40° 10' N. lat. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Year	Option	Projected estimated mort (mt)	CA quillback rockfish ACL contribution (mt)	CA quillback rockfish OFL contribution (mt)	CA share (mt)	MNRF N of 40 10' N. lat. ACL (mt)
2023	Alt1 Opt 1 (SQ)	1.7	0.01	1.02	35.1	88
	Alt 2	1.5				
	Alt 3	1.3				
	Zero Retention	1.1				
2024	Alt1 Opt 1 (SQ)	1.7	0.17	1.15	35.4	87
	Alt 2	1.5				
	Alt 3	1.3				
	Zero Retention	1.1				

Table 2-43. No Action. Sub-trip limit options and estimated mortality for quillback rockfish within the Deeper Nearshore trip limit south of 40° 10' N. lat. compared to the ACL and OFL contributions and the ACL of Minor Nearshore Rockfish Complex south of 40° 10' N. lat. for 2023 and 2024. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Year	Option	Projected estimated mort (mt)	CA quillback rockfish ACL contri. (mt)	CA quillback rockfish OFL contri. (mt)	MNRF S of 40 10' N. lat. ACL (mt)
2023	Alt1 Opt 1 (SQ)	2.3	0.01	1.03	889
	Alt 2	2.3			
	Alt 3	2.2			
	No Retention	2.2			

2024	Alt1 Opt 1 (SQ)	2.3	0.17	1.67	894
	Alt 2	2.3			
	Alt 3	2.2			
	Zero Retention	2.2			

Copper Rockfish off California

Under the No Action alternative, the harvest control rule for copper rockfish off California is to apply a P* 0.45 and the 40:10 rule to the ACL because the results of the 2021 length-based data moderate assessment indicated the portion of the stock off California is in the precautionary zone. As a precautionary measure Council began reducing mortality of copper rockfish off California at the start of 2022 by setting statewide sub trip limits of 75 lbs. per 2 months within the Minor Nearshore Rockfish and Deeper Nearshore Rockfish trip limits (86 FR 72863, December 23, 2021).

However, should the Council choose to consider further reductions on copper rockfish off California those projected impacts are shown in Table 2-44 and

Table 2-45. The projections compared to the 2023-204 ACL and OFL contributions, the CA share, and the ACL of Nearshore Rockfish Complex north of 40° 10' N. lat. for the area between 42-40 10' N. lat. can be seen in Table 2-46. The projections compared to the ACL and OFL contributions and the ACL of Nearshore Rockfish Complex south of 40° 10' N. lat. are shown in Table 2-47. The projected impacts from zero retention are provided in Table 2-44,

Table 2-45 and Table 2-47 are not presented as an option for future use (e.g., inseason action) but to merely show the similarities in projected impacts between minimal and zero retention It should be noted that what is discussed above regarding effort shift in the California Nearshore fishery, participants opting out of using the DNSF permit, less opportunity to provide rockfish to the live market, and uncertainty in 2023 projections are applicable to copper rockfish as well.

Total estimated mortality projections from the non-trawl sector are not shown as there are several management measure options in the California Recreational section that result in varying degrees of projected impacts. Once those are decided upon, a total mortality estimate for the non-trawl sector can be provided.

Table 2-44. No Action. Proposed sub-trip limit options and estimated mortality for copper rockfish within the Minor Nearshore Rockfish trip limit for the area between 42° - 40° 10' N. lat. Table includes projections for no retention for context. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Option	Sub trip limit	Landings Projection (mt)	Discard Estimate with Mortality Rates Applied (mt)	Total Estimated Mortality (mt)
Alt1 Opt 1 (SQ)	75 lbs. / 2 months	0.6	1.4	2.1

Atl1 Opt 2	50 lbs. / 2 months	0.5	1.5	2.0
Alt1 Opt 3	25 lbs. / 2 months	0.3	1.6	1.9
Zero Retention	CLOSED	0.0	1.8	1.8

Table 2-45. No Action. Proposed sub-trip limit options and estimated mortality for copper rockfish within the Deeper Nearshore Rockfish trip limit South of 40° 10' N. lat. Table includes projections for no retention for context. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Option	Sub trip limit	Landings Projection (mt)	Discard Estimate with Mortality Rates Applied (mt)	Total Estimated Mortality (mt)
Alt1 Opt 1 (SQ)	75 lbs. / 2 months	4.8	8.0	12.8
Atl1 Opt 2	50 lbs. / 2 months	3.5	9.0	11.6
Alt1 Opt 3	25 lbs. / 2 months	1.6	10.2	11.7
Zero Retention	CLOSED	0.0	11.7	11.7

Table 2-46. No Action. Proposed sub-trip limit options and estimated mortality for copper rockfish within the Minor Nearshore Rockfish (MNRF) trip limit for the area between 42° - 40° 10' N. lat. compared to the 2023-24 CA copper rockfish ACL and OFL contributions, the California share and the ACL for the Minor Nearshore Rockfish Complex north of 40 10' N. lat. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Year	Option	Projected estimated mort (mt)	CA copper rockfish ACL cont. (mt)	CA copper rockfish OFL cont. (mt)	CA share (mt)	MNRF N of 40 10' N. lat. ACL (mt)
2023	Alt1 Opt 1 (SQ)	2.1	3.2	3.6	35.1	88
	Alt 2	2.0				
	Alt 3	1.9				
	Zero Retention	1.8				
2024	Alt1 Opt 1 (SQ)	2.1	3.2	3.7	35.4	87
	Alt 2	2.0				
	Alt 3	1.9				
	Zero Retention	1.8				

Table 2-47. No Action. Sub-trip limit options and estimated mortality for copper rockfish within the Deeper Nearshore trip limit south of 40° 10' N. lat. compared to the ACL and OFL contributions and the ACL of Minor Nearshore Rockfish Complex south of 40° 10' N. lat. for 2023 and 2024. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Year	Option	Projected estimated mort. (mt)	CA copper rockfish ACL contr. (mt)	CA copper rockfish OFL contr. (mt)	MNRF S of 40° 10' N. lat. ACL (mt)
2023	Alt1 Opt 1 (SQ)	12.8	88.4	112.8	889
	Alt 2	11.6			

	Alt 3	11.7			
	Zero Retention	11.7			
2024	Alt1 Opt 1 (SQ)	12.8	91.6	117.6	894
	Alt 2	11.6			
	Alt 3	11.7			
	Zero Retention	11.7			

2.8.3 Impact (Groundfish Mortality) – Nearshore:

For the remainder of the nearshore fishery species, the No Action Alternative is based on the default harvest control rules (DHCR) for 2023-24 with adjustments to routine management measures where noted. The nearshore fishery is projected to be within the 2023-24 non-trawl allocations, ACTs, HGs, and shares.

A majority of the projected landings are relatively similar for the Baseline and No Action Alternatives since the harvest specifications, allocations, and management measures remain relatively similar. Projected landings for shelf rockfish stocks in the nearshore fishery other than canary rockfish and bocaccio south of 40° 10' N. lat. are not shown because historically there have only been nearshore shares of these two stocks. Although increased non-trawl commercial shares of yelloweye rockfish could prompt more targeting of shelf stocks, impacts are expected to remain similar to the past low levels since no trip limit changes for shelf rockfish are being proposed for 2023-24. Access to healthy under-attained midwater shelf rockfish stocks is greatly hindered by the NT-RCA, which causes few, if any, to catch the current trip limits of canary rockfish or other midwater shelf rockfish stocks. However, there has been focused to increase commercial non-trawl attainments of shelf rockfish stocks via EFPs designed to selectively target healthy mid-water stocks (e.g., widow, yellowtail, canary, chilipepper, and bocaccio rockfishes) with minimal impacts to benthic yelloweye rockfish. It should also be noted that there is a proposal to retain rockfish within the NT-RCA discussed in the new management measures section (briefly described below), and there is a stand-alone NT- RCA item currently being scheduled in 2022, with regulation changes expected as early as 2024.

Projected Nearshore Groundfish Mortality

Projected total mortality numbers shown in Table 2-48 are based on full attainment of the state landings targets, except for lingcod and canary rockfish which are based on LEFG and OA trip limits north and south of 40° 10 N' lat. and the projected mortality from the nearshore model (see Appendix A)[24]. In California, landings targets are based on the projected mortality25 from sub trip limits for copper rockfish and quillback rockfish in addition to average landings.

With the measures taken in 2022, no further adjustment to trip limits and sub trip limits are proposed under No Action.

[24] Appendix A details models used in this process, it will be available at the June 2022 Council meeting

[25] Mortality estimates projected from trip limit models include a percent discard based on the discard estimates from WCGOP mortality reports.

Table 2-48. No Action. 2023-24 projected total mortality (nearshore landings and discard mortality) for the No Action Alternative. Data source: PacFIN, Jan 07, 2022.

Stock	Area	Total Mort.(mt)	By Area for 2023-2024			
			OR (mt)	CA (mt)	40°10'-42° N. lat. (mt)	S. of 40°10' N. lat. (mt)
Black/blue/deacon rockfish	OR	121.1	121.1	N/A	N/A	N/A
--*Black rockfish*		113	113	N/A	N/A	N/A
--*Blue/deacon rockfish*		8.2	8.2	N/A	N/A	N/A
Black rockfish	CA	100	N/A	100	95.0	5.0
Bocaccio	south of 40°10' N. lat.	3.0	N/A	3	N/A	3.0
Cabezon/Kelp Greenling	OR	42.7	42.7	N/A	N/A	N/A
--*Cabezon*		32.4	32.4	N/A	N/A	N/A
--*Kelp Greenling*		10.3	10.3	N/A	N/A	N/A
Cabezon	CA	65.0	N/A	65	3.5	62.0
Canary Rockfish	OR & CA	37.9	3.3	34.6	3.5	31.1
Kelp greenling	CA	9.3	N/A	9.3	0.3	9.0
Lingcod	north of 40°10' N. lat.	78.8	67.3	11.5	11.5	N/A
Lingcod	south of 40°10' N. lat.	25.0	N/A	25.0	N/A	25.0
California scorpionfish	south of 40°10' N. lat.	3.3	N/A	3.3	N/A	3.3
Nearshore Rockfish N. a/	north of 40°10' N. lat.	23.9	8.1	15.8	15.8	N/A
Nearshore Rockfish S. a/	south of 40°10' N. lat.	170	N/A	170	N/A	170
-*Shallow Nearshore Rockfish b/*		74.1	N/A	74.1	N/A	74.1
--*Deeper Nearshore Rockfish c/*		95.9	N/A	95.9	N/A	95.9

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 south 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 south of 40°10' N. lat.

2.9 Washington Recreational Fishery: No Action

2.9.1 Management Measures

The primary driver of management measures needed for Washington recreational fisheries will be the state specific HGs for quillback rockfish, copper rockfish, and vermilion rockfish , 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, these species will remain within their respective Complexes. An objective of setting species-specific HGs within the Complex is to reduce total mortality of these species in relation to the best scientific information available in current stock assessments. Under No Action, copper rockfish would be managed to a 1.9 mt HG in both 2023 and 2024 and a quillback HG of 2.2 mt in 2023 and 2024. Under No Action, the Washington contribution to the vermilion rockfish ACL is 0.7 mt in 2023 and 2024.

Under the No Action Alternative, yelloweye rockfish would be managed with a 66 mt ACL in 2023 and 2024 based on the DHCR. The Washington recreational yelloweye rockfish HG would be 13.2 mt, and the Washington recreational groundfish fishery would be managed to an ACT of 10.4 mt for 2023 and 2024 (Table 2-49).

Table 2-49. No Action – Washington Recreational. Harvest guidelines (HG) for the Washington recreational fisheries under the No Action Alternative.

Species	HG (mt)	
	2023	**2024**
Canary Rockfish	41.5	40.93
Black Rockfish	290.0	289.0
YELLOWEYE ROCKFISH	13.2 (ACT = 10.4)	13.2 (ACT = 10.4)
Nearshore Rockfish north of 40° 10′ N. lat.	18.3	17.8
Copper Rockfish	*1.9*	*1.9*
Quillback Rockfish	*2.2*	*2.2*
WA Cabezon/Kelp Greenling	19.8	17.1
WA Vermilion Rockfish north of 40° 10′ N. lat.	0.7	0.7

Groundfish Seasons and Area Restrictions

Season Structure

Under the No Action Alternative, the Washington recreational groundfish and lingcod seasons would be open from the second Saturday in March through the third Saturday in October (Table 2-50)[26]. Depth restrictions are the primary tool used to keep recreational mortality of yelloweye rockfish within specified ACTs and may also be effective at reducing catch of vermilion rockfish. Ninety-six percent of the total vermilion rockfish mortality occurred in the north coast (Marine Areas 3 & 4) in 2021. Washington coastal management areas are shown in Figure 1-4. Sub bag limits for copper rockfish, quillback rockfish, and vermilion rockfish within the seven fish rockfish bag limit are expected to provide some reduction in total mortality of these species. Under the No

[26] March 12 - October 15, 2023, March 9 - October 19, 2024

Action Alternative, several sub-bag limit alternatives were explored within the season structure below to reduce total mortality of copper rockfish, quillback rockfish, and vermilion rockfish.

Table 2-50. 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		BF Open < 20 fm a/ b/		BF Open			BF Closed	
2 (S. Coast)	BF Closed			BF Open c/ d/							BF Closed	
1 (Col. River)	BF Closed			BF Open e/ f/							BF Closed	

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

b/ Retention of yellowtail and widow rockfish is allowed >20 fm in August.

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

d/ 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 halibut fishery and June 1 – 15 and September 1 - 30.

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

f/ 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.

North Coast (Marine Areas 3 and 4)

Under No Action, the retention of groundfish would be prohibited seaward of a boundary line approximating the 20 fathom depth contour from June 1 through July 31, except when Pacific halibut is open. When Pacific halibut is open, bocaccio, silvergray rockfish, canary rockfish, lingcod, Pacific cod, and sablefish can be retained seaward of 20 fathoms. Yellowtail and widow rockfishes can be retained seaward of a line approximating 20 fathoms in July. When the depth restriction is in place, groundfish retention allowances are the same as under the Baseline. Fishing for, retention, or possession of groundfish and Pacific halibut would continue to be prohibited in the C-shaped YRCA (Figure 1-5).

South Coast (Marine Area 2)

Under the No Action Alternative, the groundfish fishery, except for lingcod, would be open at all depths. Retention of lingcod would be prohibited seaward of 30 fathoms from May 1 through May 31, but lingcod retention would be allowed seaward of 30 fathoms on days open to the primary Pacific halibut season. Under No Action, the 30 fathom depth restriction and lingcod retention allowances would be in place during the same times as Baseline.

When lingcod is open (see Lingcod Seasons and Size Limits below), fishing for, retention, or possession of lingcod would be prohibited in deep-water areas seaward of a line extending from 47° 31.70' N. lat., 124° 45.00' W. long. to 46° 38.17' N. lat., 124° 30.00' W. long., except as allowed on days open to the Pacific halibut fishery (Figure 1-5) and from June 1 through 15 and September 1 through 30 which is the same as under Baseline.

Columbia River (Marine Area 1)

Under the No Action Alternative, the groundfish fishery, except for lingcod, is open in all depths. Lingcod retention would be allowed north of the Washington-Oregon border on days open to the all-depth Pacific halibut season. Lingcod retention in the deep-water area (i.e., seaward of a line extending from 46° 38.17 N. lat., 124° 21.00' W. long. to 46° 33.00' N. lat., 124° 21.00' W. long.) would be allowed from June 1 through June 15 and September 1 through September 30 (Figure 4-4). Retention of groundfish would be allowed with halibut onboard when the Pacific halibut fishery is open. Area Restrictions

Under No Action, area restrictions would be the same as under Baseline (Figure 1-5).

Groundfish Bag Limits

Under the No Action Alternative, the aggregate daily groundfish limit would be nine fish per day which can include up to seven rockfish, two lingcod and one cabezon. Further, anglers would be allowed to retain five flatfish in addition to the nine fish daily aggregate groundfish limit. Under the No Action Alternative, there are no size limits for any species, and the retention of yelloweye rockfish would continue to be prohibited in all areas (Marine Areas 1 – 4).

Lingcod Seasons and Size Limits

Under the No Action Alternative, in all Marine Areas, the lingcod season would be March 12 through October 15 in 2023 and March 9 through October 19 in 2024. Similar to Baseline, under No Action, there is no lingcod size limit.

New Management Measures

Sub-bag Limit and Retention Options

Under the No Action Alternative, sub-bag limit options for copper rockfish, quillback rockfish, and vermilion rockfish were analyzed as a tool to reduce total mortality to the state-specific contributions to the stock complexes where they are managed. Without additional measures, projected mortality for these species are projected to exceed state-specific ACL contributions or state HGs. These species are currently only restricted to the seven fish bag limit for rockfish within the nine groundfish aggregate limit, and species specific sub-bag limits have not been analyzed in the past. Non-retention for either a portion of or the full season is another option analyzed to evaluate alternative mitigation impacts for managing catch relative to state-specific contributions to the complex ACL for these three species.

Copper Rockfish

Under No Action, the copper rockfish HG is 1.9 mt for 2023 and 2024 compared to a projected mortality of 2.9 mt in 2023 and 2024 under Baseline management measures. A range of sub-bag limits were analyzed and there was very little reduction in total mortality across the range because most anglers already retain only one or two copper rockfish as part of their daily bag limit (Table 2-51). Copper rockfish are also not targeted, caught primarily in state waters, and are retained in small numbers as incidental catch when anglers attempt to achieve their daily bag limit. Estimated mortality was projected using a bag limit analysis for several sub-bag limit alternatives using both 2019 and 2021 estimates as the starting point. 2020 was not used in the analysis because catch estimates are not reflective of expected catch in the future due to significant fishery restrictions in

place due to the COVID 19 pandemic. Mortality savings (Table 2-52) is the average 2019 and 2021 projected mortality estimated under the sub-bag limit alternatives subtracted from the average final estimate in 2019 and 2021 (2.88 mt) as shown in Table 2-52 is the total mortality under baseline minus the mortality savings.

Table 2-51. No Action. Projected mortality (mt) for copper rockfish under a range of sub-bag limit options.

Sub-limit Options	Mortality Savings (mt)	Projected Mortality (mt)
3 Copper Rockfish	0.11	2.77
2 Copper Rockfish	0.31	2.57
1 Copper Rockfish	0.67	2.21

Table 2-52. No Action. Projected mortality (mt) for copper rockfish under a range of no-retention options.

No Retention Options	Mortality Savings (mt)	Projected Mortality (mt)
No retention in May	0.51	2.37
No retention in June	0.24	2.64
No Retention in July	0.32	2.56
No retention May – July	1.07	1.82

Quillback Rockfish

Under No Action, the quillback rockfish HG is 2.2 mt in 2023 and 2024 compared to a projected mortality of 2.6 mt in 2023 and 2024 under Baseline management measures. Like the analysis for copper rockfish, a bag-limit analysis was conducted on a range of sub-bag limit alternatives using the average of the final estimates from 2019 and 2021 (2.56 mt). 2020 was excluded from the analysis given the significant fishery restrictions and port closures in place due to the pandemic. A range of sub-bag limit options was analyzed and showed a small reduction in total mortality as quillback rockfish represents a small proportion of the catch in the total bag limit (Table 2-53). A sub-bag limit of one quillback rockfish reduced total projected mortality close to the species-specific contribution to the Nearshore Rockfish Complex north of 40° 10′ N. lat. but was still slightly higher than the Washington HG (Table 2-54).

Table 2-53. No Action. Projected mortality (mt) for quillback rockfish under a range of sub-bag limit options.

Sub-limit Options	Mortality Savings (mt)	Projected Mortality (mt)
2 Quillback Rockfish	0.07	2.49
1 Quillback Rockfish	0.30	2.26

Table 2-54. No Action. Projected mortality (mt) for quillback rockfish under a range of no-retention options.

No Retention Options	Mortality Savings (mt)	Projected Mortality (mt)
No retention in May	0.30	2.26
No retention in June	0.19	2.37
No Retention in July	0.23	2.33
No retention May – July	0.72	1.81

Vermilion Rockfish

Under No Action, the vermilion rockfish HG is 0.7 mt in 2023 and 2024 compared to projected mortality of 2.0 mt under Baseline management measures. Given the very low HG, one fish was the highest sub-bag limit analyzed (Table 2-55), and for the same reasons as described for copper and quillback rockfishes, a sub-bag limit was not effective at reducing total mortality enough to meet or stay under the species specific contribution to the Shelf Rockfish Complex north of 40° 10′ N. lat. (Table 2-56) The analysis also relied on the average of final catch estimates in 2019 and 2021 (1.97 mt) to estimate the mortality savings to minimize the impacts of restrictions in place in 2020 affecting projected mortality.

Table 2-55. No Action. Projected mortality (mt) for vermilion rockfish under a one fish sub-bag limit option.

Sub-limit Options	Mortality Savings (mt)	Projected Mortality (mt)
1 Vermilion Rockfish	0.20	1.77

Table 2-56. No Action. Projected mortality (mt) for vermilion rockfish under no retention during all open months.

No Retention Options	Mortality Savings (mt)	Projected Mortality (mt)
No retention	1.00	0.97

Inseason Management Response

Projected mortality for Washington's recreational fishery relies on final estimates of catch and effort from the most recent seasons as reported by the OSP and incorporated in the Recreational Fisheries Information Network (RecFIN).

The precision of recreational groundfish catch estimates based on previous seasons will continue to be influenced by factors such as the duration and success of salmon, Pacific halibut, and albacore seasons, weather, and any other unforeseen factors. For example, while no inseason action was needed to keep catch within the Washington canary rockfish HG in 2021, canary rockfish catch was slightly higher than expected. Canary rockfish catch was expected to increase with the additional opportunity provided by the opening of the deep-water lingcod area during the month of September under Baseline, but canary rockfish total mortality in September was twice that of March through August. While some of that mortality was expected, it is worth noting that the salmon season ended earlier than anticipated and the albacore season was poor, which resulted in some effort shifting from those fisheries to groundfish fisheries and specifically the deep-water lingcod area opportunity in September.

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.

2.9.2 Impact (Groundfish Mortality)

In the past, small yelloweye rockfish HGs drove the need for restrictive management measures such as depth restrictions. Higher ACLs, HGs and even conservative ACTs for yelloweye rockfish

in 2019-2020 and 2020-2021 have allowed reduced depth restrictions and increased access to healthy, deep-water stocks like lingcod and canary rockfish. Management measures analyzed under the No Action Alternative for 2023 and 2024 reflect new information on copper rockfish, quillback rockfish, and vermilion rockfish and are focused on alternatives that reduce total mortality of these species which are managed in stock complexes.

Under No Action, the projected mortality for copper rockfish, quillback rockfish, and vermilion rockfish in 2023 and 2024 uses the average catch in 2019 and 2021 for the analysis to estimate mortality savings rather than assuming catch in 2023 and 2024 would be the same as 2021, the most recent year with complete data. Projecting mortality for these species has been challenging, not only due to the extraordinary circumstances of the pandemic which significantly impacted Washington recreational fisheries in 2020 and part of 2021 but also due to higher catch in 2019 which has been difficult to understand. An approach that balances BSIA with fishery stability and a continued flow of catch data may inform the higher catches seen in 2019 which could be associated with climate change or other environmental factors. Using the average final catch from 2019 and 2021 is intended to balance the higher catch in 2019 with potentially lower catch in 2021 due to port closures in the north coast (Marine Areas 3 and 4). The port of Neah Bay adjacent to Marine Area 4 remains closed to the public and it is not known when this port will reopen.

Management measures are intended to make progress toward reducing catch of vermilion rockfish, copper rockfish, and quillback rockfish acknowledging new information from recent stock assessments but also considers alternatives that allows for some retention of these species in order to maintain an important data flow for future stock assessments and provide stability to Washington recreational fisheries as the Council seeks more information on these stocks which a caught primarily in state waters and are managed in stock complexes.

Projected mortality for overfished and non-overfished species under the No Action Alternative are summarized in Table 2-57

All Marine Areas (1 – 4)

Under the No Action Alternative, no retention for vermilion rockfish during the entire groundfish and lingcod season and no retention for copper rockfish and quillback rockfish during May, June, and July achieve the highest mortality savings compared to sub-bag limit options. However, for vermilion rockfish, while no retention during the entire season results in significant savings, it does not reduce mortality below the state, species specific HG under No Action.

As mentioned above, state emergency regulations and inseason action can be taken to address higher than anticipated yelloweye impacts if necessary.

Table 2-57. No Action – Projected Mortality (in mt) for the Washington Recreational fishery under No Action.

Stock	**2023-2024 Mortality**
Canary Rockfish	39.45
YELLOWEYE ROCKFISH	3.23
Black Rockfish	213.10
Bocaccio	7.19
Lingcod	175.05
Nearshore Rockfish	6.89
Blue Rockfish	*1.15*
Quillback Rockfish	*1.81*
Copper Rockfish	*1.82*
China Rockfish	*2.11*
Brown Rockfish	--
Grass Rockfish	--
Yellowtail Rockfish	62.41
Vermilion Rockfish	0.97
Washington Cabezon/Kelp Greenling	9.06
Cabezon	*7.81*
Kelp Greenling	*1.25*

2.10 Oregon Recreational Fishery: No Action

2.10.1 Management Measures

The No Action Alternative analyzes the default HCR ACLs. Under those defaults, the Oregon recreational HGs or presumed state quotas are those presented in Table 2-58. As under the Baseline, the primary catch controls for the Oregon recreational fishery are season dates, depth closures, bag limits, and GCAs, including YRCAs.

The west coast states will be responsible for tracking and managing catches of nearshore rockfish north of 40°10' N. Lat., as described under Baseline. The Oregon black/blue/deacon rockfish complex ACL, and associated presumed state-specified HG for the recreational fishery decreases from 462.8 mt in 2021 to 431.1 and 424.2 mt in 2023 and 2024, respectively (Table 1-40 and Table 2-58). For yelloweye rockfish, the Federal HG increases from 6.9 mt in 2021 to 9.2 mt in 2023 and 2024. This will cause the Oregon black/blue/deacon rockfish complex and nearshore rockfish complex species to be the primary driver of 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 2-58). In the event inseason action is needed to keep mortality of these complexes the state manages within the values in Table 2-58, the state of Oregon would take action through state regulation (OAR 635-039-0090 (2)). Inseason updates would be provided by the Oregon Department of Fish and Wildlife 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 2-58. No Action. Oregon recreational Federal harvest guidelines (HG), or state quotas under the No Action Alternative (mt).

Stock	2023 HG [a/]	2024 HG [a/]
Oregon Black/Blue/Deacon Rockfish Complex a/	431.1	424.2
Canary Rockfish b/	62.4	61.5
Oregon Cabezon/Greenling Complex c/	51.4	50.2
Nearshore Rockfish Complex north of 40° 10' N Lat.	15.7	15.2
YELLOWEYE ROCKFISH	9.2	9.2

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 2021 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 2021 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 2021 recreational and commercial sharing percentages in Oregon state regulations.

Groundfish Seasons and Area Restrictions

Season Structure

Under the No Action Alternative, the Oregon recreational groundfish fishery would be open at all depths year-round, there would be no depth restrictions in place. In 2021 it was open year-round except from June 1 to September 1 and in 2022 except for June 1 through August 31 (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 from June through August, 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 and nearshore rockfish complex species. Given the higher yelloweye rockfish HG, the season structure and bag limit presented in Figure 2-3 for 2023-2024 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 all groundfish, including yelloweye rockfish in 2023 and 2024 are within the Federal HGs, therefore the shore-based fishery would also be open year-round.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bottomfish Season	Open all depths											
Marine Bag Limit [a/]	Ten (10)											
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit [b/]	Twenty-Five (25)											

a/ Marine bag limit is 10 fish per day and includes all 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/ Flounders, soles, sanddabs, turbots, and halibuts except Pacific halibut

Figure 2-3. Oregon recreational groundfish season structure and bag limits under the No Action Alternative.

Groundfish Bag Limits and Size Limits

Under the No Action Alternative, federal bag and size limits under the Baseline would remain the same (Figure 2-3).

Pacific Halibut Seasons

Same as the Baseline.

Additional Considerations

As under the Baseline, the midwater rockfish longleader gear can be used seaward of the 40-fathom regulatory line during months when the regular recreational groundfish fishery has depth restrictions, if any. Estimated mortality from longleader gear trips are included in the total mortality estimates in Table 2-59.

Table 2-59. No Action – Oregon Recreational. Projected Mortality (mt) of species with Oregon recreational specific allocations under the No-Action Alternative.

Stock	Projected Mortality (mt)
Canary Rockfish	54.0
YELLOWEYE ROCKFISH	5.8
Black/Blue/Deacon Rockfish OR	396.1 a/
Cabezon/Greenlings b/	24.6
Lingcod north of 40° 10' N Lat.	226.5
Nearshore Rockfish north of 40° 10' N Lat.	10.8
Yellowtail Rockfish	50.6
Widow Rockfish	12.0

a/ black rockfish = 377.5, blue/deacon rockfish = 18.6 mt
b/ Includes kelp and other greenlings

Inseason Management Response

The same inseason response as described under the Baseline.

2.10.2 Impact (Groundfish Mortality)

The annual projected mortality presented in Table 2-59 is anticipated, given the season structure and bag limits detailed above, with the exception of canary rockfish. The projected impacts for canary rockfish still remain somewhat uncertain. Some of the data that is used in the model is for time periods when anglers were encouraged to avoid canary rockfish, there was a 1-fish sub-bag limit, or were required to discard when encountered. Beginning in 2017, canary rockfish was part of the regular bag limit, there was no sub-bag limit. Inseason tracking through October 2021 has the estimated impacts to canary rockfish at 36.4 mt, which is approximately 11.5 mt under what was projected for 2021 (47.9 mt). The current projected year-end impacts are 37.4 mt. Even with 2019-2021 data, the model still does not have enough retention data to provide a statistically certain estimate for canary rockfish, particularly due to issues in 2020 due to the global pandemic.

The Oregon black/blue/deacon rockfish complex will be the most influential in terms of setting the season structure under No Action. Modeling of the proposed season structure (Figure 2-3) 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 (377.5 mt mortality; 362.8 mt share; Table 2-59).

Midwater longleader recreational groundfish fishing is allowed within most closed areas to target abundant and healthy midwater species (yellowtail and widow rockfish) while avoiding or minimizing interactions with overfished rockfish species. Table 2-59 includes estimates of projected mortality from all bottomfish trips, including the longleader trips.

New Management Measures

One additional management measure was analyzed for the Oregon recreational fisheries: allowing additional longleader gear fishing opportunities when participating in the all-depth Pacific halibut fishery.

During the 2019 Pacific halibut Catch Sharing Plan process, Oregon anglers put in a request to be allowed to fish in the longleader gear fishery and all-depth Pacific halibut on the same trip. This was put into place beginning in 2021, however after consultation with enforcement anglers could not retain any other groundfish species other than the legal longleader gear species (10 midwater rockfish species), even species that would otherwise legally be allowed with all-depth halibut (sablefish, Pacific cod, and other species of flatfish). Due to some confusion by anglers on what could be kept and what could not, anglers requested to be allowed to retain both longleader gear species and other groundfish species that are otherwise legal to retain on all-depth halibut trips (sablefish, Pacific cod, and other species of flatfish) on the same fishing trip.

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[27] (660.351, 660.360(c)(2)(1)(B), and 660.360(c)(2)(iii)(B)). The regulation allows the use of the gear (description below) outside of the 40-fathom regulatory line April through September. 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.

Longleader Gear Description

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.

Effort

Allowing longleader gear fishing along with all-depth Pacific halibut fishing and the otherwise legal to retain groundfish with all-depth halibut on the same trip is not anticipated to increase recreational effort off Oregon because it is unlikely to draw any new angler trips. Instead, the most likely scenario is that some current anglers targeting all-depth Pacific halibut and legal groundfish with all-depth halibut will also fish with longleader gear on the same fishing trip. Based on angler input at a series of public meetings hosted by ODFW in the fall of 2021 and public comment to the September 2019 Council meeting (Agenda Item G.1.b., Public Comments), this would reduce confusion for anglers as well as potential regulatory discards.

During development of the longleader action, the analysis estimated up to 16,465 potential longleader and all-depth Pacific halibut trips would occur annually (Table 4-2 in NMFS 2018). These would not be new trips, but trips that would have already happened for one or the other now doing both on the same trip. The difference between that number of potential longleader and all-depth Pacific halibut trips (16,465) trips analyzed previously (Table 4-2 in NMFS 2018) and the 10-year average number of all-depth Pacific halibut trips (16,026) is a little less than 500 angler

[27] https://www.govinfo.gov/content/pkg/FR-2018-03-29/pdf/2018-06316.pdf

trips. It is also within the range of all-depth Pacific halibut trips that have been seen over the last 10 years (12,517 to 22,263). Therefore, this action is not anticipated to cause much if any increase in the total number of angler trips for bottomfish and all-depth Pacific halibut (Table 2-60).

Table 2-60. Annual number of angler trips for traditional bottomfish, longleader, and all-depth Pacific halibut targeted trips in Oregon.

Year	Bottomfish Trips	Longleader Trips	All-Depth Halibut Trips	Total
2010	74,858	N/A	12,451	87,309
2011	69,877		13,205	83,082
2012	70,689		13,428	84,117
2013	88,505		16,468	104,973
2014	77,368		12,517	89,885
2015	108,548		14,844	123,392
2016	96,297		16,963	113,260
2017	103,048		16,445	119,493
2018	109,768	5,286	15,553	130,607
2019	99,136	2,141	13,016	114,293
2020	103,418	2,357	22,263	128,038
2021*	97,035	1,731	18,759	117,525
10-yr AVG.	95,381	2,879	16,026	112,558
* 2021 data is only through October, minimal bottomfish effort occurs after that and all halibut fisheries are closed.				

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 2-61 and Table 2-62). Yellowtail, widow, and canary rockfish are the three main species caught and accounted for 95-98 percent of the fish landed annually (Table 2-61 and Table 2-62). Yelloweye rockfish accounted for less than one percent of total fish encountered each year (0.03 to 0.08 percent in 2018-2020). If longleader gear fishing and all-depth halibut were allowed on the same trip, there is the potential for an increase in the catch of the three main species, much lower potential for the other species, but should be within the Oregon recreational canary and yelloweye rockfish allocations and well within the non-trawl allocations of yellowtail (north of 40° 10′ N. lat.) and widow rockfish.

Table 2-61. Total number of fish landed and released by species on longleader trips in 2018-2020 off of Oregon.

Species	2018		2019		2020	
	Landed	Released	Landed	Released	Landed	Released
Yellowtail Rockfish	23,522	220	12,240	511	10,274	228
Widow Rockfish	6,963	46	3,482	80	2,375	19
Canary Rockfish	6,311	39	4,301	33	6,030	28
Sablefish	67	15	-	5	-	-
Albacore Tuna	60	-	208	-	158	-
Silvergray Rockfish	86	7	19	-	53	-
Pacific Mackerel	56	64	26	-	4	4
Redstripe Rockfish	35	242	33	4	20	4
Rockfish Unid	29	11	-	58	-	-
Greenstriped Rockfish	25	88	23	105	2	6
Chillipepper Rockfish	10	17	32	26	2	4
Deacon Rockfish	7	83	286	19	91	49
Jack Mackerel	8	13	50	-	-	-
Black Rockfish	4	24	21	11	-	-
Blue Shark	2	3	6	-	3	4
Blue Rockfish	-	52	-	-	2	-
YELLOWEYE ROCKFISH	-	50	7	104	-	71
Lingcod	-	42	14	55	76	61
Quillback Rockfish	-	-	3	-	-	-
Bocaccio	390	4	378	5	82	-
Vermilion Rockfish	-	4	-	-	-	4
Copper Rockfish	-	2	-	-	-	-
Chinook Salmon	-	2	-	-	14	6
Coho Salmon	-	11	-	14	5	52

"-" indicates no catch

"0.00" indicates catch equaling less than 0.01 mt

Table 2-62. Total landed and released mt of the twenty most common species, plus Chinook and coho salmon in numbers of fish, from longleader gear trips in 2018-2020.

Species	2018		2019		2020	
	Landed	Released	Landed	Released	Landed	Released
Yellowtail Rockfish	12.06	0.11	6.61	0.28	4.66	0.10
Canary Rockfish	5.18	0.03	3.41	0.03	4.95	0.02
Widow Rockfish	3.10	0.02	1.30	0.03	0.86	0.01
Sablefish	0.07	0.02	-	0.01	-	-
Albacore Tuna	0.18	-	0.56	-	0.45	-
Silvergray Rockfish	0.06	0.00	0.01	-	0.03	-
Redstripe Rockfish	0.01	0.04	0.01	0.00	0.00	0.00
Greenstriped Rockfish	0.01	0.02	0.00	0.02	0.00	0.00
Chillipepper Rockfish	0.00	0.00	0.01	0.00	0.00	0.00
Deacon Rockfish	0.00	0.03	0.10	0.01	0.03	0.01
Jack Mackerel	0.01	0.01	0.03	-	-	-
Black Rockfish	0.00	0.01	0.01	0.01	-	-
Blue Shark	0.00	0.01	0.01	-	0.01	0.01
Blue Rockfish	-	0.02	-	-	0.00	-
Yelloweye Rockfish	-	0.03	0.01	0.08	-	0.04
Lingcod	-	0.06	0.02	0.07	0.10	0.08
Quillback Rockfish	-	-	0.00	-	-	-
Bocaccio	1.24	0.01	1.20	0.02	0.26	-
Vermilion Rockfish	-	0.00	-	-	-	0.00
Copper Rockfish	-	0.00	-	-	-	-
Chinook Salmon	-	2	-	-	14	6
Coho Salmon	-	11	-	14	5	52

"-" indicates no catch
"0.00" indicates catch equaling less than 0.01 mt

Yelloweye Rockfish

Over the three full years that the longleader gear fishery has been allowed, the average encounter rate of yelloweye rockfish has been less than 0.03 fish per angler trip (Figure 2-4); this means that on average there would be one yelloweye rockfish encountered every 30 trips. In comparison, the encounter rate of yelloweye rockfish on all-depth Pacific halibut trips averaged 0.04 fish per angler trip in 2018-2020 which equates to about one yelloweye rockfish encountered for every 25 all-depth halibut trips. The analysis for the longleader gear action (NMFS 2018) estimated that the potential number of combined longleader gear and all-depth Pacific halibut trips could be up to 16,465. The difference between that estimate and the 10-year average number of Pacific halibut trips is 439 trips. Applying the higher of the above yelloweye rockfish encounter rates (to be precautionary) to the additional potential number of angler trips equals 18 potential yelloweye rockfish encounters. Assuming all are released dead, again to be precautionary, and applying a 3.0 kg avg weight results in approximately 0.05 mt of potential additional yelloweye rockfish impacts. Those encounters would also be attributed to already occurring Pacific halibut trips or longleader trips. Therefore, there will likely be minimal additional impact to yelloweye rockfish from allowing retention of longleader gear species and otherwise legal groundfish (Pacific cod,

sablefish, other flatfish species) with all-depth Pacific halibut fishing to occur on the same trip. Additionally, those impacts when combined with impacts from the traditional bottomfish fishery are projected to be well within the Oregon recreational yelloweye rockfish allocation (5.8 mt out of 9.2 mt).

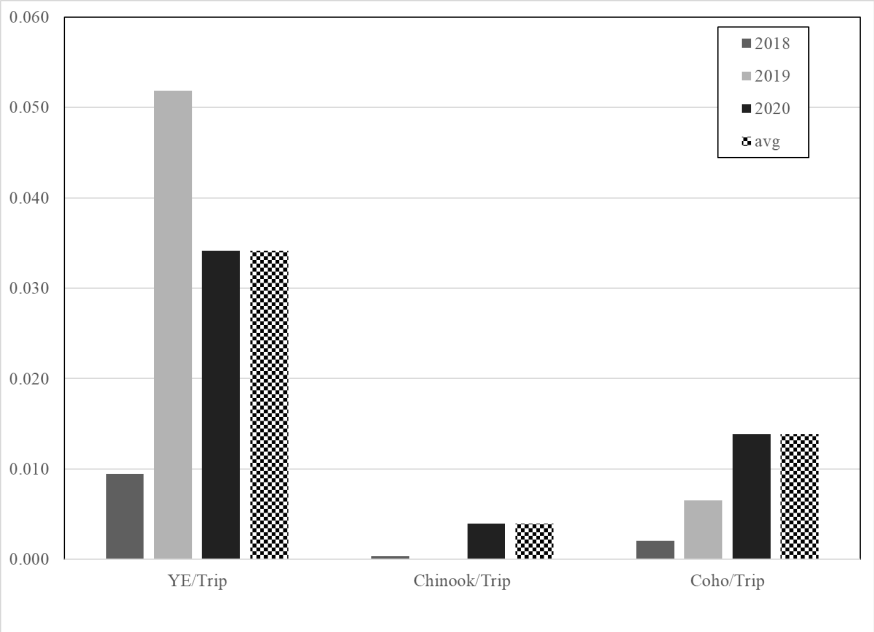


Figure 2-4. Catch rate of yelloweye rockfish, Chinook salmon, and coho salmon on Oregon longleader gear trips in 2018-2020.

Chinook and Coho Salmon

Coho salmon encounter rate was 0.014 fish per trip, or one fish for every 112 angler trips on longleader gear trips (Figure 5). On all-depth Pacific halibut trips the encounter rate has been 0.002 fish per trip, or one for every 583 all-depth Pacific halibut trips. Of all the salmon species, Chinook salmon was encountered the least frequently, with an average of seven encounters in 2018-2020. That is an encounter rate of 0.0004 fish per trip, or one Chinook salmon encountered for every 416 longleader trips (Figure 2-4). All-depth Pacific halibut trips had an encounter rate of 0.0001 fish per trip, or one Chinook salmon encountered for every 14,273 trips. Given those encounter rates, and the potential number of trips (16,465; Table 4-2 in NMFS 2018) higher than the 10-year average halibut trips (16,026), potential additional Chinook salmon encounters would be approximately 1.7 fish per year and coho salmon encounters would be approximately six fish per year. As with yelloweye rockfish, those fish will be attributed to already occurring all-depth Pacific halibut or longleader gear trips, depending on how the angler explains their trip target to the ODFW dockside creel sampler. When added to the encounters from the traditional bottomfish fishery, the total annual encounters will not be much different than the recent years' total estimates, and should not increase the potential for the total groundfish salmon thresholds to be reached or exceeded.

