Pacific Coast Groundfish Fishery 2021-2022 Harvest Specifications and Management Measures

DRAFT MANAGEMENT MEASURE ANALYTICAL DOCUMENT FOR COUNCIL DECISION MAKING

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Acronyms and Abbreviations

ABC	Acceptable biological catch
ACL	Annual catch limit
ACS	American Community Survey
ACT	Annual catch target
AFSC	Alaska Fisheries Science Center
AM	Accountability measure
APA	Administrative Procedures Act
B_0	Biomass, unfished
BIOP	Biological opinion
BRA	Bycatch reduction area
BRD	Bycatch reduction device
CalCOFI	California Cooperative Oceanic Fisheries Investigations
CA/OR/WA	California, Oregon, and Washington
CCA	Cowcod Conservation Area
CCE	California Current Ecosystem
CCIEA	California Current Integrated Ecosystem Assessment
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CP	Catcher-processor
CPFV	Commercial passenger fishing vessel
CPS	Coastal pelagic species
CPUE	Catch per unit of effort
CRFS	California Recreational Fisheries Survey
CV	Coefficient of variation
CZMA	Coastal Zone Management Act
DB-SRA	Depletion-based stock reduction analysis
DCAC	Depletion-corrected average catch
DEIS	Draft Environmental Impact Statement
DO	Dissolved oxygen
DPS	Distinct population segment
DTL	Daily trip limit (fishery)
DTS	Dover sole, thornyheads, and sablefish
E	Exploitation
EA	Environmental Assessment
EC	Ecosystem component
EDC	Economic Data Collection (Program)
EEZ	Exclusive Economic Zone
EFH	Essential fish habitat
EFHRC	Essential Fish Habitat Review Committee
EFP	Exempted fishing permit
EIS	Environmental Impact Statement
ENSO	El Niño Southern Oscillation
EO	Executive Order
ESA	Endangered Species Act

ESU	Evolutionary significant unit
EwE	Ecopath with Ecosim
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
GIS	Geographic information system
GMT	Groundfish Management Team
h	Stock-recruitment steepness parameter
HA	Hectares
HAPC	Habitat Areas of Particular Concern
HCR	Harvest control rule
HG	Harvest guideline
HMS	Highly Migratory Species
IBQ	Individual bycatch quota
ID	Identification
IEA	Integrated Ecosystem Assessment
IFQ	Individual fishing quota
IOPAC	Input-output model for Pacific Coast fisheries
IPCC	Intergovernmental Panel on Climate Change
ITS	Incidental take statement
IUCN	International Union for the Conservation of Nature
LE	Limited entry
LEFG	Limited entry fixed gear
LOF	List of Fisheries
M	Instantaneous rate of natural mortality
MBTA	Migratory Bird Treaty Act
MEI	Multivariate ENSO Index
MFMT	Maximum Fishing Mortality Threshold
MHHW	Mean higher high water level
MMPA	Marine Mammal Protection Act
MPA	Marine Protected Area
MRFSS	Marine Recreational Fisheries Statistical Survey
MSA	Magnuson-Stevens Fishery Conservation and Management Act, Magnuson-Stevens Act
MSE	Management strategy evaluation
MSST	Minimum Stock Size Threshold
MSY	Maximum sustainable yield
MT	Metric ton
MTC	Mean temperature of catch
MTL	Mean trophic level
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NID	Negligible Impact Determination
NMFS	National Marine Fisheries Service

NMNU	Non-market and non-use
NOI	Notice of Intent
NORPAC	North Pacific Database Program
NPGO	North Pacific Gyre Oscillation
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
PCGW	Pacific Coast Groundfish and Endangered Species Workgroup
PDO	Pacific Decadal Oscillation
PMFC	Pacific Fishery Management Council (used in references)
POP	Pacific ocean perch
PR	Private/rental boats
PRD	NMFS Protected Resources Division
PSA	Productivity-susceptibility analysis
QP	Quota pounds
QS	Quota share
QSM	Quota species monitoring
Rec	Recreational
RecFIN	Recreational Fisheries Information Network
RBS	Rougheye/blackspotted/shortraker (rockfish complex)
RCA	Rockfish Conservation Area
RCG	Rockfish, cabezon, and greenling
RES	Research
RIR	Regulatory Impact Review
SAFE	Stock Assessment and Fishery Evaluation
SCWC	South and Central Washington Coast
SFD	Sustained Fisheries Division
SPID	Species identification code
SPR	Spawning potential ratio
SSC	Scientific and Statistical Committee
STAR	Stock Assessment Review
SWFSC	Southwest Fisheries Science Center
TAC	Total allowable catch
TCEY	Total constant exploitation yield
USFWS	United States Fish and Wildlife Service
V	Vulnerability
VMS	Vessel monitoring system
WCGOP	West Coast Groundfish Observer Program
WCR	West Coast Region
WDFW	Washington Department of Fish and Wildlife
WOC	Washington, Oregon, and California

XDB-SRA	Extended Depletion-based Stock Reduction Analysis
YOY	Young-of-the-year
YRCA	Yelloweye rockfish Conservation Area

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Executive Summary

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. While previous bienniums also included non-directed management measures such as those on the workload and prioritization list (former "omnibus"), those will now be evaluated solely via stand-alone agenda items. 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.

Table ES 1: Alternative harvest specifications being considered for 2021-22.

Species	No Action: DHCR	Alt 1 (PPA)	Alt 2
Shortbelly Rockfish	ABC P* 0.40 ACL=500 mt	ABC P*0.40 ACL=3,000 mt	Ecosystem Component species
OR Black Rockfish*	ACL=ABC P*0.45	ACL = "Case-by-case ABC" = 512 mt from 2020	Same Alt 1
Cowcod south of 40°10' N. lat.	ACL=ABC P* 0.45	ACL = ABC P*0.40	ACL = ABC P*0.30
Petrale Sole	ACL=ABC P*0.45	ACL=ABC P*0.40	"Stair-step ACLs"
Sablefish	ABC P* of 0.40 2 Methods to apportion ACLs	ABC P* of 0.45 2 Methods to apportion ACLs	Same as Alt 1

**Contributor to the Oregon black/blue/deacon stock complex, but state managed by Oregon to the component ACL*

Shortbelly rockfish

Shortbelly rockfish have recently become a stock of concern since the 500 mt ACL was exceeded in both 2018 and 2019, and were subject of Council action in November 2019 to raise the 2020 ACL to 3,000 mt to prevent fishery constraints. Shortbelly rockfish are one of the most abundant groundfish stocks, provide an important forage base for predators, and have more similar life history characteristics to coastal pelagic stocks like sardine and anchovy. While they have no value to directed fisheries, bycatch constraints in the mid-water trawl fisheries has become a top recent concern. There was little issue with shortbelly rockfish bycatch in the past since the stock is typically located off Central California to the south of where mid-water trawl fisheries occur, but has recently expanded their range northward (as far as Canada) into the

footprint of the whiting and mid-water rockfish trawl fisheries. The three main objectives from previous biennium have been to prevent targeted fisheries from developing, reduce bycatch, and to prevent fishery constraints.

No Action (500 mt ACL) would provide the shortbelly rockfish stock the most protection, but would likely constrain fisheries - especially the whiting sectors. Alternative 1 would reduce fishery constraints and provide some cushioning for uncertain bycatch projections. No Action and Alternative 1 would not be expected to negatively impact the shortbelly rockfish stock or forage bases as all indications are that the shortbelly rockfish stock is thriving and there is an abundance of other prey species (e.g., anchovy). Alternative 2 would designate the stock an Ecosystem Component (EC) Species, which cannot be targeted in directed fisheries and are not actively managed or monitored. A potential downside with Alternative 2 is that it could reduce the incentive for voluntary fleet avoidance as opposed to management with an ACL.

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

Oregon black rockfish are the most economically important stock for the Oregon recreational and commercial nearshore fisheries. While managed in a complex, there is focus on the ACL contribution of black rockfish since that is the basis of state allocations set by Oregon. Under No Action (ACL=ABC P*0.45), the ACL would decrease by 33 mt and 37 mt from 2020 to 2021-22, respectively. The Oregon Department of Fish and Wildlife (ODFW) and the Council consequently requested analysis of a "case-by-case" ABC set equal to 2020 ABC to provide fishery stability while they work to complete a new survey to better inform a new stock assessment. The biological impacts are nearly identical for both alternatives in both the short- and long-term, while Alternative 1 would provide more economic and social benefits for the Oregon recreational and commercial nearshore fisheries.

Cowcod south of 40°10' N. lat.

The cowcod stock was declared rebuilt per the 2019 assessment, which will result in the ACL increasing from 10 mt in 2019 to either 98 mt (No Action; P*0.45), 87 mt (Alt 1; P*0.40), or 69 mt (Alt 2; P*0.30) in 2021. The Council is however considering setting an annual catch target (ACT) between 40-60 mt as a means to be more precautionary given assessment uncertainty. Alternative 2 cannot support the 60 mt ACT, but the others can accommodate the full ACT range. All ACL and ACT alternatives are expected to greatly reduce fishery constraints in the trawl and non-trawl fisheries, and provide more opportunity for co-occurring stocks.

Petrale sole

The Council is considering taking a more precautionary approach than No Action (P*0.45) for petrale sole in 2021-22 given concerns with the 2019 update assessment. Specifically, the 2018 biomass estimate from the trawl survey declined, which the assessment failed to fit, and new fecundity data for petrale sole are likely to result in slightly more depleted estimates of stock size when incorporated into the next full assessment. Alternative 1 (P*0.40) and 2 ("stair step ACLs") both provide the same levels of long-term precaution and economic benefits through 2030; however, Alternative 1 provides more economic benefit in 2021-22 whereas Alternative 2 provides more of it in future biennium.

Sablefish

There are two sablefish harvest control rules with two apportionment options (resulting in four ACL alternatives) being considered for 2021-22 (Table ES 2). In addition to the ABC alternatives for sablefish under a P* of 0.4 (No Action) and 0.45 (Alternative 1), the Council is considering different methods of apportioning the coastwide ABC to determine the ACLs for north and south of 36° N. lat. Method 1 uses the long-term (2002-2018) average bottom trawl survey biomass distributions while Method 2 (PPA) uses the rolling 5-year average survey biomass distributions (2014-2018). Method 2 would better match a more northerly recent shift in abundance to the north, could be more responsive to future distributional shifts, and could result in increased economic benefits by apportioning more to the north where attainments are high. The SSC determined neither method will negatively impact the stock, and that ultimately, the ACL apportionment methodology is a Council policy call that can include economic considerations. These apportionment methods can also be revisited in future biennium if they start becoming constraining for either area or do not match survey distributions well.

Table ES 2. 2021-22 sablefish ACL alternatives under the two proposed apportionment methods. 2019 ACLs north and south of 36° N. lat. provided for reference.

Year	Alt.	Coastwide ABC (mt)	Long Term Apportionment ACLs (mt)		5-yr Avg. Apportionment ACLs (mt)	
			N of 36° (73.6%)	S of 36° (26.4%)	N of 36° (73.6%)	S of 36° (26.4%)
2019	Baseline	7,750	5,606	1,990	-	-
2021	No Action	8,208	6,041	2,167	6,435	1,773
	Alt.1	8,791	6,470	2,321	6,892	1,899
2022	No Action	7,811	5,749	2,062	6,124	1,687
	Alt.1	8,375	6,164	2,211	6,566	1,809

Overall, Alternative 1 is not expected to negatively impact the stock long-term compared to No Action. Both alternatives are projected to keep the stock above the 40 percent depletion management long-term (through 2030) under the base case model (**Figure EX1)**. Additionally, both alternatives are expected to similarly impact the stock under long-term projections using the more pessimistic low state of nature (i.e., mid-to-high 30 percent depletion range for both). This means that the stock could eventually end up in the upper precautionary zone for both 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 do however assume that the full ABCs would be taken each year, and if attainments remain low in the south, then the stock is projected to remain at or above the management target long-term even under the low state of nature for both alternatives. If southern attainments were to increase but less than the ABC was still caught, then the stock would be expected to remain at or slightly below (e.g., 38-41 percent range) long-term under the low state of nature for both alternatives. Economic impacts are discussed in a section below

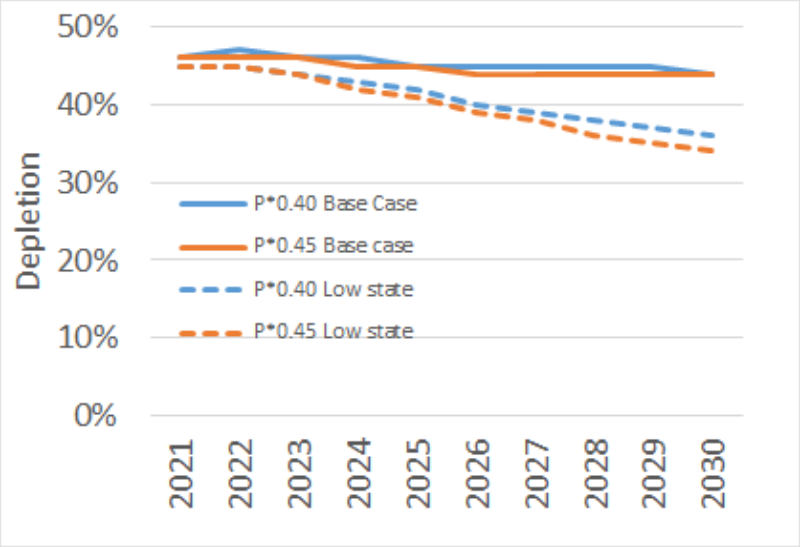

Figure ES1. Long-term depletion projections for the coastwide ABC alternatives assuming the full ABCs would be caught each year from 2021-2030; "reduced catch scenarios" (not shown) assume southern attainments remain low and project the stock being near management target long-term even under the low state of nature.