2.11 California Recreational Fishery: No Action

2.11.1 Management Measures

Under the No Action alternative, the default harvest control rules from 2021-2022 are applied to the 2023-2024 harvest specifications and the management environment remains the same. Allocations for the California recreational fishery are shown in Table 2-63

During the 2021-22 cycle, Council recommended a 50 mt ACT for cowcod south for 40 10' N lat be set below the Fishery Harvest Guideline (HG), as a precautionary measure to manage the newly rebuilt stock. However, through overwinter analysis and discussions with Council staff regarding the proposed Action Item 12.e, there may be increased impacts to shelf species such as cowcod. The intention of removing the 50 mt ACT is to provide flexibility and stability to the non-trawl sector as detailed in Agenda Item F.4. GMT Report 1.[28] Additionally, the proposal suggests a formal sector specific ACT for the CA recreational fishery of 22 mt in 2023 and 21.7 mt in 2024, as well as maintaining zero retention as a means to remain precautionary for the 2023-24 cycle.

The lingcod non-trawl allocation south of 40°10' N. lat. under No Action applies a P*0.45 and results in a total of 427.8 mt and 425.4 mt in 2023 and 2024, respectively. There is no formal recreational share of the non-trawl-allocation.

As a result of the 2021 copper rockfish stock assessment outcomes, in November 2021 CDFW analyzed recreational bag limit changes aimed at reducing total mortality, and the PFMC recommended a 1-fish sub-bag limit for the 2022 fishing season. The projected recreational removals are 3.7 mt north of 40°10' N. lat. and 133.7 mt south of 40°10' N. lat. under a 1-fish sub-bag limit (Table 2-69). As noted in the November 2021 CDFW Inseason Report, projected impacts are likely over-estimates. Actual impacts to copper rockfish resulting from the inseason bag limit change will not be known until after June 2022, when final Council action on 2023-2024 Specifications and Management Measures are adopted.

Following the adoption of the quillback rockfish stock assessment for use in management in November 2021, CDFW analyzed recreational bag limit changes for quillback rockfish aimed at reducing total mortality, and the PFMC recommended a 1-fish sub-bag limit for the 2022 fishing season. The projected recreational removals of quillback rockfish under a 1-fish sub-bag limit are 3.5 mt north of 40°10' N. lat. and 4.8 mt south of 40°10' N. lat. under a 1-fish sub-bag limit (Table 2-70). As noted in the November 2021 CDFW Inseason Report, projected impacts are likely over-estimates. Actual impacts to quillback rockfish resulting from the inseason bag limit change will not be known until after, the final Council action on 2023-2024 Specifications and Management Measures in June 2022.

A full stock assessment for vermilion/sunset rockfish, conducted in 2021, determined the stock to be at healthy depletion levels. Vermilion/sunset rockfish is managed as part of the Minor Shelf /rockfish Complex both north and south of 40°10' N. lat. No substantial changes in the contribution to the Minor Shelf Rockfish Complexes are expected as a result of the stock assessment outcome.

[28] Available as a separate document in the April Advanced Briefing Book

For yelloweye rockfish the CA recreational HG is 11.4 mt and 11.7 mt for 2023 and 2024. As described under baseline for 2021-2022, continued precautionary depth-based management measures remain in place to ensure fishery sectors do not exceed harvest limits.

Table 2-63. No Action – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2023 and 2024.

Stock	Non-Trawl Allocation (mt)	California Recreational HG (mt)
Bocaccio	1093.5/1085.0	755.6/749.7
Canary rockfish	337.6/332.9	112/110.5
Cowcod	[O1]32.0/32.0 [O2]41.1/43.4	-
Darkblotched rockfish	38.1/36.3	-
Nearshore rockfish North of 40°10´ N lat. [a/]	84.7/83.7	-
POP	171.4/164.9	-
Petrale sole	30/30	-
Yelloweye rockfish	50.9/50.9	12/12

[a/] The California share is 35.1 mt (2023) and 35.4 mt (2024), which is shared further between the non-trawl commercial and recreational fisheries.

Groundfish Seasons and Area Restrictions

Season Structure and Area Restriction Overview

Descriptions of 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 of the year to take steps to achieve but not exceed specifications. 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

Option 1 examines the same season structure as described under Baseline, which has been in place since 2021. The season for California scorpionfish in the Southern Management Area continues to be open year-round, and the season structure in all other Management Areas aligns with the RCG complex. (Table 2-64)

Table 2-64. Option 1: California recreational groundfish season structure assuming same season structure analyzed in 2021-2022 FEIS.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 1 – Oct 31 <30fm						All Depth	
Mendocino	Closed				May 1 – Oct 31 <30fm						All Depth	
San Francisco	Closed			April 1 – Dec 31 <50fm								
Central	Closed			April 1 – Dec 31 <50fm								
Southern	Closed		Mar 1 – Dec 31 <100 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 2-65).

Table 2-65. 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 explores a fishery which would be open seaward, and prohibited shoreward, using depth-based boundary lines currently in federal regulations to define the RCA boundary in any or all of the five management areas (Table 2-66). The Option represents novel utilization of the existing depth-based RCA boundary lines (e.g., 30 fm, 40 fm, 50 fm, 60 fm, 75 fm, 100 fm, and 125 fm lines) in the recreational fishery and is intended to shift fishing effort away from the nearshore and/or shelf waters and onto the shelf and/or slope waters.

Table 2-66. Option 3. California recreational groundfish season open year-round seaward of a to be determined existing depth-based RCA boundary line.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Jan 1 – Dec 31; Open seaward of TBD RCA boundary line											
Mendocino	Jan 1 – Dec 31; Open seaward of TBD RCA boundary line											
San Francisco	Jan 1 – Dec 31; Open seaward of TBD RCA boundary line											
Central	Jan 1 – Dec 31; Open seaward of TBD RCA boundary line											
Southern	Jan 1 – Dec 31; Open seaward of TBD RCA boundary line											

Option 4

Season Structure Option 4 examines a recreational groundfish fishery that would be structured to be open year-round in all depths in the five management areas (Table 2-67).

Table 2-67. 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											

Area Restrictions

Same as described under the Baseline.

Groundfish Bag Limits, Gear Limits and Size Limits

Bag Limits

Bag limits, size limits, and gear restrictions are the same as described under the Baseline, except that changes to sub-bag limits for quillback rockfish, copper rockfish, and vermilion rockfish are considered.

The reductions to mortality from the recently implemented sub-bag limit reductions for quillback rockfish, copper rockfish, and vermilion rockfish are not yet known. Further changes to increase or decrease the sub-bag limits, or prohibit retention, may be necessary to continue to take steps to achieve specifications for these species. Quillback rockfish, copper rockfish, and vermilion rockfish sub-bag limits analyzed 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.

Lingcod Seasons, Bag Limits, Hook Limits, and Size Limits

Same as described under the Baseline.

California Scorpionfish Seasons, Bag Limits, and Size Limits

Same as described under the Baseline.

Pacific Halibut Seasons

Same as described under the Baseline.

Other Recreational Fisheries

Same as described under the Baseline.

Inseason Management Response

Same inseason response as described under the Baseline.

2.11.2 Impact (Groundfish Mortality)

The California recreational groundfish season structure and projected mortality under No Action were based on CDFW's RecFISH model (Appendix A)[29]. Model projections were calculated for the five recreational groundfish management areas using updated RecFIN estimates from 2017 through 2019 and January through October 2021. 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 significant changes to management measures are made

[29] Appendix A details models used in this process, it will be available at the June 2022 Council meeting

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 Baseline alternative) designed to keep mortality within harvest specifications.

Descriptions of expected impacts and changes to the fishery under Season Structure Options are discussed below. Options could be implemented as a standalone season structure or combined with other Options for each Management Area. These options could be changed based on status of the fishery with respect to mortality estimates on a monthly basis, but only one season structure option could be active each month in each Management Area. Meaning, multiple Season Structure Options could not be active for the same Management Area in the same month. If Options are combined within a year, when choosing preferred season structures, expected impacts would be combined to generate an expectation of total mortality.

Under all Season Structure Options considered limited mortality for select species currently targeted in the shore and spear modes such as black rockfish, gopher rockfish, kelp rockfish, cabezon, kelp greenling, and lingcod would occur and is expected to stay significantly below harvest limits. Based on a review of CRFS data, quillback rockfish and yelloweye rockfish mortality in the shore-based and spear modes have been zero. The expectations are projected mortality for these two species will 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.

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 fisheries 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 Baseline 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 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 2-68), of which two thirds occurs 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.

Table 2-68. 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 2023-2024 shows that catch will be similar to the Baseline mortality for most species (Table 2-69). Projected mortality for most species under Option 1 remains within limits. Projected mortality of quillback rockfish and copper rockfish, which are managed as part of the Minor Nearshore Rockfish complexes north and south of 40°10' N. lat. under Option 1 may exceed the species contribution to the complex ACL under status quo (1-fish) sub-bag limits, or no retention (0-fish), but the complex ACLs are not projected to be reached or exceeded. Projected impacts for cowcod are expected to remain within the harvest limits under Cowcod ACT Option 1 and Option 2.

Table 2-69. Option 1: Projected mortality in the California recreational fishery in 2023-2024. Values in parenthesis indicate bag limits other than status quo and resulting projected mortality. Data are from CDFW.

Stock	Projected Recreational Mortality 2023/24 (mt)	California Recreational HG 2023/24 (mt)	Non-Trawl Allocation 2023/24[a] (mt)
Canary rockfish	85.0	112/110.5	337.4/332.6
Cowcod	11.0	-	[O1]32.0/32.0 [O2]41.1/43.4
Yelloweye rockfish	6.9	12/12	40/40
Black rockfish	197.8	-	332.1/326.6
Lingcod N. of 40°10' N. lat. [b/]	48.7	-	2254.1/1965.9
Lingcod S. of 40°10' N. lat.	414.6	-	427.8/425.4
Nearshore Rockfish N. of 40°10' N. lat. [c/]	20.0 (16.7)	-	87.8/88.5
Quillback rockfish N. of 40°10' N. lat.	*3.5(2.1)*	-	-
Copper rockfish N. of 40°10' N. lat.	*3.7(1.8)*	-	-
Nearshore Rockfish S. of 40°10' N. lat.[d]	684.6 (657.6)	-	888.8/893.9
Quillback rockfish S. of 40°10' N. lat.	*4.8(2.7)*	-	-
Copper rockfish S. of 40°10' N. lat.	*133.7(108.8)*	-	-
Minor Shelf rockfish S of 40º10' N lat.[e]	521.6	-	

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 35.1/35.3 mt is shared between the recreational and commercial non trawl sectors. The species-specific contributions to the California fishery HG are TBD for quillback rockfish and 3.07/3.1 mt for copper rockfish and are shared between the recreational and commercial non-trawl sectors.
d/ The species-specific contributions to the non-trawl allocation are TBD for quillback rockfish and 87.8/91.1 mt for copper rockfish, and are shared between the recreational and commercial non-trawl sectors.
e/ Projected vermilion rockfish impacts within the Minor Shelf rockfish S of 40º10' N lat. are 186.2 mt. The vermilion rockfish ACL contribution is 285.5 mt, and is 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 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 Baseline, 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.

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 the Baseline. 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 Baseline. 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

If chosen as a standalone option, there is a high probability that impacts to select groundfish would be reduced (nearshore species if access to nearshore waters restricted, and nearshore and shelf species if access to nearshore and shelf waters restricted) under Season Structure Option 3. Option 3 is meant to provide offshore fishing only and cannot be used in the same month and management area with another Option creating concurrent nearshore and offshore fishing opportunities.

Implementation of this option to prohibit fishing shoreward of the 30 fm RCA boundary line would result in significant decreases to shallow nearshore rockfish, and some decreases for deeper nearshore and select shelf rockfish. Utilization of the 40 fm through 60 fm RCA boundary lines would result in decreased or complete elimination of impacts to nearshore species (including quillback and copper rockfishes) and decreased impacts of some shelf species. Increases to yelloweye rockfish and cowcod mortality could occur if effort shifts away from nearshore waters (<50 fm) onto the shelf waters. To reduce impacts for nearshore and shelf species of concern, an RCA boundary line from 60 fm through 125 fm could be utilized. Bycatch of groundfish in non-groundfish fisheries could increase under Option 3 compared to Baseline, as anglers shift effort away from nearshore groundfish fisheries onto nearshore non-groundfish fisheries. However, it is

expected any increase in groundfish mortality due to bycatch in non-groundfish fisheries is expected to be less than the total groundfish mortality under Baseline.

There is great uncertainty with model projections when the RCA boundary lines are utilized in this novel way, especially for species with a deeper depth distribution, like cowcod and yelloweye rockfish. The projection model is a catch-based model, and for species with few or no recent data to inform the model, catch projections will reflect that paucity of data. The model also assumes fishing activities occur from shore to an RCA boundary line.

Option 4

Mortality projections under Season Structure Option 4 are the highest of the Options presented, and exceed Baseline 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 (179.6 mt), nearshore rockfish N. 40°10' N. lat., and several species-specific ACL contributions to the minor nearshore and shelf complex ACLs would be exceeded under Option 4. Mortality of yelloweye rockfish, quillback rockfish, and copper rockfish (Table 2-70) are projected to exceed harvest targets if implemented for the full year. While cowcod mortality is 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 4 is applied for less than the full year (zero up to 11 months of the year), impacts would be lower.

Table 2-70. Projected total mortality of select rockfishes in California under Season Structure Option 4. Values in parenthesis indicate bag limits other than status quo and resulting projected mortality. Data are from CDFW.

Stock	Projected Recreational Mortality 2023/24 (mt)	California Recreational HG 2023/24 (mt)	Non-Trawl Allocation 2023/24[a] (mt)
Canary rockfish	179.6	112/110.5	337.4/332.6
Cowcod	12	-	[O1]32.0/32.0 [O2]41.1/43.4
Yelloweye rockfish	20	12/12	40/40
Black rockfish	222.1	-	332.1/326.6
Lingcod north of 40°10' N. lat. [b/]	48.8	-	2254.1/1965.9
Lingcod south of 40°10' N. lat.	515.5	-	427.8/425.4
Nearshore Rockfish N. of 40°10' N. lat. [c/]	17.2(12.6)	-	87.8/88.5
Quillback rockfish N. of 40°10' N. lat.	*3.4(2.0)*	-	-
Copper rockfish N. of 40°10' N. lat.	*5.1(1.9)*	-	-
Nearshore Rockfish S. of 40°10' N. lat.[d/]	828.6(733.8)	-	888.8/893.9
Quillback rockfish S. of 40°10' N. lat.	*5.8(3.3)*	-	-
Copper rockfish S. of 40°10' N. lat.	*255.7(161.6)*	-	-
Minor Shelf rockfish S of 40º10' N lat.[e/]	716.5	-	

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 35.1/35.3 mt is shared between the recreational and commercial non trawl sectors. The species-specific contributions to the California fishery HG are TBD for quillback rockfish and 3.07/3.1 mt for copper rockfish and are shared between the recreational and commercial non-trawl sectors.
d/ The species-specific contributions to the non-trawl allocation are TBD for quillback rockfish and 87.8/91.1 mt for copper rockfish, and are shared between the recreational and commercial non-trawl sectors.
e/ Projected vermilion rockfish impacts within the Minor Shelf rockfish S of 40º10' N lat. are 351.6 mt under a 4-fish bag limit and 287.4 mt under a 1-fish bag limit. The vermilion rockfish ACL contribution is 285.5 mt, and is shared between the recreational and commercial non trawl sectors.

New Management Measures

CDFW is proposing two new management measures for consideration: 1)bag limit changes for quillback rockfish, copper rockfish, and vermilion rockfish and 2) novel utilization of existing Rockfish Conservation Area (RCA) boundary lines. These measures are described in detail in Chapters 6 and Section 7 and are summarized below.

Bag Limit Changes for Quillback Rockfish, Copper Rockfish, and Vermilion Rockfish

Changes to recreational groundfish bag limits are considered to mitigate projected impacts for quillback rockfish from the OR/CA border to Point Conception, copper rockfish impacts statewide, but especially in the area south of Point Conception, and vermilion rockfish impacts south of 40°10' N. lat. Several bag limit options are considered and range from modifying current sub-bag limits to prohibiting retention of some species within current aggregate daily bag limits. All Bag limits options considered may be used pre-season or inseason as needed to take steps to achieve harvest specifications. Section 6 provides the detailed analysis of this potential management measure.

Novel Utilization of Existing RCA Boundary Lines

Historically, recreational RCA boundary lines (which are a set of connecting waypoints which approximate a depth contour) have been used to allow fishing shoreward of a specific RCA boundary line and prohibit fishing seaward of that line. This new management measure would allow fishing seaward of a specified RCA boundary line and prohibit fishing shoreward of that line. Depending which RCA boundary line is used, fishing could be prohibited in state waters, state and federal waters, or just federal waters. This new management measure may be used pre-season or inseason action as needed to take steps to achieve but not exceed harvest specifications and harvest targets, especially for rebuilding stocks like yelloweye rockfish, or stocks of concern such as quillback rockfish, copper rockfish or cowcod. Section 7 provides the detailed analysis of this potential management measure.

3. Alternative 1

Under the Alternative 1, default harvest specifications, as detailed above under No Action, would be implemented for all stocks except the following:

- Sablefish
- Lingcod north of 40°10' N. lat.
- Lingcod south of 40°10' N. lat.
- Oregon Black Rockfish
- Pacific Spiny Dogfish
- Vermilion/ Sunset Rockfish north of 40°10' N. lat.
- Vermilion/ Sunset Rockfish south of 40°10' N. lat.
- Quillback Rockfish off California[30]

3.1 Off-the-Top Deductions

Under Alternative 1, the deductions from groundfish ACLs for Tribal, EFP, research, IOA, and recreational are the same as described under No Action (Section 1.1) and detailed in Table 2-5 and Table 2-6; however, the resulting HGs from the Alternative 1 harvest specifications for the species listed above result in a different HG value than under No Action. As such we detail the ACL deductions for those species below in Table 3-1 and show the resulting HGs under Alternative 1. Differences between the No Action and Alternative 1 ACLs are described below in Table 3-3

Sablefish ABC is set at the coastwide level. Alternative 1 would change the P* 0.45 to P* 0.40. The modification to the P* results in an ABC reduction of 718 mt from No Action (Agenda Item E.3.a, GMT Report 1, November 2021). Sablefish are managed by geographic area, i.e.. North/South of 36° N. lat. Under Alternative 1, Sablefish N. of 36° N. lat. ACLs would be reduced from No Action by 562 mt and 527 mt in 2023 and 2024, respectively. Sablefish N. of 36° N. lat. ACLs would be reduced by 200 mt and 145 mt for 2023 and 2024, respectively.

Lingcod north of 40°10' N. lat. harvest control rule is set at ABC P* 0.40 under Alternative 1, resulting in in 2023 and 2024 ACLs of 3,817 mt and 3,418 mt, respectively; which is a reduction of 561 mt and 436 mt (respectively) from No Action

Lingcod south of 40°10' N. lat. harvest control rule is set at ABC P* 0.40 under Alternative 1. This modification results in 2023 and 2024 ACLs of 633 mt and 634 mt, respectively; which is a reduction of 93 mt and 88 mt (respectively) from No Action OR black rockfish under Alternative 1 is set at 512 mt for both years. This static ACL is 34.6 mt and 40.8 mt higher for 2023 and 2024, respectively, than No Action.

Pacific spiny dogfish, under Alternative 1, the ACL would be set at 1,075 mt for 2023 and 2024. This is a reduction of 381 mt and 322 mt for 2023 and 2024, respectively, from No Action.

[30] Too be determined.

Vermilion rockfish is a component stock of the Shelf Rockfish Complexes north and south of 40°10’ N. lat. Under No Action, vermilion rockfish in the Shelf Rockfish north of 40°10’ N. lat. complex is divided into three geographic regions: Washington, Oregon, and 42° to 40°10’ N. lat. For Shelf Rockfish south, vermilion is split into two regions: 40°10' to 34.27’ N. lat. and south of 34°27 N. lat.

Under Alternative 1, vermilion rockfish ACL is reduced from the No Action ACLs (Table 3-4) in both the north and south Shelf Rockfish Complexes. In the Shelf Rockfish Complex north of 40°10 N. lat., vermilion rockfish off Washington averages approximately 0.1 mt below No Action values, Oregon averages approximately 0.9 mt below No Action values, and 42° to 40°10 N. lat. averages 0.4 mt below No Action. In the Shelf Rockfish Complex south of 40°10 N. lat., the area between 40°10 N. lat. and 34°27 N. lat. averages 9.6 mt lower than No Action and the area south of 34°27 N. lat. averages approximately 22 mt below No Action ACLs. It is important to note, vermilion rockfish are managed in a complex, as such the ACL deductions are at the complex level and not the individual species level. The Council did not specify any species specific deductions for vermilion rockfish under Alternative 1.

Quillback rockfish, under Alternative 1, is removed from the Nearshore Rockfish Complexes and is designated as a species specific stock for California, but would remain in the Nearshore Rockfish Complex off of Oregon and Washington. A preliminary ACL has not been adopted by the Council and, at this time, harvest guidelines cannot be calculated and is therefore listed as TBD where applicable in the following tables.

Table 3-1. Alternative 1. Estimates of tribal, EFP, research (Res), and incidental open access (IOA) groundfish set-asides (in mt) used to calculate the fishery harvest guideline (HG) for species with alternative annual catch limit (ACL) in 2023 and 2024.

Stock/Complex	Area	Year	ACL	Tribal	EFP	Res.	IOA	Sum	HG
Sablefish	north of 36°	2023	7,924	Table 3-2					
		2024	7,253						
Sablefish	south of 36°	2023	2183	0	0	2.4	25	27.4	2,155.6
		2024	1,998	0	0	2.4	25	27.4	1,970.6
Lingcod	north of 40°10' N. lat.	2023	3,817	250	0	17.71	11.92	279.63	3,537.7
		2024	3,418	250	0	17.71	11.92	279.63	3,138.5
Lingcod	south of 40°10' N. lat.	2023	633	0	1.5	3.19	8.31	13	620
		2024	634	0	1.5	3.19	8.31	13	621
Black Rockfish a/	OR	2023	512	-	-	-	-	-	512 b/
		2024	512	-	-	-	-	-	512 b/
Pacific Spiny Dogfish	CW	2023	1,075	275	1	41.85	33.63	351.48	723.5
		2024	1,075	275	1	41.85	33.63	351.48	7235
Vermilion/Sunset Rockfish c/	Washington	2023	0.63	-	-	-	-	-	0.63
		2024	0.61	-	-	-	-	-	0.61 b/
Vermilion/Sunset Rockfish c/	Oregon	2023	11.8	-	-	-	-	-	11.8 b/
		2024	11.6	-	-	-	-	-	11.6 b/
Vermilion/Sunset Rockfish c/	42° to 40°10' N. lat.	2023	6.1	-	-	-	-	-	6.1 b/
		2024	6.2	-	-	-	-	-	6.2 b/
Vermilion/Sunset Rockfish d/	40°10' to 34.27’ N. lat	2023	132.6	-	-	-	-	-	132.6 b/
		2024	134.1	-	-	-	-	-	134.1 b/
Vermilion/Sunset Rockfish b/ d/	S. of 34.27’ N. lat.	2023	121.4	-	-	-	-	-	121.4 b/
		2024	119.3	-	-	-	-	-	119.3 b/
Quillback Rockfish	California	2023	TBD	-	-	-	-	-	TBD
		2024	TBD	-	-	-	-	-	TBD

a/ Under Alternative 1, OR black rockfish remains component stock OR blue/black/deacon complex
b/ For these stocks, the final column is the resultant stock component ACL, as they are managed under their complex’s specifications.
c/ Under Alternative 1, WA, OR, 42° to 40°10 N. lat. vermilion/sunset rockfish remain in the shelf rockfish north of 40°10 N. lat. complex
d/ Under Alternative 1, vermilion/sunset rockfish south of 40°10 N. lat. remain in the shelf rockfish south of 40°10 N. lat. complex

Table 3-2. Alternative 1. Estimates of tribal, research, recreational (Rec.), and EFP mortality (in mt), used to calculate the fishery sablefish commercial harvest guideline north of 36° N. lat. for 2023 and 2024.

Year	ACL	Tribal	Research	Rec.	EFP	Sum	Commercial HG
2023	7,924	792.4	30.68	6.0	1.1	830.1	7,093.92
2024	7,253	725.3	30.68	6.0	1.1	762.98	6,490.02

Table 3-3 describes HG differences between the No Action and Alternative 1 after ACL deductions are completed. Under Alternative 1 harvest guidelines for all stocks, except for OR black rockfish, and vermilion/sunset rockfish stocks south of 40°10' N. lat. are lower than the No Action HGs.

Table 3-3. Alternative 1: Difference between No Action and Alternative 1 ACLs in metric tons (mt)

Stock	Area	Yr.	Harvest Guideline		
			No Action (mt)	Alt 1 (mt)	Alt 1 Difference (mt)
Sablefish	north of 36° N. lat.	2023	8,486	7,924	-562
		2024	7,780	7,253	-527
Sablefish	south of 36° N. lat.	2023	2,338	2,138	-200
		2024	2,143	1,998	-145
Lingcod	north of 40°10' N. lat.	2023	4,378	3,817	-561
		2024	3,854	3,418	-436
Lingcod	south of 40°10' N. lat.	2023	726	633	-93
		2024	722	634	-88
Black Rockfish a/ b/	Oregon	2023	477.43	512	34.57
		2024	471.17	512	40.83
Pacific Spiny Dogfish	Coastwide	2023	1,456	1,075	-381
		2024	1,407	1,075	-332
Vermilion/ Sunset Rockfish b/ c/	Washington	2023	0.72	0.62	-0.1
		2024	0.70	0.61	-0.09
Vermilion/ Sunset Rockfish b/ c/	Oregon	2023	12.6	11.8	-0.8
		2024	12.5	11.6	-0.9
Vermilion/ Sunset Rockfish b/ c/	42° to 40°10' N. lat.	2023	6.5	6.1	-0.4
		2024	6.6	6.2	-0.4
Vermilion/ Sunset Rockfish b/ d/	40°10' to 34.27' N. lat	2023	142.0	132.6	-9.4
		2024	143.9	134.1	-9.8
Vermilion/ Sunset Rockfish b/ d/	S. of 34.27' N. lat.	2023	143.5	121.4	-22.1
		2024	141.5	119.3	-22.2
Quillback Rockfish	California	2023	TBD		
		2024			

a/ Under Alternative 1, OR black rockfish remains component stock OR blue/black/deacon complex

b/ These stocks are managed under their complex's specification, these values represent the stock's ACL contribution to the complex

c/ Under Alternative 1,. vermilion/sunset rockfish remain in the Shelf Rockfish Complex north of 40°10 N. lat.

d/ Under Alternative 1, vermilion/sunset rockfish south of 40°10 N. lat. remain in the Shelf Rockfish Complex south of 40°10 N. lat.

Under Alternative 1, alternative harvest specifications for Oregon black rockfish, quillback rockfish, and vermilion rockfish ACLs affect their complex ACL. Specifically, these alternative harvest specifications are to the Blue/Deacon/Black Complex, Nearshore Rockfish Complexes, and Shelf Rockfish Complexes. It should be noted that the Council has not specified an Alternative 1 harvest specification for quillback rockfish and therefore a dash (-) is used to indicate the unknown affect to the complex ACL in the column labeled "Difference"(Table 3-4) for the Nearshore Rockfish Complexes. The differences between No Action ACLs and Alternative 1 ACLs are shown in Table 3-4.

Table 3-4. Comparison between ACLs for stock complexes with species that have alternative harvest specifications under No Action and Alternative 1 in metric tons (mt).

Complex	Area	Year	No Action (mt)	Alternative 1 (mt)	Difference (mt)
Blue/Deacon/Black	Oregon	2023	562	597	35
		2024	553	594	41
Nearshore Rockfish	north of 40°10 N. lat.	2023	88	88	-
		2024	87	87	-
Nearshore Rockfish	south of 40°10 N. lat.	2023	889	889	-
		2024	894	894	-
Shelf Rockfish	north of 40°10 N. lat.	2023	1,283	1,281	-2
		2024	1,278	1,277	-1
Shelf Rockfish	north of 40°10 N. lat	2023	1,469	1,442	-27
		2024	1,469	1,441	-28

3.1.1 Annual Catch Target

Under Alternative 1, the ACT's for cowcod and yelloweye rockfish remain the same as under No Action,. The Council considering ACTs for quillback rockfish off of California and copper rockfish off of California. The potential method the Council could consider designating ACTs for these species is found in Chapter 5.

3.2 Allocations

3.2.1 Amendment 21 and Biennial Allocations

Under Alternative 1, the allocation percentages are the same as described under No Action (Section 2.1). Table 3-5 and Table 3-6 report the allocations for the species that differ from the No Action alternative and that that are examined under Alternative1. At present, vermilion rockfish is not allocated at the sector level. However, vermilion is a Shelf Rockfish Complex component stock and, as such, changes to the ACL of this species affects the overall Shelf Rockfish Complex ACL, hence the inclusion of this complex in Table 3-5 and Table 3-6

Under Alternative 1, Lingcod (both areas), sablefish (both areas), and the shelf rockfish complex (both areas) ACL/HGs are lower than No Action. Table 3-3 and Table 3-4 report the differences between the ACLs of No Action and Alternative 1. It should be noted that vermilion ACLs specific to area, when summed, account for the difference in ACLs.

Table 3-5. Alternative 1. 2023 stock-specific fishery harvest guidelines, allocation type, and allocation percentages (%) and calculated amounts (mt).

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Lingcod	north of 40°10' N. lat.	3,537.7	A-21	45	1,592	55	1,945.7
Lingcod	south of 40°10' N. lat.	620	Biennial	40	248	60	372
Sablefish	north of 36° N. lat.	7,094	**See Table 3-7**				
Sablefish	south of 36° N. lat.	2,155.6	A-21	42	905.4	58	1,250.2
Shelf Rockfish	north of 40°10' N. lat.	1,210.1	Biennial	42	728.5	58	481.6
Shelf Rockfish	south of 40°10' N. lat.	1,309.2	Biennial	60.2	159.7	39.8	1,149.5

Table 3-6. Alternative 1. 2024, stock-specific fishery harvest guidelines, allocation type, and allocation percentages (%) and calculated amounts (mt).

STOCK	AREA	HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Lingcod	north of 40°10' N. lat.	3138.4	A-21	45	1,412.3	55	1,726.1
Lingcod	south of 40°10' N. lat.	621	Biennial	40	248.4	60	372.6
Sablefish	north of 40°10' N. lat.	6,490	See Table 3-7				
Sablefish	south of 40°10' N. lat.	1,970.6	A-21	42	827.7	58	1,142.9
Shelf Rockfish	north of 40°10' N. lat.	1,206.1	Biennial	42	726	58	480
Shelf Rockfish	south of 40°10' N. lat.	1,308.2	Biennial	60.2	159.6	39.8	1,148.6

Sablefish north of 36° N. lat.: The Alternative 1 allocations for sablefish north are found in Table 3-7 describes the limited entry fixed gear, limited entry trawl, and open access allocations within the limited entry HG for sablefish north of 36° N. lat., assuming the status quo at-sea set aside of 100 mt.

Table 3-7. Alternative 1: Sablefish north of 36° N. lat. commercial harvest guideline (HG) in 2022-2023 and allocations to limited entry and open access in metric tons (mt).

Year	Commercial HG	Limited Entry HG		Limited Entry Trawl		Limited Entry FG		Open Access HG	
		%	mt	%	mt	%	mt	%	mt
2023	7094	90.6	6,427	58	3728	42	2,699	9.4	636
2024	6490	90.6	5,880	58	3410	42	2,470	9.4	582

3.2.2 Rebuilding Species Allocation

Under Alternative 1, yelloweye rockfish allocations are the same as under No Action (Table 2-12).

3.3 Harvest Guidelines and State Shares for Stocks in a Complex

Under Alternative 1, the HGs and state quotas are the same as described under No Action (Section 2.3).

3.4 Tribal: Alternative 1

3.4.1 Management Measures:

The Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) will manage their groundfish fisheries in 2024-2025 with the allocations, and set-asides, and management measures as described under Baseline. Principle management controls in the tribal fisheries include allocations, set-asides, HGs, and trip limits

3.4.2 Impacts:

The projected impacts under Alternative 1 are the same as under No Action.

3.5 Shorebased IFQ: Alternative 1

3.5.1 Management Measures

ACLs and IFQ allocations under Alternative 1 are the same as under No Action, except for sablefish, lingcod north of 40° 10' N. lat., and lingcod south of 40° 10' N. lat. Under Alternative 1, all three stocks would be managed with a P* 0.40, resulting in decreases in the IFQ allocations of approximately 7 percent for sablefish north and south of 36° N. lat. and 12 to 14 percent for lingcod north and south of 40° 10' N. lat, compared to the No Action allocations. Additionally, the Council is considering an Alternative 1 HCR for Pacific spiny dogfish that would set the ACL equal to 1,075 mt in 2023 and 2024 to be precautionary and then revert to the P* 0.40 thereafter (Agenda Item E.3.a, GMT Report 1, November 2021). No additional management measures are proposed, but the same proposals to remove the 50-mt cowcod south of 40° 10' N. lat. ACT, evaluate potential management measures to control catch of Pacific spiny dogfish if the ACL is exceeded or projected to be exceeded, and allow access to the NT_RCA by select hook and line gear described under No Action remain applicable to the Alternative 1 harvest specifications.

3.5.2 Impact (Groundfish Mortality)

Table 3-8 below shows the 2023-2024 allocations and projected catch under Alternative 1 as well as 2023 No Action for comparison. Catch projections remain the same for all stocks except for lingcod north and south of 40° 10' N. lat. and sablefish north and south of 36° N. lat. With lower Alternative 1 allocations for all four stocks compared to No Action allocations, the IFQ fishery is projected to catch roughly 13 percent less lingcod north and south of 40° 10' N. lat. each in 2023 and roughly 6 percent less sablefish north and south of 36° N. lat. each, compared to No Action 2023 catch projections. However, it is uncertain how much catch can be expected to change under the alternative allocations given that lingcod is a high-value species with already low attainment in the fishery, yet markets are still experiencing impacts from the COVID-19 pandemic. The No Action projections reflect uniform weighting of 2019, 2020, and 2021 values.

Table 3-8. Alternative 1-Shorebased IFQ. 2023-24 allocations (mt), projected catch (mt), and percent attainment under Alternative 1. No Action 2023 allocations and catch projections are shown for comparison.

Species	2023 No Action		2023 Alternative 1			2024 Alternative 1		
	Allocation (mt)	Catch (mt)	Allocation (mt)	Projected Catch(mt)	% Attain.	Allocation (mt)	Projected Catch (mt)	% Attain.
Arrowtooth flounder	15,640.2	756.4	15,640.2	756.4	5%	11,408.9	748.9	7%
Bocaccio south of 40°10' N.	700.3	269.4	700.3	269.4	38%	694.9	267.3	38%
Canary rockfish	844.5	356.9	844.5	356.9	42%	832.2	353.2	42%
Chilipepper rockfish south of 40°10' N.	1,563.8	669.1	1,563.8	669.1	43%	1,517.6	649.3	43%
Cowcod south of 40°10' N.	18.0	2.0	18.0	2.0	11%	18.0	2.0	11%
Darkblotched rockfish	646.8	231.3	646.8	231.3	36%	613.5	222.0	36%
Dover sole	45,972.8	4,047.9	45,972.8	4,047.9	9%	45,972.8	4,047.9	9%
English sole	8,320.6	190.7	8,320.6	190.7	2%	8,265.5	190.6	2%
Lingcod north of 40°10' N.	1,829.3	282.3	1,577.0	246.5	16%	1,397.3	220.9	16%
Lingcod south of 40°10' N.	285.2	28.4	248.0	24.7	10%	248.4	24.8	10%
Longspine thornyhead north of 34°27' N.	2,129.2	65.4	2,129.2	65.4	3%	2,002.9	62.9	3%
Minor shelf rockfish north of 40°10' N.	694.7	342.2	694.7	342.2	49%	691.7	340.9	49%
Minor shelf rockfish south of 40°10' N.	163.0	28.8	163.0	28.8	18%	163.0	28.8	18%
Minor slope rockfish north of 40°10' N.	894.4	278.3	894.4	278.3	31%	875.0	275.6	31%
Minor slope rockfish south of 40°10' N.	417.1	46.2	417.1	46.2	11%	414.6	46.1	11%
Other flatfish	4,142.1	413.0	4,142.1	413.0	10%	4,152.9	413.1	10%
Pacific cod	1,039.3	1.4	1,039.3	1.4	0%	1,039.3	1.4	0%
Pacific halibut (IBQ) north of 40°10' N.	72.3	31.0	72.3	30.4	42%	72.3	29.6	41%
Pacific ocean perch north of 40°10' N.	2,956.1	406.2	2,956.1	406.2	14%	2,832.6	393.7	14%
Pacific whiting	142,232.9	126,330.7	142,232.9	126,330.7	89%	142,232.9	126,330.7	89%
Petrale sole	3,063.8	2,325.5	3,063.8	2,325.5	76%	2,863.8	2,173.7	76%
Sablefish north of 36° N.	3,893.5	2,787.9	3,627.7	2,610.7	72%	3,310.4	2,399.1	72%
Sablefish south of 36° N.	970.0	108.0	905.0	100.8	11%	828.0	92.2	11%
Shortspine thornyhead north of 34°27' N.	1,146.7	311.3	1,146.7	311.3	27%	1,117.2	303.5	27%
Shortspine thornyhead south of 34°27' N.	50.0	0.0	50.0	0.0	0%	50.0	0.0	0%
Splitnose rockfish south of 40°10' N.	1,494.7	19.6	1,494.7	19.6	1%	1,457.6	19.6	1%
Starry flounder	171.9	0.1	171.9	0.1	0%	171.9	0.1	0%
Widow rockfish	11,509.7	9,217.2	11,509.7	9,217.2	80%	10,367.7	8,352.6	81%
YELLOWEYE ROCKFISH	4.4	0.4	4.4	0.4	9%	4.4	0.4	9%
Yellowtail rockfish north of 40°10' N.	3,761.8	2,550.4	3,761.8	2,550.4	68%	3,668.6	2,511.2	68%

3.5.3 Impacts (Groundfish Mortality)

a) *Sablefish*

The 2021 update assessment for sablefish estimated a more optimistic status in 2021 than that of the prior 2019 full assessment. However, given the uncertainty associated with the 2021 update assessment, the Council is considering a more precautionary P* 0.40 under Alternative 1. Given the economic importance of sablefish to the groundfish fishery, the GMT has provided an extensive overview of the biological impacts of alternative P* values in the past (Agenda Item H.8.a, Supplemental GMT Report 1, September 2019).

Alternative 1 would set the shorebased IFQ allocation for sablefish north of 36° N. lat. at 3,628 mt in 2023 and 3,310 mt in 2024 (Table 3-8). For sablefish south of 36° N. lat., the IFQ allocations would be set at 905 mt and 828 mt in 2023 and 2024, respectively. The Alternative 1 IFQ allocations for sablefish north and south of 36° N. lat. are expected to accommodate Shorebased IFQ mortality for the same reasons described under No Action above.

As shown in Table 2-18 above in the sablefish No Action section (Section 1.5), the shorebased IFQ fishery could potentially earn $797,623 more in ex-vessel revenue and $1,659,397 more in income in 2023 than the fishery did in 2021, simply due to higher shorebased IFQ allocations. However, the shorebased IFQ fishery could potentially lose the opportunity for an additional $1,102,195 in sablefish ex-vessel revenue and income, as well as 9 jobs, under Alternative 1 in 2023 compared to the No Action HCR based on projected catch. Compared to the more precautionary Alternative 2 (P* 0.35), however, the shorebased IFQ fishery is expected to bring in $348,326 more in ex-vessel revenue under Alternative 1.

b) *Lingcod north of 40° 10' N. lat.*

The Council is considering a more precautionary P* 0.40 under Alternative 1 for lingcod north of 40° 10' N. lat. due to stock assessment uncertainty. Similar to No Action, because lingcod catch in the model generally tracks changes in the allocation, 2023 and 2024 projected catches in the shorebased IFQ fishery under Alternative 1 are roughly 16 percent of their respective IFQ allocations. Given the model projections and historical catch trends described under No Action, Alternative 1 is not expected to constrain or negatively impact the shorebased IFQ fishery.

c) *Lingcod south of 40° 10' N. lat.*

Similar to lingcod north of 40° 10' N. lat., the Council is considering a more precautionary P* 0.40 for lingcod south of 40° 10' N. lat. due to stock assessment uncertainty, and 2023 and 2024 attainment of lingcod south of 40° 10' N. lat. is projected to be low (10 percent). Given the model projections and historical catch trends described under No Action, Alternative 1 is not expected to constrain or negatively impact the shorebased IFQ fishery.

d) *Pacific spiny dogfish*

Under Alternative 1, Pacific spiny dogfish would be managed to an ACL set below the ABC at 1,075 mt in 2023 and 2024 and then revert to P* 0.40 in 2025 and beyond. The intent behind this alternative is to use a more precautionary ACL in the short term, given that there was a great deal of uncertainty in the 2021 stock assessment's catchability coefficient and that the stock is estimated

to be in the precautionary zone (Agenda Item E.3.a, GMT Report 1, November 2021). Pacific spiny dogfish bycatch is extremely variable year-to-year, especially in the trawl fisheries, and changes to the trawl fisheries in 2023 and 2024 discussed above could potentially result in lower bycatch than previous years. In theory, this short-term alternative allows the Council to precautionarily monitor and respond to catch of Pacific spiny dogfish in the short-term while these changes play out. However, as noted above under No Action, the Council would not be able to see the full picture of shorebased IFQ bycatch estimates of Pacific spiny dogfish until the September Council meeting of the following year, thus making it difficult to accurately determine risk to the ACL from the shorebased IFQ fishery under inseason action. Additionally, since neither the shorebased IFQ fishery nor any other Council-managed fishery currently have a sector-specific allocation, a lower ACL is not likely to alter fishery behavior or change expected mortality. This means that the more precautionary ACL of 1,075 mt may not achieve the Council's objective of reducing bycatch due to conservation concerns and is likely to put the ACL at greater risk of being exceeded. The GMT further explored biological and economic implications of the Alternative 1 ACLs in November 2021 (Agenda Item E.3.a, GMT Report 1, November 2021). Spatial management measures (i.e., BACs, BRAs, and RCAs) that can potentially be used to minimize Pacific spiny dogfish bycatch in the shorebased IFQ fishery described under No Action are also applicable under Alternative 1.