Management Alternatives of Select Species

This section pertains to integrated effects on select species where there are interactions between the harvest specifications and the different management measure options being considered by the Council such as ACTs, changes to allocations and at-sea set-asides, trip limits, etc. Detailed fishery by fishery impacts are provided in the analytical report, and this section brings all the moving parts together as they are key decision points for the Council. For the vast majority of species, there is little change from the baseline conditions.

Table ES 3 below provides the options, and a brief description, of the trawl-non-trawl allocation options being considered by stock. None of the proposed allocations are expected to negatively impact sectors in 2021-22, and can be re-evaluated in future biennium if they become constraining.

Table ES 3. Description of the allocation options for selected species being considered for the 2021-22 biennium.

Species	Area	Option	Allocation
Petrale sole	Coastwide	1 (SQ)	Amendment 21 (95% trawl, 5% non-trawl)
		2	30 mt to non-trawl, remaining to trawl
Canary rockfish	Coastwide	1	Maintains 19-20 percentages (72% trawl, 28% non-trawl)
		2	Maintains 17-18 method: Allocates 17-18 amounts to non-trawl sector (406.5 mt) designed to meet needs of fisheries, allocates remainder to trawl (at-sea set aside reduced to 20 mt)
Widow rockfish	Coastwide	1 (SQ)	Amendment 21 (91% trawl, 9% non-trawl)
		2	300 mt to non-trawl, remaining to trawl
Lingcod	South of 40° 10' N. lat.	1 (SQ)	Amendment 21 (45% trawl, 55% non-trawl)
		2	43% trawl, 57% non-trawl
		3	25% trawl, 75% non-trawl
Slope rockfish complex	South of 40° 10' N. lat.	1 (SQ)	Amendment 21(63% trawl, 37% non-trawl)
		2	Creates shares of blackgill rockfish (41% trawl, 59% non-trawl) and other slope species (91% trawl, 9% non-trawl) within the complex to manage to. The southern slope complex is the sum of the shares minus apportioned off-the-top deductions.

Sablefish

In regard to economic benefits, only the northern management area is expected to be impacted by the two different ACL alternatives and two apportionment options because both trawl and non-trawl fisheries are expected to catch their full allocations under any of the alternative options. In contrast, attainments to the south are expected to remain static at $3.2 million because attainments are low in both individual fishing quota (IFQ) and daily trip limit (DTL) sectors and are not affected by higher or lower allocations (Figure ES 1). A lack of processing infrastructure and closed areas (i.e., Cowcod Conservation Areas) have been identified as the main constraints.

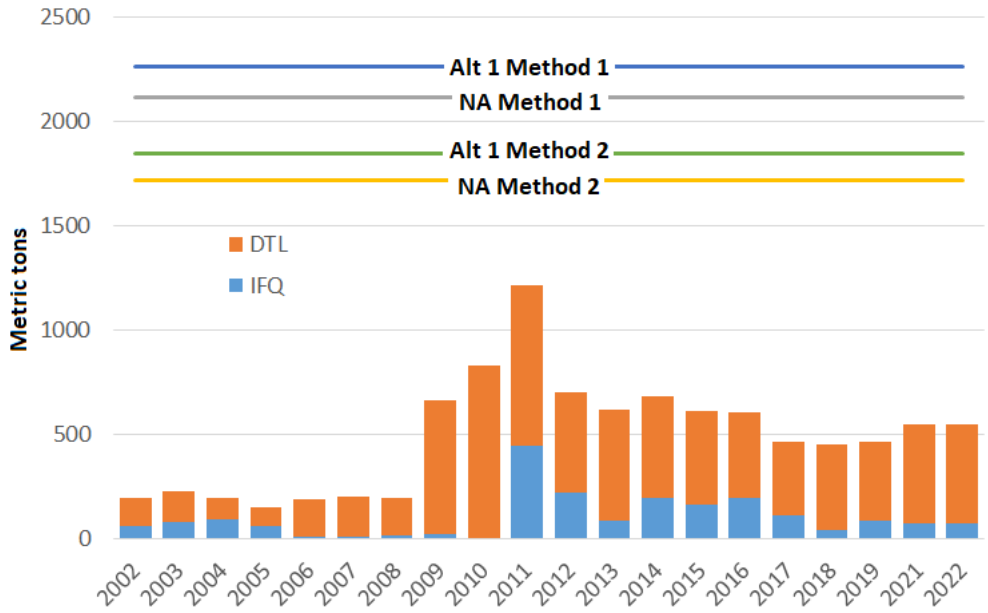

Figure ES 1. Historical and projected southern sablefish attainments (bars) in relation to the four different ACL alternatives (lines) for 2021-22.

The "highest benefit" Alternative 1 Method 2 (PPA) provides the most economic benefits since it maximizes the northern ACL by using the higher P* and increases the northern ACL apportionment. The "lowest benefit" No Action Method 1 (SQ) provides the lowest benefits since it uses a more precautionary P* and apportions more to the south. The "medium benefit" No Action Method 2 and Alternative 1 Method 1 have similar intermediate benefits because a higher northern ACL apportionment can offset a lower P* and vice versa.

The "highest benefit" Alternative 1 Method 2 is projected to increase ex-vessel revenue by +$3.0 million per year compared to the "lowest benefit" No Action Method 1 (Table ES 4). The "medium benefit" alternatives (No Action Method 2 and Alternative 1 Method 1) are almost exactly in the middle of that +$3 million gap (~$1.5 higher than No Action Method 1 and lower than Alternative 1 Method2). The average economic benefits for each northern sablefish fishery are shown in Table ES 5, which included potential gains of Alternative 1 Method 2 in the footnote.

Table ES 4. Projected differences in average 2021-22 coastwide* sablefish ex-vessel sablefish revenue (millions) across the two ACL alternatives and two apportionment methods.

		To this Alt:			
		No Action Method 1 "lowest"	**No Action Method 2 "medium"**	**Alt. 1 Method 1 "medium"**	**Alt 1. Method 2 "highest"**
From this Alt:	**No Action Method 1 "Lowest benefit"**	---	+$1.4	+$1.5	+$3.0
	No Action Method 2 "Medium benefit"	-$1.4	---	+$0.2	+$1.6
	Alt. 1 Method 1 "Medium benefit"	-$1.5	-$0.2	---	+$1.5
	Alt 1. Method 2 "Highest benefit"	-$3.0	-$1.6	-$1.5	---

***All differences are attributed to the northern area as southern attainments are expected to remain constant at $3.2 million for all four alternatives*

Table ES 5. Projected differences in average 2021-22 sablefish ex-vessel revenue by fishery in the northern sablefish area for all four ACL alternatives.

Sector	**No Action Method 1 "Lowest benefit"**	**No Action Method 2 "Medium benefit"**	**Alt 1 Method 1 "Medium benefit"**	**Alt 1 Method 2 "Highest benefit"**
IFQ	$7.8	$8.2	$8.3	$8.8
Tribal	$1.9	$2.0	$2.1	$2.2
Primary	$8.1	$8.7	$8.7	$9.3
DTL	$3.9	$4.2	$4.2	$4.5
Total	**$21.7**	**$23.1**	**$23.3**	**$24.7**

Projected average gains in ex-vessel revenue (millions) from Alt 1 Method 2 (PPA) compared to No Action Method 1 (SQ):+$1.0 million IFQ, +$0.3 million tribal, +$1.2 primary/tier, +$0.6 DTL (LE and OA)

All of these northern sablefish proposals are based on the status quo 50 mt at-sea set-aside, which covered their annual total mortality of less than 30 mt per year from 2002-2016, but not in 2017 (153 mt), 2018 (117 mt), or 2019 (71 mt). The Council therefore proposed analyzing a 100 mt set-aside since it would cover expected at-sea bycatch (76.1 mt five year average), and not negatively impact the IFQ fishery as much as using the 153 mt maximum mortality. Increasing the set-aside to 100 mt does reduce the IFQ allocation by 50 mt, but the IFQ would still receive the following average allocations gains in 2021-22 compared to 2019: +173 mt for the "lowest benefit" No Action Method 1, ~+270 mt for the "medium benefit" No Action Method 1 and Alternative 1 Method 1, and +479 mt for the "highest benefit" Alternative 1 Method 2. It is important to also consider that while set asides are not managed inseason, and there is no penalty for exceeding a set aside (unless there is a risk of exceeding a harvest specification or impacting another sector), the at-sea sectors have historically used the set asides as guidelines for operations and therefore been subject to high costs associated with voluntary avoidance of sablefish.

Widow rockfish

Considerable economic gains for widow rockfish are expected under No Action due to the 2019 update assessment that will increase the No Action ACLs by ~2,500 mt, on average, for 2021-22 compared to the 2019 Baseline. Widow rockfish are predominately caught in the mid-water non-whiting trawl fishery where they are the main target stock. The IFQ fishery is expected to gain an average of ~$1.1 million in ex-vessel revenue per year under No Action and status quo allocations compared to 2019. The Council is considering changing the trawl/non-trawl allocations and the at-sea set aside in 2021-22 to provide additional opportunity to the IFQ sector while not restricting the non-trawl or at-sea sectors. Under status quo (Option 1) A-21 allocations, 91 percent is allocated to trawl (12,008 mt on average) and 9 percent to the non-trawl sector (1,251 mt on average). Option 2 would make widow rockfish a two-year allocation species and would allocate the non-trawl sector a fixed amount of 300 mt, thereby shifting ~1,000 mt on average to the trawl sector. The objective of Option 2 is to shift more allocation to the IFQ sector where attainments are high, but at the same time to provide enough cushion for the non-trawl sector as to not constrain them. The non-trawl fishery is not expected to be negatively impacted by Option 2 as they are expected to take less than 1/3rd of the 300 mt allocation even under a proposed series of liberalizing management measures in 2021-22 (Table ES 6).

The projected economic benefits for the IFQ fishery for Option 2 trawl/non-trawl allocations also depend on the different at-sea set-aside options. The Council is considering multiple set-aside options that would cover the expected at-sea bycatch, but not strand excess quota that could be utilized by the IFQ sector. With the implementation of Amendment 21-4 (effective January 2020), widow rockfish is now managed as a set aside in the at-sea fisheries and the specified percentages removed from the FMP; however, the Council chose to use the A-21 formulas as a starting point for determining set aside values. While widow rockfish is prevalent as bycatch in the at-sea sector, the combined maximum mortality in a single year from 2015-2019 is 476 mt with an average of 220.6 mt; therefore, the proposed set asides under status quo A-21 formulas (i.e. option 1) of 764.1 and 714.6 mt for 2021-2022 would likely strand between 200-500 mt in the at-sea sector that could also be used in the IFQ fishery. Using an average, whether sector-specific or combined for at-sea (both are options discussed in Chapter 2.4.2), would be expected to accommodate at-sea bycatch and not constrain them.

Adoption of the most liberal allocations to IFQ (Option 2 for trawl-non trawl allocations and option b for at-sea, based on the recent average) would increase the IFQ allocations by an additional 1,480 mt on average for 2021-22 compared to the status quo allocation and set-aside options. The expected IFQ gains for these options would be $0.4 million in ex-vessel revenue per year on average, which would be in addition to ~$1.1 million gains associated with the large increases to the No Action ACLs compared to Baseline.

Table ES 6. Widow rockfish IFQ and non-trawl historical mortality in relation to Option 1 (status quo) and Option 2 that would shift more non-trawl allocation and at-sea set-asides to IFQ.

Sector	Total Mortality						Allocation (2021-22 avg)	
	2015	2016	2017	2018	2019	2021-22	Option 1 (SQ, Amendment 21 formula)	Option 2 (300 to non-trawl PLUS average mortality for at-sea, rest to trawl)
IFQ	815	798	5,864	10,314	9,502	92% a/	12,008	13,488
Non-trawl	2	7	20	19	28	96	1,261	300

a/ Projected to be at 92% of either allocation for trawl and 96 when accounting for options to raise LEFG and OA trip limits coastwide, allow combo halibut + longleader trips in Oregon recreational, and account for some additional CA recreational landings

Canary rockfish

Canary rockfish are unique in that they are impacted by every single groundfish sector, and can be constraining to fisheries since they have relatively low abundance relative to other shelf stocks that they co-occur with (e.g., whiting, and widow, yellowtail, and other shelf rockfish). The two-year allocations were a main focus of the 2017-18 biennium as the higher ACLs reflecting the stock rebuilding were able to facilitate the re-emergence of the mid-water non-whiting trawl fishery and provide additional target opportunity for non-trawl fisheries. The Council gave the non-trawl and at-sea sectors fixed allocations to accommodate their needs, and the remainder was allocated to IFQ to reduce bycatch constraints to support re-emergence of the mid-water trawl rockfish fishery (mainly of widow and yellowtail rockfish). However, the status quo percentages used in 2019-20, rather than the specific values, from 2017-18 (72 percent trawl, 28 percent non-trawl) have resulted in a shift from the Council's intent of the original allocation scheme.

There are two allocation proposals being considered for 2021-22. Option 1 would maintain the percentages of the trawl- non-trawl allocation from the previous biennium (2019-20; 72 percent trawl, 28 percent non-trawl) but would maintain the fixed 46 mt at-sea set aside. Under this allocation option, each non-trawl fishery receives less of the fixed amounts from 2017-2018 biennium as the ACL declines. However, all sectors (except at-sea) proportionally absorb the decline in ACL.

Option 2 would revert to the original Council allocation methodology from 2017-18, in which the non-trawl sectors were allocated 406.5 mt to meet the anticipated needs of the fisheries and the remainder was allocated to the trawl sector. While Option 2 would result in the IFQ sector absorbing any decreases in the ACL, it is not expected to constrain the IFQ fishery since their allocation would be approximately twice their 2017-2019 average and projected 2021-22 mortality. Additionally, under Option 2, there is a proposal to shift 26 mt from the at-sea set-aside to the IFQ sector, providing additional mitigation. Although this proposal would reduce the at-sea set aside from 46 mt to 20 mt, it would likely accommodate any bycatch as the recent five-year average is 3.6 mt. The differences in the Option 1 and 2 allocations are relatively minor, and Option 2 could remedy public frustrations with the non-trawl sectors getting less than their fixed amounts from 2017-18.

Yelloweye Rockfish

In 2019-20, the Council chose to manage yelloweye rockfish with both HGs and ACTs for the non-trawl sectors. The HGs were based on SPR 65 percent used to establish the ACL and IFQ allocation, and the Council managed the non-trawl fisheries to ACTs that were based on the more precautionary SPR 70 percent. This structure is maintained in 2021-22.

Darkblotched Rockfish

While there are no allocation changes or ACL alternatives proposed for darkblotched rockfish in 2021-22, there are two decision points that could affect the trawl sectors: incidental open access (IOA) set aside amount and the at-sea set aside amount. The Council chose to do a catch only update assessment of darkblotched rockfish in 2019 to offset the full ACL removal assumption in the previous full assessment as ACL attainment has averaged 44 percent from 2014-2018. However, even at the higher ACL levels for 2021-22, darkblotched rockfish can still be a constraining species at the vessel or sector level.

While off-the-top deductions for the IOA sector have been set at the 2005-2018 historical maximum mortality, the Council is considering two alternative options for determining the set aside: the median (6.8 mt) and average (9.8 mt). The maximum of 24.5 mt, which occurred in 2014, is thought to be an anonymously high bycatch year in the pink shrimp fishery. The average option (9.8 mt) covers seven of the last eight years of mortality.

As described for widow rockfish above, while the A-21 formulas for setting the at-sea set asides are no longer in regulation, they are to be used unless deviated from by the Council. The proposed 2021-22 combined set asides (under an IOA deduction of 24.5 mt) for the at-sea sectors are 42.1 mt and 39.5 mt respectively. While these values would cover the five-year recent average mortality of 38.8 mt, it would be 20-30 mt less than the at-sea mortality seen in 2018 and 2019.

Raising the at-sea set aside could therefore better accommodate at-sea bycatch, and reducing the IOA set-aside could offset deductions to IFQ (in addition to the IFQ offset of higher allocations from the 2019 catch-only projection). There is little risk to the ACL associated with any of these options since ACL attainments of darkblotched rockfish are typically below 50 percent.

Petrale sole

For 2021-22, there are three ACL alternatives (described above) and two allocation options being considered for petrale sole. In addition, there is an increase in the set aside for treaty fisheries from 290 mt in 2019 to 350 mt, and a proposal to change the IOA set aside to the average mortality of 13.3 mt as opposed to 34.3 mt historic (2005-2018) maximum mortality as under the baseline. This 21 mt reduction is expected to better accommodate expected IOA mortality, and provide more economic benefit for the IFQ fishery where the majority of petrale sole is taken.

The Council proposed revising the A-21 allocations in order to shift more to the IFQ fishery where attainments are high, but at the same time to not constrain the non-trawl fisheries where attainments are low. Option 1 (SQ) would use the A-21 trawl (95 percent) and non-trawl (5 percent) allocations while Option 2 would make it a two year allocation species with 30 mt to non-trawl and the remainder to trawl. The analysis focused on trade-offs between non-trawl and IFQ (trawl - at-sea) since these would be the

affected sectors **(Table ES 7)**. Note that the set aside for at-sea (5 mt) is proposed to be eliminated as there has been negligible catch. Depending on the ACL alternative, Option 2 is expected to increase the average IFQ ex-vessel revenue between $320,000 and over $400,000 in additional ex-vessel revenue. Additionally, the proposed 30 mt non-trawl allocation is more than double the five year maximum, and the projected 2021-22, mortality and is therefore not expected to inhibit any non-trawl fishery activities.

Table ES 7. IFQ and non-trawl historical and projected mortality in relation to the two allocation proposals for the three ACL alternatives.

Sector	Total mortality						Allocation (2021-22 average)					
							No Action		Alternative 1		Alternative 2	
	2015	2016	2017	2018	2019	2021-22	Opt. 1 (SQ)	Opt. 2	Opt. 1 (SQ)	Opt. 2	Opt. 1 (SQ)	Opt. 2
IFQ	2,500	2,475	2,733	2,649	2,383	99%	3320	3465	3093.4	3226.5	3046.9	3177.5
Non-trawl	4	5	8	9	14	14	175	30	163	30	160.6	30

a/ Projected to be 99 percent of either allocation for trawl and uses 2019 for non-trawl projection

Lingcod south of 40° 10’ N. lat.

Trawl attainments of lingcod south have been less than 20 percent per year of the allocation during the IFQ era (2011-2019), whereas non-trawl attainments have been greater than 90 percent during that time frame. To stay within the non-trawl allocations, low trip limits in the non-trawl commercial fisheries and low bag limits in the recreational fishery have been required.

The Council is therefore considering three allocation options to provide more opportunity for the non-trawl fisheries while not constraining the IFQ fishery (Table ES 3). Option 1 (SQ) uses the A-21 trawl (45 percent) and non-trawl allocations (55 percent). Option 2 shifts a modest two percentage points of the trawl allocation (43 percent) to non-trawl (57 percent). Option 3 shifts up to 20 percentages point of the trawl allocation (25 percent) to non-trawl (75 percent). Options 2 and 3 would make lingcod south a two year allocation species.

The main benefit to the non-trawl sector would be to provide flexibility and stability for the commercial LE and OA fixed gear and recreational fisheries by reducing the need for inseason action. The adjustments in the allocations would allow the non-trawl sector to plan for and prosecute their fishing activities with a reduced risk of a decrease in opportunity being implemented inseason, thereby increasing efficiency in the sector. Furthermore, the communities that depend upon the non-trawl sector (e.g. charter operators, fixed gear commercial fisheries, docks, and tackle shops) would have the ability to plan fishing activities for the biennium given the regulatory measure put in place prior to the fishing season commencing.

None of the allocation options are expected to negatively impact the IFQ sector as a whole for three reasons: (1) total mortality in the IFQ sector has been less than 52 mt per year between 2011-2019; (2) projected attainment is 87.2 mt for 2021-22; and (3) the predicted 2021-22 attainments are approximately 17 percent for Option 1, 18 percent for Option 2, and 31 percent for Option 3. While it does not appear any of the

options would constrain the fleet as a whole, the options could become constraining at the individual vessel level. Options 1 and 2 are likely not to constrain any vessels; however, option 3 could be constraining at 80,800 lbs. for the annual vessel limit in 2021.

Slope Rockfish Complex South of 40° 10' N. lat. (including blackgill rockfish)

Amendment 26 (A-26) was designed to (1) remove blackgill rockfish from the slope rockfish complex south of 40° 10' N. lat. to create blackgill rockfish-specific quota pounds (QP) to better manage to the ACL; (2) shift more of the blackgill rockfish to non-trawl to provide more opportunity; and (3) shifted more of the "other slope" allocation to trawl as they are trawl dominant stocks. Although there was universal support for the allocation shifts, IFQ participants raised concerns that removing blackgill rockfish from the complex could constrain their fishery. The Council therefore rescinded their FPA on A-26, but tasked the GMT with developing a solution for 2021-22 to accomplish the original goals of A-26 while keeping blackgill rockfish in the complex, and to develop a new means to hold IFQ to their share of blackgill rockfish. The main issue with keeping blackgill rockfish in the complex is that IFQ receives southern slope rockfish QP of which they can use to take any species in the complex including blackgill rockfish, and they could theoretically take the entire blackgill rockfish ACL contribution or more with their southern slope QP.

Option 1 would use the status quo A-21 trawl (63 percent) and non-trawl (37 percent) allocations for the complex as a whole (Table ES 8**)**. Option 2 would make the southern slope rockfish a two-year allocation stock, would utilize the proposed A-26 allocations to create blackgill rockfish and "other slope rockfish shares, and would create customized southern slope trawl and non-trawl allocations based on the sum of these shares minus off-the-top deductions distributed pro rata to each sectors percentage of total shares.

Both sectors are projected to be within their shares for both options, but Option 2 would better distribute shares to meet sector needs. Based on analyses, a new IFQ blackgill rockfish trip limit would be expected to be highly effective at mitigating blackgill rockfish mortality while remaining in the complex and principally managed with southern slope rockfish QP. However, the intent would be to start the biennium with an unlimited trip limit and only implement a reduction inseason if necessary (e.g., 100 lbs. bi-monthly).

Table ES 8. Status quo A-21 southern slope rockfish complex allocations and Option 2 that would create separate trawl/non-trawl shares of blackgill and "other slope", and custom two-year allocations for complex.

Category	2021		2022	
	Trawl	Non-trawl	Trawl	Non-trawl
Blackgill shares (41% trawl; 59% NT)	72.4	104.2	71.4	102.7
Other slope shares (91% trawl; 9% NT	484.5	47.9	483.2	47.8
Total share	556.9	152.1	554.5	150.5
% of total share	0.8	0.2	0.8	0.2
Total off-top deductions for southern slope complex	38.9		38.9	
Apportioned off-the-top deductions based on % of total share	30.5	8.4	30.5	8.4
Option 2 allocation	526.4	113.2	515.6	142.1
Option 1 (SQ) allocation (63% trawl; 37% NT)	422.2	247.9	419.6	246.5

Trawl Sector Impacts

As described above, in the 2021-22 biennium, there are several proposals to change the allocations (Table ES 3 above) and the at-sea set asides for select species, as the set asides are taken off the top of the trawl allocation to determine the IFQ allocation. Under the No Action alternative with status quo allocation, recent attainment trends are projected to continue in the IFQ sector (Table ES 9). Petrale sole, sablefish north of 36° N. lat., and widow rockfish are expected to see over 90 percent attainment in 2021-22. Other moderate attainment species include Pacific whiting, yellowtail rockfish north of 40° 10' N. lat. and darkblotched rockfish. The vast majority of species are expected to take less than 50 percent of the allocation. There are no new management measures proposed for the IFQ sector, however, there is a recommendation to remove the trip limit for big skate due to the increased ACL. For the at-sea sector, all species, with the exception of Pacific whiting, are managed with set asides as of 2020. The Council is considering several options for setting the set aside values for 2021-22 in addition to removing set asides for select species where there has been negligible mortality.

Table ES 9. Projected IFQ percent attainment in 2021-22 under No Action. Note that this includes method 1 ACL apportionments for sablefish and status quo allocations.

Species	2021	2022
Arrowtooth flounder	11.69%	14.11%
Bocaccio rockfish South of 40°10' N. lat.	40.46%	40.46%
Canary rockfish	43.58%	43.85%
Chilipepper rockfish South of 40°10' N. lat.	31.88%	31.88%
Cowcod South of 40°10' N. lat.	35.19%	35.19%
Darkblotched rockfish	52.52%	53.13%
Dover sole	12.94%	12.94%
English sole	2.49%	2.50%
Lingcod North of 40°10' N. lat.	23.13%	23.30%
Lingcod South of 40°10' N. lat.	17.78%	17.76%
Longspine thornyheads North of 34°27' N. lat.	12.75%	12.89%
Minor shelf rockfish North of 40°10' N. lat.	47.89%	48.58%
Minor shelf rockfish South of 40°10' N. lat.	5.00%	5.02%
Minor slope rockfish North of 40°10' N. lat.	24.49%	24.98%
Minor slope rockfish South of 40°10' N. lat.	9.99%	10.04%
Other flatfish	11.32%	11.24%
Pacific cod	1.37%	1.37%
Pacific halibut (IBQ) North of 40°10' N. lat.	47.25%	46.34%
Pacific ocean perch North of 40°10' N. lat.	14.53%	14.60%
Pacific whiting	85.65%	85.65%
Petrale sole	99.68%	99.69%
Sablefish North of 36° N. lat.	99.12%	93.23%
Sablefish South of 36° N. lat.	8.86%	11.29%
Shortspine thornyheads North of 34°27' N. lat.	37.85%	37.85%
Shortspine thornyheads South of 34°27' N. lat.	0.00%	0.00%
Splitnose rockfish South of 40°10' N. lat.	1.28%	1.31%
Starry flounder	0.29%	0.29%
Widow rockfish	92.15%	92.66%
Yelloweye rockfish	18.84%	17.21%
Yellowtail rockfish North of 40°10' N. lat.	77.40%	79.02%

Limited Entry Fixed Gear (LEFG) and Open Access (OA) Sector Impacts

The LEFG and OA sectors, particularly the non-nearshore fishery, will mainly be affected by the four sablefish ACL alternatives being considered in 2021-22; as discussed above, expected benefits would be higher for Alternative 1 Method 2 (PPA) and lowest for No Action Method 1 (SQ). There is a proposal to remove the daily trip limit for open access south, which could increase opportunity and profitability (fewer trips to catch weekly and bimonthly limits) while staying within the landings target. There was also a proposal to remove the daily trip limit for open access north but was deemed a high risk for causing premature closure due to high potential for inseason attainments of the landings targets.