3.6 At-Sea Whiting Co-ops: Alternative 1-

3.6.1 Management Measures

Under Alternative 1, set-asides and principle management measures for the at-sea sectors would be the same as described under Baseline.

3.6.2 Impact (Groundfish Mortality)

Pacific Spiny Dogfish

A major source of uncertainty within the 2021 assessment of Pacific spiny dogfish was the catchability parameter for the Northwest Fisheries Science Center West Coast Groundfish Bottom Trawl survey, which led to uncertainty around estimates of the total stock size. In response to the 2021 stock assessment, the Council is considering an alternative harvest control rule for Pacific spiny dogfish that would set the ACL at a more precautionary limit for only the 2023-24 biennium than would be set using the DHCR of P* 0.40 ACL=ABC. Under Alternative 1, the HCR would revert back to ACL=ABC P* 0.40 after 2024.

The main difference between impacts under No Action and Alternative 1 is that, under a lower ACL in Alternative 1, the risk of exceeding the Pacific spiny dogfish ACL is greater. As such, the Council may be more likely to use spatial management tools to reduce Pacific spiny dogfish bycatch under Alternative 1 than under No Action. However, as described under No Action above, BRAs are the only spatial management tool currently available to the Council for mitigating groundfish bycatch by midwater trawl vessels, and BRAs would only potentially be effective at reducing some Pacific spiny dogfish catch if implemented shoreward of the 200 fm depth contour, closing many of the Pacific whiting grounds commonly used by the at-sea sectors. Therefore, setting a lower ACL and thereby having a lower threshold at which spatial management tools may be implemented is not likely to provide significant reductions in bycatch of Pacific spiny dogfish compared to No Action. Alternative 1 could have a greater impact on the at-sea fleet's operational decisions and potentially lessen their Pacific whiting catch particularly if a BRA is implemented, despite recent efforts by industry and the Council to increase Pacific whiting attainment. The at-sea sectors already rely on 100 percent observer coverage and Sea State data to utilize move-along measures to avoid bycatch species of concern like Pacific spiny dogfish. A lower ACL is not likely to enhance avoidance measures that the industry already uses.

Sablefish north of 36° N. lat.

Under Alternative 1, sablefish would be managed with a P* 0.40 which would increase the ACLs from the Baseline to 7,924 mt and 7,253 mt, for 2023 and 2024, respectively. Under status quo management measures, i.e., a 100-mt at-sea set-aside, the impacts for sablefish north of 36° N. lat. under Alternative 1 are the same as those under No Action.

Lingcod north of 40° 10' N. lat.

Under Alternative 1, lingcod north of 40° 10' N. lat. would be managed with a P* of 0.40, and the 2023 and 2024 ACLs of 3,817 mt and 3,328 mt are projected to be lower than that of Baseline 2021 (ACL = 5,269 mt). Under status quo management measures, i.e., a 15 mt at-sea set-aside, the impacts for lingcod north of 40° 10' N. lat. under Alternative 1 are the same as those under No Action.

3.7 Non-Trawl: Non-Nearshore: Alternative 1

3.7.1 Limited Entry and Open Access Fixed Gear – Management Measures

Under Alternative 1, the principle management measures for the non-trawl fishery are the same as described under the Baseline.

3.7.2 Impact (Groundfish Mortality) - Species of Concern

Yelloweye Rockfish

As described under No Action, the sector-specific yelloweye rockfish ACTs and HGs for each of the non-trawl sectors would still apply under Alternative 1. Under this Alternative, the 2023 yelloweye rockfish estimated mortality for the non-trawl commercial fisheries is projected to be between 3.8 mt - 4.8 mt and for 2024 the projections are between 3.7 mt - 4.8 mt. These estimates were generated by the GMT Non-Nearshore and Nearshore Projection models and the recent 10-year maximum WCGOP mortality estimate from the GEMM. This projection is within the yelloweye rockfish non-trawl commercial ACT of 8.4 mt in 2023-24 (Table 3-9)

Quillback Rockfish of California

The non-nearshore fishery is responsible for very little mortality of quillback rockfish; however, it is greater than zero, therefore it is a relevant consideration (Table 3-9). See the Non-Trawl Nearshore analysis (Section 3.8) for more details. The harvest reference points for quillback rockfish off California are to be determined.

Table 3-9 Alternative 1. 2023-24 Non-trawl commercial fisheries (non-nearshore + nearshore) projected mortality, harvest guidelines, and annual catch targets compared to the non-trawl allocations for species of concern. Harvest reference points are to-be-determined (TBD) for quillback rockfish at this time.

Species	Year	Non-trawl Commercial Fishery	Projected mort (mt)	Total projected mort. (mt)	HG (mt)	ACT (mt)	Non-Trawl Allocation (mt)
Yelloweye rockfish	2023	Nearshore	2.5	3.8-4.8	10.6	8.4	50.9
		Non-Nearshore	1.3				
		10 yr. max	4.8				
	2024	Nearshore	2.5	3.7-4.8	10.6	8.4	50.9
		Non-Nearshore	1.2				
		10 yr. max	4.8				
CA Quillback rockfish	2023	Nearshore	2.2-2.3	2.2-2.3	TBD	TBD	TBD
		Non-Nearshore	<0.01				
	2024	Nearshore	2.2-2.3	2.2-2.3	TBD	TBD	TBD
		Non-Nearshore	<0.01				

3.7.3 Impact (Groundfish Mortality)

For Alternative 1, west coast groundfish stocks will be managed under the DHCR except for sablefish coastwide, lingcod north and south of 40° 10′ N. lat., and vermilion rockfish north and south of 40°10’ N. lat. (Table 3-1). This section will pertain to the non-nearshore impacts from

the alternative sablefish HCR and associated management measures for the LEFG and OA fisheries to stay within their harvest limit.

The Alternative 1 harvest control rules for the select species are as follows -

- Sablefish: ACL = ABC, P* = 0.40
- Lingcod north of 40° 10′ N. lat.: ACL = ABC, P* = 0.40
- Lingcod south of 40° 10′ N. lat.: ACL = ABC, P* = 0.40
- Pacific Spiny Dogfish: P* = 0.4, ACL = 1,075 mt
- Vermilion rockfish north of 40° 10′ N. lat.: ACL = ABC, P* = 0.40
- Vermilion/Sunset rockfish south of 40° 10′ N. lat.: ACL = ABC, P* = 0.40

3.7.4 Impact (Groundfish Mortality): Non-Nearshore north of 36° N. latitude

Sablefish north of 36° N. latitude

Similar to No Action, the impacts of the non-nearshore fisheries under Alternative 1 (ABC = ACL, P* of 0.4) are mainly driven by sablefish ACLs which are the basis of the allocations and trip limit alternatives for 2023-2024. For non-sablefish stocks, the LEFG and OA fisheries under Alternative 1 for 2023-2024 have the same principle management measures as under the No Action with respect to closed areas, stock complexes, gear restrictions, permitting requirements, etc.

The Alternative 1 sablefish allocations and trip limits are shown in Table 3-10, Table 3-11, and Table 3-12. The No Action tier 1-3 limits for the primary fishery and landed catch share for the LEN and OAN fisheries are shown in Table 3-10

Table 3-10. Alternative 1. Limited entry sablefish FMP allocations north of 36° N. lat., based on a P* 0.40.

Yr.	Non-Tribal Com. HG	LE Share	LE FG Share (mt) a/			Landed Catch Share 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
2023	7,094	6,427	2,699	2,294	405	2,597	2,207	390	68,050	30,932	17,675
2024	6,491	5,880	2,470	2,099	370	2,376	2,020	356	62,264	28,302	16,172

a/Shares are total mortality and include a landed component and a discard mortality component.
b/The limited entry fixed gear landed catch share is the limited entry fixed gear share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2020. For the 2023-2024 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.
c/Ratio of limits between the Primary Fishery tiers is approximately 1:1.75:3.85 for Tier 3:Tier 2:Tier 1, respectively.

Table 3-11. Alternative 1 - Open access FMP allocations north of 36° N. lat. based on a P* 0.40.

Year	OA Share (mt) a/	OA Landed Catch Share (mt) b/
2023	667	641
2024	610	587

a/ Shares are total mortality and include a landed component and a discard mortality component.
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 2020. For the 2023-2024 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

There is uncertainty in the landings projections with the model overpredicting landings for 2020 and 2021, this is not expected to be a problem because inseason actions can be used to reduce trip limits if landings are higher than projected. 2023-24 projections for LEN are estimated to be 65.9-83.8 percent of the LEFG landed catch share and OAN is estimated to be 44.1-58.8 percent of the OA landed catch share Table 3-12. The model is unable to predict any difference based on the lack of a daily limit, therefore there is no projection, but the maximum value that is managed inseason to is the landed catch share of 641 mt for Option 1.

Table 3-12. Alternative 1. Sablefish trip limits (lbs.) north of 36° N. lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2023. Catch shares are based on the default harvest control rule of a P* 0.40. Status Quo is based on period 1, 2022 daily trip limit values.

Option	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	Landed Catch Share (mt)	Projected Landings 2023 (mt)
LEFG SQ	2,400 lbs. / week, not to exceed 4,800 lbs. / 2 months						390	257-327a/
OA SQ	600 lbs. daily, or 1 landing / week up to 2,000 lbs., not to exceed 4,000 lbs. / 2 months						641	283-377a/
OA Opt 1	2,000 lbs./week, not to exceed 4,000 lbs./ 2 months						641	b/

a/ Range is projected landings under two price scenarios (low and average).
b/ We do not have a model that can model the elimination of the daily limit, therefore we cannot provide a projected landing value. However, inseason management will manage to the landed catch share of 641 mt so that represents the maximum value of a projected landing.

Lingcod north of 40°10' North latitude

Under Alternative 1, the HCR would be to apply a P* of 0.40 for ACL values of 3,817 and 3,418 for 2023 and 2024, respectively (Table 3-13). According to the 2021 lingcod stock assessment for north of 40° 10′ N. lat., the fraction unfished is 64 percent, which indicates that the stock is above the management target. For 2023, the values under the no action (25.6 percent) and alternative 1 (29.7 percent) are still below 30 percent attainment and are not appreciably different which means that the Council choice will not impact the non-trawl fishing behavior. This continues to be due to yelloweye rockfish constraints that were outlined under No Action.

Table 3-13. Alternative 1. 2023 and 2024 lingcod ACLs, Non-trawl allocations, and projections under status quo commercial and recreational catch limits for north of 40° 10′ N. lat.

Year	P*	ACL (mt)	Non-trawl Allocation (mt)	Projected mortality in LE/OA sectors a/	Projected mortality from Recreational Sector b/	% of Non-Trawl Attainment
2023	Alt 1 0.40	3,817.3	1,945.7	135	442.7	29.7
2024	Alt 1 0.40	3,418	1,726.1	135	442.7	33.5

Lingcod South of 40°10' N. Lat.

Under Alternative 1, the HCR would be to apply a P* 0.40. With the stock projected to be in the precautionary zone (38 percent of unfished spawning stock biomass), the conservative 40:10 HCR is automatically applied. The resulting 2023-24 ACL and OFL contributions, the complex ACL, and the complex non-trawl allocations under Alternative 1 are shown in Table 3-14. There are no proposed adjustments to the lingcod south of 40° 10′ N. lat. trip limits at this time. The projected impacts from the non-trawl commercial fishery are 38.3 mt. Projected impacts from the recreational fishery cannot be quantified until options are selected for the California recreation fishery, therefore the total mortality projections and percent attainment of the non-trawl allocation are not shown in Table 3-14

Table 3-14. Alternative 1. 2023 and 2024 lingcod ACLs, Non-trawl allocations, and projections under status quo commercial trip limits for south of 40° 10′ N. lat.

Year	ACL (mt)	Non-trawl Allocation (mt)	Projected mortality in LE/OA sectors (mt)	Total projected mortality	% of Non-Trawl Allocation
2023	633	427.8	38.3	TBD	TBD
2024	634	425.4	38.3	TBD	TBD

Pacific Spiny Dogfish

Under the sablefish alternative 1, in 2023 the bycatch of spiny dogfish is expected to be 190.45 mt (Table 3-15**)**. Similar to the No Action result, this is above the recent five-year average (124.7 mt) of the recent mortality in the non-nearshore fixed gear sector (Table 14; GMT Report 1, November 2021), but below the maximum value from 2016-2020 of 231.8 mt in 2018. The spiny dogfish alternative 1, reduces the ACL to the level of the recent 5-year average and therefore given the changes to bycatch associated with changes in the sablefish ACL, there is risk of exceeding the spiny dogfish ACL.

Vermilion Rockfish within the Minor Shelf Rockfish Complex north of 40°10' N. lat.

Under Alternative 1, the harvest control rule for vermilion north of 40° 10′ N. lat. would be ACL = ABC, P* = 0.40. The resulting 2023 and 2024 vermilion rockfish OFL and ACL contribution to the Minor Shelf Rockfish Complex, ACLs for the Minor Shelf Rockfish Complex, and the non-trawl allocations for north of 40° 10′ N. lat., are shown in Table 3-15. However, as mentioned under No Action, several actions are proposed to address the recent high mortality through routine management measures; therefore, a more conservative P* may not be warranted.

Table 3-15. Alternative 1. 2023 and 2024 vermilion rockfish ACL contribution, Minor Shelf Complex ACL, and Minor Shelf Complex Non-trawl allocation for north of 40° 10′ N. lat.

Year	Vermilion Rockfish OFL cont. (mt)	Vermilion Rockfish ACL cont. (mt)	Minor Shelf Rockfish Complex N. ACL (mt)	Minor Shelf Rockfish Complex N. Non-Trawl alloc. (mt)
2023	21.3	18.5	1,281	481.6
2024	21.4	18.4	1,277	480

Vermilion/Sunset Rockfish within the Minor Shelf Rockfish Complex South of 40°10' North Lat.

Similar to vermilion rockfish north 40° 10′ N. lat., Council may want to consider a more precautionary approach by selecting P* of 0.4 to address concerns of high mortality. Under Alternative 1, the harvest control rule for vermilion south of 40° 10′ N. lat. would be ACL = ABC, P* = 0.40. The resulting 2023 and 2024 vermilion/sunset rockfish OFL and ACL contributions to the Minor Shelf Rockfish Complex, the Minor Shelf Rockfish Complex, and the non-trawl allocations for south of 40°10' N. lat., are shown in Table 3-16. However, as mentioned under No Action, several actions have been taken to address the recent high mortality through routine management measures; therefore, a more conservative P* may not be warranted.

Table 3-16. Alternative 1. 2023 and 2024 vermilion rockfish ACL contribution, Shelf Complex ACL, and Shelf Complex Non-trawl allocation for south of 40° 10′ N. lat.

Year	Vermilion/sunset Rockfish OFL cont. (mt)	Vermilion/sunset rockfish ACL cont. (mt)	Minor Shelf Rockfish Complex S. ACL (mt)	Shelf Rockfish Complex S. Non-Trawl alloc. (mt)
2023	311.2	254	1,442	1,149.5
2024	341.9	253.4	1,441	1,148.6

Projected Non-nearshore Groundfish Mortality north of 36° North Lat

The non-nearshore model uses 2002-2020 WCGOP data to project the 2023 and 2024 estimated mortality of overfished and non-overfished species for the LEFG (Primary and LEN DTL) and the OAN DTL fisheries north of 36° N. lat. and seaward of the NT-RCA (Table 1-26) based on the northern sablefish ACL under Alternative 1 (Table 5-7). The sablefish north of 36° N. lat. stock is the primary target and provides the main source of revenue in both LEFG and OA fisheries. The bycatch projections are based on the assumption that the LEFG and OA allocations for sablefish are completely harvested. Table 3-17 and Table 3-18 shows the projected species mortality. The non-trawl commercial sector is projected to be within their yelloweye rockfish ACTs of 8.4 mt in 2023-24 under No Action (Table 5-9). The non-trawl allocation for cowcod and Pacific spiny dogfish shark is represented by a TBD below for the same reason as mentioned in no action, they are Council decision

Table 3-17. Alternative 1. Projected non-nearshore groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2023 compared to the non-trawl allocation (excluding proposed routine adjustments). Projections are based on a sablefish alternative 1 harvest control rule of P* 0.40

Stock/Stock Complex (Management Area)	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl a/ Allocation (mt)
Arrowtooth flounder	67.68	11.48	79.15	826.9
Big skate	7.15	1.23	8.39	63.0
Black rockfish (California)	0.02	0.00	0.02	271.8
Black rockfish (Washington)	0.00	0.00	0.00	332.1
Black/blue/deacon rockfish (Oregon) b/	0.01	0.00	0.01	595.2
Bocaccio rockfish (south of 40°10' N. lat.)	0.53	0.15	0.67	1,093.5
Cabezon (California)	0.00	0.00	0.00	180.4
Cabezon/kelp greenling (Oregon) b/	0.01	0.00	0.01	184.2
Canary rockfish c/	1.49	0.26	1.74	337.6
Chilipepper rockfish (south of 40°10' N. lat.)	0.55	0.15	0.70	521.3
Cowcod rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	TBD
Darkblotched rockfish	6.69	1.26	7.95	38.1
Dover sole	7.35	1.54	8.89	2,420.1
Ecosystem component species	90.16	22.89	113.05	--
English sole	0.04	0.01	0.04	437.9
Lingcod (north of 40°10' N. lat.)	18.94	2.62	21.55	1,945.7
Lingcod (south of 40°10' N. lat.)	2.25	2.33	4.58	372.0
Longnose skate	84.79	15.64	100.43	145.7
Longspine thornyhead (N of 34°27' N. lat.)	2.43	0.60	3.03	112.1
Minor nearshore rockfish (N of 40°10' N. lat.)	0.15	0.03	0.17	84.7
Minor nearshore rockfish (S of 40°10' N. lat.)	0.00	0.00	0.00	884.5
Minor shelf rockfish (N of 40°10' N. lat.)	6.73	1.15	7.87	1,250.2
Minor shelf rockfish (S of 40°10' N. lat.)	0.15	0.04	0.19	481.6
Minor slope rockfish (N of 40°10' N. lat.)	121.82	20.48	142.30	662.3
Minor slope rockfish (S of 40°10' N. lat.)	25.64	8.90	34.54	280.2
Mixed thornyhead	1.06	0.28	1.34	--
Other flatfish	0.31	0.05	0.37	464.1
Other groundfish	0.00	0.00	0.00	--
Other rockfish	0.14	0.04	0.18	--
Pacific cod	2.75	0.47	3.22	54.7
Pacific whiting	0.98	0.17	1.15	--
Pacific ocean perch (N of 40°10' N. lat.)	0.80	0.14	0.93	171.4
Petrale sole	2.23	0.39	2.62	30.0
Shortspine thornyhead (N of 34°27' N. lat.)	37.64	8.14	45.79	64.0
Spiny dogfish	162.30	28.14	190.45	TBD
Splitnose rockfish (S of 40°10' N. lat.)	0.06	0.03	0.09	78.7
Starry flounder	0.01	0.00	0.01	171.9
Widow rockfish	0.25	0.04	0.30	400.0
Yellowtail rockfish (N of 40°10' N. lat.)	1.25	0.22	1.47	556.6

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.

b/Or black/blue/deacon rockfish, OR cabezon and kelp greenling, and WA cabezon and kelp greenling complexes were formed in 2019.

c/The non-trawl commercial share for canary rockfish in 2023 is 121.5 mt.

Table 3-18. Alternative 1. Projected non-nearshore groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2024 compared to the non-trawl allocation (excluding proposed routine adjustments). Projections are based on a sablefish alternative 1 harvest control rule of P* 0.40.

Stock/Stock Complex (Management Area)	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl a/ Allocation (mt)
Arrowtooth flounder	61.92	10.50	72.42	604.2
Big skate	6.55	1.13	7.68	60.4
Black rockfish (California)	0.02	0.00	0.02	270.5
Black rockfish (Washington)	0.00	0.00	0.00	326.6
Black/blue/deacon rockfish (Oregon) b/	0.01	0.00	0.01	592.2
Bocaccio rockfish (south of 40°10' N. lat.)	0.48	0.13	0.62	1,085.0
Cabezon (California)	0.00	0.00	0.00	169.4
Cabezon/kelp greenling (Oregon) b/	0.01	0.00	0.01	179.2
Canary rockfish c/	1.36	0.23	1.59	332.9
Chilipepper rockfish (south of 40°10' N. lat.)	0.50	0.14	0.64	505.9
Cowcod rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	TBD
Darkblotched rockfish	6.12	1.16	7.28	36.3
Dover sole	6.72	1.41	8.13	2,420.1
Ecosystem component species	82.48	20.94	103.42	--
English sole	0.03	0.01	0.04	435.0
Lingcod (north of 40°10' N. lat.)	17.32	2.40	19.72	1,726.1
Lingcod (south of 40°10' N. lat.)	2.06	2.13	4.19	372.6
Longnose skate	77.57	14.31	91.88	140.9
Longspine thornyhead (N of 34°27' N. lat.)	2.22	0.55	2.77	105.4
Minor nearshore rockfish (N of 40°10' N. lat.)	0.13	0.02	0.16	83.7
Minor nearshore rockfish S of 40°10' N. lat.)	0.00	0.00	0.00	889.5
Minor shelf rockfish (N of 40°10' N. lat.)	6.15	1.05	7.20	1,142.9
Minor shelf rockfish (S of 40°10' N. lat.)	0.13	0.04	0.17	480.0
Minor slope rockfish (N of 40°10' N. lat.)	111.45	18.74	130.19	645.3
Minor slope rockfish (S of 40°10' N. lat.)	23.46	8.15	31.60	275.6
Mixed thornyhead	0.97	0.25	1.23	--
Other flatfish	0.29	0.05	0.33	465.3
Other groundfish	0.00	0.00	0.00	--
Other rockfish	0.12	0.04	0.16	--
Pacific cod	2.51	0.43	2.95	54.7
Pacific whiting	0.89	0.16	1.05	--
Pacific ocean perch (N of 40°10' N. lat.)	0.73	0.12	0.85	164.9
Petrale sole	2.04	0.36	2.40	30.0
Shortspine thornyhead (N of 34°27' N. lat.)	34.44	7.45	41.89	62.5
Spiny dogfish	148.49	25.75	174.24	TBD
Splitnose rockfish (S of 40°10' N. lat.)	0.05	0.03	0.08	76.7
Starry flounder	0.01	0.00	0.01	171.9
Widow rockfish	0.23	0.04	0.27	400.0
Yellowtail rockfish (N of 40°10' N. lat.)	1.14	0.20	1.34	543.9

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.

b/Or black/blue/deacon rockfish, OR cabezon and kelp greenling, and WA cabezon and kelp greenling complexes were formed in 2019.

c/The non-trawl commercial share for canary rockfish in 2023 is 121.5 mt.

3.7.5 Impact (Groundfish Mortality): Non-Nearshore South of 36° N. Lat.

Similar to no action, management measures and projected groundfish mortality for the non-nearshore fishery south of 36° N. lat. under the alternative 1 are largely influenced by the sablefish ACL.

Sablefish South of 36° N. Lat.

Under Alternative 1, sablefish would continue to be managed with a coastwide OFL and ABC, but a P* of 0.4 would be applied as part of the harvest control. The same ACL apportionment method is also applied and described under the Baseline section.

The No Action sablefish allocations and trip limits are shown in Table 3-19and Table 3-20. The southern non-nearshore sablefish fishery is managed with the limited entry south (LES) and open access south (OAS) DTL fisheries. The LES and OAS fisheries are managed with landed catch share (Table 3-19**)** and trip limits that are established each biennium to catch the full landed catch share, but are commonly adjusted inseason as price and participation can vary by considerable amounts. Trip limits for other stocks may also be adjusted inseason to achieve conservation goals or increase yields. In 2023, LES is projected to take 17.7-19.7 percent of the LEFG landed catch share and OAS is projected to take 27 percent of the OA landed catch share Table 3-20.

Table 3-19. 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* 0.40. 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	Non-Trawl Allocation	LE FG Total Catch Share a/	Directed OA Total Catch Share a/	LE FG Landed Catch Share b/	Directed OA Landed Catch Share b/
2023	2,156	1,250	875	375	859	368
2024	1,971	1,143	800	343	786	337

a/ Shares are total mortality and include a landed component and a discard mortality component.
b/ 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 2020 to calculate the landed catch share. For the 2023-2024 Harvest Specification cycle, 9 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

Table 3-20. Alternative 1. Sablefish trip limits (lbs.) south of 36° N. lat. for limited entry and open access fixed gears. Landed shares and projected attainment for 2023 are based on a P* of 0.40. Status Quo is based on period 1, 2022 daily trip limits.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share (mt)	Projected Attain. 2023 (mt)
LE SQ	2,500 lbs. /week						859	152-169 a/
OA SQ	2,000 lbs. / week, not to exceed 6,000 lbs. / 2 months						368	<100

a/ Range is projected landings under two price scenarios (low and average).

3.7.6 Projected Non-nearshore Groundfish Mortality South of 36° N. Lat.

Due to lack of a projection model, mortality is expected to the same as show in Table 1-34..

3.8 Non-Trawl: Nearshore —Alternative 1

3.8.1 Impact (Groundfish Mortality) - Nearshore –Species of Concern

Yelloweye Rockfish

The yelloweye rockfish impacts under Alternative 1 are the same as under No Action (Table 2-22).

Quillback Rockfish off California

Under Alternative 1, impacts to quillback rockfish are based on its removal from the Nearshore Rockfish Complexes. Should the Council want to consider allowing minimal retention for quillback rockfish off California for purposes of collecting commercial fishery dependent data under Alternative 1, the projections and comparisons to harvest reference points are in Table 3-21 and Table 3-22**.** The quillback rockfish discussion above under No Action regarding the rationale for allowing minimal retention, effort shift in the California Nearshore fishery, participants opting out of using the DNSF permit, less opportunity to provide rockfish to the live market, and uncertainty in 2023 projections is applicable also to quillback rockfish under Alternative 1.

Table 3-21. Alternative 1. Proposed sub trip limits for California quillback rockfish with projected landings and mortality. Table includes projections for no retention for context. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Option	Sub trip limit	Landings Projection (mt)	Discard Estimate with Mortality Rates Applied (mt)	Total Estimated Mortality (mt)
Alt1 Opt 1 (SQ)	75 lbs. / 2 months	2.1	1.9	4.0
Atl1 Opt 2	50 lbs. / 2 months	1.7	2.1	3.8
Alt1 Opt 3	25 lbs. / 2 months	0.8	2.7	3.2
Zero Retention	CLOSED	0	3.3	3.3

Table 3-22. Alternative 1. Trip limit projections for quillback rockfish off California compared to the ACL, ABC, and OFL for 2023 and 2024. Data source: CDFW Marine Landings Data System and PacFIN, Jan 07, 2022.

Year	Option	Projected mort (mt)	ACL (mt)	ABC (mt)	OFL (mt)
2023	Alt1 Opt 1 (SQ)	1.7	TBD	TBD	TBD
	Alt 2	1.5			
	Alt 3	1.3			
	Zero Retention	1.1			
2024	Alt1 Opt 1 (SQ)	1.7	TBD	TBD	TBD
	Alt 2	1.5			
	Alt 3	1.3			
	Zero Retention	1.1			

3.8.2 Impact (Groundfish Mortality) - Nearshore Species

Under Alternative 1, the remaining species in the Nearshore Fishery, a majority of the projected landings, routine management measures, and projected mortality in the Nearshore fishery would be the same as No Action except for Oregon black rockfish.

Oregon Black Rockfish

For Oregon black rockfish, Alternative 1 (i.e., case-by-case ACL contribution of 512 mt to the Oregon black/blue/deacon rockfish complex) would increase Oregon's unofficial state-specified nearshore landings target for the nearshore fishery from 113 mt and 111.5 mt in 2023-24, respectively, to 121.3 mt in both years of 2023-24. Alternative 1 for Oregon black rockfish would be expected to increase landings by 8.3 mt and ex-vessel revenue by $42,500 in 2023, and 9.8 mt in landings and $50,200 in ex-vessel revenue in 2024 (compared to No Action using a P*0.45).

3.8.3 Projected Nearshore Groundfish Mortality

Projected total mortality numbers shown in Table 3-23 are based on full attainment of the state landings targets, except for lingcod and canary rockfish which are based on LEFG and OA trip limits north and south of 40° 10 N' lat. and the projected mortality from the nearshore model (see Appendix A)[31]. In California, landings targets are based on the projected mortality[32] from adjustments to the nearshore rockfish trip limits and sub trip limits for copper rockfish and quillback rockfish in addition to average landings.

[31] Appendix A details models used in this process, it will be available at the June 2022 Council meeting

[32] Mortality estimates projected from trip limit models include a percent discard based on the discard estimates from WCGOP mortality reports.

Table 3-23. Alternative 1. 2023-24 projected total mortality (nearshore landings and discard mortality) under Alternative 1.

Stock	Area	Total Mort (mt)	By Area for 2023-2024			
			OR (mt)	CA (mt)	40° 10'-42° N. lat. (mt)	S. of 40° 10' N. lat. (mt)
Black/blue/deacon rockfish	OR	129.4	129.4	N/A	N/A	N/A
--*Black rockfish*		121.3	121.3	N/A	N/A	N/A
--*Blue/deacon rockfish*		8.2	8.2	N/A	N/A	N/A
Black rockfish	CA	100	N/A	100	95	5
Bocaccio	South of 40°10' N. lat.	3	N/A	3	N/A	3
Cabezon/Kelp Greenling	OR	42.7	42.7	N/A	N/A	N/A
--*Cabezon*		32.4	32.4	N/A	N/A	N/A
--*Kelp Greenling*		10.3	10.3	N/A	N/A	N/A
Cabezon	CA	65	N/A	65	3.5	62
Canary Rockfish	OR & CA	37.9	3.3	34.6	3.5	31.1
Kelp greenling	CA	9.3	N/A	9.3	0.3	9
Lingcod	north of 40°10' N. lat.	78.8	67.3	11.5	11.5	N/A
Lingcod	south of 40°10' N. lat.	25	N/A	25	N/A	25
California scorpionfish	south of 40°10' N. lat.	3.3	N/A	3.3	N/A	3.3
Nearshore Rockfish N. a/	north of 40°10' N. lat.	23.9	8.1	15.8	15.8	N/A
Nearshore Rockfish S. a/	south of 40°10' N. lat.	170	N/A	170	N/A	170
--*Shallow Nearshore Rockfish b/*		74.1	N/A	74.1	N/A	74.1
--*Deeper Nearshore Rockfish c/*		95.9	N/A	95.9	N/A	95.9

a/ Nearshore Rockfish totals consists of impacts to black-and-yellow, CA and WA blue/deacon, China, gopher, grass, kelp, brown, olive, copper, treefish, and calico rockfishes 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 south 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 south of 40°10' N. lat

New Management Measures

New Management Measure mortality for Alternative 1 are the same as under No Action.

3.9 Washington Recreational Fishery: Alternative 1

Under Alternative 1, Washington recreational fisheries would operate under the same ACLs and associated Washington recreational HGs and ACTs and the same management approach as No Action except the Alternative 1 Washington vermilion rockfish ACL contribution is 0.6 mt which is 0.1 mt less than the No Action Alternative. (Table 2-48). While no retention of vermilion rockfish during the entire season results in significant savings, it does not reduce mortality below the state, species-specific HG under Alternative 1.

3.10 Oregon Recreational Fishery– Alternative 1

3.10.1 Management Measures

Alternative 1 analyzes the default HCR ACLs, except Oregon black rockfish, Pacific spiny dogfish, sablefish, lingcod, and vermilion rockfish. The management measures for the Oregon recreational fisheries are most responsive to the Oregon black/blue/deacon rockfish complex ACLs (based on the case-by-case use of a constant ACL contribution for the Oregon black rockfish). As under the Baseline and No Action, the primary catch controls for the Oregon recreational fishery are season dates, depth closures, bag limits, and GCAs, including YRCAs.

Under Alternative 1, the presumed Oregon black/blue/deacon rockfish complex ACL and associated Oregon recreational HG of 457.4 mt and 455.2 mt (Table 3-24) for 2023 and 2024, respectively, are higher than under No Action (Table 2-57, 431.1 and 424.2 mt) and similar to what is currently in regulation for 2021 (Table 1-40). Even with the black rockfish increases compared to No Action, black rockfish will be the primary species driving management measures and adjustments in the Oregon recreational fishery.

Table 3-24. Alternative 1. Oregon recreational Federal harvest guidelines (HG) or state quotas under Alternative 1 (mt).

Stock	2023 HG [a/]	2024 HG [a/]
Oregon Black/Blue/Deacon Rockfish Complex a/	457.4	455.2
Canary Rockfish b/	65.0	63.4
Oregon Cabezon/Greenling Complex c/	51.4	50.2
Nearshore Rockfish north of 40°10' N Lat.	15.7	15.2
YELLOWEYE ROCKFISH	9.2	9.2

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 2021 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 2021 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 2021 recreational and commercial sharing percentages in Oregon state regulations.

Groundfish Seasons and Area Restrictions

Season Structure

Under Alternative 1, the Oregon recreational groundfish fishery would be open offshore year-round (Figure 2-3). This is the same season structure as under the Baseline and No Action. The seasonal depth restrictions, implemented during periods of the highest angler effort and yelloweye rockfish encounters, have been used in the past to mitigate mortality of yelloweye rockfish. Shallow depth restrictions increase encounters, and associated mortality impacts, with more nearshore species such as black rockfish. Under Alternative 1, the state-specified black/blue/deacon rockfish OR complex will drive the season structure more than yelloweye

rockfish. Therefore, the season structure and bag limit are designed to balance impacts to black/blue/deacon rockfish OR and nearshore rockfish north complexes while staying within the updated yelloweye rockfish HGs. Projected mortality of yelloweye rockfish is within the Federal HGs, therefore the shore-based fishery would also be open year-round.

Area Restrictions

The same area restrictions as under the No Action Alternative would be in place under Alternative 1. The Stonewall Bank YRCA is an area of known high yelloweye rockfish concentrations, keeping it closed should help to ensure that the yelloweye rockfish HG is not exceeded.

Groundfish Bag Limits and Size Limits

The same bag limits and size limits under the Baseline and No Action Alternative would be in place under Alternative 1.

Pacific Halibut Seasons

Under Alternative 1, the recreational Pacific halibut fisheries should be able to proceed as under the No Action Alternative and Baseline.

Additional Considerations

Under Alternative 1, the yelloweye rockfish HGs would be the same as under No Action, and the Oregon black/blue/deacon rockfish complex HGs will be higher than under No Action. Retention of yelloweye rockfish would remain prohibited. Adjustments to routine and currently available management measures would be used to keep recreational harvests of overfished species within specified Federal HGs under Alternative 1.

As under the Baseline and No Action, under Alternative 1, the longleader recreational fishery targeting midwater rockfish species such as yellowtail and widow rockfish would be available.

Inseason Management Response

The same inseason response as described under the Baseline and No Action will be in place under Alternative 1.

3.10.2 Impact (Groundfish Mortality)

The annual projected mortality presented in Table 3-25 is anticipated, given the season structure and bag limits detailed above. The model uncertainties are the same as described under No Action.

The projected impacts are the same as under No Action for all species. However, under Alternative 1, the Oregon black/blue/deacon rockfish complex ACL, and associated state-specified Oregon recreational HG are higher than under No Action. In particular the black rockfish contribution to the complex ACL will increase from 477 mt to 512 mt in 2023 (471.2 to 512 mt in 2024). The state-specified recreational share of that ACL contribution would then be 389.1 mt in both 2023 and 2024. Therefore, under Alternative 1, the recreational fishery total impacts are projected to be within the Oregon recreational share of both the overall complex as well as the black rockfish contribution to the complex.

Table 3-25. Projected Mortality (mt) of species with Oregon recreational specific allocations under Alt. 1.

Stock	Projected Mortality (mt)
Canary Rockfish	54.0
YELLOWEYE ROCKFISH	5.8
Oregon Black/Blue/Deacon Rockfish Complex	396.1 a/
Oregon Cabezon/Greenlings Complex b/	24.6
Lingcod north of 40° 10′ N. lat.	226.5
Nearshore Rockfish north of 40° 10' N Lat.	10.8
Yellowtail Rockfish north of 40° 10′ N. lat.	50.6
Widow Rockfish	12.0

a/ black rockfish = 377.50, blue/deacon rockfish = 18.6 mt
b/ Includes kelp and other greenlings

If it is necessary to close the recreational groundfish fishery inseason due to attainment of a particular species, the offshore longleader gear and targeted flatfish fishery would be available as alternative opportunities. The projected impacts would be within what is estimated in Table 2-61, which has estimates for a full year all-depth season, since the longleader gear opening would be more restrictive than the full year all-depth season.

New Management Measures

Longleader gear fishery and all-depth halibut on the same trip

Same as under No Action.

3.11 California Recreational Fishery: Alternative 1

Alternative 1 is the same as the No Action Alternative except for quillback rockfish (south of 42° N. lat.), lingcod south of 40°10' N. lat., and vermilion/sunset rockfish south of 40°10' N. lat.

Under Alternative 1, quillback rockfish is removed from the minor nearshore rockfish complexes and managed under a separate ACL. At this time, the exact quillback rockfish ACL for 2023-24 has not been determined. However, the anticipated ACL will likely be somewhere between 1-2 mt with an unknown quantity allocated towards recreational fisheries impacts.

Under Alternative 1, a P*0.40 is applied to the lingcod stock south of 40°10' N. lat. and results in a non-trawl allocation of 372.0 mt in 2023 and 372.6 mt in 2024.

Vermilion/sunset rockfish (P*0.40) south 40°10' N. lat. vermilion/sunset rockfish ACL contribution of 254 and 253.4 mt in 2023 and 2024, respectively. Since vermilion/sunset rockfish are still managed as part of the Minor Shelf Rockfish Complex south of 40°10' N lat. the NT allocation would be 1,149.5 mt and 1,148.6 mt in 2023 and 2024, respectively.

Groundfish Seasons and Area Restrictions

Season Structure

Same as described under No Action.

Area Restrictions

Same as described under No Action.

Groundfish Bag Limits Gear Limits and Size Limits

Same as described under No Action.

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.

Pacific Halibut Seasons

Same as described under the No Action.

Inseason Management Response

Same as inseason management response as described under the Baseline.

New Management Measures

Same as described under No Action.

3.11.1 Impact (Groundfish Mortality)

Projected mortality under Alternative 1 is the same as described under No Action, dependent upon which Options for season structure and changes to sub-bag limits are chosen.

4. Alternative 2

Under Alternative 2, default harvest specifications, as detailed above under No Action (Chapter 2), would be implemented for all stocks except for sablefish. Alternative 2 specifies a sablefish ABC= P* 0.35, ABC is under consideration, which results in a coastwide ABC of 9,412 mt ABC (Agenda Item E.3.a, GMT Report 1, November 2021).

4.1 Deductions from the ACL

Under Alternative 2, the deductions from groundfish ACLs for Tribal, EFP, research, IOA, and recreational are the same as described under No Action (Section 2.1) and detailed in Table 2-5 and Table 2-6 except for sablefish. The resulting fishery HGs for sablefish, by management area, under Alternative 2 are shown in Table 4-1. The differences between Alternatives and management area by year are shown in Table 4-3 and Table 4-4. Table 4-2 displays the harvest specifications for sablefish north of 36° N. lat.

Table 4-1. Alternative 2. Estimates of tribal, EFP, research, and IOA groundfish mortality (in mt) used to calculate the fishery HG in 2023.

Stock/Complex	Area	Year	ACL (mt)	Tribal (mt)	EFP (mt)	Res. (mt)	OA (mt)	Sum (mt)	Fishery HG (mt)
Sablefish	north of 36°	2023	7379.2	Table 4-2					
		2024	6749						
Sablefish	south of 36°	2023	2033	0	0	2.4	25	27.4	2005.6
		2024	1859	0	0	2.4	25	27.4	1831.6

Table 4-2. Alternative 2. Estimates of tribal, research, recreational (Rec.), and EFP mortality (in mt), used to calculate the fishery sablefish commercial harvest guideline north of 36° N. lat. for 2023 and 2024.

Year	ACL (mt)	Tribal (mt)	Res. (mt)	Rec. (mt)	EFP *mt)	Sum (mt)	Commercial HG (mt)
2023	7379.2	737.9	1.0	6.0	1.1	886.57	6603.57
2024	6749	674.9	1.0	6.0	1.1	815.68	6036.42

The Alternative 2 ACL for sablefish north of 36° N. lat. is 1,106.8 mt and 1,031 mt lower than No Action in 2023 and 2024, respectively. Alternative 2 ACLs are 544.8 mt and 504 mt for 2023 and 2024, respectively, lower than the Alternative 1 ACLs. Table 4-3 shows the ACls by year and by Alternative

Table 4-3. Alternative 2. Comparison of 2023-2024 sablefish north of 36° N. lat. ACLs for No Action, Alternative 1, and Alternative 2 in metric tons (mt)

	No Action (mt)	Alt 1 (mt)	Alt 2 (mt)
2023	8486	7924	7379.2
2024	7780	7253	6749

The Alternative 2 ACL for sablefish south of 36° N. lat. is 305 mt and 284 mt lower than No Action in 2023 and 2024, respectively. Alternative 2 ACLs are 150 mt and 139 mt for 2023 and 2024, respectively, lower than the Alternative 1 ACLs. Table 4-4 shows the ACls by year and by Alternative.

Table 4-4. Alternative 2. Comparison of 2023-2024 sablefish south of 36° N. lat. ACLs for No Action, Alternative 1, and Alternative 2 in metric tons (mt)

Year	No Action (mt)	Alt 1 (mt)	Alt 2 (mt)
2023	2,338	2,183	2,033
2024	2,143	1,998	1,859

4.1.1 Annual Catch Target

Under Alternative 2, the ACT's for cowcod and yelloweye rockfish remain the same as under No Action.

4.2 Allocations

4.2.1 Amendment 21 and Biennial Allocations

Under Alternative 2, the allocation percentages are the same as described under No Action (Section 2.1) except for sablefish north of 36° N. lat. (Table 4-5) and south of 36° N. lat. (Table 4-6).

Table 4-5. Alternative 2: Sablefish north of 36° N. lat. commercial harvest guideline (HG) in 2023-2024 and allocations to limited entry and open access in metric tons (mt).

Year	Commercial HG	Limited Entry HG		Limited Entry Trawl		Limited Entry FG		Open Access HG	
		%	mt	%	mt	%	mt	%	mt
2023	6,603.57	90.6	5,983	58	3,370.04	42	2,513	9.4	592
2024	6,036.42	90.6	5,469	58	3,172	42	2,297	9.4	541

Table 4-6. Alternative 2: Sablefish south of 36° N. lat. commercial harvest guideline (HG) in 2023-2024 and allocations to limited entry and open access in metric tons (mt).

Year	HG	Alloc. Type	Trawl		Non-Trawl	
			%	mt	%	mt
2023	2,005.6	A-21	42	842	58	1,163
2024	1,831.6	A-21	42	769	58	1,062

4.2.2 Rebuilding Species Allocation

Under Alternative 2, yelloweye rockfish allocations are the same as under No Action (Table 2-12).

4.3 Harvest Guidelines and State Shares for Stocks in a Complex

Under Alternative 2, HGs and state shares are the same as described in under No Action (Section 2.3)

4.4 Tribal Fisheries: Alternative 2

4.4.1 Management Measures:

The Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) will manage their groundfish fisheries in 2024-2025 with the allocations, and set-asides, and management measures as described under Baseline. Principle management controls in the tribal fisheries include allocations, set-asides, HGs, and trip limits

4.4.2 Impacts:

The projected impacts under Alternative 2 are the same as under No Action (Section 2.4)

4.5 Shorebased IFQ: Alternative 2

4.5.1 Shorebased IFQ - Management Measures

ACLs and shorebased IFQ allocations under Alternative 2 are the same as those under Alternative 1, except for sablefish. Under Alternative 2, sablefish would be managed with a P* 0.35. With this more precautionary HCR, the shorebased IFQ allocations of both sablefish north and south of 36° N. lat. would be about 13 percent lower than No Action and 7 percent lower than Alternative 1. No additional management measures were recommended by the Council as of December 2021, and the management measures proposed in November 2021 to evaluate potential management measures to remove the 50-mt cowcod south of 40° 10' N. lat. ACT, control catch of Pacific spiny dogfish if the ACL is exceeded or projected to be exceeded and allow access to the NT_RCA by select hook and line gear described under No Action remain applicable to the Alternative 1 harvest specifications.

4.5.2 Impact (Groundfish Mortality)

Table 4-7 below shows the 2023-2024 allocations and projected catch under Alternative 2. With the exception of sablefish north and south of 36° N. lat., catch projections for all stocks remain the same as under No Action. Under Alternative 2, the shorebased IFQ fishery is projected to catch roughly 13 percent less in 2023 of both sablefish north and south of 36° N. lat. compared to No Action and 7 percent less than under Alternative 1.

Table 4-7. Alternative 2 - Shorebased IFQ. 2023-24 allocations, projected catch, and attainment under Alternative 2. No Action 2023 allocations and catch projections are shown for comparison.

Species	2023 No Action		2023 Alternative 2			2024 Alternative 2		
	Allocation (mt)	Projected Catch	Allocation (mt)	Projected Catch	% Attain.	Allocation (mt)	Projected Catch	% Attain.
Arrowtooth flounder	15,640.2	756.4	15,640.2	756.4	5%	11,408.9	748.9	7%
Bocaccio rockfish south of 40°10' N.	700.3	269.4	700.3	269.4	38%	694.9	267.3	38%
Canary rockfish	844.5	356.9	844.5	356.9	42%	832.2	353.2	42%
Chilipepper rockfish south of 40°10' N.	1,563.8	669.1	1,563.8	669.1	43%	1,517.6	649.3	43%
Cowcod south of 40°10' N.	18.0	2.0	18.0	2.0	11%	18.0	2.0	11%
Darkblotched rockfish	646.8	231.3	646.8	231.3	36%	613.5	222.0	36%
Dover sole	45,972.8	4,047.9	45,972.8	4,047.9	9%	45,972.8	4,047.9	9%
English sole	8,320.6	190.7	8,320.6	190.7	2%	8,265.5	190.6	2%
Lingcod north of 40°10' N.	1,829.3	282.3	1,829.3	282.3	15%	1,593.5	248.8	16%
Lingcod south of 40°10' N.	285.2	28.4	285.2	28.4	10%	283.6	28.3	10%
Longspine thornyhead north of 34°27' N.	2,129.2	65.4	2,129.2	65.4	3%	2,002.9	62.9	3%
Minor shelf rockfish north of 40°10' N.	694.7	342.2	694.7	342.2	49%	691.7	340.9	49%
Minor shelf rockfish south of 40°10' N.	163.0	28.8	163.0	28.8	18%	163.0	28.8	18%
Minor slope rockfish north of 40°10' N.	894.4	278.3	894.4	278.3	31%	875.0	275.6	31%
Minor slope rockfish south of 40°10' N.	417.1	46.2	417.1	46.2	11%	414.6	46.1	11%
Other flatfish	4,142.1	413.0	4,142.1	413.0	10%	4,152.9	413.1	10%
Pacific cod	1,039.3	1.4	1,039.3	1.4	0%	1,039.3	1.4	0%
Pacific halibut (IBQ) north of 40°10' N.	72.3	31.0	72.3	29.8	41%	72.3	29.0	40%
Pacific ocean perch north of 40°10' N.	2,956.1	406.2	2,956.1	406.2	14%	2,832.6	393.7	14%
Pacific whiting	142,232.9	126,330.7	142,232.9	126,330.7	89%	142,232.9	126,330.7	89%
Petrale sole	3,063.8	2,325.5	3,063.8	2,325.5	76%	2,863.8	2,173.7	76%
Sablefish north of 36° N.	3,893.5	2,787.9	3,370.0	2,438.9	72%	3,072.0	2,240.2	73%
Sablefish south of 36° N.	970.0	108.0	842.0	93.7	11%	769.0	85.6	11%
Shortspine thornyhead north of 34°27' N.	1,146.7	311.3	1,146.7	311.3	27%	1,117.2	303.5	27%
Shortspine thornyhead south of 34°27' N.	50.0	0.0	50.0	0.0	0%	50.0	0.0	0%
Splitnose rockfish south of 40°10' N.	1,494.7	19.6	1,494.7	19.6	1%	1,457.6	19.6	1%
Starry flounder	171.9	0.1	171.9	0.1	0%	171.9	0.1	0%
Widow rockfish	11,509.7	9,217.2	11,509.7	9,217.2	80%	10,367.7	8,352.6	81%
YELLOWEYE ROCKFISH	4.4	0.4	4.4	0.4	10%	4.4	0.4	9%
Yellowtail rockfish north of 40°10' N.	3,761.8	2,550.4	3,761.8	2,550.4	68%	3,668.6	2,511.2	68%

4.6 At-Sea Whiting Co-ops: Alternative 2

4.6.1 At-Sea - Management Measures

Under Alternative 2, set-asides and principle management measures for the at-sea sectors would be the same as those described under Baseline. The only stock being considered for an Alternative 2 HCR is sablefish north of 36° N. lat.

4.6.2 Impact (Groundfish Mortality)

Sablefish north of 36° N. lat.

Under Alternative 2, the 2023 and 2024 ACLs for sablefish north of 36° N. lat. would be 7,379 mt and 6,749 mt, respectively. The 2023 ACL would be 7 percent higher than that of 2021, and the 2024 ACL would be 2 percent lower. Mortality impacts under Alternative 2 are expected to be the same as those under No Action. However, compared to Alternative 1, the Alternative 2 ACLs would be more similar to the Baseline 2021 ACL of 6,892 mt. Given that the at-sea fishery has caught an annual average of 83 mt of sablefish north of 36° N. lat. since 2017, the status quo 100 mt set-aside for sablefish north of 36° N. lat. is expected to accommodate at-sea mortality under the Alternative 2 sablefish ACLs in 2023 and 2024, and the sablefish north of 36° N. lat. ACL is not expected to be at risk of exceedance if the set-aside is exceeded

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4.7 Non-Trawl: Non-Nearshore —Alternative 2

4.7.1 Limited Entry and Open Access Fixed Gear – Management Measures

Under Alternative 2, the principle management measures for the non-trawl fishery are the same as described under the Baseline.

4.7.2 Impact (Groundfish Mortality) – Nearshore: Species of Concern

As described under No Action and Alternative 1, there are sector-specific yelloweye rockfish ACTs and HGs for each of the non-trawl sectors. Under Alternative 2, the yelloweye rockfish estimated mortality for the non-trawl commercial fisheries is projected to be between 3.7 - 4.8 mt in 2023, and 3.6-4.8mt in 2024, which is the estimate generated by the GMT Non-Nearshore and Nearshore Projection models and the recent 10-year maximum WCGOP mortality estimate to account for potential impacts from the NT-RCA New Management Measure and the stand-alone item, Non-trawl Sector Management Measures. This projection is within the yelloweye rockfish non-trawl commercial ACT of 8.4 mt in 2023-24 for No Action as well as for Alternatives 1 and 2. (Table 4-8)

Quillback Rockfish of California

As mentioned under Alternative 1, there is low quillback rockfish mortality in the non-nearshore fishery; however, it is greater than zero, therefore it is a relevant Table 4-8. Further, harvest reference points for quillback rockfish off California are to be determined.

Table 4-8. Alternative 2. 2023-24 Non-trawl commercial fisheries (non-nearshore + nearshore) projected mortality, harvest guidelines, and annual catch targets compared to the non-trawl allocations for species of concern.

Species	Year	Non-trawl Commercial Fishery	Projected mort. (mt)	Total projected mort. (mt)	HG (mt)	ACT (mt)	Non-Trawl Allocation (mt)
Yelloweye rockfish	2023	Nearshore	2.5	3.7-4.8	10.6	8.4	50.9
		Non-Nearshore	1.2				
		10 yr. max	4.8				
	2024	Nearshore	2.5	3.6-4.8	10.6	8.4	50.9
		Non-Nearshore	1.1				
		10 yr. max	4.8				
CA Quillback rockfish	2023	Nearshore	2.2-2.3	2.2-2.3	TBD	TBD	TBD
		Non-Nearshore	<0.01				
	2024	Nearshore	2.2-2.3	2.2-2.3	TBD	TBD	TBD
		Non-Nearshore	<0.01				

4.7.3 Impact (Groundfish Mortality) –Non-Nearshore north of 36° N. latitude

For Alternative 2, a majority of the west coast stocks would be managed under the DHCR except for sablefish coastwide (Table 4-1). This following sections pertain to the non-nearshore impacts from the alternative sablefish HCR and associated management measures for the LEFG and OA fisheries to stay within their harvest limit.

The Alternative 2 harvest control rules for the select species are as follows -

1. sablefish: ACL = ABC, P* 0.35

Sablefish north of 36° N. latitude

Similar to No Action and Alternative 1, the impacts of the non-nearshore fisheries under Alternative 2 (ABC = ACL, P* 0.35) are mainly driven by sablefish ACLs which is the basis of the allocations and trip limit alternatives for 2023-2024. For non-sablefish stocks, the LEFG and OA fisheries under Alternative 2 for 2023-2024 have the same principle management measures as under the No Action with respect to closed areas, stock complexes, gear restrictions, permitting requirements, etc.

The Alternative 2 sablefish allocations and trip limits are shown in Table 4-9Table 4-10**,** and Table 4-11. The No Action tier 1-3 limits for the primary fishery and landed catch share for the LEN and OAN fisheries are shown in Table 4-9.

Table 4-9. Alternative 2. Limited entry sablefish FMP allocations north of 36° N. lat., based on a P* of 0.35.

Year	Non-Tribal Com. HG	LE Share (mt)	LE FG Share (mt) a/			Landed Catch Share (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
2023	6,603	5,983	2,513	2,136	377	2,417	2,055	363	63,346	28,794	16,453
2024	6,036	5,469	2,297	1,952	345	2,210	1,878	331	57,904	26,320	15,040

a/Shares are total mortality and include a landed component and a discard mortality component.
b/The limited entry fixed gear landed catch share is the limited entry fixed gear share reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2020. For the 2023-2024 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.
c/Ratio of limits between the Primary Fishery tiers is approximately 1:1.75:3.85 for Tier 3:Tier 2:Tier 1, respectively.

Table 4-10. Alternative 2 - Open access FMP allocations north of 36° N. lat. based on a P* of 0.35.

Year	OA Total Catch Share (mt) a/	Directed OA Landed Catch Share (mt) b/
2023	621	597
2024	567	546

a/Shares are total mortality and include a landed component and a discard mortality component.
b/The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2020 to calculate the landed catch share. For the 2023-2024 Harvest Specification cycle, 19 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

Table 4-11. Alternative 2. Sablefish trip limits (lbs.) north of 36° N. lat. for limited entry and open access fixed gears. Landed shares and projected attainment for 2023 are based on a P* of 0.35. Status Quo is based on period 1, 2022 daily trip limit values.

Option	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	Landed Catch Share (mt)	Projected Landings 2023 (mt)
LEFG SQ	2,400 lbs. / week, not to exceed 4,800 lbs. / 2 months						363	257-327 a/
OA SQ	600 lbs. daily, or 1 landing / week up to 2,000 lbs., not to exceed 4,000 lbs. / 2 months						597	283-377 a/
OA Opt 1	2,000 lbs. /week, not to exceed 4,000 lbs. / 2 months						597	b/

a/ Range is projected landings under two price scenarios (low and average).
b/We do not have a model that can model the elimination of the daily limit, therefore we cannot provide a projected landing value. However, inseason management will manage to the landed catch share of 597 mt so that represents the maximum value of a projected landing.

Projected Non-nearshore Groundfish Mortality North of 36° N. latitude

The non-nearshore model uses 2002-2020 WCGOP data to project the 2023 and 2024 estimated mortality of overfished and non-overfished species for the LEFG (Primary and LEN DTL) and the OAN DTL fisheries north of 36° N. lat. and seaward of the NT-RCA (Table 1-26) based on the northern sablefish ACL under Alternative 2 (Table 6-5). The sablefish north of 36° N. lat. stock is the primary target and provides the main source of revenue in both LEFG and OA fisheries. The bycatch projections are based on the assumption that the LEFG and OA allocations for sablefish are completely harvested. Table 4-12 and Table 4-13 shows the projected species mortality. The non-trawl commercial sector is projected to be within their yelloweye rockfish ACTs of 8.4 mt in 2023-24 under No Action (Table 4-8).

Pacific Spiny Dogfish is caught as bycatch in the non-nearshore sablefish fishery, and therefore will be affected with the various alternatives for sablefish. Under Alternative 2 the bycatch of spiny dogfish is expected to be 177.26 mt (Table 4-13). Under No Action and both action alternatives the projected spiny dogfish bycatch in the sablefish is greater than the five-year average. The non-trawl allocation for cowcod and Pacific spiny dogfish shark is represented by a TBD below for the same reason as mentioned in no action, they are Council decisions.

Table 4-12. Alternative 2. Projected non-nearshore groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2023 compared to the non-trawl allocation (excluding proposed routine adjustments). Projections based on a sablefish alternative 2 harvest control rule of P* 0.35.

Stock/Stock Complex (Management Area)	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation a/ (mt)
Arrowtooth flounder	63.00	10.68	73.68	826.9
Big skate	6.66	1.15	7.81	63.0
Black rockfish (California)	0.02	0.00	0.02	271.8
Black rockfish (Washington)	0.00	0.00	0.00	332.1
Black/blue/deacon rockfish (Oregon) b/	0.01	0.00	0.01	560.2
Bocaccio rockfish (south of 40°10' N. lat.)	0.49	0.14	0.63	1,093.5
Cabezon (California)	0.00	0.00	0.00	180.4
Cabezon/kelp greenling (Oregon) b/	0.01	0.00	0.01	184.2
Canary rockfish c/	1.38	0.24	1.62	337.6
Chilipepper rockfish (south of 40°10' N. lat.)	0.51	0.14	0.65	521.3
Cowcod rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	TBD
Darkblotched rockfish	6.23	1.18	7.40	38.1
Dover sole	6.84	1.43	8.28	2,420.1
Ecosystem component species	83.93	21.31	105.23	--
English sole	0.04	0.01	0.04	437.9
Lingcod (north of 40°10' N. lat.)	17.63	2.44	20.06	2,254.1
Lingcod (south of 40°10' N. lat.)	2.09	2.17	4.26	427.8
Longnose skate	78.93	14.56	93.49	145.7
Longspine thornyhead (north of 34°27' N. lat.)	2.26	0.56	2.82	112.1
Minor nearshore rockfish (north of 40°10' N. lat.)	0.14	0.02	0.16	84.7
Minor nearshore rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	884.5
Minor shelf rockfish (north of 40°10' N. lat.)	6.26	1.07	7.33	482.4
Minor shelf rockfish (south of 40°10' N. lat.)	0.14	0.04	0.17	1,176.7
Minor slope rockfish (north of 40°10' N. lat.)	113.40	19.06	132.47	280.2
Minor slope rockfish (south of 40°10' N. lat.)	23.87	8.29	32.16	245.0
Mixed thornyhead	0.99	0.26	1.25	--
Other flatfish	0.29	0.05	0.34	464.1
Other groundfish	0.00	0.00	0.00	--
Other rockfish	0.13	0.04	0.17	--
Pacific cod	2.56	0.44	3.00	54.7
Pacific whiting	0.91	0.16	1.07	--
Pacific ocean perch (north of 40°10' N. lat.)	0.74	0.13	0.87	171.4
Petrale sole	2.08	0.36	2.44	30.0
Shortspine thornyhead (north of 34°27' N. lat.)	35.04	7.58	42.62	64.0
Spiny dogfish	151.08	26.20	177.28	TBD
Splitnose rockfish (south of 40°10' N. lat.)	0.06	0.03	0.08	78.7
Starry flounder	0.01	0.00	0.01	171.9
Widow rockfish	0.24	0.04	0.28	400
Yellowtail rockfish (north of 40°10' N. lat.)	1.16	0.20	1.36	556.6

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.

b/ OR black/blue/deacon rockfish, OR cabezon and kelp greenling, and WA cabezon and kelp greenling complexes were formed in 2019

c/ The non-trawl commercial share for canary rockfish in 2023 is 121.5 mt.

Table 4-13. Alternative 2. Projected non-nearshore groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat (in mt) for 2024 compared to the non-trawl allocation (excluding proposed routine adjustments). Projections are based on a sablefish alternative 2 harvest control rule of P* 0.35.

Stock/Stock Complex (Management Area)	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation (mt)
Arrowtooth flounder	57.59	9.77	67.35	604.2
Big skate	6.09	1.05	7.14	60.4
Black rockfish (California)	0.02	0.00	0.02	270.5
Black rockfish (Washington)	0.00	0.00	0.00	326.6
Black/blue/deacon rockfish (Oregon) b/	0.01	0.00	0.01	551.2
Bocaccio rockfish (south of 40°10' N. lat.)	0.45	0.12	0.57	1,085.0
Cabezon (California)	0.00	0.00	0.00	169.4
Cabezon/kelp greenling (Oregon) b/	0.01	0.00	0.01	179.2
Canary rockfish c/	1.27	0.22	1.48	332.9
Chilipepper rockfish (south of 40°10' N. lat.)	0.47	0.13	0.59	505.9
Cowcod rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	TBD
Darkblotched rockfish	5.69	1.07	6.77	36.3
Dover sole	6.25	1.31	7.56	2,420.1
Ecosystem component species	76.71	19.48	96.19	--
English sole	0.03	0.01	0.04	435.0
Lingcod (north of 40°10' N. lat.)	16.11	2.23	18.34	1,965.9
Lingcod (south of 40°10' N. lat.)	1.91	1.98	3.89	425.4
Longnose skate	72.15	13.31	85.46	140.9
Longspine thornyhead (north of 34°27' N. lat.)	2.07	0.51	2.58	105.4
Minor nearshore rockfish (north of 40°10' N. lat.)	0.12	0.02	0.15	83.7
Minor nearshore rockfish (south of 40°10' N. lat.)	0.00	0.00	0.00	889.5
Minor shelf rockfish (north of 40°10' N. lat.)	5.72	0.97	6.70	480.4
Minor shelf rockfish (south of 40°10' N. lat.)	0.12	0.04	0.16	1,176.7
Minor slope rockfish (north of 40°10' N. lat.)	103.66	17.43	121.09	275.6
Minor slope rockfish (south of 40°10' N. lat.)	21.82	7.58	29.39	243.5
Mixed thornyhead	0.90	0.24	1.14	--
Other flatfish	0.27	0.05	0.31	465.3
Other groundfish	0.00	0.00	0.00	--
Other rockfish	0.12	0.04	0.15	--
Pacific cod	2.34	0.40	2.74	54.7
Pacific hake	0.83	0.15	0.98	--
Pacific ocean perch (north of 40°10' N. lat.)	0.68	0.11	0.79	164.9
Petrale sole	1.90	0.33	2.23	30.0
Shortspine thornyhead (north of 34°27' N. lat.)	32.03	6.93	38.96	62.5
Spiny dogfish	138.10	23.95	162.05	TBD
Splitnose rockfish (south of 40°10' N. lat.)	0.05	0.03	0.08	76.7
Starry flounder	0.01	0.00	0.01	171.9
Widow rockfish	0.22	0.04	0.25	400
Yellowtail rockfish (north of 40°10' N. lat.)	1.06	0.18	1.25	543.9

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.
b/Or black/blue/deacon rockfish, OR cabezon and kelp greenling, and WA cabezon and kelp greenling complexes formed in 2019.
c/ The non-trawl commercial share for canary rockfish in 2023 is 121.5 mt.

4.7.4 Impact (Groundfish Mortality) –Non-Nearshore South of 36° N. Lat.

Sablefish South of 36° N. lat.

As with the above alternatives, management measures and projected groundfish mortality for the non-nearshore fishery south of 36° N. lat. under the are largely influenced by the sablefish ACL. Under Alternative 2, sablefish would continue to be managed with a coastwide OFL and ABC, but a P* of 0.35 would be applied as part of the harvest control. The same ACL apportionment method is also applied and described under the Baseline (Chapter 1).

The Alternative 2 sablefish allocations and trip limits are shown in Table 4-14 and Table 4-15. The southern non-nearshore sablefish fishery is managed with the limited entry south (LES) and open access south (OAS) DTL fisheries. The LES and OAS fisheries are managed with landed catch share (Table 4-14**)** and trip limits that are established each biennium to catch the full landed catch share, but are commonly adjusted inseason as price and participation can vary by considerable amounts. Trip limits for other stocks may also be adjusted inseason to achieve conservation goals or increase yields. In 2023, LES is estimated to have taken 19-21.1 percent of the LEFG landed catch share and OAS is estimated to have taken 29.2 percent of the OA landed catch share Table 4-15**.**

Table 4-14. Alternative 2 - Short-term sablefish allocations south of 36° N. lat. for the non-trawl sector, based on the default harvest control rule of a P* 0.35. Limited entry and open access catch shares under the no action sharing alternative (70 percent to limited entry' 30 precent to open access. Amounts in metric tons

Year	Non-Tribal Com. HG	Non-Trawl Allocation	LE FG Total Catch Share a/	Directed OA Total Catch Share a/	LE FG Landed Catch Share b/	Directed OA Landed Catch Share b/
2023	2,033	1,163	814	349	800	343
2024	1,859	1,062	744	319	730	313

a/Shares are total mortality and include a landed component and a discard mortality component.
b/ 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 2020 to calculate the landed catch share. For the 2023-2024 Harvest Specification cycle, 9 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

Table 4-15. Alternative 2. Sablefish trip limits (lbs.) south of 36° N. lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2023. Catch shares are based on the default harvest control rule of a P* of 0.35.

Fishery	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	Landed Catch Share (mt)	Projected Landings (mt)
LEFG SQ	2,500 lbs./week						800	152-169
OA SQ	2,000 lbs. / week, not to exceed 6,000 lbs. / 2 months						343	< 100

4.7.5 Projected Non-nearshore Groundfish Mortality South of 36° N. lat.

Due to a lack of a projection model, mortality is expected to be the same as shown in Table 36S

New Management Measures

New Management Measure mortality for Alternative 2 are the same as under No Action.

4.8 Non-Trawl: Nearshore – Alternative 2

4.8.1 Impact (Groundfish Mortality) - Nearshore –Species of Concern

Projected landings, routine management measures, and projected mortality of stocks with nearshore specific limits would be the same as No Action except for Oregon black rockfish and California quillback rockfish

4.8.2 Impact (Groundfish Mortality) -

. See impact descriptions under Alternative 1 for Oregon black rockfish and California quillback rockfish.

Trip Limit Analysis

The trip limits under Alternative 2 are the same as No Action except for Oregon black rockfish and California quillback rockfish. See trip limit analysis under Alternative 1 for Oregon black rockfish and California quillback rockfish.

New Management Measures

New Management Measure mortality for Alternative 2 are the same as under No Action.

4.9 Washington Recreational Fishery: Alternative 2

Under Alternative 2, Washington recreational fisheries would operate under the same ACLs and associated Washington recreational HGs and ACTs and the same management approach as No Action (see Section 2.9.1).

4.10 Oregon Recreational Fishery: Alternative 2

The Alternative 2 ACLs and associated Oregon recreational values are the same as Alternative 1 (Table 5-24), as the only species with a change is sablefish which would not cause any changes for the Oregon recreational fishery, as impacts from recreational fisheries are an off-the-top deduction, set at 6 mt under all alternatives. Additionally, sablefish is not a regularly targeted species by Oregon recreational angler

4.11 California Recreational Fishery: Alternative 2

Under Alternative 2, California recreational fisheries would operate under the same ACLs and associated recreational HGs and ACTs and the same management approach as No Action (see Section 2.11.1).

NEW MANAGEMENT MEASURES

5. Potential Methodology for Developing Annual Catch Targets for Quillback and Copper Rockfish off California

At their November 2021 meeting, the Pacific Fishery Management Council (Council) requested placeholders for setting sector-specific annual catch targets (ACTs) below the nearshore complex annual catch limit (ACL) for quillback rockfish and copper rockfish off of California.

An ACT is a management target used to accomplish management objectives and may be used as an accountability measure(s) in cases where a stock is (or may be) subject to highly uncertain inseason catch monitoring to ensure against exceeding an ACL. ACTs can be treated like an ACL but, in general, they are set below the ACL or below harvest guidelines (HGs). ACTs can also be sector-specific (e.g., cowcod). Since the ACT is a target and not a limit it can be used in lieu of HGs, or strategically to accomplish other management objectives. ACTs can serve to notify fishery managers that action may be needed to address issues in the fishery, so management specifications are not exceeded. ACTs can also be applied in a rebuilding plan to attempt to reduce mortality of an overfished stock more than the rebuilding plan limits allow. The off-the-top deductions can be subtracted from the ACT before the remainder is allocated to sectors. In other cases, for example, if sector-specific ACTs are used, then the off-the-top deductions may be taken from the ACL prior to calculating the ACT. Unlike an ACL, the ACT can be exceeded annually, and management actions are not required.

5.1 Method to Determine ACTs

Quillback rockfish and copper rockfish off of California are caught in both the recreational and commercial fisheries and are in the Nearshore Rockfish Complexes North and South of 40°10' N. lat. This analysis offers a potential method to set sector specific ACTs to quillback rockfish and copper rockfish, as neither species has been subject to an ACT previously. The first step was to determine the proportional amounts of total mortality from the recreational, commercial non-trawl and commercial trawl sectors. The proportional amounts are defined as 'shares' for purposes of this analysis. The method to develop ACTs is shown in Section 1.1.1. The ACL amounts used in this method are from the Council-adopted harvest specifications from November 2021 (Agenda Item E.3, Attachment 1, November 2021).

It should be noted, final harvest specifications have not been selected by the Council; therefore, the harvest specifications may change upon Council decision at the April 2022 meeting. The goal of this analysis is to show a potential method to develop ACTs for these species. The harvest specification, i.e., OFL, ABC, etc. from which to initiate an ACT calculation is a Council decision point. In the following analysis, the No Action ACL amounts originate from the Council-adopted preliminary preferred harvest specifications from November 2021 (Agenda Item E.3, Attachment 1, November 2021). ACL contributions for these species to the Nearshore Rockfish Complexes north and south of 40 10' N. lat. were part of that action and were used as a starting point to develop ACTs in the following. The ACL for quillback under Alternative 1 was neither specified nor adopted by the Council. Those amounts were provided by John DeVore, Council Staff and originate from the stock assessment projections and are based on the stock assessment and the specification process.

Recreational estimated mortality for these species was obtained from the RecFIN database. The commercial estimated mortality for these species was derived through the commercial Nearshore Model (see Appendix A for description)[33]. For the purposes of this analysis, the range of years used for mortality data was 2018 to 2021, as those years are a better representation of the current status of the commercial and recreational fisheries.

5.1.1 Method to Determine Sector-Specific Shares

Step 1 determines the total estimated California mortality for a species by summing the estimated California commercial non-trawl and California recreational mortality, and, when applicable, estimated trawl mortality. Using the values from the nearshore model, the total estimated California mortality is calculated as:

1) $Mort_{a=CA,s,f} = Mort_{a=CA,s,f=nontrawl} + Mort_{a=CA,s,f=trawl} + Mort_{a=CA,s,f=rec.}$

where $Mort_{a=CA,s,f}$ is the estimated total mortality in California, area a, and for species s, across all fishery mortality sources f (non-trawl, trawl, and recreational). Step 2 estimates sector-specific (i.e., non-trawl, trawl, and recreational) share percentages by dividing the fishery (e.g., sector) specific mortality by the estimated sector mortality:

2) $\%\, Share_{a=CA,s,f} = \frac{Mort_{a=CA,s,f=[sector]}}{Mort_{a=CA,s,f}}$

where $\%\, Share_{a=CA,s,f}$ is the percent share in California, area a, for species s and for each fishery f. Step 3 estimates the species-specific 2023 and 2024 fishery (e.g., sector) shares in metric tons. This amount was calculated by multiplying the California sector-specific share percentage by the proposed species-specific ACL contributions in year y (i.e., 2023 or 2024):

3) $Share_{y,a=CA,s,f} = ACL_y * \%\, Share_{a=CA,s,f}$

5.2 Quillback Rockfish

Quillback rockfish mortality was limited to the non-trawl commercial and recreational sectors, as no trawl mortality was reported off California during 2018-2021. The Council adopted preliminary specifications in November 2021 that set ACLs for quillback rockfish off of California at less than a metric ton, regardless of alternative (Agenda Item E.3, Attachment 1, November 2021). As the ACLs are preliminary as of this writing, the following data should be considered as an example of the method the Council could follow to set a quillback rockfish ACT and not as final numbers.

5.2.1 No Action: Quillback Rockfish Remains in Nearshore Rockfish Complexes

Under No Action, quillback rockfish off of California will remain within the Nearshore Rockfish Complexes north and south of 40° 10' N. lat.; however, the north of 40° 10' N. lat. would be stratified into three subregions (Washington, Oregon, Northern California 40° 10' N. lat. to 42° N. lat.). The Nearshore Rockfish Complex South of 40° 10' N. lat. would remain as a single region.

[33] Appendix A details models used in this process, it will be available at the June 2022 Council meeting

Table 5-1 shows the average annual mortality for 2018 through 2021 and the estimated shares, by sector for each region.

Table 5-1. Estimated average (2018-2021) commercial non-trawl and recreational quillback rockfish mortality and estimated share percentages (%) for 42° N. lat. to 40° 10' N. lat. and south of 40° 10' N. lat. in metric tons (mt).

Region	Avg Commercial Mortality (mt)	Avg. Recreational Mortality (mt)	Rec. + Comm. Mortality (mt)	Est. Comm Share %	Est. Rec. Share %
42° to 40° 10' N. lat.	1.87	4.19	6.06	30.91%	69.09%
South of 40° 10' N. lat.	1.20	5.66	7.66	26.10%	73.90%

Table 5-2 provides the estimated shares by sector, based on the percentages from Table 5-1. The estimated results are all well under one metric ton and, in many instances, less than a tenth of a metric ton. Estimated shares are rounded to the hundredths of a metric ton, and estimates below a hundredth of a metric ton are stated as less than (<) 0.01 mt.

Table 5-2. Estimated commercial non-trawl (comm.) and recreational (rec.) quillback rockfish shares, in metric tons (mt), based on the 2023 and 2024 quillback rockfish ACLs for 42° N. lat. to 40° 10' N. lat. and South of 40 °10' N. lat.

Region	Year	ACL (mt)	Comm. Share (mt)	Rec Share (mt.)
42° to 40° 10' N. lat.	2023	0.0134	<0.01	<0.01
	2024	0.1670	0.05	0.12
South of 40° 10' N. lat.	2023	0.0137	<0.01	0.01
	2024	0.1700	0.04	0.13

In the commercial non-trawl fishery, the quillback rockfish shares between 42° N. lat. and 40° 10' N. lat. are estimated at <0.01 mt (<22 lbs.) and 0.05 mt (~115 lbs.) for 2023 and 2024, respectively. South of 40° 10' N. lat., commercial non-trawl shares are estimated at <0.01 mt (~< 22 lbs.) and 0.04 mt (~97 lbs.) for 2023 and 2024, respectively. In the recreational fishery, quillback rockfish shares between 42° N. lat. and 40°10' N. lat. are estimated at <0.01 mt (~< 22 lbs.) and 0.12 mt (~254 lbs.) for 2023 and 2024, respectively. South of 40°10' N. lat., recreational shares are estimated at 0.01 mt (~22 lbs.) and 0.13 mt (~278 lbs.) for 2023 and 2024, respectively.

5.2.2 No Action: Estimating Annual Catch Targets

Table 5-3 and Table 5-4 are the estimated commercial non-trawl and recreational fishery quillback rockfish ACTs. The estimated ACT options are based on 25, 50, and 75 percent of the estimated fishery sector share for the 42° N. lat. to 40° 10' N. lat. region and South of 40° 10' N. lat. For example, in Table 5-4, the 2024 commercial non-trawl quillback rockfish share for the 42° N. lat. to 40° 10' N. lat. region is 0.05 mt (~110 lbs.). If the Council selected an ACT of 25 percent of the estimated commercial non-trawl share, the ACT would be 0.01 mt.

Table 5-3. Estimated 2023 and 2024 commercial non-trawl sector quillback rockfish ACTs as 25, 50, and 75 percent (%) of the estimated commercial non-trawl sector share. Values are in metric tons (mt).

			ACT Options (mt)		
Management Area	**Year**	**Share (mt)**	**25%**	**50%**	**75%**
42°- 40° 10' N. lat.	2023	<0.01	<0.01	<0.01	<0.01
	2024	0.05	0.01	0.03	0.04
South of 40° 10' N. lat.	2023	<0.01	<0.01	<0.01	<0.01
	2024	0.04	0.01	0.02	0.03

Table 5-4. Estimated 2023 and 2024 recreational sector quillback rockfish ACTs as 25, 50, and 75 percent (%) of the estimated recreational sector share. Values are in metric tons (mt).

			ACT Options (mt)		
Management Area	**Year**	**Share (mt)**	**25%**	**50%**	**75%**
42°- 40° 10' N. lat.	2023	0.01	<0.01	0.01	0.01
	2024	0.12	0.03	0.06	0.09
South of 40° 10' N. lat.	2023	.010	<0.01	0.01	0.01
	2024	0.13	0.03	0.063	0.09

5.2.3 Alternative 1: California Quillback Rockfish Stock

Under Alternative 1, the Council would adopt a California stock designation for quillback rockfish This Alternative is in place to accommodate a potential rebuilding plan for the state of California; however, as part of the November 2021 action under E3, the rebuilding analysis and plan was to included SPR harvest rates of 0.5, 0.6, 0.7, and F=0. In order to provide a succinct evaluation for the Council, we only examine the SPR 0.5. If the Council selects Alternative 1 for quillback rockfish under a different SPR, staff and GMT will present that specific information to the Council at their June meeting.

The goal of this exercise is to present a method for Council consideration. To be clear, an Alternative 1 quillback rockfish ACL has not been adopted by the Council and is only used as a proxy for review of the proposed method. To remain consistent with the No Action section above and the copper rockfish section below, we use an estimated ACL. To develop the example ACT values, we use a quillback rockfish ACL based on the ABC (and OFL) for a California stock designation. The ABC is generated based on a projected OFL that uses a 50% SPR and has a P* .45. The ACL is a result of 40-10 reduction(Table 5-7)..

Under this Alternative, the methods to estimate ACTS as shown in Section 1.1 were followed. As this Alternative removes California quillback rockfish harvest specifications from the Nearshore Rockfish Complexes and designates the species as a California stock, an additional methodology step was added, whereby the regional values (i.e., 42° N. lat. to 40° 10' N. lat. and south of 40°10' N. lat.) for recreational and commercial non-trawl were summed (Table 5-5) to provide mortality estimates of the quillback rockfish stock off California.

Table 5-5. Estimated average (2018-2021) quillback rockfish mortality for recreational (rec) and non-trawl commercial (comm) groundfish fisheries in metric tons (mt).

Region	Est. Comm. Mortality Avg. (mt)	Est. Rec. Mortality Avg. (mt)
North of 40°10' N. lat.	1.87	4.19
South of 40°10' N. lat.	1.20	5.66
Sum	3.07	9.85

Table 5-6 provides the estimated mortality and the shares as a percentage of the estimated total mortality of quillback rockfish for a California quillback rockfish stock in the recreational and commercial fishery off of California.

Table 5-6. Estimated average (2018-2021) commercial (comm) non-trawl and recreational (rec) quillback rockfish mortality and estimated share percentages (%) for California in metric tons (mt).

Region	Avg Comm Mortality (mt)	Avg Rec Mortality (mt)	Sum Rec+Comm	% Comm Share	% Rec Share
California	3.87	9.85	13.72	28.22%	71.78%

Table 5-7 shows 2023 and 2024 estimate recreational and commercial shares, in metric tons, based on the estimated share percentages in Table 5-6. These percentages are applied to the Alternative 1 ACLs, resulting in estimated share amounts. Under Alternative 1, recreational shares are approximately three times higher than the commercial shares.

Table 5-7. Estimated commercial non-trawl and recreational quillback rockfish shares, in metric tons (mt), based on the 2023 and 2024 Alternative 1 quillback rockfish ACLs.

Year	OFL (mt)	ABC (mt)	ACL (mt)	Commercial Share (mt)	Recreational Share (mt)
2023	2.11	1.84	0.11	0.03	0.08
2024	2.38	2.06	0.20	0.06	0.14

5.2.4 Alternative 1: Estimating Annual Catch Targets

Table 5-8 displays potential commercial non-trawl and recreational quillback rockfish ACTs. Estimated ACTs are based on 25, 50, and 75 percent of the estimated fishery sector share for the statewide California quillback rockfish stock.

Table 5-8. Estimated 2023 and 2024 copper rockfish ACTs calculated as 25, 50, and 75 percent (%) of the estimated commercial non-trawl and recreational sector shares in metric tons (mt) off of California.

			ACT Options (mt)		
Fishery	**Year**	**Share (mt)**	**25%**	**50%**	**75%**
Commercial Non-Trawl	2023	0.03	< 0.01	0.02	0.02
	2024	0.28	0.01	0.03	0.04
Recreational	2023	0.08	0.02	0.04	0.06
	2024	0.14	0.04	0.07	0.11

5.2.5 Discussion

Under No Action, the estimated ACT range for the commercial non-trawl and recreational sectors off California are shown in Table 5-3 and Table 5-4, respectively. Regardless of sector or year, the ACTs are all well under one metric ton. For commercial non-trawl in the 42° N. lat. to 40° 10' N. lat. region, the estimated quillback rockfish ACTs range from 0.001 mt to 0.003 (~2 lbs. to 7 lbs.) in 2023 and from 0.013 mt to 0.039 mt (~29 lbs. to 86 lbs.) in 2024. South of 40° 10' N. lat., the commercial non-trawl sector quillback rockfish ACTs range from 0.001 mt to 0.003 mt (~2 lbs. to 7 lbs.) in 2023 and from 0.011 mt to 0.033 mt (~24 lbs. to 72 lbs.) in 2024. For the recreational sector in the 42° N. lat. to 40° 10' N. lat. region, the quillback rockfish ACTs range from 0.002 mt to 0.007 mt (~ 4 lbs. to 15 lbs.) in 2023 and from 0.029 mt to 0.087 mt (~64 lbs. to 192 lbs.) in 2024. South of 40° 10' N. lat., the estimated recreational sector quillback rockfish ACTs range from 0.003 mt to 0.008 mt (~7 lbs. to 18 lbs.) in 2023 and in 2024 from 0.031 mt to 0.094 mt (~68 lbs. to 207 lbs.).

Under Alternative 1, Table 5-8 shows the range in metric tons for the commercial non-trawl and recreational sectors. The commercial non-trawl sector quillback rockfish ACT range for 2023 is 0.008 mt to 0.023 mt (~18 lbs. to 51 lbs.) and from 0.014 mt to 0.042 mt (~31 lbs. to 93 lbs.) in 2024. The range of recreational quillback rockfish ACTs for 2023 is 0.02 mt to 0.059 mt (44 lbs. to 130 lbs.) and from 0.036 mt to 0.108 mt (~79 lbs. to 238 lbs.) in 2024.

5.3 Copper Rockfish

5.3.1 No Action: Copper Rockfish

The Council is considering a No Action alternative for copper rockfish that would keep it within the Nearshore Rockfish Complexes North and South of 40° 10' N. lat. off of California. In the Nearshore Rockfish Complex north of 40° 10' N lat., the California portion is 42° N. lat. to 40° 10' N. lat. Under the No Action harvest specifications report (Agenda Item E.3, Attachment 1, November 2021), copper rockfish south of 40° 10' N. lat. would be stratified into two subregions (40° 10' N. lat to 34° 27' N. lat. and South of 34° 27' N. lat.); however, the Council recommended combining the southern subregions into one region. To facilitate this combination, the species-specific ACL contributions of those subregions were summed to create a single ACL contribution.