There are numerous proposals to modify and raise the trip limits for non-sablefish stocks. The main objectives were to provide more opportunity for low attainment stocks, and to modernize the regulations to be more consistent to the current state of the fishery in regard to rebuilding of stocks and reorganization of stock complexes. Many of the regulations have been in place for decades and reflect other discontinued management frameworks such as separate LEFG and OA allocations.

While many of the trip limit proposals are relatively large on paper (e.g., double or triple current trip limits), the projected increases in attainments are low-to-moderate given that not many individuals are constrained by the current lower limits. The main constraints are not low trip limits, but rather closed areas like the non-trawl rockfish conservation area (RCA) and the Cowcod Conservations Areas (CCAs). These higher trip limit proposals do however benefit select participants in order to better allow them to retain their incidental catches or to provide some additional targeting opportunity that can be more profitable with higher trip limits. The projected non-trawl and ACL attainments are low for the majority of these stocks and none of the proposals would cause risk to ACLs.

The only major issue that arose during the trip limit analyses was in regard to proposals to raise shortspine thornyhead trip limits north of 40°10' N. lat. and to allow retention of them in Central California (34°27-40°10' N. lat.). Due to reductions in the ACL from the new time-varying sigmas and higher LEFG catches, there is only enough unutilized non-trawl allocation to allow retention off Central California without any allowing increases to the north.

Recreational Impacts

Washington

The Washington recreational fishery in 2021 and 2022 will continue to be constrained by yelloweye rockfish impacts. However, given the status of the stock is nearing "rebuilt" and the low attainment in 2019 of 3.73 mt out of the 7.8 mt HG, additional opportunities can be made available. Proposals include removal of 2 small yelloweye rockfish conservation areas (YRCAs) off of the coast of Westport and additional days of access to deep-water areas to access healthy lingcod stocks in Marine Areas 1 and 2. It's also worth noting that the WDFW exempted fishing permit (EFP) proposal includes limited yelloweye rockfish retention for pre-selected vessels. These mortalities will be accounted for in the recreational impacts (rather than as a set-aside) as fish that would be otherwise discarded dead. It is not anticipated that these impacts will affect the attainment of the 2021-2021 yelloweye rockfish HG (7.5 mt and 7.8 mt respectively) but will provide important data for future yelloweye stock assessments.

Another management goal is to reduce pressure on nearshore species, including black rockfish. This pressure will be alleviated by allowing retention of healthy groundfish species during days that Pacific halibut are open in select areas, as well as yellowtail and widow rockfish retention during summer months in Marine Area 4. Given that the 2019 season stayed within the HGs for nearshore species and considering the additional opportunities being made available, the projected impacts are anticipated to stay well within the Washington HGs. All other catch controls are similar to 2019-2020, including bag limits, season dates, and other existing depth closures.

Oregon

The Oregon recreational fishery in 2021 and 2022 will be driven primarily by the Oregon black rockfish ACL decision. The Oregon recreational share of the Alternative 1 black rockfish ACL (as part of the black/blue/deacon rockfish complex) is 24.6 mt higher in 2020 than under No Action. This will not allow for any additional opportunity or relaxation of regulations, but will lessen the potential for the need for inseason changes or fishery closure. The fishery is projected to be able to be open at all-depths under both the ACL (HG) and ACT options being considered for yelloweye rockfish.

Under all harvest specifications other than Baseline, longleader gear fishing will be allowed on the same trip as all-depth Pacific halibut fishing (when open). Allowing both of these activities on the same trip is not anticipated to increase effort in the bottomfish, longleader, or halibut trip types. Instead it will shift a portion of already occurring trips in the Pacific halibut and longleader gear fisheries to combined trips. There are anticipated to be minor additional impacts to yelloweye rockfish (0.2 mt), Chinook salmon (0.6 fish), and coho salmon (6 fish) annually from this measure. Those projected impacts are well within the Oregon recreational share of yelloweye rockfish and the non-trawl amount for Chinook and coho salmon.

California

The California recreational fishery in 2021 and 2022 will be afforded additional fishing opportunity in 2021 and 2022 resulting from cowcod being declared rebuilt and from the continued increased yelloweye rockfish ACT limit.

Under the No Action alternative for cowcod, the 2021 ACL would be 97.9 mt, approximately 87 mt higher than in 2020. Despite this rebuilt status, significant uncertainty in the stock assessment result prompted an evaluation of two alternative harvest specifications. In addition to a more precautionary harvest specification, the council recommended evaluating a lower fishery HG to ensure there is little risk to exceeding the ACL. Even with these reductions, the recreational fishery is projected to have more fishing depth access in the Southern Management Area (from 75 fm to 100 fm) and still remain under projected impacts under all alternatives, as retention will remain prohibited.

Overall, yelloweye rockfish will continue to constrain extending season lengths and relaxing depth limit changes simultaneously; however, the ACT values under consideration in 2021 and 2022 will allow additional fishery depth access in the Mendocino and San Francisco Management Areas (20 fm to 30 fm, and 40 fm to 50 fm respectively). The changes to depth limits are intended to provide additional shelf opportunity while potentially reducing pressure on nearshore stocks.

Sub-bag limit restrictions within the overall 10-fish Rockfish, Cabezon, Greenling Bag limit are evaluated based on either the outcome of 2019 stock assessments or changes in fishery performance indicating low attainment. For black rockfish, the sub-bag limit is evaluated from the current four fish up to ten fish, and canary rockfish from the current three fish up to ten fish based on low attainment over 2018-2019 seasons. The current cabezon three fish sub-bag limit is evaluated up to ten fish as this stock has historically been under attained while also at a healthy depletion level. Conversely, vermilion rockfish is evaluated to include a new sub-limit from the current ten fish to as few as two fish. As vermilion rockfish is managed within the minor shelf rockfish complex, the ACL contribution to the complex has been exceeded over the last five year period requiring a catch control mechanism to reduce overall harvest.

1. Baseline- 2019 Regulations

The Baseline scenario describes the regulations, management measures, and expected groundfish mortality in 2019. It is not an alternative under consideration for implementation, but rather 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.

1.1 Deductions from the ACL

Deductions from most groundfish ACLs, called off-the-top deductions, are made to account for groundfish mortality in the Pacific Coast treaty Indian tribal fisheries, scientific research, non-groundfish target fisheries (hereinafter incidental open access or IOA fisheries), and, as necessary, exempted fishing permits (EFPs). Off-the-top deductions from the sablefish north of 36° N. lat. ACL are slightly different due to the sablefish allocation framework and include groundfish mortality in tribal fisheries, research, recreational fisheries, and 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.

Amounts deducted from the ACL to accommodate groundfish mortality from scientific research, IOA fisheries, and EFPs can be modified inseason based on the best available information. The amount estimated to go unharvested could be reapportioned back to the groundfish fishery according to sector needs. The reapportionment can be done through an inseason action published in the *Federal Register* following a Council meeting. At a Council meeting, the Council would review the off-the-top deductions from the ACL and recommend full reapportionment, partial reappointment, or no reapportionment, based on the allocation framework criteria and objectives outlined in the Pacific Coast Groundfish Fishery Management Plan (PCGFMP) and managing the risk of exceeding an ACL. The specified amount of groundfish would be reapportioned in proportion to the original allocations for the calendar year, modified to account for Council recommendations with respect to sector needs. Reapportionment would be based on best available information, but would most likely occur later in the year, when catch from the sectors taken off the top is known, after the September or November Council meetings.

Annual Catch Target (ACT) is a management target set below the ACL and may 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.

Table 1-1 details the deductions from the ACLs (ACTs for some cowcod south of 40° 10’ N. lat.)

Tribal Fishery: Tribal fisheries consist of trawl (bottom, midwater, and whiting), fixed gear, and troll. Tribal values are based on requests and established allocations (Agenda Item F.9.a, Revised Supplemental Tribal Report 1, November 2017).

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 recommended the off-the-top deductions be equal to the maximum historical scientific research catch from 2005 to 2016, except for yelloweye rockfish. As detailed in Agenda Item F.9.a, Supplemental GMT Report 2, November 2017), the Council adopted a 2.92 mt yelloweye rockfish research deduction based on anticipated research needs of the IPHC, Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), California Department of Fish and Wildlife (CDFW), and other projects.

Incidental Open Access (IOA): Deductions from ACLs are made to account for groundfish mortality in the IOA fisheries.[1] The off-the-top deductions for all species were derived from the maximum historical values in the 2007 to 2016 West Coast Groundfish Observer Program.[2] These reports can be found at this link WCGOP Groundfish Mortality reports and the Groundfish Expanded Mortality Multi-year (GEMM).

Exempted Fishing Permits: Deductions from ACLs are made to account for groundfish mortality in EFPs. The Council adopted EFP set-asides for the 2019/2020 biennium as detailed in Agenda Item E.2.a, Supplemental GMT Report 3, June 2018.

Recreational (sablefish north of 36° N. lat. only): The allocation framework for sablefish north of 36° N. lat. specifies that anticipated recreational catches of sablefish be deducted from the ACL prior to the commercial limited entry and open access allocations. The deduction would be the maximum historical value from recreational fisheries from 2004 to 2018. As this species is the only one with a specific set-aside for recreational, it is displayed in a separate table (Table 1-2).

[1] IOA fisheries on the west coast include fisheries targeting 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.

[2] Longnose and big skate were managed within complexes until 2009 and 2015 respectively and therefore, the maximums are from only those years where sorting was required.

Table 1-1. Baseline. Estimates of tribal, exempted fishing permits, research, and incidental open access groundfish mortality, in metric tons, used to calculate the fishery harvest guidelines in 2019.

Stock/Complex	Area	ACL	Tribal	EFP	Research	OA	Sum	Fishery HG
Arrowtooth flounder	Coastwide	15,574	2,041.0	0.1	13.0	40.8	2,094.9	13,479
Big skate	Coastwide	494	15.0	0.1	5.5	21.3	41.9	452
Black rockfish	Washington	298	18.0	-	0.1	-	18.1	280
Black rockfish	California	329	-	1.0	-	0.3	1.3	328
Blue/Deacon/Black rockfish	Oregon	617	-	0.9	-	0.3	1.2	616
Bocaccio	S of 40°10' N. lat.	2,097	0.0	40.0	5.6	0.5	46.1	2,051
Cabezon	California	147	-	-	-	0.3	0.3	147
Cabezon/Kelp greenling	Oregon	218	-	0.2	-	-	0.2	218
Cabezon/Kelp greenling	Washington	11	-	-	-	-	0.0	11
California scorpionfish	Coastwide	313	-	-	0.2	2.2	2.4	311
Canary rockfish	Coastwide	1,450	50.0	8.0	7.8	1.3	67.1	1,383
Chilipepper	S of 40°10' N. lat.	2,536	0.0	60.0	13.4	11.5	84.9	2,451
Cowcod	S of 40°10' N. lat.	10	0.0	0.0	2.0	-	2.0	6
Darkblotched rockfish	Coastwide	765	0.2	0.6	8.5	24.5	33.8	731
Dover sole	Coastwide	50,000	1,497.0	0.1	49.2	49.3	1,595.6	48,404
English sole	Coastwide	10,090	200.0	0.1	8.0	8.1	216.2	9,874