The method described in Section 1.1.1 is used to estimate copper rockfish shares by fishery sector for California. Copper rockfish was caught in the commercial non-trawl, trawl, and recreational sectors off of California during 2018-2021; however, commercial trawl landings in California north of 40° 10' N. lat. averaged 0.0003 mt per year or ~.07lbs. per year, and south of 40° 10' N. lat. trawl catch was not noted in the period. These amounts are so low relative to total copper rockfish landings that it is likely they represent incidental catch and not targeted catch; therefore, therefore total trawl mortality is set at 0.00 mt (Table 5-9) and ACTs are not developed for copper rockfish in the trawl fishery.

Table 5-9. Estimated average (2018-2021) commercial non-trawl and recreational copper rockfish mortality and estimated shares for 42° N. lat. to 40° 10' N. lat. and South of 40° 10' N. lat. in metric tons (mt).

Region	Avg. Non-Trawl Mortality (mt)	Avg. Trawl Mortality (mt)	Avg. Rec. Mortality (mt)	Est. Total Mortality (mt)
42° to 40° 10' N. lat.	2.22	0.0003	5.77	8.00
South of 40° 10' N. lat.	13.19	0.00	119.35	132.54

As shown in Table 5-10, commercial non-trawl mortality in 42° N. lat. to 40° 10' N. lat. is nearly a third of total mortality, whereas commercial non-trawl mortality is about a tenth of total mortality in the south of 40° 10' N. lat. region.

Table 5-10. Estimated commercial non-trawl (comm.) and recreational (rec) shares for copper rockfish as a percentage (%) of the 2023 and 2024 copper rockfish ACLs for 42° N. lat. to 40° 10' N. lat. and south of 40° 10' N. lat.

Region	Non-Trawl Share	Rec. Share
42° N. lat. to 40° 10' N. lat.	27.80%	72.20%
South of 40° 10' N. lat.	9.95%	90.05%

Table 5-11 shows the estimated shares for the commercial non-trawl and recreational sectors, as trawl was excluded. In the 42° N. lat. to 40° 10' N. lat. region, commercial non-trawl shares are less than one metric ton and recreational shares average at 2.3 mt per year. South of 40° 10' N. lat., non-trawl commercial shares are about a tenth of recreational shares, with commercial non-trawl shares averaging 9 mt per year and recreational shares averaging 81 metric tons per year.

Table 5-11. Estimated commercial non-trawl (comm.) and recreational (rec.) copper rockfish shares based on the 2023 and 2024 copper rockfish ACLs for 42° to 40° 10' N. lat. and south of 40° 10' N. lat.

Area	Year	ACL (mt)	Non-Trawl Share (mt)	Rec. Share (mt)
42° to 40° 10' N. lat.	2023	3.18	0.88	2.30
	2024	3.20	0.89	2.31
South of 40°10' N. lat.	2023	88.42	8.80	79.62
	2024	91.56	9.11	82.45

5.3.2 Estimating Annual Catch Target Thresholds

Table 5-12 and Table 5-13 show the estimated ACTs options for copper rockfish in the non-trawl and recreational sectors off California by region. Estimated ACTs are based on 25, 50, and 75 percent of the estimated fishery sector share. Estimates rounded to the nearest hundredth of a metric ton.

5.3.3 Commercial Non-Trawl Annual Catch Target Estimates

Table 5-12 shows the potential catch thresholds at which the Council could set a copper rockfish ACT for the commercial non-trawl fishery. In the 42°- 40° 10' N. lat. region, the share, as well as all the ACL contributions to the complex thresholds are less than one metric ton. South of 40° 10' N. lat., the estimated ACT thresholds, regardless of percentage, are at least 2 mt but not greater than 7 mt.

Table 5-12. Estimated 2023 and 2024 copper rockfish ACTs calculated as 25, 50, and 75 percent (%) of the estimated commercial non-trawl sector share in metric tons (mt).

Area	Year	Share (mt)	ACT Options (mt)		
			25%	50%	75%
42°- 40° 10' N. lat.	2023	0.88	0.22	0.44	0.66
	2024	0.89	0.22	0.45	0.67
South of 40°10' N. lat.	2023	8.80	2.20	4.40	6.60
	2024	9.11	2.28	4.56	6.83

5.3.4 Recreational Annual Catch Target Estimates

Table 1-13 shows the potential catch thresholds at which the Council could consider setting a copper rockfish ACT for the recreational fishery. With the exception of the 25 percent threshold bin in the 42°- 40° 10' N. lat. region, all thresholds are greater than one metric ton.

Table 5-13. Estimated 2023 and 2024 copper rockfish ACTs calculated as 25, 50, and 75 percent (%) of the estimated recreational sector share in metric tons (mt).

Subregion	Year	Share (mt)	ACT Options (mt)		
			25%	50%	75%
42°- 40° 10' N. lat.	2023	2.30	0.58	1.15	1.73
	2024	2.31	0.58	1.16	1.73
South of 40° 10' N. lat.	2023	79.62	19.91	39.81	59.72
	2024	82.45	20.61	41.23	61.84

5.3.5 Discussion

Under No Action, the range in metric tons for the commercial non-trawl and recreational sectors is shown in Table 5-12 and Table 5-13, respectively. For commercial non-trawl in the 42° N. lat. to 40° 10' N. lat. region, the estimated copper rockfish ACTs range from 0.22 mt to 0.66 mt in 2023 and 2024, respectively. South of 40° 10' N. lat., the commercial non-trawl sector quillback ACTs range from 2.2 mt to 6.6 mt in 2023 and from 2.28 mt to 61.84 mt in 2024. For the 42° N. lat. to 40° 10' N. lat. region, the estimated recreational copper rockfish ACTs range from 0.58 mt to 1.73 mt in 2023 and 2024. South of 40° 10' N. lat., the recreational copper rockfish ACTs range from 19.91 mt to 59.72 mt in 2023 and from 20.61 mt to 61.84 mt in 2024.

6. Recreational Bag Limit Changes for Quillback Rockfish, Copper Rockfish, and Vermilion Rockfish

At the November 2021 Council meeting, the Council recommended, and NMFS subsequently implemented, a one fish bag limit for quillback rockfish, a one fish bag limit for copper rockfish, and a four fish bag limit for vermilion rockfish off of California to reduce mortality in the 2022 recreational fishery.[34] These species are part of California Department of Fish and Wildlife's (CDFW) recreational fishery Rockfish Cabezon Greenling (RCG) category. The reductions to mortality associated with the inseason action to reduce the sub-bag limit within total RCG bag limit for these rockfish effective January 1, 2022, are not yet known.

Harvest specifications for 2023 and 2024 indicate further bag limit changes for these species may be necessary to mitigate projected impacts for quillback rockfish from the OR/CA border to Point Conception, copper rockfish impacts statewide, but especially in the area south of Point Conception, and vermilion rockfish impacts south of 40°10' N. lat.

Several bag limit options are considered and range from modifying current sub-bag limits to prohibiting retention of some species within current aggregate daily bag limits. All of the bag limits described in this new management measure may be used during the regular season setting process or as inseason actions as needed to take steps to achieve harvest specifications. Quillback rockfish, coper rockfish, and vermilion rockfish sub-bag limits analyzed a range from 10 to 0 fish (i.e., no retention) within the 10-fish RCG bag limit. Further changes the sub-bag limit or prohibit retention may be necessary to continue to take steps to achieve specifications.

6.1 Purpose and Intent

The purpose of these measures is to reduce mortality for quillback rockfish, copper rockfish, and vermilion rockfish which is needed after the results of the 2021 stock assessments for those species off California. Inseason action at the November 2021 Council meeting reduced the bag limits for quillback, copper, and vermilion rockfishes effective Jan 1, 2022. However, by the time catch estimate information from the 2022 recreational fishing season is available to indicate if the reductions to bag limits have resulted in the necessary decreases to mortality, final Council action for the 2023-2024 Specifications and Management Measures process will have already occurred.

The harvest limits resulting from the 2021 stock assessment resulted in significant reductions to harvest limits for quillback rockfish compared to previous years. Reductions to harvest limits for copper rockfish are also needed because of the copper rockfish contribution to the minor nearshore rockfish complex south of 40°10' N. lat. is less than recent catch has been. While managed within the Minor Shelf Rockfish Complex south of 40°10' N. lat., catches of vermilion rockfish have routinely exceeded the species OFL contribution to the complex since 2015. A new sub-bag limit for vermilion rockfish was implemented in 2021, and reduced further for 2022.

[34] NMFS approved this measures January 1, 2022 (86 FR 72863).

6.2 Analysis

The quillback and copper rockfish bag limits were analyzed by CDFW (Agenda Item E.7.a, Supplemental CDFW Report 2, November 2021) and are incorporated by reference. The projected impacts of sub-bag limits for quillback rockfish and copper rockfish are reproduced below in Table 6-1 and Table 6-2, respectively. Bag limit analyses for vermilion rockfish were also conducted by CDFW as part of the 2021-2022 Biennial Specifications and Management Measure Process (Agenda Item F.1, Attachment 1, June 2020) and again in November 2021, but did not include the full range (10 to 0 fish) of options currently analyzed (Table 6-3) . The analyses were conducted under the following assumptions: 1) anglers will continue to fish in the same depths and areas; 2) rockfish caught in excess of the sub-bag limit analyzed will be discarded; and 3) by apportioning the assumed discards to the depths in which that species was historically caught in the recreational fishery, the species specific recreational rockfish DDM rates could be applied to the apportionments, then summed for a discard estimate. All projections for 2022 are potentially overestimates as calculations were based on recent fishery performance. Copper and vermilion rockfishes are co-occurring species. Implementation of new and/or reduced sub-bag limits for these species may encourage anglers to change their behavior to avoid the areas with high encounter rates once their sub-bag limits have been reached. This could result in fewer regulatory discards than projected and estimates of total mortality in 2022 could be lower than projected in this document.

Table 6-1. Projected recreational total mortality (mt) for quillback rockfish in California by Management Area under status quo regulations, with the implementation of a new 1-fish sub-bag limit, or no retention in 2022. Data are from RecFIN and CDFW. (from Agenda Item E.7.a, Supplemental CDFW Report 2, November 2021, page 3)

Management Area	Status Quo Regulations (mt)	1-fish Sub-Bag Limit (mt)	No Retention (mt)
Northern	4.5	3.5	2.1
Mendocino	1.9	1.7	0.9
San Francisco	3.7	2.8	1.7
Central	0.3	0.3	0.1
Southern	0.0	0.0	0.0
Statewide	10.4	8.3	4.8

Table 6-2. Projected recreational total mortality (mt) for copper rockfish in California by Management Area under status quo regulations and with the implementation of a 1-fish sub-bag limit or prohibited retention in 2022. Data are from RecFIN and CDFW (from Agenda Item E.7.a, Supplemental CDFW Report 2, November 2021, page 10)

Management Area	Status Quo Regulations (mt)	1-Fish Sub-Bag Limit (mt)	No Retention (mt)
Northern	5.4	3.7	1.8
Mendocino	9.2	6.1	3.1
San Francisco	28.0	22.3	19.5
Central	50.0	38.0	30.0
Southern	88.6	67.3	56.2

Management Area	Status Quo Regulations (mt)	1-Fish Sub-Bag Limit (mt)	No Retention (mt)
Statewide	181.2	137.4	110.6

Table 6-3. Projected recreational total mortality (mt) for vermilion rockfish in California by Management Area under status quo regulations, with the implementation of a 4-, 3-, or 2-fish sub-bag limit in 2022. Data are from RecFIN and CDFW. (from Agenda Item E.7.a, Supplemental CDFW Report 2, November 2021, page 17) with the additional analysis of a bag limit of zero-fish (no retention).

Management Area	Status Quo Regulations (mt)	4-Fish Sub-Bag Limit (mt)	3-Fish Sub-Bag Limit (mt)	2-Fish Sub-Bag Limit (mt)	No Retention (mt)
Northern	4.5	4.5	4.4	4.3	2.8
Mendocino	9.7	9.7	9.6	9.3	6.1
San Francisco	21.0	20.8	20.6	19.8	13.1
Central	83.6	74.1	70.4	65.8	52.3
Southern	91.3	81.6	77.6	72.3	57.1
Statewide	210.0	190.7	182.6	171.6	131.4

6.3 Mitigation and Monitoring

CDFW tracks groundfish mortality on a weekly and/or monthly basis to ensure that mortality remains within allowable limits. Several rockfish species of concern[35] are tracked on a weekly basis using preliminary California Recreational Fisheries Survey (CRFS) field reports. Beginning in 2022, the list of species was expanded to include quillback rockfish, copper rockfish, and vermilion rockfish as a result of new stock status information. 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.

Further changes to the sub-bag limits for quillback rockfish, copper rockfish, and vermilion rockfish to increase or decrease the sub-bag limit may be necessary to continue to take steps to achieve specifications, and these new management measures are proposed here for consideration during the regular season setting process or as inseason actions as needed to take steps to achieve harvest specifications.

All bag limit options proposed may be combined with season structure options, as detailed under No Action (Section 2.11) are designed to maximize harvest of healthy stocks and prevent impacts from exceeding limits for overfished stocks such as yelloweye rockfish. Changes to management measures are needed to take steps towards achieving harvest specifications for these species while

[35] Species tracked weekly inseason by CDFW include yelloweye rockfish, quillback rockfish, copper rockfish, and black rockfish.

maintaining opportunities for other healthy species to obtain their ACLs. These measures would provide more flexibility in managing groundfish fisheries in California.

6.4 Impacts

These options specifically affect the quillback rockfish, copper rockfish, and vermilion rockfish stocks while minimizing impacts to other groundfish stocks This management measure will affect the recreational groundfish fisheries in California. The geographic scope of this management measure is from 42° 00' N lat. (the Oregon/California border) to the U.S./Mexico Border.

The California recreational fisheries for private skiffs and CPFVs will be affected by changes proposed in the new management measure. This new management measures will result in unknown effort shifts in groundfish and other fisheries which cannot be fully characterized. There may be an increase in California's shore based and spear fishing effort which focus on nearshore stocks. Any increases in this fishery should be more than offset by reductions in the private skiff and CPFV fisheries. Analysis of CRFS data indicates that no yelloweye rockfish, quillback rockfish or cowcod are taken in the shore based or spear fisheries.

The bag limit options are expected to have limited effects to other resources, would result in increased protections for quillback, copper, and vermilion rockfishes, and could result in some decrease in fishing quality for anglers who would be required to discard these species in excess of the allowed bag limit caught.

If the Bag Limit Options proposed are combined with significant changes to season structures as described above in Section 2.11, especially those that limit or eliminate nearshore fishing opportunities for RCG species, effort shift from groundfish fisheries to other fisheries could be expected. A shift in effort to the salmon fishery could result in increased impacts on endangered coho salmon and Sacramento River winter run chinook. Shifts to other non-groundfish fisheries may cause other unforeseen impacts which could result in exceeding harvest limits for otherwise healthy stocks or increased bycatch of overfished species such as yelloweye rockfish.

Marine mammal and ESA species encounters in the recreational groundfish sector are rare. Encounters between these species and California fisheries are mostly associated with commercial trawl and non-trawl fixed gear. ESA species of concern for non-trawl fixed gear are salmon (Chinook salmon and coho salmon). The 2017 Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion for salmon indicated that coastwide bycatch of salmon by the non-IFG fixed gear fleet 2002-2015 averaged 54 salmon per year. The California recreational fishery contributes a trace number of salmon bycatch; these proposed management measures are not expected to change that.

The proposed management measures are consistent with MSA National Standard 1 (optimum yield and overfishing), in that it prevents overfishing by reducing mortality of overfished species, National Standard 8 (take into account socioeconomic impacts), by providing some recreational opportunities, and National Standard 9 (minimize bycatch), harvest abundant stocks while minimizing bycatch and providing for rebuilding of overfished stocks. This management measure is also consistent with National Standard 6 which accounts for variations in catch and creates contingencies in the management of fishery resources while staying within allowable limits

7. Novel Utilization of Existing RCA Boundary Lines

This new mitigation measure is a novel utilization of the previously established Rockfish Conservation Area (RCA) boundary lines for the California recreational fishery[36]. Historically recreational RCA boundary lines (which are a set of connecting waypoints which approximate a depth contour) have been used to allow fishing shoreward of a specific RCA boundary line and prohibit fishing seaward of that line. This new mitigation measure would allow fishing seaward of a specified RCA boundary line and prohibit fishing shoreward of that line. Dependent upon which RCA boundary line (e.g., 30 fm, 40 fm, 50 fm, 60 fm, 75 fm, 100 fm, and 125 fm lines) is used, fishing could be prohibited in state waters or state and federal waters.[37] This new mitigation measure may be used during the regular season setting process or as inseason action as needed to take steps to achieve harvest specifications, especially for rebuilding stocks like yelloweye rockfish, or stocks of concern such as quillback rockfish, copper rockfish or cowcod.

7.1 Purpose and Intent

The purpose of this mitigation measure is to reduce mortality for rockfish species of concern (such as quillback rockfish, copper rockfish, or cowcod) or rebuilding yelloweye rockfish by shifting fishing effort away from the habitats and depths where those stocks are most commonly encountered, and onto shelf and slope waters to target other, healthier groundfish stocks.

The historical use of RCAs reduced fishing pressure on shelf rockfish stocks, including several stocks that had been declared overfished, while increasing fishing pressure on nearshore stocks. This mitigation measure reverses the historical use of recreational RCA boundary lines and shifts fishing pressure away from nearshore stocks, including quillback and copper rockfishes, and onto the shelf habitat, where newly rebuilt shelf rockfish stocks (canary, bocaccio, and widow rockfishes), and other healthy rockfish stocks are available. These measures would provide more flexibility in managing groundfish fisheries in California and are designed to be combined with other season structure options and bag limit options to create a suite of management measures which take steps to achieve harvest specifications.

The proposed management measure is consistent with MSA National Standard 1 (optimum yield and overfishing), in that it prevents overfishing by reducing mortality of overfished species and National Standard 9 (minimize bycatch), harvest abundant stocks while minimizing bycatch and providing for rebuilding of overfished stocks. This management measure is also consistent with National Standard 6 in that it accounts for variations in catch and creates contingencies in the management of fishery resources while staying within allowable limits. Moving anglers into shelf and slope waters may increase hazards while fishing, counter to the objectives of National Standard 10. However, National Standard 10 states "The qualifying phrase "to the extent practicable" recognizes that regulation necessarily puts constraints on fishing that would not otherwise exist." The provisions within this new management measure may be required to allow for other National

[36] Refer to 50 CFR §660.360(c)(3)

[37] Coordinates approximating depth contours are found at § 660.71 through § 660.73.

Standards to be met. National Standard 10 should be considered in the approval of this new management measure but should not negate the approval of this new management measure.

7.2 Analysis

Use of the RCA boundary lines in this method has not previously been analyzed. However, anglers do have seasonal access to shelf and slope waters due to deeper depth restrictions or the elimination of depth restrictions during part of the year in multiple California Recreational Management Areas (Table 7-1). The traditional use of recreational RCAs precluded anglers from directly targeting shelf and slope rockfishes, as well as other deeper dwelling groundfish species, other than "other flatfish," petrale sole, and starry flounder which are exempt from RCAs. This measure would provide access to these stocks, many of which are underutilized.

Table 7-1. California recreational groundfish season structure assuming same season structure analyzed in 2021-2022 FEIS.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 1 – Oct 31 <30fm						All Depth	
Mendocino	Closed				May 1 – Oct 31 <30fm						All Depth	
San Francisco	Closed				April 1 – Dec 31 <50fm							
Central	Closed				April 1 – Dec 31 <50fm							
Southern	Closed		Mar 1 – Dec 31 <100 fm									

All depth fisheries (fisheries with no RCA boundary line) in the five management areas were analyzed in the 2017-2018 Biennial Specifications Process, the 2019-2020 Biennial Specifications Process, and the 2021-2022 Biennial Specifications Process. All depth fisheries have been in regulation in the Northern and Mendocino Management Areas in November and December each year since 2017, and available to anglers from 2019 through 2021. In the Southern Management Area (Point Conception to the US/Mexico border) the RCA depth constraint is the 100 fm RCA boundary line, which was analyzed as part of the 2021-2022 Biennial Specifications Process. Since 2004 access to shelf and some slope waters has been allowed for the boat-based groundfish fishery in all but two years (2013 and 2014) when the depth constraint was 50 fathoms .

The 2021 quillback rockfish stock assessment indicated the species may be in need of additional conservation and management measures off of California. Reductions to harvest for copper rockfish are also needed because of the decreased contribution of copper rockfish to the minor nearshore rockfish complex south of 40°10' N. lat. Changes to management measures may be needed to take steps towards achieving harvest specifications for these species while providing opportunities for other healthy species to obtain their ACLs.

As described in the CDFW Inseason Report 2, November 2021, quillback rockfish in California are primarily encountered in depths less than 50 fm and copper rockfish are most often encountered in depths less than 60 fm. By shifting fishing effort to waters seaward of where most encounters for these species occur, significant reductions to fishing mortality could occur.

Of the shelf rockfish species declared overfished in the early 2000's, yelloweye rockfish is the only species that is not yet rebuilt. Yelloweye rockfish primarily reside in depths between 20- 200

fm (see SAFE) and encounters could increase under the proposed mitigation measure, especially in the more northern areas of California as yelloweye rockfish abundance increases at greater latitudes. However, recent catches have been less than half the California Harvest Guideline and any increases to mortality associated with this measure are projected to remain within harvest limits, particularly with inseason monitoring and responsive management actions if catches are higher than expected.

7.3 Mitigation and Monitoring

There is great uncertainty with model projections when RCA boundary lines are utilized in this novel way, especially for species with a deeper depth distribution, like cowcod and yelloweye rockfish. The projection model is a catch-based model, and for species with few or no recent data to inform the model, catch projections will reflect that paucity of data. The model also assumes fishing activities occur from shore to an RCA boundary line.

CDFW tracks groundfish mortality inseason on a weekly and/or monthly basis to ensure that mortality remains within allowable limits. Several rockfish species of concern[38] are tracked on a weekly basis using preliminary California Recreational Fisheries Survey (CRFS) field reports. Beginning in 2022, the list of species was expanded to include quillback and copper rockfish as a result of new stock status information. 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.

CDFW also performs monthly tracking of non-overfished species (i.e., bocaccio, vermilion, and canary rockfish). These species tend to be encountered at a much higher frequency than yelloweye rockfish and quillback rockfish- thousands of fish per week as opposed to tens of fish. The volume of data associated with these species makes it much more challenging to summarize and track on a more frequent basis than the current process allows. Monthly tracking has proven effective at keeping catches of these species within allowable limits. If any allowable limits are projected to be attained inseason, action can be taken to slow and/or reduce catches. Inseason tracking reports are provided by CDFW to the Council at each Council meeting. To date, CDFW's weekly and monthly tracking processes have been an effective and reliable tool to closely monitor recreational inseason mortality and provides timely and accurate information to apply inseason adjustments, such as changes to depth limits, season length, or bag limits, to fisheries if required.

7.4 Impacts

This management measure will impact recreational boat-based groundfish fisheries in California. The geographic scope of this management measure is from 42° 00' N lat. (the Oregon/California border) to the U.S./Mexico Border. All federally managed groundfish stocks in ocean waters off

[38] Species tracked weekly inseason by CDFW include yelloweye rockfish, quillback rockfish, copper rockfish, and black rockfish.

California would be affected by this action in state, state and federal or federal waters, dependent upon the RCA boundary line utilized.

This new management measures could result in significant unknown effort shifts in groundfish and other fisheries which cannot be fully characterized; though reduction of fishing effort is expected, due to model limitations projected effort reduction cannot be quantified. Changes to angler behavior are difficult to predict, but under this measure anglers may choose to opt out of the groundfish fishery due to fuel costs and other difficulties in reaching fishing grounds, safety concerns related to fishing offshore (likely elimination of kayak fleet, especially if deeper RCA boundary lines are used), logistical constraints associated with smaller vessels such as vessel size and fuel capacity, and the physical effort of reeling fish up from deeper depths.

California has port areas with unique bathymetry, ranging from low sloping bottom topography that gradually deepen over distance to localized deep underwater canyons are relatively close to shore (e.g. Delgada, Noyo, Monterey, Hueneme, Redondo, and La Jolla Canyons).Anglers fishing out of Shelter Cove, Fort Bragg, Moss Landing, Oxnard, Marina Del Ray, and Dana Point will have considerably less distance to travel to reach the nearest deeper RCA boundaries than other port areas due to their localized bathymetry. However, even port areas close to underwater canyons will still need to travel 1.5 to 4 miles offshore to reach any RCA line that could be selected. Anglers based out of port areas not listed above would need to travel between two to five times further to access the same RCA line which will impact those port areas ability and desire to access fishing grounds seaward of any RCA line. It is likely, that the increased distance and travel time associated with offshore RCA lines will reduce small vessel effort, such as zodiacs and California's growing kayak fishery. However, there may be an increase in shore based and spear fishing effort which focus on nearshore stocks. Analysis of CRFS data indicates that no yelloweye rockfish, quillback rockfish or cowcod are taken in the shore based or spear fisheries. Restrictions to reduce quillback rockfish or yelloweye rockfish impacts should not be required in these fisheries.

While anglers may choose to opt out of the private skiff fishery, there may be a shift towards Commercial Passenger Fishing Vessels (CPFV) due to longer distances to fishing grounds and safety concerns related to smaller vessels fishing in offshore waters. However, any increase in CPFV effort is unlikely to compensate for the loss of private skiff anglers, especially in the more northern parts of the state where CPFVs are generally smaller vessels than in Southern California. Even though an increase in CPFV effort may occur in some areas of the state, it is unclear how changes such as longer run times to fishing grounds, changes in the species compositions of bags and the additional effort to reel in fish from deeper depths will have on the fishery. Anglers and CPFV operators may simply choose to opt out of the fishery altogether causing a significant decrease in private skiff and CPFV effort as a whole, especially if RCA lines further offshore are used.

The drawbacks associated with accessing offshore fishing grounds may result in unknown shifts in effort to other state and federally managed fisheries such as Pacific halibut, salmon, scorpionfish, highly migratory species, coastal pelagic species, California sheephead, California halibut, striped bass, kelp bass and others as anglers search for other available fishing targets. It is impossible to accurately predict angler behavior as well as impacts to both groundfish and non-groundfish species under this management measure. This new management measure is a tool, that when used in combination with other available management measures (e.g., bag limits, seasonal

closures, etc.), designed to mitigate impacts to overfished species and fishing pressure on nearshore stocks, including quillback rockfish and copper rockfish, while minimizing impacts to California fisheries and coastal communities.

This measure is intended to limit the negative socioeconomic impacts that could otherwise occur as a result of the need to reduce mortality for quillback and copper rockfishes, and stay within harvest guidelines for yelloweye rockfish and cowcod. It is expected short term and long-term impacts will occur as the sector adjusts to new regulations and fishery operations. Loss of fishing vessels, captains and crew leaving the industry and the potential closures of landings and fishing tackle providers are within the realm of possibilities. Innovations in fishing gears or a shift in angler preference for target species could provide new opportunities for anglers, businesses, and communities. Though these changes could have positive long-term effects that will take time and would not bring immediate relief to communities that will be negatively impacted by fisheries reductions related to quillback rockfish.

Accessing depths that have not been fished in decades may increase harvest of mid-water shelf rockfish species, slope rockfish species, roundfish, thornyheads or other groundfish and could augment current biological data collection activities for these species. Data on these species from recreational fisheries has been sparse since the deeper water closures of the continental shelf. The information that may be captured through the CRFS program could provide improved contemporary fishery dependent biological information for use in future stock assessments for those species.

It is expected that increased transit time to fishing grounds, necessary changes to fishing gear like deeper water rods and reels and physical effort required to haul fish up from deeper depths could result in an effort shift from groundfish fisheries to non-groundfish fisheries (ex: highly migratory species such as tuna, salmon, Pacific halibut and state managed fisheries like California halibut, white seabass, etc.). A shift in effort to the salmon fishery could result in increased impacts on endangered coho salmon and Sacramento River winter run chinook. Shifts to other non-groundfish fisheries may cause other unforeseen impacts which could result in exceeding harvest limits for otherwise healthy stocks or increased bycatch of overfished species such as yelloweye rockfish.

Marine mammal and ESA species encounters in the recreational groundfish sector are rare. Encounters between these species and California fisheries are mostly associated with commercial trawl and commercial non-trawl fixed gear. ESA species of concern for non-trawl fixed gear are salmon (chinook salmon and coho salmon). The 2017 Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion for salmon indicated that coastwide bycatch of salmon by the non-IFQ fixed gear fleet 2002-2015 averaged 54 salmon per year. The California recreational fishery contributes a trace number of salmon bycatch and these proposed management measures are not expected to change that.

8. Consideration to Correct the Definition of Block Area Closures in the Pacific Coast Groundfish Fishery Management Plan

In the course of the Groundfish Management Team's (GMT) over-winter analysis on the 2023-2024 harvest specifications and management measure, a mismatch between the FMP and current regulations was discovered. The regulations articulate the Council's intent to manage incidental salmon bycatch by vessels using groundfish midwater trawl gear in the Exclusive Economic Zone (EEZ) off of Washington, Oregon, and California with Block Area Closures (BACs); however, inadvertently, the FMP was not updated to be consistent with regulations. To avoid potential future implementation delays, updates should be made to the FMP that are consistent with Council intent described in the salmon bycatch mitigation rulemaking document (86 FR 10857).

8.1 Purpose and Need

The purpose of this action is to correct the current definition of BACs in the Pacific Groundfish FMP to be consistent with current Federal Regulation language."

The need of this action is if not corrected, the Council may not be able to apply BACs for vessels using limited entry bottom trawl gear and in the EEZ off Washington, Oregon and California for vessels using midwater trawl gear

8.2 Background

In the FMP, BACs are currently defined as (emphasis added):

> "…groundfish bottom trawl-specific management tool introduced as part of Amendment 28. BAC boundary lines are latitudes and depth contour approximations described in Federal regulations at 50 CFR §660.11 and §§71-74. BACs (one or more) may be closed or reopened inseason via the routine management measures process (Section 6.2.1) using latitude and longitude boundary lines defined in regulation. One or more of those polygons, as necessary may be closed to groundfish bottom trawl gear to control harvest of groundfish species or to reduce the catch of protected species. **BACs are available off Oregon and California, and are intended as a catch control mechanism, not for habitat protection.**"
>
> FMP, page 87

BACs are described in multiple regulation sections[39]; however, the relevant language illustrating the differences between the FMP language shown above and Federal regulation is shown below:

> "… BACs may be implemented in the EEZ off Oregon and California for vessels using limited entry bottom trawl and/or midwater trawl gear. BACs may be implemented in the EEZ off Washington shoreward of the boundary line approximating the 250-fm depth contour for midwater trawl vessels. BACs may close areas to specific trawl gear types (e.g., closed for midwater trawl, bottom trawl, or bottom trawl unless using selective flatfish trawl) and/or specific programs within the trawl fishery (e.g., Pacific whiting fishery or MS Coop Program)…"

[39] Refer to 50 CFR § 660.11 Conservation area(s); § 660.111 Block area closures; § 660.60(c)(3)(i); etc.

§ 660.111 "Block area closures or BACs

> "**…** BACs, as defined at § 660.111, may be closed or reopened, in the EEZ off Oregon and California, for vessels using limited entry bottom trawl gear, and in the EEZ off Washington, Oregon and California for vessels using midwater trawl gear, consistent with the purposes described in this paragraph (c)(3)(i)."
>
> § 660.60(c)(3)(i)(C)

At issue is the FMP does not include language related to the use of BACs for midwater trawl in the EEZ off Washington, Oregon, and California. Additionally, the FMP lacks specificity regarding their applicability to groundfish gear types. Noted above under 50 CFR 660.60(c)(3)(i)(C), BACs can be used for bottom trawl gear off of Oregon and California but only midwater gear off of Washington, Oregon, and California.

BACs were developed by the Council under Amendment 28 to control harvest of groundfish and protected species for vessels using bottom trawl groundfish gear. Under the salmon mitigation measure process (Agenda Item H.9, Attachment 1, November 2019), the Council developed BACs for vessels using midwater trawl gear BACs can only be applied control incidental catch of salmon. In the salmon mitigation process, the Council's intent was clear that they developed the tool to apply BACs for vessels using midwater groundfish gear as a means to reduce incidental salmon catch.[40]

8.3 Options

Option 1: The Council will not correct the definition of BACs in the FMP and the language will, therefore, not be consistent with Federal Regulations.

Option 2: The Council will correct the FMP definition of BAC. Corrected language is shown below (**in bold)**.

> "BACs are groundfish bottom trawl-specific management tool introduced as part of Amendment 28. BAC boundary lines are latitudes and depth contour approximations described in Federal regulations at 50 CFR §660.11 and §§71-74. BACs (one or more) may be closed or reopened inseason via the routine management measures process (Section 6.2.1) using latitude and longitude boundary lines defined in regulation.–One or more of those polygons, as necessary may be closed to groundfish bottom trawl gear to control harvest of groundfish species or to reduce the catch of protected species. BACs are available **in the EEZ** off Oregon and California **for vessels using limited entry bottom trawl gear and in the EEZ off Washington, Oregon and California for vessels using midwater trawl gear** and are intended as a catch control mechanism, not for habitat protection."

8.4 Discussion

Updating the FMP would bring the FMP consistent with current regulations. This correction would allow the Council to recommend use BACs for vessels using midwater groundfish trawl gear. Impacts of this action are uncertain as it would depend on if and when a BAC were applied.

[40] Refer to Council meetings in November 2018 (Agenda Item G.8), April 2019 (Agenda Item G.3), September 2019 (Agenda Item H.4); and November 2019 (Agenda Item H.9).

As the measure could be applied as a routine inseason measure, impact analysis would be developed for Council and NMFS review. While establishing a BAC could negatively impact the trawl fishery, it is likely the impact would be much less negative than a BRA or a complete closure of the fishery.

9. Consideration of an Fishery Management Plan Amendment to Establish a Shortbelly Rockfish 2,000 mt Catch Threshold to Initiate Council Review of the Fishery

In the 2021-2022 groundfish management measure process, the Pacific Fishery Management Council (Council or PFMC) designated shortbelly rockfish as an ecosystem component (EC) species. Additionally, as part of that decision, the Council issued guidance that shortbelly rockfish mortality would be monitored and tracked inseason. As part of this guidance, the Council noted it could take action if mortality of the stock exceeds, or is projected to exceed, 2,000 mt[41] in a calendar year (PFMC June 2020 Decision Document). However, this guidance has not been formalized by amending the Groundfish Fishery Management Plan (FMP).

At its November 2021 meeting, the Council initially considered prohibition of a directed fishery on shortbelly rockfish to be included in the 2023-2024 biennial groundfish management process. The Oregon Department of Fish and Wildlife (ODFW) provided a report to the Council that, in brief, recommended that shortbelly rockfish management be put on a separate track (Agenda Item E.5.a, ODFW Report 1, November 2021). The Council removed this measure from consideration as part of the biennial process at the November 2021 meeting (Agenda Item E.5, Motions in Writing); however, the Council noted the importance of this species as a potential forage base and that directed shortbelly management measures may meet the Council's ecosystem objectives in the Fishery Ecosystem Plan (FEP). As such, an interim recommendation was made that would formalize review of shortbelly rockfish mortality inseason and allow the Council to take appropriate action by amending the Groundfish FMP as part of the 2023-2024 biennial harvest specifications and management measures process. The FMP would be amended by adding language stating that if shortbelly rockfish mortalities exceed, or are projected to exceed, 2,000 mt in a calendar year, the Council would review relevant fishery information and consider if management changes were warranted, including, but not limited to reconsideration of its current classification as an EC species (Agenda Item E.5, Motions in Writing).

The following analysis provides background relevant to shortbelly rockfish management and considers the question of the request through the lens of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Groundfish FMP. We conclude the analysis with draft options for the Council to consider.

9.1 Purpose and Need

The purpose of this action is to amend the Groundfish FMP to define 2,000 mt as the threshold for shortbelly rockfish mortality that would initiate Council review and potential management response, as well as potential reconsideration of its EC species designation.

[41] less than half of the 2002-2020 ABC; 5,789 mt

The need of this action is to address the lack of a formal Groundfish FMP language that requires the Council to review shortbelly rockfish mortality when its annual mortality is projected to exceed

or exceeds a 2,000 mt threshold.

9.2 Distribution and Life History

Shortbelly rockfish (*Sebastes jordani*) is a small-bodied rockfish that ranges from Baja California, to as far north as parts of British Columbia, and as far west as the Cobb Seamount off of Washington. Historically, they have been most abundant along the continental shelf break between the northern end of Monterey Bay and Point Reyes, CA and around the Channel Islands (Section 2.5.9.1 of the Draft 2022 SAFE Document); however, they have been increasingly encountered in midwater trawl fisheries north of 40° 10′ N. lat., even as far north as northern Washington. Stock structure is poorly understood, though genetic analysis suggests a single coastwide stock. Shortbelly rockfish is one of the most abundant rockfish species in the California Current Ecosystem (CCE) and is a key forage species for many fish, birds, and marine mammals. They generally have a trophic position and life history traits more similar to forage fishes than most other *Sebastes* species (Draft 2022 SAFE). Additional details can be found in the 2020 SAFE Document.

9.3 Stock Status and Management History

The Groundfish Management Team has provided a number of reports concerning shortbelly rockfish in the last several years in response to the increasing encounters, including information on fishery interactions and possible range expansion of shortbelly rockfish (Agenda Item G.1.a, Supplemental GMT Report 3, June 2020; Agenda Item G.6.a, Supplemental GMT Report 2, April 2020; Agenda Item H.4.a, Supplemental GMT Report 1, November 2019; Agenda Item H.8.a, Supplemental GMT Report 2, November 2019; Agenda Item H.6.a, Supplemental GMT Report 1, September 2019; Agenda Item I.7.a, Supplemental GMT Report 1, June 2019; and Agenda Item G.6.a, Supplemental REVISED GMT Report 1, November 2018)

Shortbelly rockfish are not, and have not historically been, a directed target of commercial or recreational fisheries. In the early 1980s, as part of early work by the Council on developing domestic fisheries, this species was assessed, along with other groundfish stocks. The first acceptable biological catch (ABC) for shortbelly rockfish was set at 10,000 mt for 1983 through 1989 by the PFMC (Draft 2022 SAFE). A stock assessment by Pearson et al. (1991) estimated that allowable catches for shortbelly rockfish might range from 13,900 to 47,000 mt per year, based on life history data and hydroacoustic survey estimates of abundance. Based on the 1991 assessment, the Council established an ABC of 23,500 mt, which was reduced to 13,900 mt in 2001 based on observations of poor recruitment throughout the 1990s, and the continued lack of a targeted fishery.

In 2007, a shortbelly rockfish assessment was done as an academic exercise, modeling the population between 1950 to 2005, to understand the potential environmental determinants of fluctuations in the recruitment and abundance of an unexploited rockfish population in the CCE (Field, et al. 2007). The results of the assessment indicated the shortbelly rockfish stock was healthy, at a stock status of 67 percent relative to the mean spawning biomass (Draft 2022 SAFE).

Shortbelly rockfish were initially considered for an EC species categorization under Amendment 23 to the Groundfish FMP. Rather than classifying shortbelly rockfish as an EC species at that time, the Council chose to recommend a very restrictive annual catch limit (ACL) of 50 mt for the 2011-2012 and the 2013-2014 management cycles. The overfishing limit (OFL) and ABC were 6,950 mt and 5,789 mt, respectively, per year during those cycles. The ACL was increased to 500 mt beginning in 2015 (the OFL and ABC remained the same as in 2011-2014) to prevent unavoidable bycatch from prematurely shutting down emerging midwater trawl fisheries targeting yellowtail and widow rockfishes. The 500 mt ACL was less than 10 percent of the ABC (5,789 mt) and was a level of harvest meant to balance the needs of the fishery and species in the CCE.

Bycatch mortality of shortbelly rockfish remained low, below the 500 mt ACL, until 2017 when it abruptly increased by an order of magnitude (Figure 9-1) and has remained high through 2021. Most of the bycatch occurs in the midwater Pacific whiting and rockfish trawl fisheries north of 40° 10′ N. lat. Total mortality has exceeded 500 mt for three consecutive years: 2018 (507.7 mt), 2019 (666.8 mt), and 2020 (582.8 mt). The high number of observed encounters in the northern waters, off of Oregon and Washington, in recent years may be a sign of climate change-driven distributional shift and/or the effect of recent strong recruitment events (Draft 2022 SAFE).