Stock/Complex	Area	ACL	Tribal	EFP	Research	OA	Sum	Fishery HG
Lingcod	N of 40°10' N. lat.	4,871	250.0	1.6	16.6	9.8	278.0	4,593
Lingcod	S of 40°10' N. lat.	1,039	-	-	3.2	8.1	11.3	1,028
Longnose skate	Coastwide	2,000	130.0	0.1	12.5	5.7	148.3	1,852
Longspine thornyhead	N of 34°27' N. lat.	2,603	30.0	-	14.2	6.2	50.4	2,553
Longspine thornyhead	S of 34°27' N. lat.	822	-	-	1.4	-	1.4	821
Nearshore Rockfish North	N of 40°10' N. lat.	81	1.5	0.1	0.3	0.9	2.8	79
Nearshore Rockfish South	S of 40°10' N. lat.	1,142	-	-	2.7	1.4	4.1	1,138
Other Fish	Coastwide	239	-	-	0.1	8.8	8.9	230
Other Flatfish	Coastwide	6,498	60.0	0.1	27.8	161.6	249.5	6,249
Pacific cod	Coastwide	1,600	500.0	0.1	5.5	0.6	506.2	1,094
Pacific ocean perch	N of 40°10' N. lat.	4,340	9.2	0.1	3.1	10.0	22.4	4,318
Pacific whiting	Coastwide	441,433	77,251.0	1.1	-	1,500.0	78,752.1	362,681
Petrale sole	Coastwide	2,908	290.0	0.1	24.1	6.4	320.6	2,587
Sablefish	N of 36º N lat.	5,606	See Table 1-2					
Sablefish	S of 36° N. lat.	1,990	-	-	2.4	1.8	4.2	1,986
Shelf Rockfish North	N of 40°10' N. lat.	2,053	30.0	4.5	24.7	17.7	76.9	1,976
Shelf Rockfish South	S of 40°10' N. lat.	1,625	-	60.0	14.5	4.6	79.1	1,546

Stock/Complex	Area	ACL	Tribal	EFP	Research	OA	Sum	Fishery HG
Shortbelly rockfish	Coastwide	500	-	0.1	8.2	8.9	17.2	483
Shortspine thornyhead	N of 34°27' N. lat.	1,683	50.0	0.1	10.5	4.7	65.3	1,618
Shortspine thornyhead	S of 34°27' N. lat.	890	-	-	0.7	0.5	1.2	889
Slope Rockfish North	N of 40°10' N. lat.	1,746	36.0	1.5	21.6	21.7	80.8	1,665
Slope Rockfish South	S of 40°10' N. lat.	744	-	1.0	2.3	16.9	20.2	724
Spiny dogfish	Coastwide	2,071	275.0	1.1	34.3	22.6	333.0	1,738
Splitnose rockfish	S of 40°10' N. lat.	1,750	-	1.5	9.3	5.8	16.6	1,733
Starry flounder	Coastwide	452	2.0	0.1	0.6	16.1	18.8	433
Widow rockfish	Coastwide	11,831	200.0	28.0	17.3	3.1	248.4	11,583
Yelloweye rockfish	Coastwide	48	2.3	0.2	2.9	0.6	6.1	42
Yellowtail rockfish	N of 40°10' N. lat.	6,279	1,000.0	20.0	20.6	4.5	1,045.1	5,234

Table 1-2. Baseline. 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 2019.

Year	ACL	Tribal Share	Research	Rec.	EFP	Commercial HG
2019	5,606	561	30.68	6	1.1	5007.22

1.2 Allocating the Fishery HG

The fishery HGs for most species are further allocated between the trawl and non-trawl fisheries. The trawl and non-trawl allocations are based on the percentages adopted under A-21 to the groundfish FMP or decided during the 2019-2020 biennium. The allocation amounts, under Baseline, are shown below in Table 1-3. Sablefish north of 36° N. lat. is allocated under the Amendment 6 framework, which allocates the commercial HG between the limited entry (trawl and fixed gear) and open access sectors.

For some species, no allocations are necessary since ACL attainment has historically been low due to the lack of market demand, limited access as a result of the Rockfish Conservation Areas (RCA) configurations, or the need to limit overfished species interactions. Additionally, some species are managed and allocated by the west coast states (e.g., nearshore species).

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. 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 in Table 1-3. A summary of the basis for the two-year allocations can be found in Sections 4.1.1.2 and Section 4.1.4.2 of the 2019-2020 Analytical Document.

Table 1-4 details the deductions from the sablefish ACLs at baseline. Allocations and projected mortality impacts, in metric tons (mt), of overfished or rebuilding groundfish species for 2019 can be found in Table 1-5.

Table 1-3. Baseline. Stock-specific fishery harvest guidelines or annual catch targets and allocations for 2019 (in mt).

STOCK	AREA	Fishery HG or ACT	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
Arrowtooth flounder	Coastwide	13,479.1	A-21	95	12,805.1	5	674.0
Big skate	Coastwide	452.1	Biennial	95	429.5	5	22.6
Black rockfish	Washington	279.9	None	-	-	-	-
Black rockfish	California	327.7	None	-	-	-	-
Blue/Deacon/Black rockfish	Oregon	615.8	None	-	-	-	-
Bocaccio	S of 40°10' N. lat.	2,050.9	Biennial	39.04	800.7	60.96	1,250.2
Cabezon	California	146.7	None	-	-	-	-
Cabezon/Kelp greenling	Oregon	11.0	None	-	-	-	-
Cabezon/Kelp Greenling	Washington	217.8	None	-	-	-	-

STOCK	AREA	Fishery HG or ACT	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
California scorpionfish	Coastwide	310.6	None	-	-	-	-
Canary rockfish	Coastwide	1,382.9	Biennial	72.281	999.6	27.719	383.3
Chilipepper	S of 40°10' N. lat.	2,451.1	A-21	75	1,838.3	25	612.8
Cowcod	S of 40°10' N. lat.	6.0	Biennial	36	2.2	64	3.8
Darkblotched rockfish	Coastwide	731.2	A-21	95	694.6	5	36.6
Dover sole	Coastwide	48,404.4	A-21	95	45,984.2	5	2,420.2
English sole	Coastwide	9,873.8	A-21	95	9,380.1	5	493.7
Lingcod	N of 40°10' N. lat.	4,593.0	A-21	45	2,066.9	55	2,526.2
Lingcod	S of 40°10' N. lat.	1,027.7	A-21	45	462.5	55	565.2
Longnose skate	Coastwide	1,851.7	Biennial	90	1,666.5	10	185.2
Longspine thornyhead	N of 34°27' N. lat.	2,552.6	A-21	95	2,425.0	5	127.6
Longspine thornyhead	S of 34°27' N. lat.	820.6	None	-	-	-	-
Nearshore Rockfish North	N of 40°10' N. lat.	78.6	None	-	-	-	-
Nearshore Rockfish South	S of 40°10' N. lat.	1,137.9	None	-	-	-	-
Other Fish	Coastwide	230.1	None	-	-	-	-
Other Flatfish	Coastwide	6,248.5	A-21	90	5,623.7	10	624.9
Pacific cod	Coastwide	1,093.8	A-21	95	1,039.1	5	54.7
Pacific ocean perch	N of 40°10' N. lat.	4,317.6	A- 21	95	4,101.7	5	215.9
Pacific whiting	Coastwide	362,680.9	A-21	100	362,680.9	0	0.0
Petrale sole	Coastwide	2,587.4	A- 21	95	2,458.0	5	129.4
Sablefish	N of 36° N lat.	5,007.2	**See** Table 1-4				
Sablefish	S of 36° N lat.	1,985.8	A-21	42	834.0	58	1,151.8
Shelf Rockfish North	N of 40°10' N. lat.	1,976.1	A-21	60.2	1,189.6	39.8	786.5
Shelf Rockfish South	S of 40°10' N. lat.	1,545.9	Biennial	12.2	188.6	87.8	1,357.3

STOCK	AREA	Fishery HG or ACT	Allocation Type	Trawl		Non-Trawl	
				%	mt	%	mt
Shortbelly rockfish	Coastwide	482.8	None	-	-	-	-
Shortspine thornyhead	N of 34°27' N. lat.	1,617.7	A- 21	95	1,536.8	5	80.9
Shortspine thornyhead	S of 34°27' N. lat.	888.8	A-21	0.067	50.0	99.933	838.8
Slope Rockfish North	N of 40°10' N. lat.	1,665.2	A-21	81	1,348.8	19	316.4
Slope Rockfish South	S of 40°10' N. lat.	723.8	A-21	63	456.0	37	267.8
Spiny dogfish	Coastwide	1,738.0	None	-	-	-	-
Splitnose rockfish	S of 40°10' N. lat.	1,733.4	A-21	95	1,646.7	5	86.7
Starry flounder	Coastwide	433.2	A-21	50	216.6	50	216.6
Widow rockfish	Coastwide	11,582.6	A-21	91	10,540.2	9	1,042.4
Yelloweye rockfish	Coastwide	41.9	Biennial	8	3.4	92	38.6
Yellowtail rockfish	N of 40°10' N. lat.	5,233.9	A- 21	88	4,605.8	12	628.1

Table 1-4. Baseline. Sablefish north of 36 N. lat. commercial HG in 2019 and allocations to limited entry and open access in metric tons (MT). Limited entry is further allocated to trawl and fixed gear sectors.

Year	Commercial HG	Limited Entry HG		Limited Entry Trawl		Limited Entry FG		Open Access HG	
		%	Mt	%	Mt	%	Mt	%	Mt
2019	5,007	90.6	4,537	58	2,631	42	1,905	9.4	471

Table 1-5. Baseline. Allocations and projected mortality impacts (mt) of overfished/rebuilding groundfish species for 2019.

Fishery	Cowcod b/		Yelloweye		
Date: November 18, 2019	**Allocations** a/	**Projected Impacts**	**HG Allocations** a/	**ACT Allocations** a/	**Projected Impacts**
Off the Top Deductions	2.0	2.0	6.1	6.1	5.9
EFP b/	0.00	0.00	0.24	0.24	0.02
Research c/	2.0	2.0	2.9	2.9	2.3
Incidental OA d/	0.0	0.0	0.6	0.6	1.3
Tribal e/			2.3	2.3	2.3
Bottom Trawl					0.0
Troll					0.0
Fixed gear			2.3	2.3	2.3
Trawl Allocations	2.2	0.4	3.4		0.0
-SB Trawl	2.2	0.4	3.4		0.1
-At-Sea Trawl			0.0		0.1
Non-Trawl Allocation	3.8	3.5	38.6	30.3	17.3
Non-Nearshore		1.0	2.0	1.6	0.8
LE FG					0.7
OA FG					0.1
Directed OA: Nearshore		1.0	6.0	4.7	2.2
Recreational Groundfish					
WA			10.0	7.8	3.7
OR			8.9	7.0	4.5
CA		2.5	11.6	9.1	6.1
TOTAL	6.0	3.9	48.1	36.4	23.4
Harvest Specification	**6.0**	**6.0**	**48**	**39**	39
Difference	0.0	2.2	-0.1	2.6	15.6
Percent of ACL	100.0%	65.2%	100.2%	93.3%	59.9%

a/ Formal allocations are represented in the black shaded cells and are specified in regulation in Tables 1b and 1e. The other values in the allocation columns are 1) off the top deductions, 2) set-asides from the trawl allocation 3) ad-hoc allocations recommended in the 2019-2020 EIS process, 4) HG for the recreational fisheries for yelloweye rockfish.

b/ EFPs are amounts set-aside to accommodate anticipated applications. Values in this table represent the estimates provided by the applicants and approved by the Council, which are currently specified in regulation.

c/ Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.

d/ The GMT's best estimate of impacts as analyzed in the 2019-2020 Environmental Impact Statement (Appendix B), which are currently specified in regulation.

e/ Tribal values in the allocation column represent the values in regulation. Projected impacts are the tribes best estimate of catch.

1.3 Specific Harvest Guidelines

Accountability measures that increase the likelihood that total catch stays within the ACL include HGs, which are a specified numerical harvest objective that is not a quota. Attainment of an HG does not necessarily require a closure of a fishery. This section describes HGs that are implemented for stocks managed in complexes or HGs that apply across multiple sectors. Sector-specific HGs are described in the relevant sections. For example, the Washington recreational HGs under the Baseline are described in Chapter 1.8.

In addition to Federal HGs, there are state quotas for nearshore species that further limit harvest in the commercial nearshore and recreational fisheries. In Oregon, the decision to allocate nearshore species between the commercial and recreational fisheries is made by the Oregon Fish and Wildlife Commission (OFWC). The nearshore species that are allocated between the commercial and recreational fisheries by the OWFC include kelp greenling, cabezon, black rockfish, blue/deacon rockfish, and the rockfish species within the Federal Nearshore Rockfish complex. Decisions made by the OWFC occur after final Council action to adopt the Federal harvest specifications and are implemented through state regulation only. To facilitate the analysis of the Federal action to establish harvest specifications (i.e., to ensure that the combined removals from the sport and commercial fisheries did not exceed Federal allocations to Oregon as a whole), assumptions were made about the possible state allocations of these nearshore species to the commercial and recreational fisheries (i.e., status quo percentages). These values are placeholders and do not presuppose future action by the OWFC. In California, allocations between the commercial and recreational fisheries are made by the California Fish and Game Commission (CFGC), with the authority to allocate nearshore rockfish, cabezon, and kelp greenling. The 2019 allocations were used to support analyses in development of management measures for Federal action.

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

These stocks are managed to their ACL contribution with state specific HGs. As part of the 2019-2020 harvest specifications process, the Council recommended creation of an Oregon black, blue, and deacon rockfish complex. Additionally, the Council recommended creation of an Oregon kelp greenling and cabezon complex. Their baseline HGs are show in Table 1-6. Further, Washington kelp greenling and cabezon were removed from the Other Fish category and combined to create a new complex; however, no HG was specified for this complex.

Table 1-6. Summary of harvest guidelines for Oregon black, blue, and deacon rockfish complex and Oregon kelp greenling and cabezon complex for 2019.