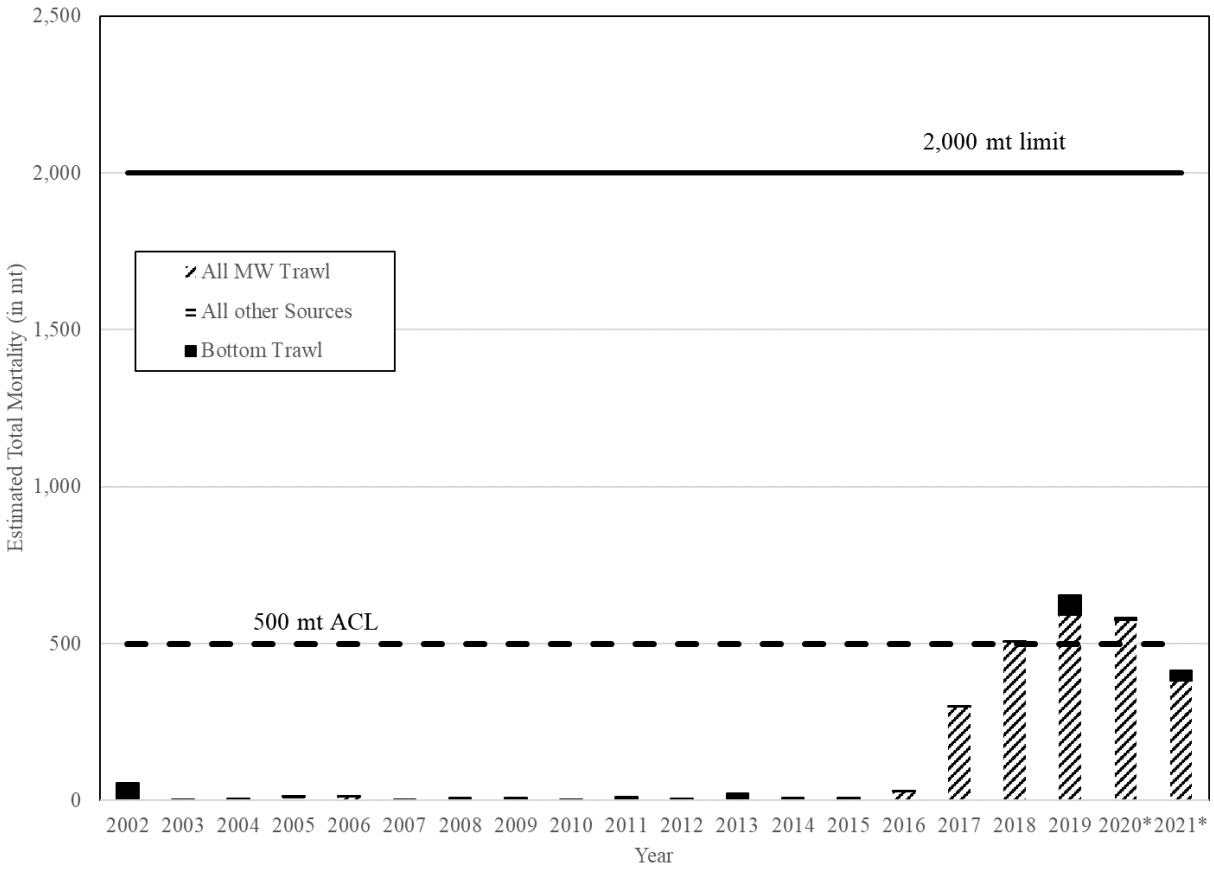


Figure 9-1. Annual shortbelly rockfish mortality (in mt) between 2002-2021. The 500 mt ACL (dashed line) and 2,000 mt limit (thick solid line) are also shown for reference. Mortality data from the WCGOP GEMM Product. *Estimates in 2020 and 2021 are preliminary estimates from the PacFIN Report GMT008.

Due to the higher than expected mortality in 2018 and 2019, the Council reevaluated the 500 mt ACL and adopted an ACL of 3,000 mt for 2020, a little over half of the ABC and well above recent shortbelly rockfish mortality estimates, to avoid premature closure of the 2020 midwater trawl fisheries (NMFSa, 2020). In the 2021-2022 biennial cycle, the Council considered a 2,000 mt ACL as well as an annual catch target (ACT) for shortbelly rockfish; however, these management measures were ultimately rejected in favor of designating shortbelly rockfish an EC species (NMFSb, 2020) as recommended by the GMT in Agenda Item F.1.a, Supplemental GMT Report 3, June 2020 and the GAP in Agenda Item F.1.a, Supplemental GAP Report 1, June 2020.

9.4 Fishing Mortality

As mentioned above, shortbelly rockfish are not targeted in any U.S. West Coast recreational or commercial fishery, and were caught in low amounts (< 50 mt most years) prior to 2017. Since 2017, total mortality has exceeded the 500 mt ACL level three times (2018, 2019, and 2020). Preliminary estimates of 2021 mortality are approximately 415 mt. Even in the highest mortality year (2019; 667 mt) the total mortality has not been greater than 33 percent of the 2021 and beyond limit of 2,000 mt (Table 9-1) and the limit that would trigger action under this proposal.

Table 9-1. Annual harvest specifications, total mortality (in mt), and the percent of mortality relative to specific harvest specification, of shortbelly rockfish between 2011-2021.

Year	OFL	ABC	ACL	Fishery HG	Total Mortality a/	% of Annual Fishery HG	% of OFL	% of 2,000 mt limit
2011	6,950	5,789	50	49	12.2	25%	0.2%	0.6%
2012	6,950	5,789	50	49	7.4	15%	0.1%	0.4%
2013	6,950	5,789	50	48	25.1	52%	0.4%	1.4%
2014	6,950	5,789	50	48	17.7	37%	0.3%	1.3%
2015	6,950	5,789	500	498	9.3	2%	0.1%	0.5%
2016	6,950	5,789	500	498	30.0	6%	0.4%	1.6%
2017	6,950	5,789	500	489	320.2	65%	4.6%	17.1%
2018	6,950	5,789	500	489	507.7	104%	7.3%	25.6%
2019	6,950	5,789	500	483	666.8	138%	9.6%	32.7%
2020	6,950	5,789	3,000	3,000	582.8	19%	8.4%	29.1%
2021	N/A-Ecosystem Component Species			2,000	414.5*	21%	N/A	20.7%

a/ data from WCGOP GEMM product
* preliminary estimates from PacFIN Report GMT008

Due to their small size, shortbelly rockfish are not currently marketable. The available data on historical bycatch rates of shortbelly rockfish are extremely sparse. Shortbelly rockfish were historically caught incidentally, at times in large numbers, by trawlers targeting other pelagic rockfish (usually chilipepper and widow rockfishes). Due to their small size, schooling behavior, spines, shortbelly rockfish catches usually foul the mesh of typical groundfish trawls. This has motivated more experienced fishermen to learn and to recognize shortbelly rockfish on their

acoustics, along with shortbelly rockfish habitat preferences, and work to actively avoid schools (Draft 2022 SAFE). The fouling of gear is a particular challenge for the current midwater trawl fisheries' participants north of 40° 10′ N. lat. who had historically not encountered shortbelly rockfish (prior to 2017) and therefore were unfamiliar with the acoustics of shortbelly rockfish, resulting in unintended increases in shortbelly rockfish bycatch.

The current exploitation rate of shortbelly rockfish is unknown. However, given the evidence of recent strong recruitment (see Agenda Item H.4.a, Supplemental GMT Report 1, November 2019) and undiminished encounter rates in its historically predominant habitats south of 40° 10′ N. lat., there is limited evidence that current exploitation levels pose a risk to the stock's function as an important forage species in the CCE (Draft 2022 SAFE). A new stock assessment, similar to the assessment conducted in 2007, could provide clarity on the current stock status, stock size, and exploitation.

9.5 Ecosystem Component Species

Shortbelly rockfish was designated as an EC species during the 2021-2022 harvest specifications and management cycle. This action removed shortbelly rockfish from active management, in the sense that it no longer is subject to, for example, an ACL; however, as a precautionary measure, Council issued guidance to the GMT to monitor shortbelly rockfish mortality, but did not amend the FMP.

Councils are able to identify non-target stocks and species within their FMPs as EC species if the Council determines that the stock does not require conservation and management.[42] These stocks may remain in the FMP in order to achieve ecosystem management objectives.[43] Consistent with National Standard 9 (§600.350) of the Magnuson Stevens Fishery Conservation and Management Act (MSA), Councils may also adopt management measures to minimize bycatch or mortality of EC species.[44]

Under the Groundfish FMP, to be considered an EC species, the species is not "in the fishery" and therefore not actively managed. From Section 4.2 of the Groundfish FMP:

> "EC species are not targeted in any fishery and are not generally retained for sale or personal use. EC species are not determined to be subject to overfishing, approaching an overfished condition, or overfished, nor are they likely to become subject to overfishing or overfished in the absence of conservation and management measures. While EC species are not considered to be 'in the fishery,' the Council should consider measures for the fishery to minimize bycatch and bycatch mortality of EC species consistent with National Standard 9, and to protect their associated role in the ecosystem."

Based on our understanding of the above language, shortbelly rockfish bycatch could be actively monitored by the Council and the Council is allowed under the MSA to recommend management measures for EC species.

[42] See §§ 600.305(c)(5) and 600.310(d)(1)
[43] § 600.305(d)(13)
[44] See §§ 600.305(c)(5) and 600.310(d)(1)

9.6 Options

The GMT has developed Options for the Council to consider based on our interpretation of the motion and the information presented above. For clarity, we understand the motion to mean the following: The Council shall review shortbelly rockfish mortality during the routinely scheduled groundfish inseason agenda item. Should shortbelly rockfish mortality exceed, or be projected to exceed, 2,000 mt in a calendar year, the Council shall consider if management measures are necessary to reduce shortbelly rockfish mortality. The Council may recommend management measures designed to achieve the goals and objectives of the Groundfish FMP and the Fishery Ecosystem Plan (FEP) for shortbelly rockfish. Additionally, the Council may reconsider the ecosystem component designation for shortbelly rockfish, if appropriate. It is important to note that this process is implied under current Council guidance, but has not been formally adopted into the FMP. Shortbelly rockfish mortality is currently available through the publicly accessible Pacific Fisheries Information Network (PacFIN) Apex data portal, specifically GMT007, and reviewed at each Council meeting under the groundfish inseason agenda item.

Option 1: The Council will continue to monitor shortbelly rockfish fishery-incurred mortality inseason. If this mortality exceeds, or is predicted to exceed, 2,000 mt, the Council may consider management measures to reduce shortbelly rockfish mortality. This guidance will not be incorporated into the Groundfish FMP or into regulation.

Option 2: The Pacific Coast Groundfish FMP shall be amended to include the following:

> The Council shall review shortbelly rockfish fishery-incurred mortality during the routinely scheduled groundfish inseason agenda item. If shortbelly rockfish mortality exceeds, or is projected to exceed, 2,000 mt in a calendar year, the Council shall review and investigate all appropriate fishery information and consider if management measures are necessary to reduce shortbelly rockfish mortality.

Option 1 is the direction given to the GMT and staff as part of the 2021-2022 biennial groundfish management measure process. This guidance was not formalized as a Groundfish FMP amendment or codified into regulation. Option 2 would amend the Groundfish FMP by adding the above language, formalizing the review process. Under both Options, the Council would be updated, as it is currently, on fishery-related shortbelly rockfish mortality during the routine groundfish inseason agenda item and could take action to address shortbelly rockfish mortality.

Neither Option explicitly states what management measure(s) the Council would recommend reducing shortbelly rockfish mortality but, rather, provides the policy by which the Council could take action, if necessary. Under either Option, the Council may develop and recommend management measures to minimize bycatch and bycatch mortality of EC species consistent with National Standard 9, and to protect their associated role in the ecosystem[45]. The Council has developed management measures in the past that may be applicable to reducing shortbelly catch. Minimizing bycatch or mortality of shortbelly rockfish could potentially be achieved through such management measures as block area closures (§660.60(c)(3)(i)(C)), bycatch reduction areas (§660.60(c)(3)(i)(B)), Pacific whiting at-sea set-asides (§660.150(c)(2)(i)(B)), shortbelly rockfish

[45] See § 600.305(c)(5)

trip limits by sector and/or area, etc. Further, the Council could design new management measures that would accomplish their goals and objectives regarding shortbelly rockfish.

Additionally, under either Option, the Council could return shortbelly rockfish to the actively managed species list. This would essentially reverse the decision the Council made during the 2021-2022 groundfish biennial cycle to move shortbelly rockfish to an EC species within the Groundfish FMP. This action would require an FMP amendment and the requisite three meeting process. Once added back to the FMP, the Council could then set an OFL, ABC, and ACL, as well as an appropriate ACT or HG (e.g., at the 2,000 mt level).

9.7 Impacts

There are no direct impacts from this action on the groundfish fishery as it more formally sets a mortality threshold that is already in place for shortbelly rockfish that would initiate a review of pertinent fishery information by the Council. Indirectly, however, the decision(s) the Council could make based on the review could impact the groundfish fishery. The Council would be able to recommend management measures designed to reduce shortbelly rockfish mortality. The impacts on the fishery would be highly dependent on the management measure the Council recommended and, without specifics on the measure, it is highly premature to elucidate fishery impacts at this point. This species is primarily caught in midwater trawl fisheries, in particular the Pacific whiting fishery. It is likely that management measures on shortbelly rockfish would affect the midwater trawl fishery; however, the degree to which the impact would be negative, neutral, or positive cannot be gauged with any certainty until the Council were to start considering specific measures.

9.8 Discussion

The Council has, in the past, considered management measures such as harvest specification adjustments (NMFSa, 2020a), ACT options (Agenda Item F.1.a, GMT Report 1, June 2020), and spatial management options (Agenda Item F.1.a, GMT Report 1, June 2020) to mitigate fishery impacts on shortbelly rockfish. The most recent action was to designate shortbelly rockfish as an EC species (NMFS, 2020b). This measure does not mitigate against ACL overages as EC species are exempt from that specification. However, this measure does provide a review process for the Council to undertake that could indicate if FEP goals and objectives are not being met.

This proposed Groundfish FMP Amendment does not change management of the fishery directly. It would set a policy that would require the Council to review relevant fishery information on shortbelly rockfish if total mortality was projected to exceed or did exceed 2,000 mt. Initiation of the review does not explicitly require the Council to take action to reduce mortality, though the Amendment language would provide the Council with a set opportunity to take action on this EC species. For example, the Council could reinstate shortbelly rockfish as an actively managed stock, i.e., rescind the EC species designation, or develop new management measures in future management actions, e.g., prohibit a directed fishery, to achieve the desired goals and objectives for this species.

The threshold amount, 2,000 mt, is a Council designated amount, and could be changed at this time, or through an additional FMP amendment at a later time, if the Council determines it is too high, or too low, for appropriate conservation goals. This amount is less than half of the most

recent (2020) ABC estimate and approximately one-third of the OFL (Table 1). Setting a 2,000 mt threshold as the level to initiate a review process is a precautionary measure that may allow the Council to develop and implement management measures in a timely manner, to reduce the potential of negative impacts to the stock and/or ecosystem.

10. LEFG Primary Tier Sablefish Season Extension

At their November 2021 meeting, the Council directed the GMT and Council staff to explore action to permanently extend the LEFG primary sablefish tier fishery (hereinafter referred to as primary fishery) season end date from October 31 to December 31 as part of the 2023-2024 harvest specifications and management measures process.

The current LEFG permit stacking program, which is the basis of the primary fishery, was developed under Amendment 14 to the Pacific Coast Groundfish Fishery Management Plan (FMP). In brief, this fishery is a limited access privilege program (LAPP) where participating vessels must be registered to a limited entry permit with pot and/or longline gear endorsement and a sablefish endorsement. The primary fishery's sablefish north of 36° N. lat. allocation is divided up amongst three 'tiers' , with tier 1 permits holding the largest amount of sablefish and tier 3 the lowest. Primary fishery participants may hold and stack up to three tiers of any level. This means that a primary vessel could harvest up to 218,710 lbs. (three tier 1 permits) of sablefish in 2023 under the default HCR, up to 204,154 lbs. under Alternative 1, or up to 190,041 lbs. under Alternative 2. These are 24 percent, 16 percent, and 8 percent higher, respectively, than the 2021 amount allocated to three tier 1 permits (175,947 lbs.). The primary fishery operates on an annual basis from April 1 through October 31; however, participants can only fish this season up to their cumulative tier limits. A full background is available in multiple documents, but the Limited Entry Fixed Gear Review from June 2021 offers the most recent description of the fishery.

10.1 Purpose and Need

The purpose of this action is to extend the primary fishery season so that it begins on April 1 and closes on December 31 (currently October 31), or closes for an individual vessel owner when the tier limit for the sablefish endorsed permit(s) registered to the vessel has been reached, whichever is earlier.

This action is needed because, since 2019, the primary fishery has attained less of their sablefish landed catch share than prior years amidst higher sablefish allocations, and industry members have indicated a need for additional flexibility to fully attain their primary tier limits and increase sablefish attainment overall, which would provide additional economic benefits to the fixed gear sector and fishing communities. Additionally, the initial rationale behind a season end date of October 31, namely, to avoid exceeding the allocation late in the year given the slower nature of catch accounting at the time, is no longer applicable. Managers are now able to track catches in a timely manner to avoid exceeding the allocation regardless of the season end date.

10.2 Options

The Council's motion in November 2021 was to analyze extending the primary fishery end date from October 31 to December 31 (E.5, Motions in Writing, November 2021). To aid the decision-making process, we provide two options for the Council to consider:

- **Status quo:** The LEFG primary sablefish tier fishery season end date will be October
- **Option 1** The LEFG primary sablefish tier fishery season end date will be December 31. It is a permanent primary fishery season extension that will not change any other aspects of the program (e.g., stacking privileges, transferability).

Option 1

The primary fishery north of Point Chehalis, Washington is allowed to retain Pacific halibut according to retention ratios which are adopted by the Council and based on an amount of incidentally caught Pacific halibut per sablefish landed. In 2021, the ratio was 225 pounds of Pacific halibut allowed for every 1,000 pounds of sablefish, plus two additional fish. The IPHC adopts a closure date for Pacific halibut in all commercial fisheries[46], which the primary fishery is subject to, and closure dates are typically set at mid- to late-November but was set at December 7 in 2021. The IPHC sets the season closure date in late January of that year during their annual meeting. Therefore, if the primary fishery season is extended, the Council will need to decide whether to allow the incidental retention of Pacific halibut in the fishery north of Point Chehalis beyond the status quo October 31 primary season end date. The GMT offers two sub-options to address the incidental halibut allowance end date:

- **Sub-Option 1:** Incidental retention of Pacific halibut by the primary fishery north of Point Chehalis, Washington would close on October 31 (status quo), or until the quota is taken, whichever comes first.
- **Sub-Option 2**: Incidental retention of Pacific halibut by the primary fishery north of Point Chehalis, Washington would close on the date/time specified by the IPHC for the closure of commercial fisheries coastwide, or until the quota is taken, whichever comes first

Under both sub-options, the primary sablefish fishery north of Point Chehalis, WA would be subject to retention ratios set by the Council. Analysis of impacts from the sub-options are found below in Section 10.4.

10.3 Background of the Fishery

As noted in Supplemental GMT Report 3, November 2021, the primary fishery has experienced lower than average attainment since 2019 amidst higher than average sablefish allocations (Table 10-1). Even with the season extension in 2020 and 2021, attainment was only 80 and 74 percent of the primary landed catch share, respectively (Table 10-1). Sablefish ACLs and subsequent primary landings targets for the next five years (2023-2027, Table 10-3) are projected to be higher than those of the last five years (2017-2021, Table 10-2). Sablefish ACLs in Alaska are also increasing in the next few years and could result in vessels spending more time in Alaska thereby potentially impacting the attainment of the 15 percent of the fleet that operates in both fisheries (Assessment of the Sablefish Stock in Alaska, December 2020; Agenda Item F.4, Attachment 1, April 2021). A season extension could provide opportunity and flexibility for vessels to fish their full tier limits and achieve optimal yield (MSA National Standard 1).

[46] https://iphc.int/uploads/pdf/regs/iphc-2021-regs.pdf Section 9(3)

Table 10-1. Annual total primary sablefish fishery mortality (mt) (retained and discarded, with mortality rates applied), allocation (mt), percent (%) attainment, and number of active vessels, as well as the landings (mt), landed catch share (mt), percent (%) attainment, and the number of vessels that have landed catch through October 31st of each year. Sources: GEMM; PacFIN Comprehensive_FT.

Year	Annual Total				Through October 31st			
	Mortality (mt)	Alloc. (mt)	% Attainment	# of Vessels	Landings (mt)	Landed Catch Share (mt)	% Attainment	# of Vessels
2011	1,511.6	1,598	95%	98	1,425	1,547	92%	98
2012	1,423.1	1,549	92%	95	1,320	1,500	88%	95
2013	1,045.8	1,156	90%	89	989	1,119	88%	89
2014	1,100.4	1,254	88%	84	1,061	1,214	87%	84
2015	1,346.2	1,385	97%	86	1,281	1,339	96%	86
2016	1,446.0	1,515	95%	85	1,352	1,466	92%	85
2017	1,453.8	1,518	96%	85	1,401	1,463	96%	85
2018	1,479.9	1,583	93%	85	1,412	1,526	93%	83
2019	1,456.0	1,620	90%	83	1,366	1,545	88%	83
2020 Total	1,317.9	1,653	80%	74 a/	1,004	1,578	64%	67 a/
Pot	570.7	-	-	17	327	-	-	13
Longline	747.2	-	-	62	677	-	-	59
2021 Total	1,478 c/	1,994	74%	73 a/	1,289	1,902	68%	71 a/
Pot	589 b/c/	-	-	18	515	-	-	17
Longline	889 c/	-	-	61	772	-	-	59

a/ Five vessels landed sablefish with both pot and longline gear in 2020 and six in 2021. The increase could be due to the regulations allowing for use of pot-endorsed permits to land sablefish using longline-endorsed vessels.
b/ These landings are from pot endorsed permits, 45.2 mt of which were reported as pot after October 31 and before December 10 but are more likely longline landings given the restriction.
c/ Mortality estimates for 2021 were calculated using a discard rate of 19 percent of which 20 percent are expected to die (see Section 4.1.1.1)

Table 10-2. Remaining metric tons of sablefish north of 36° N. lat. after season closure compared to the primary season landed share. Data Source: PacFin Comprehensive_FT.

Year	# of Vessels with Permits	# of Active Vessels	Primary fishery Landings (mt)	Primary Landed Catch Share (mt)	Percent of Landed Share Remaining
2017	91	85	1,401	1,463.5	8%
2018	89	85	1,412	1,526.1	4%
2019	88	83	1,366	1,545.0	13%
2020 a/	91	74	1,254	1,577.6	21%
2021 a/	89	73	1,423	1,902.3	25%

a/ The remaining lbs. of these two years are those remaining after the emergency rule season extension. As of October 31st, 36 percent and 32 percent of the landed share remained in 2020 and 2021, respectively.

Table 10-3. The primary fishery landed catch share based on projected ACLs in the 2021 stock assessment, calculated for the No Action (P*=0.45), Alternative 1 (P*=0.40), and Alternative 2 (P*=0.35) action alternatives.

Sablefish HCR Alternatives	Landed Catch Share (mt) a/				
	2023	2024	2025	2026	2027
No Action	3,020	2,767	2,613	2,528	2,490
Alternative 1	2,819	2,579	2,431	2,346	2,308
Alternative 2	2,624	2,399	2,257	2,171	2,130

a/ Landed Catch Shares for 2025-2027 were calculated using the 2023-2024 off the top deductions as well as the status quo apportionment methods expected for use in 2023 and 2024; they do not include mortality estimates.

10.3.1 Current Season Structure

The current seven-month season structure was established under Amendment 14, with the "intent to allow for timely catch accounting so that the sector allocation was not exceeded" (86 FR 70420). As of 2017, commercial vessels landing sablefish are required to submit e-tickets within 24 hours of offload, "to improve timeliness and accuracy of sablefish catch reporting in the limited entry fixed gear fisheries and open access fisheries" (§660.213). Given the increase in speed of modern catch accounting, the original reason for the seven-month season is no longer applicable.

10.3.2 2020 & 2021 Emergency Rules

In September 2020 and 2021, the Council extended the primary fishery seasons to December 31 through emergency action in response to an industry indicated need for additional opportunity to maximize their available tier limits. The industry stated that the season extensions were needed due to impacts from the COVID-19 pandemic, including restrictions by fishery agencies, observer providers, and processors, as well as difficulty with maintaining healthy crews. COVID-19 related delays were another potential driver in preventing full attainment for the portion of the fleet returning to the U.S. West Coast from Alaska.

The 2020 emergency rule extended the season for vessels with both pot and longline gear endorsements (85 FR 68001). In comparison, the 2021 emergency rule to extend the primary fishery was only initially implemented for longline-endorsed permits and pot-endorsed permits using only longline gear but later expanded so that all endorsements could be fished with their proper gear between December 10th and December 31st (86 FR 70420). The 2021 emergency rule suspended the permit stacking limit and allowed for multiple permit transfers (86 FR 59873), meaning that pot endorsed permits could be used by longline vessels to attain up to that permit stacking amount up until December 10th. Additionally, in both emergency rules, the Council recommended extending the end-date for allowing incidental Pacific halibut retention in the primary fishery north of Point Chehalis, Washington to the IPHC commercial fishery closure date. Those dates were November 15 in 2020 and December 7 in 2021.

A major difference between these two emergency rules is the restriction on pot gear endorsed permits that took place in 2021. However, even with the gear restriction, it appears that 2020 pot mortality and 2021 pot mortality were similar (Table 10-1). Both emergency rules were contextually different from a permanent season extension in which vessels of both gear types would be able to plan their fishing season accordingly, but they do provide insight into how extending the primary fishery season could provide flexibility and increase attainment.

10.4 Impacts

10.4.1 Gear Description

Under the proposed primary season extension (Option 1), no changes to the current gear configurations and requirements of the primary fishery gear use are being proposed. The primary fishery is a deep water fishery that operates north of 36° N. lat. with vessels typically fishing in waters beyond the boundary line approximating the 100-fathom depth contour. Participants must have an endorsement for either longline or pot gear in this fishery. There are three configurations of pots that are used to fish for sablefish: conical, slinky trap, and one that is larger and rectangular. Each pot/trap has a funnel in the center that allows the fish to swim into the trap (video depictions can be found on the Fishing Vessel Owner's Association website). Pots must have a biodegradable escape panel obstructed with #21 or smaller untreated cotton twine that will result in an opening of at least 8 inches when the twine deteriorates. All gear must be marked at the surface and at each terminal end with a pole, flag, light, radar reflector and a buoy. The buoy must have information clearly identifying the owner or operator of the vessel. All gear must be attended at least once every seven days. A longline is defined in regulations as a stationary, buoyed, and anchored groundline with hooks attached (§660.211).

In this fishery, longlines are usually run with standardized "tub" gear which has between 150 to 200 hooks per tub, running between 10 and 30 tubs of gear per set. The average soak and haul-back time is roughly 12-14 hours (personal communication, Gerry Richter, GAP member). Pots are normally run in about 4 to 5 sets a day with 30-45 pots in a set (personal communication, Robert Alverson, GAP member). Pots are typically between 20-40 fathoms apart, contingent upon the depth. The buoy line is a polypropylene rope that is weighted at two different spots with a 40 pound weight so that the line remains taut at all times, and the buoys provide approximate flotation of 450 pounds. Average soak time is between 15 and 24 hours (personal communication, Scott Hartzell, GAP member).

10.4.2 Gear and Participation Impacts

During the months of November and December, participants in the primary fishery generally engage in other fisheries (e.g., LE DTL, IFQ, Dungeness crab), depending on factors that vary year-to-year such allocations and markets, and many of those vessels use the same gear type across fisheries (Limited Entry Fixed Gear Review from June 2021). Therefore, the GMT does not expect that habitat impacts will change under a season extension, given that fixed gear usage (i.e., the number of vessels using fixed gear) is expected to remain roughly the same. However, there may be a limited group of primary participants that do not participate in any other sector during the winter months, but under this extension and with higher quotas, could expand their operations into the winter months thereby increasing the potential amount of gear in the water during November and December.

The LEFG DTL sector, which primary vessels can fish in after attaining their cumulative tier limit or after the primary fishery closes, restricts vessels to weekly landing limits and lower limits overall compared to the primary fishery. According to GAP representatives, it is unlikely that, if the season is extended and participants fish to their tier limits, they will then participate in the LEFG DTL sector. In 2020 and 2021, 15 to 36 fewer vessels switched from the primary fishery to the DTL fishery after October 31, compared to 2017-2019 participation (Table 10-4). Not being

constrained by landing limits would allow vessels more flexibility to make safe fishing decisions based on weather.

Table 10-4. Number of vessels that participated in the primary fishery, LE DTL fishery, and both fisheries, and number of primary vessels that fished in the LE DTL fishery after October 31st. Data Source = PacFIN Comprehensive FT.

Year	Participated in Primary Fishery (all vessels)	Participated in Primary and LE DTL Fishery	Participated in LE DTL Fishery (all vessels)	Switched from Primary to LE DTL after 10/31
2017	85	57	71	51
2018	83	54	66	37
2019	83	47	57	31
2020	74	24	34	15
2021	73	24	32	16

Simultaneously in November and December, the shorebased IFQ vessels using fixed gear (i.e., "gear switchers") that primarily target sablefish have the potential to also be fishing within the same areas (2020 Supplemental Information Report). On average, seven primary fishery vessels participate in gear switching each year, which is approximately half of the gear switching fleet, and therefore, a season extension in the primary fishery could change how those vessels choose to fish their primary tier amounts or their IFQ sablefish quota pounds. Landings from gear switching accounts for over half of these primary fishery vessels' yearly revenue (2011-2019; Table 13 of Agenda Item D.1, Attachment 1, September 2020). The IFQ fishery allows for larger total amounts of sablefish to be caught (4.5 percent of the IFQ allocation compared to 4.1 percent under the maximum three tier 1 permits in the LEFG primary fishery), but given that the IFQ fishery has a 100 percent observer coverage requirement and cost recovery associated with it, some vessels may still choose to prioritize the primary fishery before fishing their IFQ quota under a longer primary season (Agenda Item F.4, Attachment 1, April 2021).

Some primary vessels also participate in the Dungeness crab fishery during November and December of some years.[47] When these fisheries open on time, such as in the 2021-2022 season, fishing for crab is more profitable (average price per pound in Oregon of $4.91 in December, personal communication, ODFW) compared to an average of $1.80 per pound of sablefish in November and December, making the Dungeness crab fishery potentially more enticing to primary vessels as the winter months progress.

Given that weather conditions at the end of the year have historically not been conducive to fishing in deeper offshore waters, sablefish fixed gear usage is expected to reduce later in the year as weather gets worse. A recent study confirmed that, under catch share programs, vessels will make decisions about where and when to fish based more heavily on weather than they would without a catch share program, thereby making catch programs safer for fishery participants (Pfeiffer et al. 2022). While the primary fishery is already under a catch share program, the additional two months to fish during the more weather-formidable portion of the season would give vessels added

[47] The Dungeness crab fishery generally starts on November 1st off Washington and December 1st off Oregon, depending on domoic acid and meat fill levels.

flexibility to make safer decisions regarding when to fish thereby promoting the safety of human life at sea (MSA National Standard 10). Overall effort and amount of gear in the water are unlikely to change to a large degree with a season extension, because participants will likely have a choice regarding which fishery they participate in. It would also give vessels the flexibility to plan their participation in other sectors based on markets and weather.

10.4.3 Economic Impacts

A permanent season extension would allow for primary fishery participants to plan their fishing season based on market drivers, weather, participation opportunities in other fisheries, and other factors. However, to estimate potential economic benefits under Option 1 (season extension), two potential attainment scenarios (high and low) were examined under the assumption that primary vessels would be able to fully attain the remaining sablefish allocation with a season extension through December 31. The average 2016-2018 attainment rate (93 percent) was used as a proxy for potentially high attainment years, and the 2019-2021 attainment rate through October 31 (73 percent) was used as a proxy for low attainment years. The proportions of primary landed catch share remaining after October 31 under the high and low proxy attainment rates (7 and 27 percent, respectively) were applied to the 2023 and 2024 primary landed catch shares under each sablefish Alternative HCR to estimate potentially unutilized tonnage. The 2021 average price per pound ($2.52) of sablefish in the primary fishery was then applied to estimate additional ex-vessel revenue the fishery could gain if a season extension is in place under each attainment scenario under the assumption that conditions were suitable for vessels to harvest their full tier under a static price, given other factors (i.e., markets, other opportunities, etc.).

Under a low attainment scenario and assuming fishing conditions were suitable, a season extension could provide an estimated additional $3.6 million to $4.5 million in ex-vessel revenue across both years, depending on the sablefish HCR (Table 10-5). As noted above, primary landed catch shares are projected to increase in 2023 and 2024 under all sablefish HCR alternatives, and a permanent season extension would provide the primary fishery more flexibility and more time to attain their cumulative tier limits under such high-allocation years. Even under a high attainment scenario similar to 2016-2018, the primary fishery could gain an additional $866,914 to $1.1 million in ex-vessel revenue under the higher sablefish allocations if they were able to fully utilize their tiers with the additional timing. Economic impacts under each of the sub-options are discussed in Section 10.4.3)

Table 10-5. Potential gains in ex-vessel revenue in 2023 and 2024 from a season extension under low and high attainment scenarios and under the three HCR alternatives. Ex-vessel revenue is estimated using the 2021 average price per pound ($2.52). Data Source = PacFIN Comprehensive FT

Harvest Control Rule Alternative	2023		2024	
	High Attainment	Low Attainment	High Attainment	Low Attainment
No Action	$ 1,091,321	$ 4,485,203	$ 999,896	$ 4,109,456
Alternative 1	$ 1,018,687	$ 4,186,685	$ 931,959	$ 3,830,245
Alternative 2	$ 948,221	$ 3,897,077	$ 866,914	$ 3,562,915

10.4.4 Impacts to Other Groundfish Stocks

Pacific spiny dogfish

Pacific spiny dogfish is not a target stock in any West Coast groundfish fishery, and the majority of catch is discarded at sea, so landings data are insufficient to estimate impacts from a primary fishery season extension. The primary fishery has a median observer coverage rate of 27 percent between 2002 and 2020 (Somers et al. 2021), but that rate ranged from 30 to 53 percent in 2016-2020, the highest observer coverage of the non-trawl fisheries, and therefore seasonal impacts to Pacific spiny dogfish mortality are difficult to fully predict. Any additional impacts to Pacific spiny dogfish mortality by a season extension would be due to an increased likelihood of the fishery encountering the stock in November and December. However, those additional impacts are only expected if longline vessels take advantage of the season extension and are likely already accounted for in other existing fisheries.

Pacific spiny dogfish mortality, i.e., landings plus discard mortality, in the primary fishery has averaged 100.7 mt per year between 2017 and 2020 (2021 discard mortality is not yet available), with a range of 54.4 mt in 2017 up to 173.9 mt in 2018 during that time. As noted above, this action only changes the length of time that vessels are allowed to fish their tier limits, but total catch will continue to be limited by the primary landed catch share and subsequent tier limits. Nearly all Pacific spiny dogfish catch in the primary fishery since 2011 has been attributed to longline gear.

As noted above in Sections 2.5 and 2.6, evidence indicates that Pacific spiny dogfish exhibit migrational seasonality, moving southward in the winter (Taylor et al. 2008), suggesting a potentially higher rate of encounter with the stock if effort in the primary fishery shifts toward November and December. However, given that many primary fishery vessels also participate in the LE DTL and IFQ fisheries in roughly the same areas during that time, any additional impacts are likely to be offset somewhat by the reduction in Pacific spiny dogfish catch that would otherwise have been caught by the LE DTL fishery and IFQ fixed gear vessels after October 31. From 2011 to 2019, the LE DTL fishery caught a range of 0.8 mt (2016) to 45.1 mt (2018) of Pacific spiny dogfish per year, with an average of 16.8 mt. Pacific spiny dogfish catch by fixed gear vessels in the IFQ fishery has averaged 17.1 mt since 2011.

Yelloweye Rockfish

Under the No Action sablefish HCR (P*=0.45), the non-nearshore fishery, of which the primary fishery is a component, is expected to take 1.4 and 1.3 mt of the 10.6 mt harvest guideline for yelloweye rockfish in 2023 and 2024, respectively. Under sablefish HCR Alternatives 1 (Section 3.7 above) and 2 (Section 4.7 above) and 2, the non-nearshore fishery is expected to take even less. These mortality projections are conducted assuming full attainment of the sablefish allocation. Action to extend the primary fishery season would only lengthen the amount of time available for fishing and not increase the allocation amounts, hence, few to no additional impacts to yelloweye rockfish are anticipated as a result of this action. This action would extend the season permanently in regulation, and in future cycles, any impacts to yelloweye rockfish will continue to be modeled within harvest specification cycles assuming full sablefish allocation attainment, and any possible management measures that would be needed can be put in place at that time.

10.4.5 Impacts to Protected Resources

Humpback Whales

Humpback whales migrate through the waters off the U.S. West Coast in October through November while on their way to their southern winter breeding grounds. Therefore, there is potential for humpback whales to co-occur with the primary fishery for slightly longer periods if the sablefish primary fishery season is extended; however, the likelihood of possible aggregations of whales in the same areas as the primary fishery decreases from October to December. As mentioned in the 2021 SIR, consultation with Drs. Karin Forney and Jarrod Santora (NOAA, SWFWS, September 25, 2020) indicated that humpback whales congregate in shallower waters when there are large aggregations of forage fish, and therefore, low density sablefish gear that is deployed in deep waters is not expected to pose an increased risk to whale entanglement.

Generally, the more gear that is in the water, the greater the entanglement risk is for humpback whales. As mentioned above, extending the season would be unlikely to have an additive effect on how much gear is in the water, but would more likely keep the gear amount at a status quo level. However, any fluctuations in gear-related impacts to humpback whales are likely to fluctuate with the sablefish ACL as higher ACLs will lead to higher tier limits and lower ACLs with lower tier limits, and the amount of time vessels spend on the water is likely influenced by their cumulative tier limit amounts. More likely, due to weather and other competing fishing interests, there will be a reduction in primary fishery gear later in that two month period.

A lawsuit was filed on January 9, 2022 by the Center for Biological Diversity (CBD) against the Secretary of Commerce Gina Raimondo and the National Marine Fisheries Service regarding authorizations under the ESA and MMPA to take humpback whales in the West Coast sablefish pot fishery. As the Court has not ruled on the complaint and the outcomes of the lawsuit are highly speculative at this time, we did not incorporate any of the items proposed by CBD into this analysis.

Seabirds

The only observed mortality since 1998 of short-tailed albatross, an ESA-listed seabird of particular conservation concern, in the U.S. West Coast groundfish fishery occurred in May 2011 approximately 65 km off the Oregon coast. The bird was caught by a fixed demersal, longline vessel in the limited entry sablefish fishery (i.e., primary fishery). In response to this, the Council recommended and subsequently made mandatory in 2015 the use of streamer lines on longline vessels to mitigate the potential for seabird bycatch (Agenda Item I.4.a, NMFS Report 6, June 2019). In 2019, the Council expanded that requirement to all vessels greater than 26 ft. and gave them the option to night set year-round instead of use streamer lines, both of which mitigate seabird bycatch (84 FR 67674).

Although fishery interactions with short-tailed albatross are generally lower in the winter, this could be due to the lower observer coverage during that time and not necessarily indicative of lower abundance. Orben et al. (2018) suggests some potential seasonality to the migratory patterns of short-tailed albatross, but the patterns could be due to fairly small sample sizes of tags that lasted long enough to get year-round data (Agenda Item I.5, Attachment 1, June 2019). Dr. Tom Good of NMFS Northwest Fisheries Science Center and former seabird specialist on the Council's Groundfish Endangered Species Workgroup concluded that "while there may be a seasonal pattern

in abundance, short-tailed albatross occur off the west coast year round," (Agenda Item I.5, Attachment 1, June 2019).

Given that many primary vessels are otherwise operating and using the same gear in other fisheries (i.e. DTL or IFQ) during the months of November and December, impacts from a primary season extension are expected to remain similar to those described in Agenda Item I.4.a, NMFS Report 6, June 2019 and within the 2017 Biological Opinion's limit of one observed albatross per two-year period or estimated five albatross in a two-year period. Additionally, pot gear, which generally accounts for 30 percent of sablefish landings (Table 9, Agenda Item C.9.a, Supplemental GMT Report 1, September 2021), poses no risk to seabirds.

Salmon

Under the 2017 Biological Opinion, all non-whiting groundfish fisheries, which includes the sablefish primary fishery, have a combined bycatch guideline of 5,500 Chinook salmon and 560 coho salmon. Historically, the fixed gear fishery (i.e., the sablefish primary fishery, DTL, and IFQ gear switching sectors) has had low Chinook and coho bycatch. Based on Richerson et al. 2019, the limited entry sablefish fishery has taken 10 coho in total and four unspecified salmon from 2003 to 2018. In 2021, the non-whiting fisheries caught an estimated 19 percent of the Chinook salmon guideline, which includes an assumed catch of 500 Chinook salmon for the commercial non-trawl and recreational groundfish fisheries outside the salmon season (Report IFQ021 from PacFIN APEX, January 21, 2022). Given this trend and the bycatch guidelines, we expect this action to have little to no effect on ESA-listed salmonids.

10.4.6 Impacts from Sub-Options 1 & 2

To address the incidental Pacific halibut allowance in the primary fishery, the Council should consider the following two sub-options for a final retention date:

- Sub-Option 1: Incidental retention of Pacific halibut by the primary fishery north of Point Chehalis, Washington would close on October 31 (status quo), or until the quota is taken, whichever comes first.
- Sub-Option 2: Incidental retention of Pacific halibut by the primary fishery north of Point Chehalis, Washington would close on the date/time specified by the IPHC for the closure of commercial fisheries coastwide, or until the quota is taken, whichever comes first.

According to the 2021 SIR, "Pacific halibut are encountered regularly in the normal operation of the sablefish primary fishery due to the co-occurrence of halibut and sablefish in the same environments, and the design and function of fixed gear." The 2021 SIR also describes that nearly all Pacific halibut bycatch in the primary fishery is attributed to longline gear, and between 2011 and 2019, roughly 88 percent of that bycatch was in the injury status category of "minor", which has a 0.04 percent discard mortality rate. Therefore, while Sub-Option 1 would likely lead to more regulatory discards compared to Sub-Option 2, those discards would have a low impact on expected Pacific halibut mortality.

However, inducing regulatory discards could negatively impact primary vessels given that primary fishery participants may get an average of $6.05 per net weight lb. of Pacific halibut in addition to their $3.96 per lb. of sablefish, based on 2019-2021 landings (adjusted for inflation). As shown in

Table 10-6 below, the primary fishery receives roughly $250,000 to $500,000 in ex-vessel revenue from Pacific halibut as a complement to their roughly $1-2 million from sablefish landed north of Point Chehalis. With sablefish prices expected to remain low, yet uncertain, allowing Pacific halibut retention beyond October 31 could provide some economic stability to primary fishery participants.