Complex	2019 HG (in mt)
Black, blue, and deacon rockfish	518.8
Kelp greenling and cabezon	46.8

1.3.2 Blackgill Rockfish South of 40°10´ N. lat.

Blackgill rockfish is a component stock that is managed within the Slope Rockfish complexes north and south of 40°10' N. lat. The HG for blackgill rockfish south was established for 2019 at 158.9 mt, which is

the blackgill rockfish ACL contribution to the Slope Rockfish complex south of 40° 10' N. lat. (ACL=ABC, P* = 0.45). The blackgill rockfish HG is subject to trawl and non-trawl allocations implemented under A-21 (63 percent to trawl and 37 percent to non-trawl). The 100.1 mt blackgill rockfish share for the non-trawl sector is further allocated 60 percent to limited entry (60.1 mt) and 40 percent to open access fixed gears (40 mt). This apportionment reflects the historical distribution of catch between the limited entry and open access fixed gear sectors from 2005 to 2010. Table 1-7 summarizes the HGs for blackgill rockfish south of 40°10 N. lat.

Table 1-7. Baseline: Summary of the Harvest Guidelines for blackgill rockfish, within the trawl and non-trawl Slope Rockfish Complex allocations south of 40°10' N. lat. in 2019.

Fishery	2019 (mt)
Trawl	158.9
Non-Trawl	100.1

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. If harvest levels in a particular state approach 75 percent of the state-specific HGs, the states will consult via a conference call and determine whether inseason action is needed. 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. If inseason action were needed, the states of Washington and Oregon would take action through state regulation. California would propose changes through Federal regulations. In addition to Federal HGs, there are state 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 (PFMC and NMFS 2015).

The 2019 nearshore rockfish HGs were calculated using the status quo proportions to allocate stocks without state-specific assessment boundaries (Table 1-8). For stocks that have state-specific stock assessment boundaries, the states receive 100 percent of the ACL contribution (e.g., Oregon blue, black, deacon complex) and those amounts are not shown in Table 1-8.

Table 1-8. Baseline: State specific HGs for Nearshore Rockfish Complex north of 40°10' N lat. in 2019 in metric tons (mt).

State	HG (mt)
WA	18.6
OR	23.2
CA	36.6

1.4 Shorebased Individual Fishing Quota (IFQ) -Baseline

1.4.1 Shorebased IFQ Management Measures

Principle management measures for the shorebased IFQ fishery include:

- Catch Controls: IFQ and individual bycatch quota (IBQ) for Pacific halibut north of 40° 10' N. lat. are the primary catch control tools in the shorebased IFQ fishery. IFQ quota pounds (QPs) are debited from IFQ vessel accounts based on any catch that is landed or discarded. "Survival credits" are also provided for discards for Pacific halibut, lingcod, and sablefish that utilize discard mortality rates endorsed by the SSC. Vessels are prohibited from participating in the IFQ fishery if they are in deficit status.
- The 2019 IFQ and IBQ allocations used in the analysis of the Baseline can be found in Table 1-11. South of 40° 10' N. lat., Pacific halibut is managed with a set-aside. Additionally, cumulative bi-monthly landing limits (hereinafter "trip limits") for non-IFQ species and Pacific whiting outside the primary season dates apply to each vessel (see regulations Table 1 North and South to Part 660, Subpart D). Once a vessel reaches a limit, the species or species complex can no longer be retained and sold.
- Accumulation limits: The maximum number of quota shares (QS) and QPs an entity may control in the shorebased IFQ fishery and the maximum amount of QP in a vessel account (used and unused) are limited by accumulation limits (defined in regulation at 50 §CFR 660.111). These limits vary according to the management unit for the stock or stock complex and are intended to prevent the consolidation of quota holdings by just a few entities.
- Adaptive Management Pounds (AMP) Pass Throughs: Ten percent of the non-whiting QS is to be reserved for the AMP and each year the QP issued for that QS is available for use in the AMP. However, since AMP related criteria for the distribution of the AMP-QP have not been developed, they are to be issued (i.e. passed through) to permit owners in proportion to their non-whiting QS until implementation of any regulatory changes.
- Carryover provision: The carryover provision allows a limited amount of surplus QP or IBQ pounds in a vessel account to be carried over from one year to the next or allows a deficit in a vessel account in one year to be covered with QP or IBQ pounds from a subsequent year, up to a carryover limit. The carryover provision is anticipated to increase individual flexibility for harvesters, improve economic efficiency, and achieve OY while preserving the conservation of stocks. The eligible percentages used for the carryover provision may be modified during the biennial specifications and management measures process or based on a Council inseason recommendation, pending NMFS approval. Species 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: All trips in the shorebased IFQ fishery are monitored at sea by either observers in the WCGOP or on-board electronic monitoring, while landings are tracked by electronic fish tickets and verified by catch monitors. Together, these two programs provide robust, near-real time tracking and reporting of IFQ species and Pacific halibut Individual Bycatch Quota (IBQ).
- Gear Restrictions: IFQ species may be harvested with groundfish trawl or legal groundfish non-trawl gear. Trawl gear restrictions (§660.112) prohibit certain types of gear that may be used in rocky habitat, reducing habitat impacts and also limiting overfished species bycatch for those species that inhabit rocky substrate. Selective flatfish nets are required shoreward of 100 fathoms from 40°10' - 42° N. lat. Also, depth restrictions for vessels fishing with midwater trawl gear south of 40°10' N. lat. prohibit fishing with midwater trawl gear shoreward of the boundary line approximating 150 fathoms south of 40°10' N. lat.
- RCAs: The trawl and non-trawl RCAs are in effect under the Baseline (Table 1-9 and Table 1-10). Vessels harvesting IFQ must abide by applicable RCA closures, which are specified by gear type.
- Bycatch Reduction Areas (BRAs): BRAs can be used to mitigate groundfish bycatch and can apply to vessels using midwater gear during the primary whiting season and limit fishing to depths greater

than any of the specified management lines between 75 fathoms and 150 fathoms (see regulations at 660.131(c)(4) Subpart D). Groundfish and salmon bycatch on mid-water trawl trips can also be mitigated by implementing a 200 fathom BRA that closes shore to 200 fathoms.

- Other Groundfish Conservation Areas – Several other GCAs exist and provide overfished species and habitat protection. These include Essential Fish Habitat Conservation Areas (EFHCAs), a deep-water (>700 fathom) bottom trawl closure area, bottom contact closure areas, cowcod conservation areas (CCAs), yelloweye rockfish conservation areas (YRCAs), and three areas off the Washington coast. North Coast Area B and South Coast Area B are closed to commercial fishing South Coast Area A is a voluntary "area to be avoided" for commercial groundfish fisheries. CCAs are closed to bottom fishing but do allow the take of rockfish, cabezon, greenling, and lingcod shoreward of 20 fathoms via fix gear and flatfish by hook and line using No.2 hooks or smaller, no more than 12 hooks per line, is permitted. See Appendix A of the 2019-20 biennial harvest specifics for maps of the CCA and three GCAs off Washington.
- Prohibitions – There are two differing sets of regulations prohibiting the commercial take of crab in west coast fisheries; one prohibiting take of all crab with all gear except pot and trap, and the other prohibiting take of Dungeness crab with trawl gear off Washington and Oregon. The regulations under the National Oceanic and Atmospheric Administration List of Authorized Fisheries and Gear §600.725 subdivision (v) specifies as follows:

  > The use of any gear or participation in a fishery not on the following list of authorized fisheries and gear is prohibited after December 1, 1999. A fish, regardless whether targeted, may be retained only if it is taken within a listed fishery, is taken with a gear authorized for that fishery, and is taken in conformance with all other applicable regulations. Pot and trap gear is the only gear on the list authorizing commercial take of crab.

  The Federal Groundfish Regulations (CFR) under Subpart C—West Coast Groundfish Fisheries §660.11 General Definitions, prohibited species are described as follows:

  > *Prohibited species* means those species and species groups whose retention is prohibited unless authorized by provisions of this section or other applicable law. The following are prohibited species: Any species of salmonid, Pacific halibut, Dungeness crab caught seaward of Washington or Oregon, and groundfish species or species groups under the PCGFMP for which quotas have been achieved and/or the fishery closed.

Table 1-9. Trawl RCA configuration in regulation for 2019.

Area	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
North of 45°46' N. lat.	100 fm line - 150 fm line					
45°46' N. lat. - 40°10' N. lat.	100 fm line - modified 200 fm line					
South of 40°10' N. lat.	100 fm line - 150 fm line					

Table 1-10. Non-trawl RCA configuration in regulation for 2019.

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.	30 fm line - 100 fm line					
40°10' N. lat. - 34°27' N. lat.	40 fm line - 125 fm line					
South of 34°27' N. lat.	75 fm line - 150 fm line (also applies around islands)					

1.4.2 IFQ Groundfish Impacts

Table 1-11 shows the Baseline 2019 IFQ allocations and attainments. Attainments were above 90 percent for sablefish north of 36° N. lat. (99 percent), petrale sole (98 percent), and widow rockfish (94 percent), which are three of the core IFQ stocks.

Other high value IFQ stocks include whiting (86 percent attainment), Dover sole (13 percent attainment), lingcod (less than 25 percent attainment for both areas), yellowtail rockfish north of 40°10' N. lat. (74 percent attainment), and some others that are described below. Attainments were relatively low (less than 50 percent) for most other stocks, which was partially attributed to a lack of markets, bycatch constraints (e.g., sablefish), and due to reductions in the size of the fleet, especially off California and Washington. For more information, see the 5 Year Catch Share Review that documents these issues and more.

The re-emergence of the mid-water non-whiting fishery started in earnest in 2017 and continued to be successful in 2019. This was made possible by the rebuilding of widow rockfish and canary rockfish, and was also aided by the year-round mid-water EFP that allowed trawling before May 15th to better provide stable year-round markets. Widow rockfish is the primary target of this fishery and saw 94 percent attainment in 2019, consistent with the increase seen in 2018. Yellowtail rockfish north of 40°10' N. lat. is also another main target stock that had 74 percent attainment. Bocaccio and chilipepper rockfishes were historically main targets as well off of California in the 1980s and 1990s, but attainments of these stocks remain relatively low due to a reduction in fleet capacity and a lack of processing infrastructure and markets. Canary rockfish are considered a potential constraining species since they are far less abundant than the main target stocks that they can co-occur with (e.g., the canary rockfish IFQ allocation is 15 times lower than that of widow and yellowtail rockfishes).

Sablefish south of 36° N. lat. is another notable IFQ stock that was once again subject to low attainment in 2019 (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 in the Southern California Bight (84 FR 63966).

Table 1-11. Baseline – Shorebased IFQ. Estimated mortality for IFQ species and Pacific halibut IBQ for 2019 compared to the allocations or set-asides.

IFQ Species	Area	Baseline 2019		
		Estimated Mortality a/ (mt)	SB IFQ Allocation (mt)	% Attainment
Arrowtooth flounder	Coastwide	851.0	12,735.1	7%
Bocaccio rockfish	South of 40°10' N. lat.	323.7	800.7	40%
Canary rockfish	Coastwide	422.2	953.6	44%
Chilipepper	South of 40°10' N. lat.	496.7	1,838.3	27%
COWCOD	South of 40°10' N. lat.	0.8	2.2	35%
Darkblotched rockfish	Coastwide	329.6	658.4	50%
Dover sole	Coastwide	5,776.6	45,979.2	13%
English sole	Coastwide	206.0	9375.1	2%
Lingcod	North of 40°10' N. lat.	427.7	2051.9	21%
Lingcod	South of 40°10' N. lat.	81.5	462.5	18%
Longspine thornyheads	North of 34°27' N. lat.	276.3	2,420.0	11%
Shelf Rockfish	North of 40°10' N. lat.	466.7	1,155.2	40%
Shelf Rockfish	South of 40°10' N. lat.	15.2	188.6	8%
Slope Rockfish	North of 40°10' N. lat.	271.5	1,248.8	22%
Slope Rockfish	South of 40°10' N. lat.	44.5	1,049.1	4%
Other Flatfish	Coastwide	457.8	5,603.7	8%
Pacific cod	Coastwide	5.7	1,034.1	1%
Pacific halibut b/	North of 40°10’ N. lat.	31.8	69.6	46%
Pacific ocean perch	North of 40°10' N. lat.	464.3	3,697.3	13%
Pacific whiting	Coastwide	144,879.0	169,126.0	86%
Petrale sole	Coastwide	2,392.0	2,453.0	98%
Sablefish	North of 36° N. lat.	2,557.1	2,581.3	99%
Sablefish	South of 36° N. lat.	84.9	834.0	10%
Shortspine thornyheads	North of 34°27' N.	545.2	1,506.8	36%
Shortspine thornyheads	South of 34°27' N	0.0	50.0	0%
Splitnose rockfish	South of 40°10' N. lat.	14.6	1,646.7	1%
Starry flounder	Coastwide	0.1	211.6	0%
Widow rockfish	Coastwide	9,317.5	9,928.8	94%
YELLOWEYE ROCKFISH	Coastwide	0.5	3.4	15%
Yellowtail rockfish	North of 40°10' N. lat.	3,180.3	4,305.8	74%

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2020). Pacific whiting values include inseason allocation reapportionments.

b/ Pacific halibut is managed using IBQ, see regulations at §660.140.

1.4.3 Pacific Halibut IBQ North of 40° 10′ N. lat.

The value (the 2019 value) of Pacific halibut IBQ used in this analysis is merely a placeholder, and is the same under all alternatives, since the stock is managed under an international agreement; harvest specifications for halibut are not set within the West Coast groundfish process analyzed here. With that said, the method for calculation of the annual IBQ value itself, relevant to the groundfish harvest specifications process and analysis, although not central to it, is briefly described herein. The shorebased

IFQ program keeps this sector's bycatch of Pacific halibut IBQ (north of 40° 10′N. lat.) within expectations by requiring that trawlers account for their total mortality of all halibut in round weight (legal- and sublegal-sized). Therefore, to determine a trawl bycatch mortality limit, the amount of halibut pounds available to the trawl fleet is determined annually by converting the expected legal-sized halibut mortality (net weight) into a round weight legal + sublegal-sized amount. To achieve this, the following conversions are applied:

- Net weight to round weight conversion: multiply by the IPHC net weight to round weight conversion factor in use at the time of each year's calculation.

- Legal to legal + sublegal-sized conversion factor: multiply by the ratio of legal-sized halibut to legal + sublegal-sized halibut from the most up-to-date NMFS analysis of trawl fishery bycatch available at the time of each year's calculation.

After these conversions, 10 mt is subtracted to cover bycatch mortality in the at-sea 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 program.

The formula used to calculate the Pacific halibut trawl bycatch mortality limit and allocation for this sector is specified in the Groundfish FMP at Section 6.3.2.3 under "Allocation of Pacific Halibut" and in the U.S. Codified Federal Regulations (CFR) for groundfish at 50 CFR Part 660.55(m). Since 2015, 15 percent of the Area 2A total catch exploitation yield (TCEY) for legal-sized halibut (net weight), not to exceed 100,000 pounds, is subtracted from the TCEY to account for expected trawl bycatch mortality of legal-sized halibut (net weight). This means the cap is evaluated before conversions are applied, and is the same under all alternatives. Under the current cap level and conversion rates, the result is that any TCEY for Area 2A higher than 666,667 pounds yields no further increase to the annual Pacific halibut IBQ mortality limit for the IFQ program. The TCEY used in the calculation is determined by the IPHC annually. 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.

1.4.4 Non-IFQ Species

Recent mortality estimates (2017 and 2018) for non-IFQ species are shown in Table 1-12. Big skate catch in the IFQ sector is managed with coastwide, bi-monthly trip limits (Table 1-13) which models to an unofficial landings target of 388.5 mt. The unofficial target is calculated by subtracting 41 mt to account for at-sea bycatch and IFQ discard mortality from the 429.5 mt trawl allocation. The actual 2019 big skate IFQ landings were only 135 mt, or ~35 percent of the landings target, which is very similar to the 132 mt the GMT predicted when the 2019 limits were raised during the June 2019 inseason process. All other species in Table 1-12 have unlimited trip limits.

Shortbelly rockfish have become a stock of concern and focus on this upcoming biennium since the 500 mt ACL was exceeded in both 2018 (508 mt; source = GEMM) and 2019 (estimated 655 mt; source = PacFIN). As will be described below, the Council is considering raising the shortbelly rockfish in 2021-22 to 3,000 mt (Alternative 1) or designating shortbelly rockfish as an Ecosystem Component Species (Alternative 2).

Table 1-12. Recent mortality estimates for non-IFQ stocks in the shorebased IFQ fishery (mt). Source: GEMM

Stock	2017	2018
Big Skate	228.1	145.8
California Skate	1.2	1.8
Grenadier Unidentified	13.4	3.3
Groundfish Unidentified	0.2	0.2
Longnose skate	771.8	675.1
Pacific Flatnose	0.3	0.4
Pacific Grenadier	18.7	12.9
Shortbelly rockfish	129.5	276.1
Skate Unidentified	4.2	7.8
Soupfin Shark	1.5	3.5
Spiny Dogfish Shark	255.7	646.9
Spotted Ratfish	80.7	74.4

Table 1-13. Big skate bimonthly trip limits (lbs.) coastwide for shorebased IFQ fishery in regulation at the end of 2019 and landings (mt), unofficial landings target (mt; used to manage the stock) and percent attainment in 2019.

Trip Limits by Period						Landings (mt)	Landings target (mt)	Percent Attain.
Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec			
5,000	25,000	30,000	70,000	20,000	20,000	135.0	388.5	34.7%

1.5 At-Sea Whiting Co-Ops- Baseline 2019

1.5.1 At-Sea Whiting Management Measures

The at-sea sector is composed of catcher/processors and motherships (with catcher vessels) that target Pacific whiting with midwater trawl gear and process at sea. The 2019 regulations for these sectors include allocations for Pacific whiting, canary rockfish, and widow rockfish as well as set-asides for the remaining non-prohibited bycatch species. Further, management measures have been established that restrict the Pacific whiting season dates and provide for BRAs (50 CFR §660.131).

The at-sea sector is managed under a system of cooperatives (co-ops) that are similar to IFQs except that the harvest privilege is assigned to the co-op instead of an individual vessel. The members of the group 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, 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 has been voluntarily operating under a co-op since 1997. Currently, all at-sea vessels are part of a co-op, thus the allocation to a sector is, essentially, an allocation to the co-op. Regulations for the mothership sector can be found at 50 CFR 660.160 and for the catcher/processor sector at 50 CFR§ 660.160.

Principle management measures for the at-sea fisheries in 2019 include:

- Co-op management as described above.
- Allocations for widow and canary rockfish. Once a sector is projected to or exceeds a Pacific whiting or one of these two non-whiting allocations, the sector must stop harvesting and processing (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)(4)(ii) and 50 CFR §660.160(c)(5)).
- Set-asides for remaining species listed in Table 1-15. Set-asides are managed on an annual basis unless there is a risk of a harvest specification being exceeded, unforeseen impact on another fishery, or a conservation concern. If one of these circumstances occur, inseason action may be taken.
- Bycatch reduction areas (BRA)- 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 fathoms, 100 fathoms, 150 fathoms, or 200 fathoms depth curve (50 CFR §660.130). BRAs can be implemented through automatic action when NMFS projects that a Pacific whiting sector will exceed an allocation for a non-whiting groundfish species specified for that sector before the sector's whiting allocation is projected to be reached. BRAs can also be implemented through routine inseason action.

1.5.2 Impact (Groundfish Mortality)

The baseline shows the impacts under the 2019 ACLs (Table 1-14) and regulations in place December 31, 2019. The catcher/processor and mothership co-op allocations and sector specific set-asides for darkblotched rockfish, widow rockfish, and POP are based on the percentages outlined in Section 6.3.2.3 of the FMP and regulations at 660.55. For canary rockfish, two-year allocations are established. All other species listed in Table 1-15 are determined each biennium to account for expected bycatch. For Pacific whiting, the 2019 TAC and associated allocations (post-tribal reapportionment) are used. The 2019 allocations for canary rockfish, widow rockfish, and Pacific whiting are shown in Table 1-14.

Table 1-14. Baseline- 2019 At-Sea Sector Allocations, historical combined mortality for 2018 and 2019, and average mortality from 2015-2019 (mt) of canary rockfish, widow rockfish, and Pacific whiting.

Stock/Species	Area	2019 Value in Regulation	2019 Allocations by Sector		Historical Mortality for CPs/MS		
			MS	CP	2018 (mt)	2019 (mt)	Average 2015-2019 (mt)
Canary rockfish	Coastwide	46	30	16	5.5	5	3.6
Widow rockfish	Coastwide	611.4	253	358.4	206.9	199	220.6
Pacific whiting	Coastwide	233,556	96,644	136,912	183,169	168,796	165,073

Table 1-15. Baseline- 2019 set-asides for at-sea, historical combined mortality for 2018 and 2019, and average mortality from 2015-2019.

Stock/Species	Area	2019 Value in Regulation	Historical Mortality for CPs/MS		
			2018 (mt)	2019 (mt)	Average 2015-2019 (mt)
Yelloweye rockfish	Coastwide	0	0	0	0
Arrowtooth flounder	Coastwide	70	55.4	43.6	38.6
Darkblotched rockfish	Coastwide	36.3	65.1	76.4	38.8
Dover sole	Coastwide	5	2.7	6.3	2.1
English sole	Coastwide	5	0.2	0.1	0.1
Lingcod	N. of 40°10' N. lat.	15	3.4	1.7	1.4
Longnose skate	Coastwide	5	1.9	0.8	1
Longspine thornyhead	N. of 34°27’ N. lat.	5	0	0	0
Minor Shelf Rockfish	N. of 40°10' N. lat.	35	10.8	15.5	9.4
Minor Slope Rockfish	N. of 40°10' N. lat.	100	295	207.3	147.1
Other flatfish	Coastwide	20	31.6	33.1	16.5
Pacific cod	Coastwide	5	0	0	0
Pacific halibut a/	Coastwide	10	0.66		0.36
Pacific ocean perch	N. of 40°10' N. lat.	404.5	55.6	141.7	48.5
Petrale Sole	Coastwide	5	0	0	0
Sablefish	N. of 36° N. lat.	50	116.8	71.2	76.1
Shortspine thornyhead	N. of 34°27’ N. lat.	30	69.4	57.4	35.2
Starry flounder	Coastwide	5	0	0	0
Yellowtail rockfish	N. of 40°10’ N. lat.	300	229.9	317.6	194.9

a/ Pacific halibut mortality for 2019 is not available. The average mortality presented is the average mortality from 2015-2018 (the years in which data is available in the range)

1.6 Limited Entry and Open Access Fixed Gear- Baseline 2019

1.6.1 Limited Entry and Open Access Fixed Gear Management Measures

Table 1-16 and Table 1-17 summarize the principle management measures (e.g., ACL, HG, allocations, etc.) for the limited entry (LE) and open access (OA) fixed gear (FG) sectors in regulation for 2019. The sablefish stock was the primary target, in terms of volume and revenue, for both the LE and OA fixed gear sectors. A variety of nearshore species (e.g., black rockfish, lingcod, Nearshore Rockfish Complex, cabezon, and kelp greenling) were targeted by a large number of vessels, but in relatively low volumes.

GCAs (e.g., CCAs, RCAs, etc.) as described at 50 §660.11, are management tools used to specify the type of access allowed in specific areas. The non-trawl RCA is described in Table 1-10. Routine RCA adjustments can be made for four northern sub-areas that were previously analyzed for the 2009-2010 biennium that are bounded by Cape Mendocino at 40° 10' N. lat., Cape Blanco at 43° N. lat., Cascade Head at 45° 03' N. lat., Point Chehalis at 46° 53' N. lat., and the U.S.-Canada border. RCA adjustments may be necessary to implement inseason to reduce projected catches of non-target species, typically yelloweye rockfish, while providing access to target species. Routine RCA adjustments can also be accommodated to provide greater access to target species when overfished species mortality is projected to be within the non-nearshore share or non-trawl allocation (e.g., changing a RCA depth boundary from 125 to 100 fathoms).

The non-trawl RCA seaward boundary south of 40° 10' N. lat. in 2019 is defined by management lines specified with waypoints at roughly 125 fathoms from 40° 10' N. lat. south to 34° 27' N. lat. and 150 fathoms south of 34° 27' N. lat. to avoid areas where bocaccio, canary rockfish, and yelloweye rockfish are most abundant.

Other GCAs include the North Coast Area B Yelloweye Rockfish Conservation Area (YRCA) in Washington, which has been closed to LE and OA 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 in the CCAs under the Baseline, except for some nearshore commercial fishing opportunities. Detailed descriptions of the state nearshore fisheries can be found in the 2015-2016 EIS (PFMC and NMFS 2015).

While the same LEFG and OA 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 HG and shares to the non-nearshore and nearshore fisheries from within the non-trawl allocation for select stocks such as canary and yelloweye rockfish. The remainder of stocks are managed collectively within the non-trawl allocations for the non-nearshore, nearshore, and recreational fisheries. The biological and economic impacts for the non-nearshore (seaward of non-trawl RCA) and nearshore (shoreward of the non-trawl RCA) components of the LEFG and OA groundfish fisheries are described below.

Since the same trip limits and other regulations (e.g., non-trawl 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 RCA configurations and trip limits for target stocks, analyses pertaining to the non-nearshore and nearshore fisheries often focus on yelloweye rockfish.