Table 10-6. Sablefish and Pacific halibut landings and revenue in the primary fishery north of Point Chehalis, WA for 2018 through 2021, along with each year's Pacific halibut retention ratio and final day to retain Pacific halibut. All revenues are adjusted for inflation based on 2021 USD. Data Source = PacFIN Comprehensive FT

Year	Sablefish Landings North of Pt. Chehalis (mt)	Sablefish Revenue North of Pt. Chehalis	Halibut Retention Ratio (per 1,000 lbs. of sablefish) a/	Final Day to Retain Halibut	Halibut Landings (net wt. lbs.)	Halibut Revenue
2018	339.6	$2,304,384	140 lbs.	October 31	43,716	$270,094
2019	356.7	$2,039,297	200 lbs.	October 31	79,401	$510,730
2020	389.9	$1,341,732	250 lbs. b/	November 15	63,358	$306,242
2021	337.9	$1,470,542	225 lbs.	December 7	68,695	$464,516

a/ plus 2 fish
b/ This represents the retention ratio in place after October 31 for 2020, given that the Council took inseason action in September 2020 to increase the retention ratio from 200 lbs. to 250 lbs.

There is no apparent seasonality to bycatch rates, as noted in Agenda Item D.7.a, Supplemental GMT Report 1, September 2020, and given that primary vessels will still be limited by their sablefish tier amounts, extending the time allowed for vessels to retain Pacific halibut into November and/or December is not expected to greatly impact the amount of Pacific halibut caught beyond what is already expected based on the sablefish primary landed share. Primary vessels would still be held to the retention ratio requirement, which is established to avoid exceeding the primary fishery's incidental halibut allocation. Higher landed share amounts in 2023 and 2024, compared to recent years, could increase the amount of Pacific halibut caught, but as noted above, formidable weather off Washington will likely limit the amount of increased effort off Washington in November and December.

The recent four-year maximum of Pacific halibut landings in the primary fishery was 79,401 net weight lbs. caught in 2019 (Table 10-6). Mechanisms used to closely monitor incidental Pacific halibut landings and quickly close the fishery if needed are described in Agenda Item D.5.a, Supplemental GMT Report 1, September 2020. The primary sablefish fishery north of Pt. Chehalis is currently allocated the WA sport allocation that is in excess of 214,110 lbs., up to 50,000 lbs., provided a minimum of 10,000 lbs. is available. If the 2A FCEY is 1.5 million pounds or more, the maximum allocation will increase to 70,000 lbs. If the amount above 214,110 lbs. is less than 10,000 or greater than 50,000 (or 70,000 lbs.), the excess will be allocated back to the WA sport areas. In 2020 and 2021, the incidental Pacific halibut allocation for the primary fishery north of Pt. Chehalis, WA was set at 70,000 lbs. 2022 is the final year of the four-year TCEY setting agreement for IPHC Regulatory Area 2A, and thus the 2023 primary fishery allocation is unclear. However, the method for setting the primary allocation is likely to remain the same in 2023 and 2024 as described above.

In summary, sub-option 1 (status quo; October 31) could minimize any potential increases in Pacific halibut mortality from a primary season extension, but sub-option 1 would likely induce regulatory discards that could deprive the fishery of an important alternative source of income, and those potential increases under sub-options 2 (IPHC-specified date) would result in minimal impacts to Pacific halibut mortality. Given the flexibility built into the Catch Sharing Plan for Area 2A, and that any overages from the primary fishery would be accounted for in the total WA Sport allocation, there is little to no risk of exceeding the WA Sport allocation if the primary season is extended beyond October 31 and up to December 31.

11. Modifications to Non-Trawl Rockfish Conservation Area Management

In order to provide additional opportunity to commercial fixed gear fisheries to target healthy stocks, relieve pressure on overfished or constraining nearshore stocks, and limit impacts to sensitive habitats, the Council is proposing allowing non-trawl vessels to use select hook and line gear within the non-trawl RCA (NT_RCA). Specifically, vessels participating in fixed gear groundfish fisheries could use "non bottom contact hook and line gear" within the NT_RCA from the Oregon/Washington (OR/WA) border to the U.S. Mexico border.

As described in Agenda Item E.6., Attachment 1, November 2021, non-trawl fisheries are distinguished by the types of gears permitted to be used to harvest their catch. Open access (OA) fisheries are allowed to use any "open access" gear, including hook-and-line, pot, and troll gear (see 660.330(b)). Limited entry fixed gear (LEFG) vessels are restricted to using the gear endorsed on their registered permit (longline or pot/trap) or are held to the lower landing limits associated with the OA sector when using alternative gears. Vessels participating in the shorebased individual fishing quota (IFQ) sector with fixed gear (i.e., gear switchers) are permitted to use any legal groundfish gear. Participants in all three fisheries are prohibited from fishing in the NT_RCA unless permitted (e.g., fishing for other flatfish or through an exempted fishing permit [EFP]).

Through this action, vessels in all three fisheries would be allowed to use non-bottom contact hook-and-line gear in the NT_RCA; vertical hook-and-line anchored to the bottom, dinglebar, and longline would be prohibited. This is similar to what was considered and approved as a part of the 2021-2022 biennial specifications process in which vessels can use hook-and-line gear, except dinglebar and longline, within the 30-40 fathom bin north of 40° 10′ N. lat. to the WA/OR border (85 FR 79880). While there is no clear definition of "non bottom contact hook and line gears," it is assumed that this would include gear types such as troll and jig gear. Recent biennial EFPs have been testing out specific configurations of these gear types within the NT_RCA.

11.1 Options

This analysis considers potential impacts of this action on groundfish species, protected, and prohibited species, socio-economics of the fishery, and habitat under the following options:

- Status Quo: Vessels would be prohibited from fishing in the NT_RCA unless permitted by regulation.
- Option 1: Vessels in the commercial non-trawl sectors (OA, LEFG, and IFQ GS) would be allowed to use non-bottom contact hook and line gear within the NT_RCA; vertical hook and line anchored to the bottom, dinglebar, and longline gear would remain prohibited.

Overall, this new management measure may provide a significant opportunity for West Coast vessels to expand their portfolios, especially in light of new restrictions related to quillback and copper rockfishes, but it is likely that a limited group of vessels will take advantage of this opportunity given limitations. However, the Council will need to consider the uncertainty surrounding the impacts of implementing Option 1, particularly with regards to the limited data available to inform this action and the broad gear types that could fall under the definition of "non

bottom contact hook and line gears" such as troll or jig gears. Elements of Option 1 may be outside the scope of what could be done through an Environmental Assessment (EA) and could require an Environmental Impact Statement (EIS) or could reinitiate consultation on the current Biological Opinions (BiOp) for seabirds. Either of these processes would result in a longer timeline for implementation (i.e., after January 1, 2023). Specific proposed components of Option 1 that could lead to a more extensive timeline include:

- Lack of definition of "non bottom contact hook and line gear"
- Minimal information on groundfish species impacts using troll or jig gear
- Fishing effort and impacts under Option 1 not currently considered within the seabird BiOp
- Differential gear use across areas would likely require new declaration codes (leading to Paperwork Reduction Act requirements and delays)

Information related to the uncertainty around these components can be found in the relevant sections below.

11.2 Impacts

11.2.1 Groundfish Impacts

The primary goal of this action is to provide additional opportunity for commercial fixed gear vessels to achieve underutilized concentrations of midwater rockfish stocks while relieving pressure on nearshore stocks, specifically quillback and copper rockfish, and limit impacts to yelloweye rockfish. This section attempts to assess the impacts to groundfish stocks (including rebuilding and overfished species). It finds that under Option 1:

- Non-trawl attainments of healthy midwater rockfish species will likely increase (although to an unknown degree) under this alternative.
- While uncertain, fishing in the NT_RCA with select hook-and-line gear might have limited impacts to quillback and copper rockfish.
- Yelloweye rockfish and cowcod impacts may increase, however, will likely be within the proposed harvest specifications.

11.2.2 Target Stocks

Commercial non-trawl catch of species targeted by this action has been increasing since 2017 with the rebuilding of key stocks (e.g., canary and widow rockfish) and the liberalization of trip limits and some minor adjustments to the NT_RCA boundary (see Table 9 of Agenda Item E.6, Attachment 1, November 2021). However, it is likely that the sector is not reaching its full capacity due to the inability to access key fishing grounds within the NT_RCA. The NT_RCA was initially put into place in January 2003 to protect overfished stocks, all of which have been rebuilt with the exception of yelloweye rockfish. Table 11-1 below shows where these targeted species are typically found within the action area (i.e., off of Oregon and California). Looking at the current NT_RCA bounds (Table 11-2), there is significant overlap between the depths of where the key targeted species inhabit and the area within the NT_RCA.

Table 11-1. Depth in fathoms (fm), water column location, and latitudinal range off the West Coast of select midwater rockfish species. Source: 2021 SAFE except where noted.

Species	Habitat	Location in Water Column	Range within Action Area
Canary rockfish	Commonly on shelf, less than 165 fm	Adults found in and around rocky habitat a/	Coastwide
Widow rockfish	Deeper than 55 fm at night	Pelagic, but adults prefer rocky banks, seamounts, ridges near canyons, headlands, and muddy bottoms near rocks	Coastwide
Yellowtail rockfish	Middle shelf(?)	Adults are considered semi-pelagic to pelagic; along steeply sloping shores or above rocky reefs	Center of abundance is off OR/WA
Bocaccio	54-82 fm	Adults are typically semi-demersal, around rocky reefs	Most abundant off central and southern CA
Chilipepper rockfish	Most survey observations are between 27-165 fm	Found associated with deep, high relief rocky areas and along cliff drop-offs; may travel as far as 45 m off the bottom during the day to feed	Greatest abundance between Pt. Conception and Cape Mendocino, CA
Vermillion rockfish b/	27-82 fm	Found amongst rocks at the bottom of reefs or in other large rocky patches	California to Southern OR

a/Trawl Gear Rule EA

b/Stock assessment 2021

Table 11-2. Non-trawl management areas and the current NT_RCA boundaries.

Management Area	Current NT_RCA boundaries (fm) a/	Approximate Area of NT_RCA (sq km^2)
North of 46°16′ N. lat.	Shoreline (0) - 100	11,221
46°16′ N. lat. to 40°10′ N. lat.: b/	30 - 100	15,933
40°10′ N. lat. to 38° 57.5′ N. lat.:	40- 125	1,673
38° 57.5′ N. lat. to 34° 27′ N. lat.:	50 - 125	5,254
South of 34° 27′ N. lat.: c/	100 - 150	9,671

a/ Current NT_RCA boundary coordinates at 86 FR 14379, see Tables 2 & 3 -coordinates at §§ 660.71-660.74

b/ Between 46° 16′ N. lat. and 40° 10′ N. lat., 30 to 40 fm fishing is only allowed with hook and line gear except bottom longline and dinglebar (§660.11)

c/ also applies around islands

For the non-trawl fisheries, area closures were the primary management measure used to mitigate impacts to overfished and rebuilding species, and therefore the NT_RCA was implemented to prohibit a large portion of the continental shelf from being fished where these key target stocks are concentrated. As shown in the tables below, with the exception of widow and yellowtail rockfishes, these proposed targeted stocks average less than 40 percent ACL attainment from

2017-2020 (Table 11-3). The recent increase in widow and yellowtail rockfish ACL attainment since 2017 is mainly driven by the increase in midwater rockfish trawling in the IFQ sector supported by the Trawl Gear EFP.

Table 11-3. Percent of ACL attainments of select midwater rockfish species.

Species	2015	2016	2017	2018	2019	2020
Bocaccio	40.5%	34.6%	34.1%	42.1%	22.4%	16.3%
Canary rockfish	92.9%	60.5%	23.5%	39.3%	40.3%	35.5%
Chilipepper	12.5%	5.7%	4.9%	12.0%	16.2%	27.6%
Shelf RF N	3.7%	4.1%	17.9%	17.4%	32.7%	29.6%
Shelf RF S	34.2%	27.0%	35.3%	37.7%	48.6%	25.2%
Widow rockfish	44.5%	51.0%	47.5%	83.5%	80.9%	75.3%
Yellowtail rockfish	30.1%	23.7%	49.4%	58.7%	59.1%	61.4%

OA/LEFG

For the non-trawl sectors (OA and LEFG), non-trawl allocation attainment has averaged less than 40 percent for all target stocks since 2017. OA and LEFG fisheries are managed with trip limits and area closures (i.e., NT_RCA, YRCAs) which are tracked inseason and can be adjusted by the Council at the routine inseason agenda item at all five annual Council meetings. Trip limits are set to achieve, but not exceed, allocations.

An average of 526 OA groundfish vessels and 24 LEFG vessels per year from 2017-2020 have landed an average of 440 mt and 27 mt of groundfish on non-sablefish trips respectively utilizing gear types that would fit in the category of "non bottom contact hook-and-line gear", which can include jig and troll gear.[48] As was discussed in the NTRCA analysis, while sablefish is one of the primary stocks targeted by non-trawl vessels, this action is focused on targeting of midwater rockfish stocks and it is likely that the action proposed here would not provide much additional access to the sablefish stock- particularly north of 36° N. lat where it is already highly attained. From 2017-2020 (Table 11-4), vessels in both sectors using non bottom contact hook and line gear types have increased the proportion of the total groundfish landings and revenue coming from the key midwater stocks listed in Table 11-1. Under No Action, vessels may continue to harvest more midwater stocks where available outside of the NT_RCA. However, under Option 1, if these trends hold, it suggests that vessels would take advantage of the opportunity to fish with these limited gear types in the NT_RCA to harvest midwater rockfish stocks- although the degree to which landings would increase is difficult to ascertain.

[48] Non-bottom contact hook-and-line gear were defined as the following: PACFIN_GEAR_CODE== "POL", "TRL", "BTR", "JIG", "OHL". Note that this may be an overestimate due to the "OHL" category used in Oregon. See discussion in Community Impacts for more details.

Table 11-4. Proportion of landings and revenue from midwater stocks (listed in Table 7-1) by OA and LEFG vessels using non bottom contact hook and line gear from 2017-2020.

Year	Open Access		LEFG	
	Proportion of Landings	Proportion of Revenue	Proportion of Landings	Proportion of Revenue
2017	10.6	9.1	9.5	10.0
2018	13.7	11.0	25.5	36.7
2019	14.6	12.4	30.9	40.9
2020	23.9	20.1	51.6	43.7

Additional data from recent non-trawl EFPs, which used exclusively non bottom contact gear within the NT_RCA, may also provide some insight on impacts to target stocks. As described in Appendix 3 of Agenda Item E.6, Attachment 1, November 2021, the primary species caught by the EFPs were yellowtail rockfish, vermilion rockfish, bocaccio, and chilipepper rockfish. Of the total observed groundfish catch across all three EFPs from 2013-2019, the species in Table 11-1 account for over 96 percent of the total catch.

Assuming that midwater rockfish harvest continues to grow in these sectors and vessels participate in the opportunity within the NT_RCA, it is likely that non-trawl allocation and therefore ACL attainment of these species is likely to increase. Given the low attainment of the non-trawl allocations in recent years, mortality would have to increase significantly for any of these species to have any risk to the non-trawl allocation, let alone the ACL (Table 11-5).

Table 11-5. Non-trawl percent allocation attainments of select midwater rockfish species.

Species	2015	2016	2017	2018	2019	2020
Bocaccio	37.8%	28.5%	27.7%	29.1%	13.1%	6.60%
Canary rockfish	112.1%	90.5%	31.9%	30.2%	36.4%	38.90%
Chilipepper	1.8%	1.5%	0.6%	0.8%	3.2%	3.50%
Shelf N.	2.3%	2.2%	3.7%	3.8%	4.7%	3.60%
Shelf S.	38.6%	30.5%	39.0%	37.8%	54.4%	26.60%
Widow rockfish	4.5%	2.3%	0.8%	3.0%	2.8%	1.00%
Yellowtail rockfish north of 40° 10’ N. lat.	7.8%	7.4%	10.4%	13.0%	13.3%	17.30%

IFQ Gear Switching

While historically there was some limited use of hook-and-line gear by gear switchers (six vessels with 14 associated fish tickets from 2011-2014), it is likely that vessels in this fishery will continue to use pot or longline gear to target sablefish. In looking at non-whiting IFQ landings north and south of 36° N. lat. from 2017-2020, gear switching accounts for approximately 3.2 percent of total landings in the north compared to 78 percent in the south. Yet, sablefish makes up an average of over 97 percent of gear switched landings in both areas.

Under Status Quo and Option 1, gear switching vessels must account for all catch (landings and discard) with quota pounds against the shorebased IFQ allocation for IFQ species and follow trip

limits for LEFG sectors for non-IFQ species. Trawl allocation attainments for the selected species have been increasing with additional access to midwater stocks through the Trawl Gear EFP. Specifically, widow and yellowtail rockfish have a recent three year average (2018-2020) of 89 and 78 percent attainment of the trawl allocation (with IFQ attainment averaging 93 and 78 percent respectively) (Table 11-6)

Similar to the non-trawl sector, even if gear switching vessels were to start utilizing hook-and-line gear to target midwater species in the NT_RCA under Option 1, the risk to the trawl allocation (and ACL) is limited as vessels would still need quota pounds (QPs) to fish. Furthermore, the risk is lower than that of the non-trawl sector as the fishery is 100 percent monitored, hence catches or bycatch on these fishing trips are known. Overall, impacts for the IFQ sector under this action are likely similar to No Action.

Table 11-6. Shorebased IFQ allocation percent attainment of selected midwater stocks, 2015-2020.

Species/Stock	2015 (%)	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)
Bocaccio south of 40° 10' N.	47.2	50.8	30.3	63.3	40.4	34.7
Canary rockfish	103.6	48.3	25.0	45.1	44.3	37.9
Chilipepper rockfish south of 40° 10' N.	15.7	6.3	5.8	15.7	27.0	37.2
Minor shelf rockfish north of 40° 10' N.	3.1	3.1	21.0	23.7	40.4	45.2
Minor shelf rockfish south of 40° 10' N.	4.6	2.3	1.2	2.9	8.1	11.6
Widow rockfish	57.3	59.0	52.0	97.0	93.8	88.8
Yellowtail rockfish north of 40° 10' N.	31.6	26.2	58.1	75.8	73.9	84.2

Vermillion/sunset rockfish

While the ACL attainment of southern shelf rockfish has averaged less than 35 percent from 2017-2020 (**Figure 11-3**Table 11-3), it is important to consider that vermillion/sunset rockfish make up a significant contribution of the complex ACL (and therefore non-trawl and trawl allocations). It also is an important species to the Southern California groundfish fishery. There was observed catch of vermillion/sunset rockfish in the Emley-Platt and Real Good Fish EFP (majority in Emley-Platt) totaling nearly 11,600 pounds; however, these trips were not subject to federal trip limit regulations and therefore vessel level activity would not be representative of future activity as there are now sub trip limits in place specifically to reduce harvesting of vermilion. As described in Section 2.7, there are commercial sub-limits to ensure that the ACLs are not exceeded. These limits would apply to any vessel fishing in the NT_RCA with the select hook and line gear types under Status Quo or Option 1.

11.3 Species of Concern

Impacts to species of concern, specifically quillback rockfish off of California, copper rockfish off of California, yelloweye rockfish, and cowcod will vary depending on where the effort occurs. Fishing opportunities in the nearshore off of California, and to some degree Oregon, will be limited due to low allocations of copper and quillback rockfishes. On the northern end of the action range, yelloweye rockfish, the only rebuilding species, is of concern. As noted above, the NT_RCA was put into place initially to protect species, such as yelloweye rockfish. Additionally, while cowcod south of 40° 10′ N. lat. is rebuilt, the overall ACL is still at a level in which targeting opportunities

in the non-trawl sector will not be permitted and therefore retention will remain prohibited in the 2023-24 biennium. As shown in Table 11-7, there is potential for these four species being encountered within the bounds of the NT_RCA that may be opened to fishing; however, where these fish congregate (i.e., on the bottom) and the type of fishing strategy proposed under this action (i.e., midwater) may limit actual mortality.

Table 11-7. Habitat information for other species of concern.

Species	Habitat	Location in Water Column	Range within Action Area
Copper rockfish	Subtidal to 100 fm	Perch on boulders or few meters above seafloor	Coastwide
Quillback rockfish	Less than 150 fm	Bottom dwelling; near high relief structures covered with kelp	OR south to Point Conception but primarily found north of Point Arena
Yelloweye rockfish	14-300 fm (most common between 27-219 fm)	Bottom dwelling; rocky reef fish, found either on or just over reefs	Coastwide, but primarily north of Point Arena
Cowcod rockfish	27-164 fm	Paradermersal; Juveniles utilize low relief hard substrate, adults high relief rocky substrate	Newport, OR south to Baja California, most common south of Cape Mendocino

Copper and Quillback Rockfish

Compared to the midwater rockfishes in Table 11-1 above, both of these species are typically found closer to shore -- although they can extend out to similar depths found within the NT_RCA (Table 11-2). ROV survey work conducted by CDFW north of Point Conception has shown that species were observed out to 55 fathoms, but the highest degree of concentrated density of the species was 30-35 fathoms for quillback rockfish and 45-50 fathoms for copper rockfish (pers. comm., John Budrick, CDFW). Given the current configuration of the NT_RCA, it suggests that vessels that fish within the NT_RCA may be less at risk of encountering either species. Additionally, while new areas may be open to fishing, it is important to consider that important habitat for quillback and copper rockfish will remain within California Marine Protected Areas (MPA) that prohibit fishing. In addition to the surveys, observations, albeit limited, by the West Coast Groundfish Observer Program (WCGOP) on the OA and LEFG (non-sablefish) fisheries provide some insight on where copper and quillback rockfish are typically caught by non-trawl vessels (see Table 14 and 15 of Agenda Item E.6., Attachment 1, November 2021 for observation rates).

Table 11-8 below shows the total number of observed sets (all gear types) by depth bin in the nearshore, OA daily trip limit (DTL), and LE DTL (non-primary) off of Oregon and California and the percentage of those hauls that were positive for copper or quillback rockfish by area. From 2002-2020, there were 2,605 out of 12,870 observed sets in these sectors where copper or quillback rockfish were present. For the area north of 40° 10′ N. lat., quillback showed the highest positivity rate between 20-40 fathoms, noting that few hauls occurred in the 30-40 depth bin. The same pattern can be seen from 34° 27’ to 40° 10′ N. lat. Assuming that catch trends align with the concentration of the stock, this supports the trends seen by the CDFW survey and further supports

the notion that quillback rockfish catch may be lower in deeper waters within the NT RCA off both Oregon and California. For copper rockfish, there is a more consistent presence in all three areas, but the highest positivity rate is within the 20-40 fathom bin.

While there are indications that vessels may be less likely to encounter quillback and copper rockfish within the NT RCA boundaries with midwater gear, given habitat preferences and limited bycatch data, it is important to consider that in waters deeper than 30 fathoms, all catch is assumed to be 100 percent dead, even if released.

Table 11-8. Number of observed hauls in the non-trawl sectors (non-primary) by WCGOP from 2002-2020 off of Oregon and California and the percent of those hauls positive for copper rockfish or quillback rockfish by area and depth (based on average latitude and depth (based on average latitude and depth of haul). "c" denotes confidential strata.

Depth (fm)	Area	Hauls	% positive for copper rockfish	% positive for quillback rockfish
0-10	40° 10′ - 46° 16′ N. lat	1,967	13.1	19.4
	34° 27′ to 40° 10′ N. lat.	774	18.9	0.0
	South of 34° 27′ N. lat.	253	8.3	0.8
10-20	40° 10′ - 46° 16′ N. lat	2,881	23.4	35.0
	34° 27′ to 40° 10′ N. lat.	833	45.0	2.8
	South of 34° 27′ N. lat.	150	22.7	0.0
20-30	40° 10′ - 46° 16′ N. lat	310	31.0	45.2
	34° 27′ to 40° 10′ N. lat.	125	70.4	16.8
	South of 34° 27′ N. lat.	15	26.7	0.0
30-40	40° 10′ - 46° 16′ N. lat	11	9.1	45.5
	34° 27′ to 40° 10′ N. lat.	34	73.5	50.0
	South of 34° 27′ N. lat.	30	36.7	0.0
40-50	40° 10′ - 46° 16′ N. lat	c	c	c
	34° 27′ to 40° 10′ N. lat.	c	c	c
	South of 34° 27′ N. lat.	64	32.8	0.0
50-100	40° 10′ - 46° 16′ N. lat	30	3.3	20.0
	34° 27′ to 40° 10′ N. lat.	13	61.5	0.0
	South of 34° 27′ N. lat.	59	40.7	0.0
>100	40° 10′ - 46° 16′ N. lat	768	0.0	0.0
	34° 27′ to 40° 10′ N. lat.	1,342	0.0	0.0
	South of 34° 27′ N. lat.	3,207	0.1	0.0

Given that current fishery effort for fixed gear vessels has been limited to outside of the NT_RCA where bycatch patterns may be different and there are limited WCGOP observations of vessels using non bottom contact hook-and-line gear types to analyze (i.e. 5,295 number of hauls using pole or troll gear observed, 4,855 or ~92 percent of those sets occurred in waters shallower than 20 fathoms on average), the best source of information to inform potential impacts to copper and quillback rockfish are likely the recent biennial non-trawl EFPs. Again- the action is more extensive in the types of non-bottom contact gear that would be permitted, and therefore any estimates are uncertain.

Within the three EFPs that were operating in the last several biennia (Emley-Platt, Real Good Fish, Cook), there have been limited catches of copper or quillback rockfish observed. There were no observed catches of either species in the Cook or Real Good Fish EFPs (noting a small sample of only 4 trips and 36 total sets between the two EFPs in 2019). For Emley-Platt, over the six years of observed trips, the EFP averaged less than 1 lb. or less than 0.1 copper rockfish per year and 0.5 lbs. or around ⅓ of a rockfish per year of quillback rockfish (Table A-3 of Agenda Item E.6, Attachment 1, November 2020). At the same time, they have caught an average of 4,948 lbs. of yellowtail rockfish, 1,653 lbs. of vermillion rockfish, 871 lbs. of bocaccio, and 704 lbs. of chilipepper rockfish per year. Looking at the bycatch rates, the average rate per haul was 0.29 lbs. of quillback rockfish and 2.05 lbs. of copper rockfish per 10,000 lbs. of total catch. If comparing the bycatch to the midwater target stocks (listed in Table 11-1), the average rate on hauls where there was midwater rockfish catch present is 2.14 lbs. of copper and 0.3 lbs. of quillback rockfish per 10,000 lbs. of midwater stocks. For perspective, assuming that a vessel took an entire bi-monthly trip limit (south of 40° 10′ N. lat.) of all these stocks for a total of 21,500 lbs., which would be a bycatch of copper rockfish of less than 4.6 lbs. and quillback rockfish of less than 1 lb. While there is uncertainty around these estimates given the low sample size, it does suggest that EFP gear configurations fished in the NT_RCA can be selective in targeting healthy shelf stocks while minimizing impacts to copper or quillback rockfish.

While unlikely based on past patterns, if gear switching vessels were to utilize non bottom contact gear to target midwater rockfish, any landed bycatch of copper or quillback rockfish would be subject to the same trip limits as the other sectors as nearshore rockfish are not an IFQ species. Additionally, a state nearshore fishery permit is required to land copper or quillback rockfish Any catch of nearshore stocks in the IFQ sector is counted against the overall harvest guideline as there are no trawl allocations for the stock complex.

Yelloweye rockfish

While permitting vessels to operate within the NT_RCA with non-bottom contact hook-and-line gear may relieve some pressure on nearshore stocks, there are concerns about potential additional impacts to yelloweye rockfish. Yelloweye rockfish is still under a rebuilding plan with a projected rebuilding date of 2029 (stock assessment, as well as the associated rebuilding analysis). Yelloweye rockfish co-occurs with other shelf rockfish as it is predominantly found on the continental shelf from 50-100 fathoms (i.e., within the bounds of the NT_RCA) and inhabit hard bottom, boulder fields, and rocky reefs (Table 13-7). Yelloweye rockfish range the entire West Coast but with increasing abundance from south to north. It remains a zero retention and prohibited species in the non-trawl fishery.

Even with additional opportunities provided to groundfish fisheries, particularly the non-trawl sector, in the 2019-20 biennium and beyond, yelloweye rockfish attainment still remains within the ACL. Non-trawl allocation attainment has historically exceeded the allocation; however, since the implementation of the current default harvest control rule (DHCR) and allocation scheme (including the use of annual catch targets [ACTs] and harvest guidelines [HG] for within the non-trawl sector), attainments have been well within the allocation. (Table 11-9).

Table 11-9. Yelloweye rockfish annual catch limits (ACL), trawl and non-trawl allocations (mt) and percent attainments for 2011-2024.

Year	ACL (mt)	ACL % Attainment	Trawl		Non-Trawl	
			Allocation (mt)	% Attainment	Allocation (mt)	% Attainment
2011	17	55.7	0.6	10.0	10.5	81.0
2012	17	66.2	0.6	5.0	10.5	93.4
2013	18	56.7	1	6.0	11.2	79.0
2014	18	45.7	1	10.0	11.2	66.4
2015	18	63.2	1	4.0	11.2	89.2
2016	19	49.8	1.1	4.6	12.1	68.8
2017	20	95.8	1.1	15.5	13.1	128.2
2018	20	89.0	1.1	10.9	12.9	123.8
2019	48	61.5	3.4	20.9	38.6	49.8
2020	49	39.0	3.4	12.1	39.5	37.7
2021	50	-	3.3	-	37.9	-
2022	51	-	3.4	-	38.8	-
2023	66	-	5.3	-	50.8	-
2024	66	-	5.3	-	50.8	-

Yelloweye rockfish is managed with HGs for the nearshore and non-nearshore fisheries- which would include participants in the LEFG and OA fisheries. Since 2019, when the current yelloweye rockfish management measure scheme was implemented (i.e., ACTs and HGs for non-trawl sectors), the two sectors have been within their HGs (Table 11-10). In the 2021-22 cycle, the HGs and ACTs were combined for the nearshore and non-nearshore fisheries to provide more flexibility (Agenda Item F.1, Attachment 8, June 2020) (Table 11-11). In the 2023-24 biennium, under status quo allocations, the sectors are expected to increase their HG and ACT by approximately 30 percent.

Table 11-10. Yelloweye rockfish mortality in metric tons (mt) and percent attainment of nearshore and non-nearshore HGs in metric tons for 2019-2020.

Year	Non-Nearshore			Nearshore		
	HG (mt)	Mortality (mt)	% Attainment	HG (mt)	Mortality (mt)	% Attainment
2019	2	1.6	78.4	6	2.7	44.2
2020	2	1.1	55.3	6	3.4	57.5

Table 11-11. Combined nearshore/non-nearshore HGs and ACTs for yelloweye rockfish, 2021-2024. Values in metric tons (mt).

Year	HG (mt)	ACT (mt)
2021	8	6.3
2022	8.1	6.4
2023	10.6	8.4
2024	10.6	8.4

Under this action, yelloweye rockfish bycatch in the commercial non-trawl sector may increase (even though retention is to remain prohibited); however, the extent to which it may increase is uncertain. Fishing within the NT_RCA, even with specialized gear, could increase the incidental bycatch as these sectors would be fishing in areas where yelloweye rockfish abundance is expected to be higher than areas currently accessible to the non-trawl sector.

As noted above with copper and quillback, there have been limited observed sets by WCGOP of fixed gear vessels using jig or troll gears, with the majority occurring in much shallower depths than the seaward boundary of the NT_RCA. This suggests that this data may not provide a comparable trend to what could occur within the NT_RCA boundaries using non bottom contact hook and line gear. Bycatch data does conform with known habitat information about yelloweye, with no recorded bycatch south of 34 27 N. lat. and bycatch rates for jig gear between 34 27 and 40 10 being 1/5th of that north of 40 10 to the WA/OR border.

A preliminary examination of yelloweye rockfish bycatch on EFP trips using non bottom contact hook-and-line gear was completed and provided in Appendix 3 of Agenda Item E.6, Attachment 1, November 2021. Bycatch rates on observed trips averaged 0.003 lbs. of yelloweye rockfish per every pound of groundfish caught, or 26.3 pounds per every 10,000 pounds. When assessing the bycatch rate compared to hauls where midwater rockfish species listed in Table 11-1were caught, the rate was 27.5 pounds per every 10,000 pounds of midwater rockfish.

Therefore, even if there were additional bycatch mortality of yelloweye rockfish, it is likely that there would be little risk to the HG given the recent harvest levels (Table 11-10), current projected mortality (see Sections 2.7and 2.8), and as the magnitude of bycatch would have to be more than double the current projected fishery amount in 2023-2024. As will be discussed, it is likely that participation in this fishery will be limited overall, further suggesting that there would be limited risk to significant mortality increases or risk to HGs.

IFQ gear switching vessels participating in this management measure would still be required to cover any bycatch of yelloweye rockfish with QPs. Again, assuming that future trends are similar to the past (i.e., minimal hook-and-line gear usage in the IFQ sector), then there is likely zero impact to yelloweye under this action.

Cowcod south of 40° 10' N. lat.

While yelloweye rockfish is more of a concern north of 40° 10′ N. lat., bycatch of cowcod needs to be considered south of 40° 10′ N. lat. As described in Section 2.7, cowcod retention is to remain prohibited in the commercial non-trawl sectors in 2023-2024. The Cowcod Conservation Area (CCA) is currently in place, limiting key cowcod habitat; however, the Council is considering altering the boundaries or removing the CCA (to some degree) in the Non Trawl Area Management Action item (ROA/PPA tentatively scheduled for April 2022). However, given the depth distribution of cowcod (Table 13-7), vessels utilizing approved gear within the NT_RCA may have increased bycatch of cowcod. Cowcod would also be subject to 100 percent discard mortality in the depths of the NT_RCA, regardless of use of descending devices.

Looking at the EFPs, all trips occurred north of 34° 27′ N. lat. and cowcod typically occur south of 34° 27′ N. lat. Of the 378 observed hauls south of 40° 10′ N. lat, fewer than three had cowcod

present. Additional information on potential interactions with cowcod could be provided after April depending on the Council's PPA.

11.4 Prohibited/Protected species

This action is expected to:

- *Potentially have impacts to seabirds outside of the 2017 BiOp*
- *Have no effects prohibited and protected species other than seabirds*

Under the proposed action, the prohibited and protected species where there is some concern relative to the current Biological Opinions under which the groundfish fishery operates is seabirds. Other species of concern (whales, eulachon, salmon etc.) are not likely to interact with the selected hook-and-line gear types as a part of this measure as described in Section 3.2 of Agenda Item E.6., Attachment 1, November 2021 and therefore are not further discussed. Impacts under Status Quo would remain the same.

Seabirds (including short-tailed albatross) are known to strike baited hooks attached to longline and can become inadvertently hooked or entangled in the gear (USFWS, 2017). However, hook-and-line gear types proposed to be used under this action may be less likely to interact with seabirds depending on the configurations approved by the Council. For example, one of the main issues with longline gear and the increased risk of interaction with seabirds is that "albatross generally attack the lines as they leave the boat, once the lines have been baited." USFWS, 2017 The use of weights on longlines helps the lines sink faster, and in addition to the streamer line requirements for vessels, minimize entanglement risk. Yet, some of the types of gear proposed under this action are likely to have a quicker sink rate and are fished closer to the boat, allowing less time for birds to access the hooks, suggesting that there may be less risk to seabirds.

Bait type also may influence seabird interactions. Hooks with natural bait are thought to attract seabirds more than artificial bait; yet, based on industry input, even with fishing longline with baited hooks (areas outside of 100 fm), there have been limited interactions even though this is the area where more seabirds are seen in general (Harrison Ibach, personal communication). As an example, the gears currently permitted to be used in the NT_RCA under the non-trawl EFPs are prohibited from being baited and instead used artificial lures which is assumed to reduce the likelihood of seabird interaction. To date, there have been no seabird interactions observed under the EFPs, supporting the assumption of lower risk of seabird bycatch than other gear types. During the review and approval process for the EFPs, NMFS concluded the risk of seabird interactions with these EFP hook-and-line gear configurations are expected to be lower than with bottom longline and determined, in part, the EFPs are not expected to cause short-tailed albatross to exceed take limits. If the broader suite of non-bottom contact hook-and-line gear proposed in this action performs consistent with the gear tested in the EFPs, impacts could be similar; however, the Council may need to consider if fishing within the NT_RCA is predicated on using artificial vs. natural bait.

11.5 Community Impacts

Overall, this action is expected to have positive socio-economic impacts on coastal communities. Based on recent landing trends, the port groups that may be most likely to benefit include Santa Barbara, Brookings, and Morro Bay.

With nearshore opportunities becoming more limited, opportunities on the shelf are likely to be significant for vessels participating in the non-trawl fisheries. As noted in Agenda Item E.6., Attachment 1, November 2021, while recent biennia have seen changes to the boundaries and increases in trip limits to support targeting of once overfished stocks such as canary and bocaccio rockfish, the inability to access higher concentrations of these species in the NT_RCA may limit overall growth. Table 11-12 below shows the average price per pound and associated ex-vessel revenue (2020$) for the species highlighted as target species above. Since 2017, the revenue for each of these species has generally increased for commercial non-trawl fisheries. Of note are bocaccio and canary rockfish, which saw increases of nearly or over double in revenue from 2018 to 2020. Additionally, vermilion rockfish appears to make up the majority of shelf rockfish south revenue.

Table 11-12. Average price per pound (2020$/lb.) and total revenue (1000s of 2020$) for select midwater rockfish species landed by commercial non-trawl vessels, 2017-2020.

Species	2017		2018		2019		2020	
	Avg. $/lb.	Revenue (1000s of $)	Avg. $/lb.	Revenue (1000s of $)	Avg. $/lb.	Revenue (1000s of $)	Avg. $/lb.	Revenue (1000s of $)
Bocaccio	2.08	30.1	2.60	64.0	1.91	82.2	1.62	120.6
Chilipepper	2.55	16.4	2.22	14.0	1.70	53.2	1.61	71.4
Canary rockfish	2.31	50.9	2.20	51.0	2.27	75.9	2.10	126.5
Shelf Rockfish N. of 40° 10’ N. lat	1.91	29.9	2.00	27.1	2.35	40.4	1.90	41.8
Shelf Rockfish S. of 40° 10’ N. lat	3.16	400.9	3.14	524.3	2.98	547.2	2.68	629.2
Vermilion rockfish	3.20	330.8	3.23	417.7	3.07	447.6	3.01	444.9
Widow rockfish	2.35	13.5	2.18	7.6	2.50	11.8	2.29	14.2
Yellowtail rockfish N. of 40° 10’ N. lat.	1.28	10.9	1.04	8.1	1.48	15.3	1.54	15.2

Due to a lack of recent fishing activity in the proposed areas, it is difficult to quantify the economic impacts of allowing vessels to harvest within the NT_RCA with selected hook-and-line gear types. However, it is anticipated that Option 1 would have a positive economic impact compared to Status Quo by restoring portions of historical fishing grounds to access healthy midwater rockfish stocks.

Utilizing the same method as what was done in Agenda Item E.6., Attachment 1, November 2021, the following series of analyses assess the port groups most likely to benefit from this action by examining landings and participation trends as well as involvement (measured as the ex-vessel value in a port as share of coastwide ex-vessel value) and dependence (measured as a percent of each port’s total landings revenue from all fisheries) of those communities on the sector as a whole. There are two lenses in which communities are looked at in this analysis. The first looks at trends by community and fishing participants in the non-sablefish OA, LEFG, and IFQ GS sectors using all gear types. This might provide the Council and advisory bodies with a sense of what communities are most active in the given sector as a whole and may have participants who will

utilize the additional opportunity if provided (even if they do not currently use the gear type). The second lens looks at how participants along the coast are currently utilizing non-bottom contact hook-and-line gear (see Section 11.2.1 above for details). Participants that are already actively utilizing proposed gear types may be the most likely to benefit from the action.

It is important to note that for the non-bottom contact hook-and-line statistics provided below for Oregon ports that these values are overestimates. While California has gear codes that allow for partitioning out of fish tickets using vertical hook-and-line gear vs. jig for example, Oregon's gear code "OHL" or "Other Hook and Line" contains a mix of vertical hook-and-line landings and non-bottom contact type configurations. Analysts chose to include rather than exclude this gear code in order to provide some information on these ports activities. The following analysis looks at impacts at IOPAC port group level. For a list of ports within each port group, see Table 9 in the NOAA Technical Memorandum NMFS-Northwest Fisheries Science Center (Leonard and Watson (2011)).

OA

The Brookings and Morro Bay IOPAC port groups had the largest annual groundfish landings- and hook-and-line landings (i.e., noting likely overestimated in Oregon given the available gear codes to partition the data) by the OA sector from 2017-2020 (Figure 11-2). On average, nearly 90 percent of participants in the non-sablefish groundfish sector in California used non bottom contact hook-and-line gear at least one time (Table 11-13). Oregon's rate was close to 97 percent, however, the degree of participation by non-bottom hook-and-line gear is likely inflated with the usage of vertical hook-and-line gear. In terms of involvement, Brookings and Morro Bay appear to have the highest degree of involvement in the fishery (Table 11-14). Santa Barbara, while overall having lower landings comparatively, is the third most involved in the fishery.

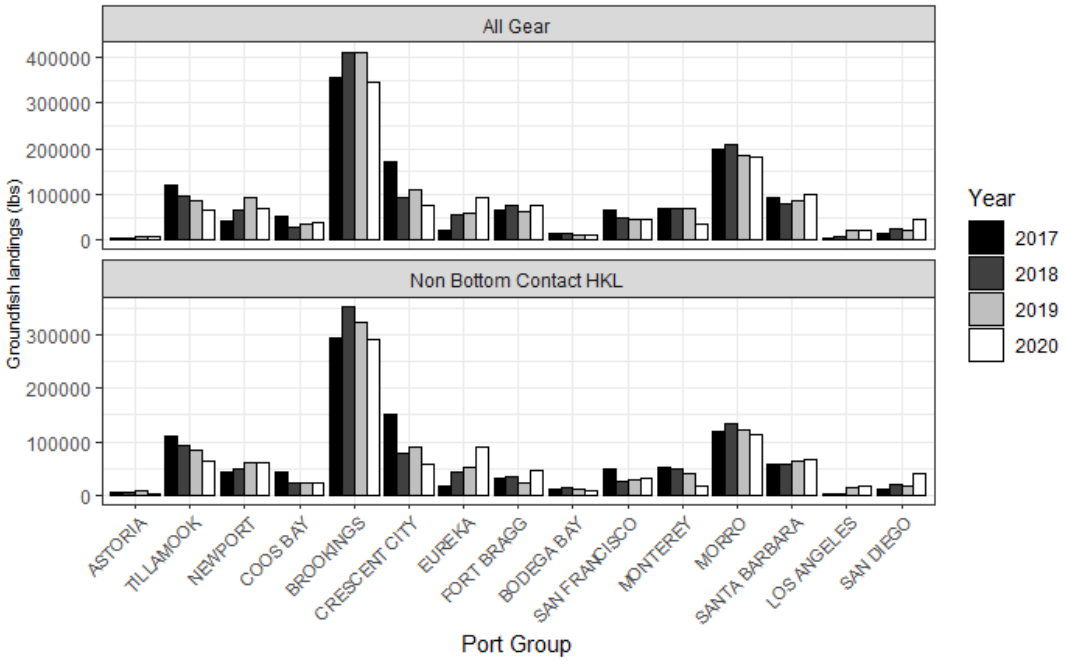


Figure 11-1. Groundfish landings by IOPAC port group and year in the OA non-sablefish fishery with all gears (top panel) versus non bottom contact hook-and-line

Table 11-13. Average number of vessels and dealers participating in the OA non-sablefish fishery with all gears versus non bottom contact hook-and-line (HKL) gear, 2017-2020.

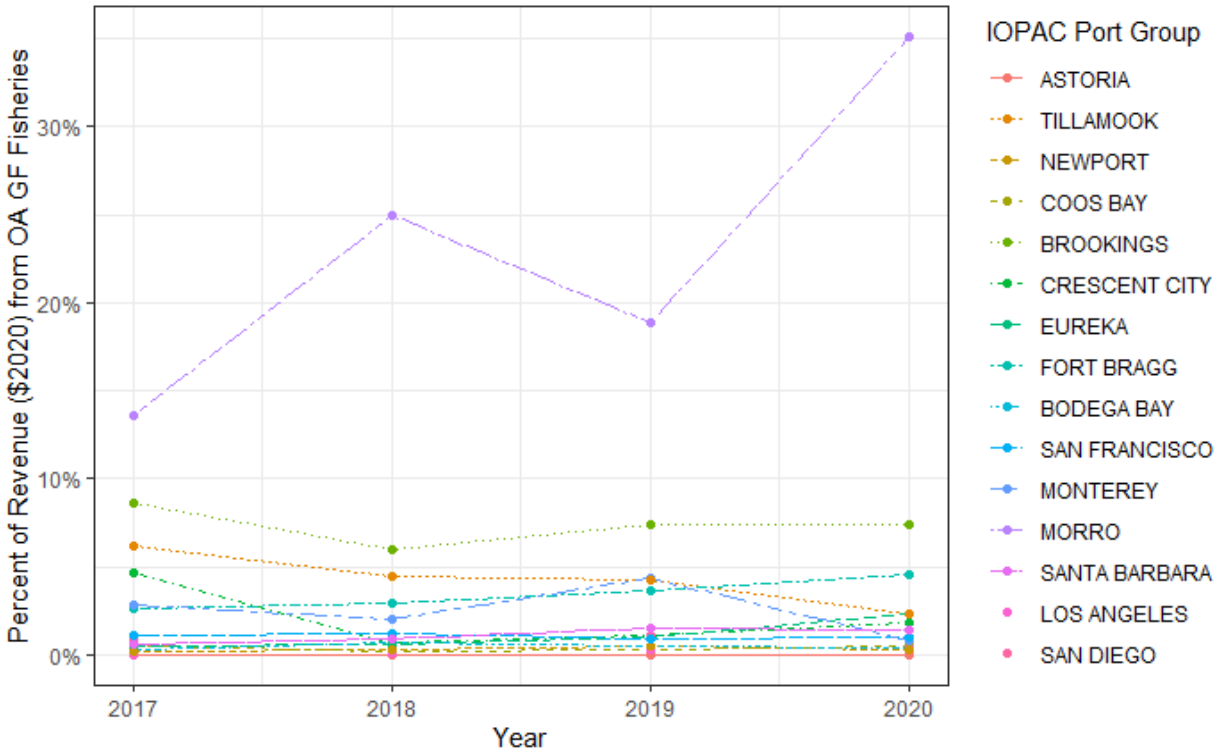
IOPAC Port Group	Average Number of Vessels		Average Number of Dealers	
	All OA Non-Sablefish	Non Bottom Contact HKL Only	All OA Non-Sablefish	Non Bottom Contact HKL Only
Astoria	6	6	4	4
Tillamook	48	46	18	17
Newport	40	38	19	18
Coos Bay	30	29	18	17
Brookings	76	74	20	20
Crescent City	22	22	12	12
Eureka	28	27	18	18
Fort Bragg	52	41	23	21
Bodega Bay	20	18	15	15
San Francisco	53	50	46	40
Monterey	80	73	29	27
Morro	84	78	20	18
Santa Barbara	55	43	44	32
Los Angeles	12	9	13	9
San Diego	21	17	22	19

Table 11-14. Ranking of IOPAC port groups by all gear or hook-and-line (HKL) only involvement.

Ranking of Involvement	All Gear	HKL only
1	Morro Bay	Brookings
2	Brookings	Morro Bay
3	Santa Barbara	Santa Barbara
4	Monterey	Tillamook
5	Fort Bragg	Monterey
6	Crescent City	Crescent City
7	San Francisco	Newport
8	Tillamook	San Francisco
9	Newport	Eureka
10	Eureka	Fort Bragg
11	Coos Bay	San Diego
12	San Diego	Coos Bay
13	Bodega Bay	Bodega Bay
14	Los Angeles	Los Angeles
15	Astoria	Astoria

Even though non-bottom contact gear landings make up nearly 3/4ths of the total groundfish landings in this sector, the following assessment of dependence shows how much a community

depends on the non-sablefish OA groundfish fishery as a whole (Figure 11-4). The ports with the highest dependence are likely those to be most impacted by restrictions being imposed to limit effort on quillback and copper rockfish and therefore might be the most likely to take advantage of this opportunity. The Morro Bay IOPAC port group is the most dependent of all of the Oregon and California port groups on the non-sablefish OA groundfish fisheries, with more than 30 percent of the port's revenue coming from the fishery in 2020 and averaging 19.1 percent in the previous three years. The next closest port is Brookings, which has averaged just over seven percent over the four year period.



Note: $152,428 (2020$) in ex-vessel revenue were from the figure removed due to no IOPAC port grouping.

Figure 11-2. IOPAC Port Group Dependence on Non-Sablefish OA Fishery (expressed as revenue as a percent of all fishery revenue), 2017-2020.

LEFG

Compared to the OA sector, the LEFG sector participates and harvests less in the non-sablefish non-trawl fisheries. Additionally, there are very few LEFG vessels that participate using hook-and-line gear as vessels are held to the OA limits which are generally smaller (refer to Agenda Item E.6, Attachment 1, November 2021) It is important to consider that under this action, LEFG vessels would still be held to those lower OA limits if using select HKL gear in the NT_RCA. Under the Non-Trawl Area Management item preliminarily scheduled for April 2022 (shaded on Agenda Item C.10., Supplemental Attachment 4, November 2020), the Council is considering allowing LEFG vessels to harvest up to their LEFG limits with the selected gear types. Given this restriction to the lower limits, this may suggest that few vessels may take advantage of the opportunity. Due to confidentiality, the annual landings by LEFG vessels in non-sablefish non-trawl fisheries had to be combined across some port groups in Figure 11-5. All port groupings had

landings in each year and therefore zeros present in the figure represent confidential strata. Of note in **Figure 11-3**is the large increases in groundfish landed into southern ports- which is likely due to the increases in trip limits in recent years (Appendix A of the 2019-2020 Harvest Specifications, Agenda Item H.10.a, Supplemental GMT Report 1, November 2019). Due to the few participating vessels using non bottom contact hook and line gear in the LEFG sector, no graphics were able to be produced but some general statistics are provided here for context. In terms of poundage, Crescent City and Santa Barbara were consistently in the top three ports in terms of landings across 2017-2020. Looking at the proportions of non-bottom contact hook and line landings to all gear landings (Figure 11-5), Crescent City averaged nearly 90 percent of their landings coming from non-bottom contact hook and line gear types. Eureka had the next highest average at 33 percent. Santa Barbara, San Diego, San Francisco, Brookings, and Morro Bay were in the 20-25 percent range.

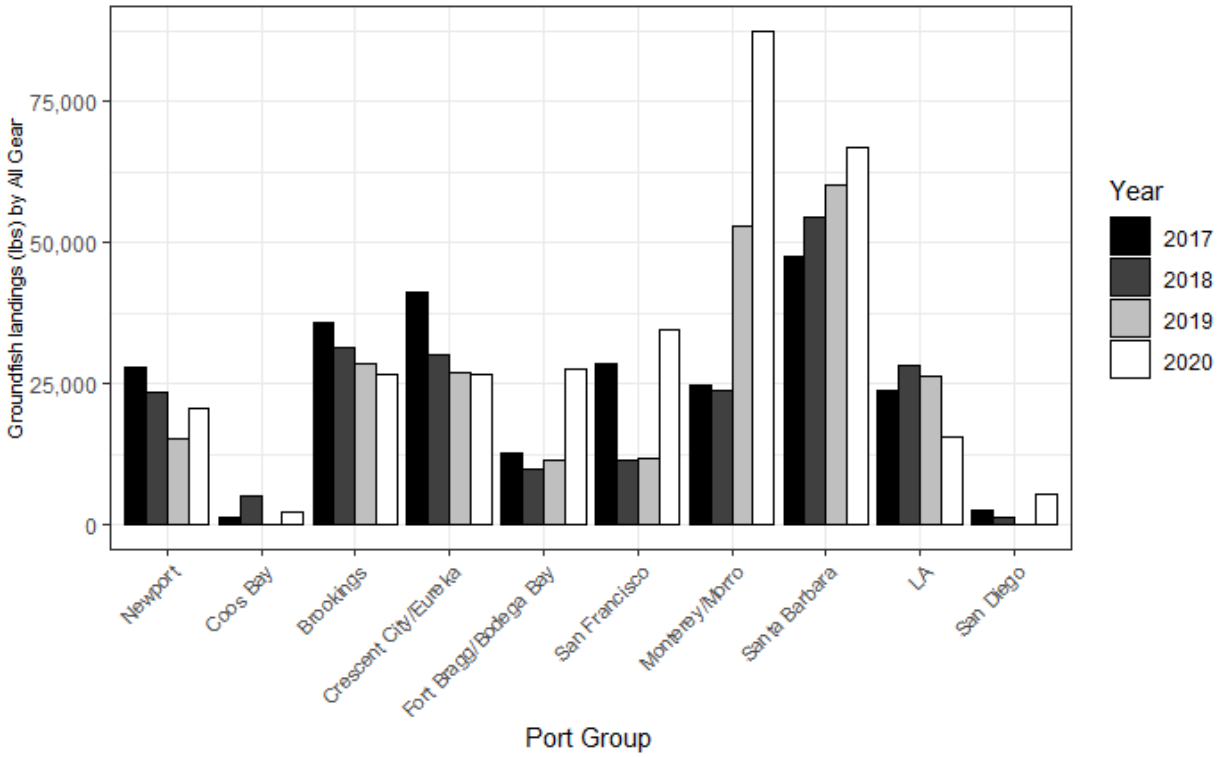


Figure 11-3. Annual groundfish landings by all gear types in non-sablefish LEFG fisheries by IOPAC port groups, 2017-2020.

Annual participation statistics for the LEFG non-sablefish fisheries were difficult to present as was shown in Table 13-13 using annual averages. Therefore, an overall look at the total participation by IOPAC port group is presented in Table 11-15. Santa Barbara has had the most overall participation in both vessels participating on non-sablefish trips and using non-bottom contact HKL gear.

Table 11-15. Count of distinct vessels and dealers with landings of LEFG non-sablefish trips compared to non-bottom contact HKL landings, 2017-2020. "C" represents strata with fewer than three participants.

IOPAC Port	Count of Vessels (2017-2020)		Count of Dealers (2017-2020)	
	All LEFG	Non-Bottom	All LEFG	Non-Bottom

Group	Non-Sablefish	Contact HKL	Non-Sablefish	Contact HKL
Astoria	C	0	3	0
Newport	14	4	12	4
Coos Bay	9	3	8	3
Brookings	8	7	11	8
Crescent City	4	3	12	10
Eureka	3	C	7	C
Fort Bragg	9	4	13	4
Bodega Bay	4	C	5	C
San Francisco	9	C	24	C
Monterey	7	3	4	3
Morro	10	4	17	5
Santa Barbara	24	12	46	24
Los Angeles	11	6	14	8
San Diego	4	C	10	3

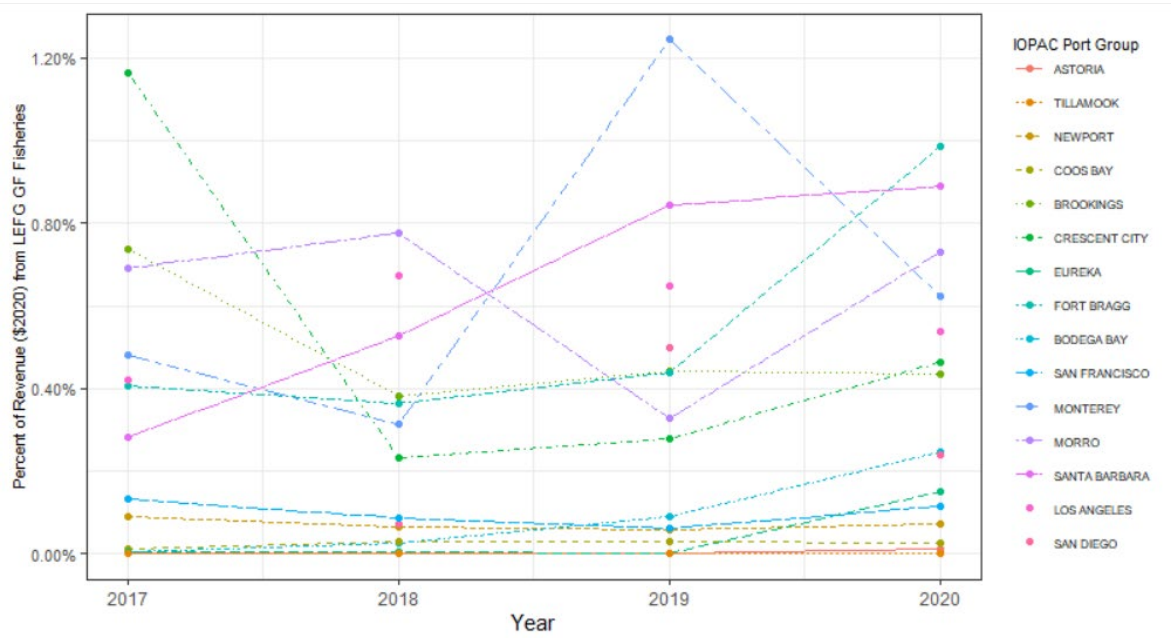
In terms of port involvement, Southern California ports are the most involved in LEFG non-sablefish fisheries when using all gear types (Table 11-16). When looking at non-bottom contact gear types, Crescent City has the highest degree of involvement followed by Santa Barbara. Note that Astoria had no recorded landings with non-bottom contact HKL types in 2017-2020.

Table 11-16. Ranking of IOPAC port group involvement in all gear and non-bottom contact hook and line fisheries (non-sablefish), 2017-2020.

Ranking of Port Involvement	All Gears	Non Bottom Contact HKL
1	Santa Barbara	Crescent City
2	Los Angeles	Santa Barbara
3	Monterey	Brookings
4	Brookings	Morro Bay
5	Crescent City	Los Angeles
6	Newport	San Francisco
7	Fort Bragg	Newport
8	Morro Bay	Monterey
9	San Francisco	Fort Bragg
10	San Diego	San Diego
11	Bodega Bay	Coos Bay
12	Coos Bay	Bodega Bay
13	Eureka	Eureka
14	Astoria	

Compared to the OA fisheries, West Coast ports as a whole are not dependent on LEFG non-sablefish fisheries. Figure 4 below shows the dependence of each port from 2017-2020. As shown,

revenue from this sector accounts for less than one percent (with the exception of 2017 for Crescent City and 2019 in Monterey) of the total revenue coming into each port. Note that this is not meant to say that individual fishermen are not dependent on the revenue from this activity. However, on the whole, especially with the limitations of being restricted to lower OA trip limits, LEFG fishermen appear to focus more on sablefish opportunities.



Note: Strata were removed for confidentiality.

Figure 11-4. Dependence (as percent of revenue from LEFG non-sablefish fisheries) by IOPAC port group on LEFG non-sablefish fisheries, 2017-2020. Strata removed for confidentiality.

IFQ

As noted above in Section 11-2, there have been limited instances of gear switching vessels using hook and line gear. However, if sablefish fishing opportunities were to decline either through the consideration of gear switching limitations or if the stock status were to decline, this could provide an additional opportunity for those vessels to supplement their incomes with high value fish. Vessels would still be required to obtain necessary QPs to cover catch. Given the high attainments of widow and yellowtail rockfish in recent years, it may be unlikely for vessels to enter into the fishery in areas off of northern California or Oregon. However, off of select portions of California, where the trawl fishery is primarily composed of gear switching vessels, species such as bocaccio, chilipepper or other southern shelf rockfish species may be targeted in these areas.

11.6 Habitat

This section finds that in regard to habitat impacts:

- *There is uncertainty about the impacts due to lack of specificity on the definition of "non bottom contact hook and line gear"*
- *However, given the styles of gears potentially included in this gear definition (e.g., jig and troll), there would likely be little to no habitat impact.*

One of the main reasons for limiting the use of gear types within the NT_RCA is the potential concern around allowing more habitat impacting gear types (e.g., pot gear) to operate within an area that has been closed to fishing for almost two decades. While the purpose of the NT_RCA was to limit impacts to overfished stocks, it indirectly provided habitat protection to sensitive habitats such as rocky reliefs. While there would be no new essential fish habitat conservation areas (EFHCAs) developed through this process, the Council could consider developing additional areas through the Non-Trawl Area Management agenda item. However, the gear proposed to be used under this action would not be subject to current EFHCAs within the NT_RCA as they are closed specifically to bottom contact or bottom trawl gears.

During the 2021-22 biennium, the area between 30-40 fathoms north of 40° 10′ N. lat. was open to hook and line gear with the exception of longline and dinglebar. These two gear types have (or are thought to have) greater impacts to habitat compared to other hook-and-line gear types which may have a single weight (Agenda Item F.1.a, Supplemental GMT Report 4, June 2020) or troll gear. (Table 11-17). This action would further exclude vertical hook and line gear that is anchored to the bottom by a weight(s) that can impact habitat. Under Status Quo management, impacts to habitat would remain the same as vessels would only be permitted to fish within the NT_RCA when allowed by regulation, such as under an EFP.

Given that there is no clear definition of what gear type configurations would be permitted under this action (see next section for more details), this analysis can only qualitatively describe the impacts of "non bottom contact hook and line gear" based on the intent of the gear (i.e., to not contact the bottom). While there could be incidental interactions with the bottom, as described in Table 11-17 with the troll gear (i.e. a non-bottom contact hook and line gear type), the likelihood appears to be low and was one of the primary reasons this gear type was supported by the Habitat Committee under the parallel Non Trawl Area Management action item (Agenda Item E.6.a, Supplemental HC Report, November 2021).

Table 11-17. Summary of non-trawl gears used in the groundfish fishery and their effects on groundfish habitat, from Appendix C-1 of the Groundfish FMP.

Gear types subject to the NT_RCA	Method of fishing	Gear components that impact substrate	Substrates generally fished	Potential effects to habitat
Bottom longline	Deployed on bottom	Anchors, weights, mainline.	Soft and hard bottom	Overturn, undercut, crush, break habitat and organisms, displace/disturb biogenic habitat
Pots/traps	deployed on bottom	pot, line.	Soft and hard bottom	Smother organisms, crush, biogenic habitat
Hook-and-line gears				
Dinglebar gear	Bounces on bottom	Dinglebar, hooks, line	Hard bottom, rocky reef	Overturn, undercut, crush, break habitat and organisms, displace/disturb biogenic habitat

Hook-and-line gears (*cont.*)				
Troll Gear	Trolling in upper water column	Weights	Primarily fished in water column	Crush/break biogenic habitat (from weights), entanglement
Vertical Longline (single or multi hook gangion, and weight)	Drift fishing "jigging" or trolled	Weights, hooks, line	All bottom types and water column	Damage to and displacement of biogenic habitat damage; entanglement

11.7 Responding to Uncertainty

As has been described above, the main concern with this new management measure is around the uncertainty of potential impacts, the projected participation, and the ability to quantify the impacts. This section discusses the sources of uncertainty, and where possible, provides a qualitative assessment of the potential impacts or how they could be mitigated.

11.8 Mitigation and Monitoring

OA/LEFG

For the commercial non-trawl sectors, each species is managed with trip limits. Current trip limits are set up to achieve, but not exceed, allocations/HGs/shares/etc. Within trip limits for complexes, there can be sub-limits for species of concern- such as what is currently in regulation for vermillion rockfish within the shelf rockfish complex south of 40° 10′ N. lat. trip limit. Additionally, prohibited retention of certain species, like yelloweye rockfish, cowcod, and bronzespotted rockfish, can limit overall mortality depending on discard mortality under various conditions (i.e., depth, release strategies). Both Oregon and California utilize electronic fish tickets for groundfish landings, although the timing requirements can vary by state. Sablefish landings specifically, which may include other groundfish, are required to be reported, via electronic tickets, within 24 hours of landing. Therefore, the landings and attainment for these fisheries are closely monitored by the GMT, state agencies, and NMFS. At each meeting, the Council can consider the most recent status of the fishery and if needed, could act through routine inseason action to maintain conservation goals for groundfish stocks, and adjust trip limits accordingly. However, if overages or situations occur between meetings, the Council is unable to react until a subsequent Council meeting. The Council also could adjust the boundaries of the NT_RCA within specific management regions if needed inseason (50 CFR 660.60(c)) .

Section 7.7 above describes the current observer coverage for each of these sectors. Currently, there are no federal logbook requirements for non-trawl fisheries. However, the Council is considering a fixed gear logbook at its March 2022 meeting. Depending on the outcome of that action (not completed at the time of drafting of this document), vessels may or may not be required to submit logbook information depending on the sectors/gears included in the requirement. If vessels using non bottom contact hook and line gear in the NT_RCA are included in the requirements, information could be gathered on catch and location that could be used to assess impacts.

IFQ

Vessels participating in gear switching in the shorebased IFQ sector are required to have 100 percent monitoring via observers or electronic monitoring. All catch must be accounted for with quota pounds or if a non-IFQ species, vessels must follow the trip limits and restrictions in place for LEFG vessels. Gear switching vessels are currently not required to submit logbooks (unless for discard when using EM), and would potentially be subject to the March 2022 Council agenda item described above.

11.9 Projected Participation

While this action would allow any commercial non-trawl vessel fishing for groundfish to operate within the NT_RCA with select hook and line gears, it is important to consider the likelihood of how many vessels would actually take advantage of the opportunity and how many new vessels (i.e., those without landings history from Table 11-18 and Table 11-19 may enter the fishery. Overall, there appears to be several limitations that will curtail a significant increase in effort in this fishery, including the requirement for vessel monitoring system (VMS) for all groundfish retention trips, potential purchasing of new gear types (or modification of current gear configuration), and the actual size and ability of vessels to access the NT_RCA.

11.10 Crossover from Other Fisheries

Opportunities, or lack thereof, in other West Coast fisheries could lead to new entrants coming into the fishery- particularly the OA sector. Prices for midwater rockfish in recent years have been increasing (see Table 13-12), and while the price compared to other species (sablefish, salmon, etc.) may not be as high, it could be seen as an avenue to make up for lost revenue and expand fishing portfolios if other opportunities were to decline.

In the last four years, less than 19 percent of Dungeness crab vessels off of Oregon and California have participated in an OA groundfish fishery and less than 10 percent of OA groundfish vessels participate in state crab fisheries. In recent years, the percentage of crab vessels crossing over to groundfish has declined, even as opportunities have grown. For LEFG vessels, the opposite is true as less than 10 percent of crab vessels participate in LEFG fisheries compared to an average of 28 percent of LEFG vessels off of Oregon and California also participating in crab (Table 11-18).

Table 11-18. Number of vessels that participated in only Dungeness crab fisheries, only in OA or LEFG groundfish fisheries, and participated in both OA and crab or LEFG and crab in the same year off of Oregon and California, 2017-2020

Year a/	Total Crab	Open Access Crossover			LEFG Crossover		
		Crab Only	OA Only	OA/Crab	Crab only	LEFG Only	LEFG/ Crab
2017	325	254	662	71	297	87	28
2018	320	254	681	66	289	80	31
2019	323	267	597	56	294	80	29
2020	319	275	547	44	287	69	32

a/Crab seasons typically occur between November or December 1 of the previous year to June of the next year depending on the state and crab conditions (i.e., 2017-2018 season could have lasted from November 1, 2017-June 30, 2018). This table compares within a calendar year- noting the seasonal difference.

For salmon troll fisheries, there is a similar degree of crossover between the directed OA groundfish and salmon troll fisheries (~29 percent on average) (Table 11-19). Note that if a vessel incidentally retained groundfish while salmon trolling, it would be considered a salmon troll trip. Vessels using troll gear where more than 50 percent of the total catch was groundfish are considered as a part of the directed OA group. Few salmon troll vessels participate in the LEFG fisheries (approximately 2 percent), but around 13 percent of participating LEFG vessels off of Oregon and California also harvest in the salmon fishery.

Table 11-19. Number of vessels that participated in only salmon troll fisheries, only in OA or LEFG groundfish fisheries, and participated in both OA and salmon troll or LEFG and salmon troll in the same year off of Oregon and California, 2017-2020.

Year	Total Salmon Troll	OA Crossover			LEFG Crossover		
		Salmon Only	OA only	OA/ Salmon	Salmon Only	LEFG only	LEFG/ Salmon
2017	555	370	548	185	538	98	17
2018	647	434	534	213	633	97	14
2019	737	545	461	192	722	94	15
2020	611	467	447	144	600	90	11

As described in Agenda Item D.1., Attachment 1, September 2020, "Outside of the trawl and fixed gear sectors, the largest West Coast fishery from which vessels already crossover to the IFQ gear-switched sablefish fishery is the Dungeness crab fishery." Typically, between 31 and 38 vessels participate in the crab fishery and participate in the IFQ fishery (Table 14 from Attachment 1). The small proportion of crab vessels that gear switch (two percent) compared to the large number of gear-switching vessels that crab (about 55 percent in recent years) might indicate that a decline in opportunities in the crab fishery could lead to more gear switching.

As VMS is required on all trips in which groundfish are retained, vessels that participate in salmon or crab fisheries may not have VMS unless they are already participating in the groundfish fishery in some manner. The sector with the highest likelihood to crossover and partake in this management measure would be from vessels in the salmon troll fishery coming to participate in the OA fishery. As troll gear is considered a non-bottom contact hook and line gear, vessels could potentially configure their vessels to target midwater rockfish in the NT_RCA outside of the salmon season- which has been done by current EFP participants.

Gear Investments

Additionally, vessels that want to participate in this fishery would likely need to invest in new gear types or make modifications to gear. Sablefish landings make up a majority of fixed gear landings (74 percent on average across all three sectors from 2016-2020; Source: WCGOP GEMM) and are primarily caught with pot or longline gears. Significant time and money is used to purchase gear and outfitting a vessel to use that gear type. Given that sablefish can typically fetch a higher price and there is a market, there is likely little incentive for vessels to start up a new strategy. Further, based on industry feedback, with the uncertainty of crab and salmon opportunities and now groundfish, it may be difficult to find a crew to start new fishing ventures.

Permitting

Vessels operating in the LEFG or IFQ sector must be registered to a LE fixed gear or LE trawl permit (respectively) in order to participate. However, there are no federal permitting requirements for open access vessels. Oregon and California each manage their state nearshore fisheries in state waters, where there are state specific permitting requirements. For Oregon, those requirements do not extend into federal waters. However, in California, a Deeper Nearshore Species Fishery permit is needed to land the following species: black rockfish, blue rockfish, brown rockfish, calico rockfish, copper rockfish, olive rockfish, quillback rockfish, and treefish. See the 2015-2016 EIS (PFMC and NMFS 2015) and Nearshore chapters above for more of a description of the state nearshore fisheries.

Vessel Design

Finally, as was noted in Appendix B to the 2019-20 Harvest Specifications,

> "Traveling more than 10–15 miles offshore becomes increasingly dangerous for small recreational boats as well as for the "sportlike" commercial fixed gear boats who participate in the nearshore fishery: Rough seas can unexpectedly develop, and if they get caught offshore, it can take hours to return to port as they cannot go much faster than 5 miles per hour in rough seas otherwise waves begin crashing over the sides of the boat (Jeff Miles, Groundfish Advisory Sub-panel OA representative, personal communication)."

These "sport-like" commercial fixed gear vessels at the center of this action and most likely to utilize this management measure fall into this category of vessels. For perspective, Figure 11-5 below shows the spread of vessel lengths[49] of OA and LEFG vessels that fished in the non-sablefish fishery, OA and LEFG vessels that fished in the sablefish fisheries, and IFQ gear switching vessels from 2017-2020. Note that vessels can cross-participate in multiple fisheries per year or over the time series. The average OA non-sablefish vessel is registered at 26.6 ft compared to OA sablefish vessels that average 38 ft. Given the size of these vessels, it suggests that OA vessels would be ultimately limited to how much of the NT_RCA they would be able to access depending on the portion of coastline. Furthermore, configurations of the vessels (i.e., vessels without a cover to protect in poor weather) would further limit any potential large influx of activity as operators would be limited in when they could go offshore without any kind of overhead protection.

[49] Vessel lengths are those provided to the USCG and/or state agencies. Not all vessels with landings had vessel length data available. Source: PacFIN.

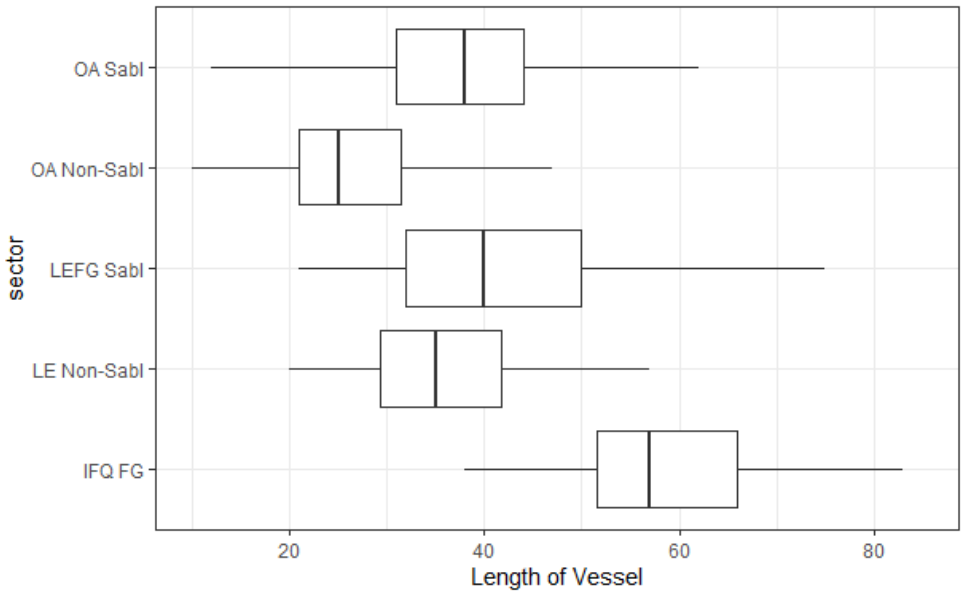


Figure 11-5. Boxplot of vessel lengths by sector (coastwide), 2017-2020. Vessels may be present in multiple sectors. Outliers removed for confidentiality.

Infrastructure

A final factor that may impact participation is the presence of infrastructure in a port. As described in Agenda Item D.1., Attachment 1, September 2020: "Infrastructure includes all the underlying resources required to support an activity, including both physical assets and human services and organizational structures. There are many different types of physical infrastructure needed to support the fishing industry including harbors and adequate navigation channels, docks, offloading equipment, ice and cold storage, fish buying and processing capacity, trucking, hoists and cranes, dry docks, shipyards, and marine vessel suppliers."

Through the Council's considerations of limitations on gear switching, the presence (or absence) of various components of infrastructure was examined. While the goal of the analysis was to provide an assessment of the change in available resources by port group over the IFQ program era, it may provide some insight into if ports are currently situated to support a fishery as proposed under this agenda item. Figure 11-6 below provides an indicator of whether the infrastructure element is present and whether it has been enhanced, not changed, or diminished in some notable fashion since 2011 through 2017. Therefore, recent investments (or closures), especially related to the COVID-19 pandemic, may not be represented in this figure. In general, Oregon ports appear to have seen more positive investments compared to California ports over the time period assessed.

	Fuel Dock		Ice Plant/Cold Storage		Processors		Boat Hoists, Lifts, and Cranes		Shipyard/ Dry Dock		Marine Vessel Suppliers	
	Current	Change	Current	Change	Current	Change	Current	Change	Current	Change	Current	Change
Oregon												
Astoria (Includes Hammond & Warrenton)	✓	–	✓	?	✓	▼	✓	▼			✓	–
Garibaldi	✓	–	✓	–	✓	?	✓	▲	✓	?	✗	–
Newport (Includes South Beach & Toledo)	✓	–	✓	▲	✓	–	✓	▲	✓	▲	✓	?
Coos Bay (Includes Charleston & South Bend)	✓	?	✓	?	✓	▼	✓	▲	✓	?	✓	–
Brookings (Includes Harbor)	✓	–	✗	▼	✓	?	✓	?	✓	–	✗	–
California												
Crescent City	✓	?	✓	–	✓	▲	✓	?	✓	?	✓	–
Eureka (Includes Fields Landing)	✓	?	✓	?	✓	?	✓	–	✓	–	✓	?
Fort Bragg	✗	▼	✓	–	✓	▼	✓	–	✓	–	✓	?
Bodega Bay	✓	▼	✓	–	✗	–	✗	–	✗	–	✗	?
San Francisco (Including east bay)	✓	–	✓	–	✓	▼	✓	–	✓	–	✓	?
Half Moon Bay/Princeton	✓	▲	✓	?	✓	▲	✗	?	✗	?	✓	?
Moss Landing	✓	–	✗	?	✓	▼	✓	–	✓	–	✗	–
Monterey	✓	–	✓	–	✓	▼	✓	▲	✓	–	✗	–
Morro Bay	✓	?	✓	–		–	✗	?	✓	?	✓	–
Avila	✓	–	✓	–	?	?	✓	–	✗	–	✗	–
Santa Barbara	✓	–	✓	–	✗	?	✓	–	✓	–	✓	?
Present =	✓											
Absent =	✗											
Increased =	▲											
No Change =	–											
Decreased =	▼											

Figure 11-6. Presence of infrastructure by port, current and change (as of 2017) off Oregon and California since implementation of the catch share program. (Source: Catch Share Program Review, 2017; PacFIN; and WCR Permit Data).

11.11 Enforcement Considerations

In order to have this item being enforceable, the Council will need to consider adding specifications to the following areas:

- *Gear type on board*
- *Fishing inside and outside the NT_RCA on the same trip*
- *Declaration codes*
- *Gear definition*

The following items are those identified by staff that the Council and ABs would need to consider when developing this management measure if it stays within the range of alternatives.

Section 660.330(d) of the groundfish regulations state that "A vessel that is authorized by this paragraph to fish within a GCA (e.g., fishing for “other flatfish” using hook and line gear only), may not simultaneously have other gear on board the vessel that is unlawful to use for fishing within the GCA." In other words, a vessel that would be permitted to fish within the NT_RCA would only be able to carry non bottom contact hook and line gear on a trip. This is currently what

is in regulation for vessels operating in the 30-40 fathom zone north of 40° 10′ N. lat and was adopted within the NT_RCA package range of alternatives in the semi-related action.

It is likely that an additional declaration code(s) would need to be developed for vessels operating in the NT_RCA. Currently, in the area between 30-40 fathoms north of 40° 10′ N. lat., vessels use the #35 code for "open access line gear for groundfish" which includes all other vessels using OA hook and line gear outside of the NT RCA. Further, the Council and ABs will need to specify if the current regulations regarding gear on board and fishing inside and outside of the NT_RCA would remain in place (i.e., vessels could fish inside and outside the NT_RCA, but can only carry non bottom contact hook and line gear on board). Note that this was supported by the GAP in the related action under the Non-Trawl Area Management (Agenda Item E.6.a, Supplemental GAP Report 1, November 2021).

The Council and ABs may also need to consider how to define "non bottom contact hook and line gear." As was described in the NT_RCA analysis and by the EC (Agenda Item E.6.a, Supplemental EC Report, November 2021), hook and line gear has a very broad definition. There is a definition of "bottom contact gear" in Section 660.11 (see below); however, it again is very broad in the types of gears included.

Bottom contact gear means fishing gear designed or modified to make contact with the bottom. This includes, but is not limited to, beam trawl, bottom trawl, dredge, fixed gear, set net, demersal seine, dinglebar gear, and other gear (including experimental gear) designed or modified to make contact with the bottom. Gear used to harvest bottom dwelling organisms (e.g., by hand, rakes, and knives) are also considered bottom contact gear for purposes of this subpart. Therefore, the Council will need to consider defining the parameters of the gears that will be considered "non bottom contact" and making those parameters clear for enforcement while also allowing for flexibility and innovation by fishermen. Given the similarities in how its fished to the proposed EFP gear, the Council could consider something like that was developed for the longleader (Holloway) gear:

Long-leader gear (also known as Holloway gear) means fishing gear with the following: One fishing line, deployed with a sinker and no more than three hooks, with a minimum of 30 feet (9.14 meters) between the sinker and the lowest hook, and a non-compressible float attached to the line above the hooks. The gear may be equipped with artificial lures and flies less than or equal to 5 inches in length. Natural bait, and lures or flies greater than 5 inches in length, may not be used.

Key features of the definition include:

- Number of lines
- Number of hooks
- Float configuration
- Lures
- Bait type permitted

12. References

Field, J. C., E. J. Dick, and A. D. MacCall. 2007. Stock Assessment Model for the Shortbelly rockfish, *Sebastes jordani*, in the California Current. NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-405, 108 p.

Johnson, K.F., A.M. Edwards, A.M. Berger, and C.J. Grandin. 2021. Status of the Pacific Hake (whiting) stock in U.S. and Canadian waters in 2021. Prepared by the Joint Technical Committee of the U.S. and Canada Pacific Hake/Whiting Agreement, National Marine Fisheries Service and Fisheries and Oceans Canada. 269 p.

Leonard, J., and P. Watson. 2011. Description of the input-output model for Pacific Coast fisheries. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-111, 64 p.

National Marine Fisheries Service (NMFS). 2015. Final Environmental Impact Statement for Harvest Specifications And Management Measures for 2015-2016 and Biennial Periods Thereafter; Includes the Reorganization of Groundfish Stock

NMFS. 2018a. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion Continuing Operation of the Pacific Coast Groundfish Fishery (Reinitiation 2018). National Marine Fisheries Service, Seattle, October 12, 2018. NMFS Consultation Number: WCR-2018-8635

NMFS. 2018b. Authorization of an Oregon Recreational Fishery for Midwater Groundfish Species. Final Environmental Assessment.

NMFS. 2020a. Cowcod and Shortbelly Rockfish EA/FONSI/RIR/IRFA/MSA. Proposed Regulatory Amendment under the Pacific Coast Groundfish Fishery Management Plan. Northwest Region, Seattle, WA. May 2020.

NMFS. 2020b. Amendment 29 to the Pacific Coast Groundfish Fishery Management Plan and 2021-22 Harvest Specifications and Management Measures. Northwest Region, Seattle, WA. December 2020

NMFS. 2021. Supplemental Information Report. Emergency Action to Temporarily Extend the Sablefish Primary Season.

NMFS. 2021. Amendment 29 to the Pacific Coast Groundfish Fishery Management Plan & 2021-2022 Harvest Specifications and Management Measures, Portland, OR.

PFMC. 2020. Status of the Pacific Coast Groundfish Fishery, Stock Assessment and Fishery Evaluation (SAFE), Description of the Fishery, Portland, OR, June 2022.

PFMC. 2021. Draft Status of the Pacific Coast Groundfish Fishery Stock Assessment and Fishery Evaluations. Pacific Fishery Management Council, Portland, OR. October 2021.

Pearson, D. E., J. E. Hightower, and J. T. H. Chan. 1991. Age, growth, and potential yield for shortbelly rockfish *Sebastes jordani*. Fishery Bulletin 89:403-409.

Pfeiffer, L., Petesch, T., & Vasan, T. (2022). A Safer Catch? The Role of Fisheries Management in Fishing Safety. *Marine Resource Economics*, 37(1), 000-000.

Richerson, K., K. A. Somers, J. E. Jannot, V. Tuttle, N. B. Riley, and J. McVeigh. 2019. Observed and Estimated Bycatch of Salmon in U.S. West Coast Fisheries, 2002–18. U.S. Department of Commerce, NOAA Data Report NMFS-NWFSC-DR-2019-02.

Somers, K. A., J. Jannot, K. Richerson, V. Tuttle, N. B. Riley, and J. T. McVeigh. 2021. Estimated Discard and Catch of Groundfish Species in the 2020 U.S. West Coast Fisheries. U.S. Department of Commerce, NOAA Technical Memorandum.

Taylor, I.G. 2008. Modeling spiny dogfish population dynamics in the Northeast Pacific. Ph.D. Dissertation. University of Washington.

USFWS. 2017. Regarding the Effects of the Continued Operation of the Pacific Coast Groundfish Fishery as Governed by the Pacific Coast Groundfish Fishery Management Plan and Implementing Regulations at 50 CFR Part 660 by the National Marine Fisheries Service on California Least Tern (*Sterna antillarum browni*), Southern Sea Otter *(Enhydra lutris nereis*), Bull trout (*Salvelinus cojifluentus*), Marbled Murrelet (*Brachyramphus marmoratus*), and Short-tailed Albatross (*Phoebastria albatrus)* FWS Reference Number O1EOFWOO-2017-F-03 16. Fish and Wildlife Service, Portland, Oregon, 68 p.