Table 1-16. Baseline – Limited Entry Fixed Gear. Summary of limited entry fixed gear fishery management measures in 2019

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 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	• Longline, trap or pot marked at the surface, at each terminal end, with a pole, flag, light, radar reflector, and a buoy • Must be attended at least once every seven days • Traps must have biodegradable escape panels
Seasons	• Primary sablefish fishery from 4/1 to 10/31 • Permit stacking of up to 3 permits is allowed in primary sablefish fishery, including one trawl endorsed permit. • Limited exemptions available for ownership limit of three LE sablefish endorsed permits • Retention of shelf rockfish south of 34°27′ N. latitude is prohibited in Period 2, to aide in the rebuilding of bocaccio (declared rebuilt in 2019) • 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
GCA: YRCA	• 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" when using no more than 12 hooks, #2 or smaller and up to two 1 lb. weights per line • 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" when using no more than 12 hooks, #2 or smaller • Cordell Banks Commercial fishing for groundfish is prohibited in depths less than 100 fm

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 (50 CFR § 660.11) 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, (50 CFR § 660.11), is not permitted in the DECA, 50 CFR § 660.11).
Non-trawl RCAs	See Table 1-10. • Fishing is prohibited in non-trawl RCAs with the following exception: In California, fishing for "Other Flatfish" when using no more than 12 hooks, #2 or smaller and up to two 1 lb. weights per line
Monitoring	• VMS required • WCGOP observer coverage when requested
Reporting	• VMS declarations • Electronic fish tickets; including report within 24-hours of landing, and when sablefish are landed.

Table 1-17. Baseline – Open Access. Summary of open access fishery management measures under in 2019 based on regulations.

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	• 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 allowed for: pink shrimp, ridgeback prawn, and California halibut or sea cucumbers (south of 38° 57.50' N. lat.) • Non-groundfish trawl gear is exempt from the LE trawl gear restrictions; however, footrope (<19") prohibited in EFH closed areas • Fixed gear o 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 o Must be attended at least once every 7 days o Fishing for groundfish with set nets is prohibited in the fishery management area north of 38° N. lat. o Traps must have biodegradable escape panels

	o Spears may be propelled by hand or by mechanical means
Seasons	• Retention of shelf rockfish south of 40°10' N. lat. is prohibited in Period 2. The closure was implemented to aid in rebuilding of bocaccio, which was declared rebuilt in 2019. • 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
GCA: YRCA	• 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 • Salmon Troll YRCA. Fishing for salmon is prohibited
GCA: CCA	Fishing is prohibited in CCAs with the following exceptions: • Fishing for "Other Flatfish" when using no more than 12 hooks, #2 or smaller and up to two 1 lb. weights per line • Fishing for rockfish, cabezon, greenling, California scorpionfish and lingcod shoreward of 40 fm
GCA	• Fishing with bottom contact gear (50 CFR § 660.11) 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 (50 CFR § 660.11) 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, (50 CFR § 660.11), is not permitted in the DECA, 50 CFR § 660.11).
Open Access non-trawl RCAs	• See Table 1-10. • Fishing is prohibited in non-trawl RCAs with the following exception: In California, fishing for "Other Flatfish" when using no more than 12 hooks, #2 or smaller and up to two 1 lb. weights per line.
Monitoring	• VMS required • WCGOP observer coverage when requested
Reporting	• VMS declarations required • Electronic fish tickets required when sablefish are landed.

1.6.2 Impact (Groundfish Mortality) – Non-Nearshore Fishery North of 36° N. latitude

The non-nearshore fishery describes the LEFG and OA fisheries that occur seaward of the non-trawl RCA. Historically, interactions with overfished species, primarily yelloweye rockfish and canary rockfish, have required adjustments to management measures in the non-nearshore fisheries. Since canary rockfish was declared rebuilt in 2017, the primary focus is now yelloweye rockfish. Seaward adjustments of the non-trawl RCA boundaries are the main management measure for reducing catches of these two stocks. Changes to the shoreward boundary (e.g., changing from 150 to 100 fathoms) can also be accommodated to provide greater access to target species when overfished species mortality is projected to be within the non-nearshore share or non-trawl allocation. Discard estimates of yelloweye rockfish and other species are on a one-year lag and thus model-based projections have to be made for Baseline and the other alternatives.

Management measures and projected mortality for the non-nearshore fishery north of 36° N. lat. under Baseline 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*0.40), 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 long-term average biomass estimates on either side produced from the bottom trawl survey.

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 allocations and associated shares and tier limits for the primary fishery are shown in Table 1-18 and Table 1-19. The northern DTL fisheries are managed with trip limits (Table 1-20) that are established each biennium to attain but not exceed the landings targets, 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.

Table 1-21 contains the 2019 non-nearshore landings of other species associated with sablefish landings for the area north of 36° N. lat. from PacFIN as discard information for 2019 will not be available until August 2020. Furthermore, the WCGOP groundfish total mortality reports and the WCGOP total mortality reports do not show discard estimates based on stratification at 36° N. lat. Total non-nearshore landings of sablefish north of 36° N lat. for 2019 were 1,697.7 mt in the LE fishery and 437.9 mt in the OA fishery. The 2019 non-nearshore landings not associated with sablefish landings (i.e. non-nearshore non-sablefish) were 18.6 mt from the LE fishery and 54.2 mt from the OA fishery. The 'non-nearshore non-sablefish' landings account for 1.1 percent of the LE landings and 14.1 percent of the OA landings north of 36° N. lat. in 2019.

Under Baseline, trawl and non-trawl allocations were established for overfished species, with a share for cowcod and yelloweye rockfish (Table 1-24). Each non-trawl fishery has 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 is projected to exceed their ACT inseason.

Table 1-18. Baseline. Limited entry sablefish FMP allocations north of 36° N. lat. for 2019.

Comm. HG	LE Share	LE FG Share (mt)				Tier Limits (lbs.) a/		
		LE FG Total Catch Share	Landed Catch Share a/	Primary Season Share b/	LE FG DTL Share b/	Tier 1	Tier 2	Tier 3
5,007	4,537	1,905	1,818	1,545	286	47,637	21,653	12,373

a/ The limited entry fixed gear landings share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2019, 23 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

b/ Shares do not include anticipated discard mortality.

Table 1-19. Baseline - Open access FMP allocations north of 36° N. lat. for 2019.

OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt) a/
471	449

a/ The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2019, 23 percent of the sablefish caught were anticipated to be discarded of which 20 percent are expected to die.

Table 1-20. Baseline. Sablefish north of 36° N. lat. trip limits (lbs.) and landings and landed catch share (mt) for LEN and OAN in 2019.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sep-Oct	Nov-Dec	Landed Catch Share	Landings
LEN	1,300 lb. week, not to exceed 3,900 lbs. / 2 months				1,700 lb./wk., not to exceed 5,100 lbs./2 mo.		273	201.8
OAN	300 lb. day; or one landing per week up to 1,200 lb., not to exceed 2,400 lb./2 months			300 lb. day; or one landing per week up to 1,400 lb., not to exceed 2,800 lb./2 months	300 lbs. daily, or one landing per week up to 1,500 lbs., not to exceed 3,000 lbs. bimonthly		449	348.2

Table 1-21. Baseline. Non-nearshore groundfish landings for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) in 2019 compared to the non-trawl allocation.

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. [a/] (mt)
Arrowtooth flounder	Coastwide	1.4	2	3.4	674
Big skate	Coastwide	4.6	3.2	7.8	22.6
Bocaccio	S. of 40° 10' N. lat.	2.7	0.3	3	1,250.2
Canary rockfish [b/]	Coastwide	0.9	0.4	1.3	383.3
Chilipepper rockfish	S. of 40° 10' N. lat.	3.9	0.5	4.4	612.8
Darkblotched rockfish	Coastwide	2.7	1	3.7	36.6
Dover sole	Coastwide	1.5	0.3	1.8	2,420.2
English sole	Coastwide	< 0.1	--	< 0.1	493.7
Lingcod	N. of 40° 10' N. lat.	16.8	4.8	21.6	2,526.2
Lingcod	S. of 40° 10' N. lat.	1	0.5	1.5	565.2
Longnose skate	Coastwide	24.3	8.4	32.7	185.2
Longspine thornyhead	N. of 34° 27' N. lat.	0.8	< 0.1	0.8	127.6
Mixed thornyheads	--	0.3	--	0.3	--
Pacific cod	Coastwide	0.7	< 0.1	0.7	54.7
Pacific hake	Coastwide	0.1	< 0.1	0.1	--
Pacific ocean perch	N. of 40° 10' N. lat.	0.1	< 0.1	0.1	215.9
Petrale sole	Coastwide	2.6	0.9	3.5	129.4
Sablefish	N of 36° N lat.	1,523.5	345.9	1,869.4	See Table 1-18 and Table 1-19
Shortbelly rockfish	Coastwide	--	--	--	--
Shortspine thornyhead	N. of 34° 27' N. lat.	36.4	0.8	37.2	80.9
Spiny dogfish	Coastwide	0.8	0.2	1	--
Splitnose rockfish	S. of 40° 10' N. lat.	< 0.1	--	< 0.1	86.7
Starry flounder	Coastwide	--	--	< 0.1	216.6
Widow rockfish	Coastwide	< 0.1	< 0.1	< 0.1	1,042.4
Yellowtail rockfish	N. of 40° 10' N. lat.	0.4	0	0.4	628.1
Minor shelf rockfish	N. of 40° 10' N. lat.	1.2	0.4	1.6	547.1
Minor shelf rockfish	S. of 40° 10' N. lat.	0.4	0.1	0.5	1,357.3
Minor slope rockfish	N. of 40° 10' N. lat.	33.7	5.8	39.5	316.4
Minor slope rockfish	S. of 40° 10' N. lat.	12.5	4.1	16.6	267.8
Other flatfish	Coastwide	--	< 0.1	< 0.1	624.9
Other groundfish	--	--	--	< 0.1	--
Other rockfish	--	0.1	--	0.1	--
Ecosystem component species	--	1.5	6.7	8.2	--

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

b/ The non-nearshore share for canary rockfish in 2019 was 144.3 mt.

1.6.3 Impact (Groundfish Mortality) – Non-Nearshore South of 36° N. latitude

Management measures and projected groundfish mortality for the limited entry south (LES) and open access south (OAS) DTL fisheries south of 36° N. lat. under Baseline are also largely influenced by the sablefish ACL, which is calculated using a P* of 0.40 with a 40:10 adjustment (Table 1-22). The southern non-nearshore sablefish fishery does not have a primary fishery, and is only managed with LES and OAS DTL fisheries of which the landings targets and landings are shown in in Table 1-22**.** LES is estimated to have taken less than 44 percent of their Baseline landings target with OAS at approximately 13 percent attainment in 2019 (Table 1-23).

Table 1-22. Baseline - Short-term sablefish allocations south of 36° N. lat. for the limited entry (70 percent) and open access (30 percent) for 2019.

Commercial HG	Non-Trawl Allocation	LE FG Total Catch Share	Directed OA Total Catch Share	LE FG Landed Catch Share a/	Directed OA Landed Catch Share a/
1,986	1,152	806	346	788	338

a/ The limited entry and open access fixed gear total catch shares are reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2019, 18 percent of the sablefish caught were anticipated to be discarded, of which 20 percent are expected to die.

Table 1-23. Baseline. Sablefish trip limits (lbs.) south of 36° N. lat. and landed catch share and landings (mt) for LES and OAS in 2019.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Landings
LES	2,000 lbs. /week						788	346.3
OAS	300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 3,200 lbs. bimonthly			300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 4,800 lbs. bimonthly			338	13.2

Table 1-24. Baseline – Non-Nearshore fishery: Overfished species shares for the non-nearshore fixed gear fishery in 2019.

Stock	Area	Total OFS mortality 2019 (mt) a/	Share in 2019 (mt)	Non-Trawl Allocation 2019 (mt)
COWCOD	S. of 40° 10' N. lat.	1.0	NA	3.8
YELLOWEYE b/	Coastwide	1.3	1.6	38.6

a/ Yelloweye rockfish and cowcod are currently prohibited species for landing and therefore these amounts represent the estimated projected mortality based on the 2018 WCGOP mortality estimates.

b/ Yelloweye rockfish is managed to an ACT of 1.6 mt below the non-nearshore share of the 2.0 mt HG.

Both southern DTL fisheries are characterized by low attainments of their landings targets not due to low trip limits, but rather due to a lack of processing infrastructure and closed areas (e.g., CCA). Southern DTL trip limits therefore remain relatively unchanged across years since raising them would not be expected to increase attainments. This is in contrast to the northern DTL fisheries in which the trip limits are routinely adjusted each biennium and via inseason action to fully attain but not exceed their landings targets.

In 2019, the non-nearshore fishery was allocated a share of the non-trawl allocation for bocaccio, cowcod south of 40°10' N. lat., and yelloweye rockfish. Table 1-24 shows the allocations for the overfished species in 2019. Retention of yelloweye rockfish and cowcod south of 40°10' N. lat. is prohibited in LEFG and OA fisheries. Routine adjustments of the non-trawl RCA (Table 1-16 and Table 1-17) would occur in the event the projected mortality of these stocks is expected to exceed the non-nearshore share or non-trawl allocation. Changes can also be accommodated to provide greater access to target species when mortality is projected to be within the non-nearshore share or non-trawl allocation (e.g., changing from 125 to 100 fathoms).

Table 1-25 contains the 2019 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 WCGOP groundfish total mortality report provide mortalities at a stratification of 36° N. lat. The 2019 non-nearshore landings not associated with sablefish landings were 29 mt from the LE fishery and 42.3 mt of all species in the LE fishery and 58.8 mt in the OA fishery. The 'non-nearshore non-sablefish' landings account for 5.9 percent of the LE landings and 72 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. Total non-nearshore sablefish landings south of 36° N lat. for 2019 were 494.1 mt in the LE fishery and 16.5 mt in the OA fishery.

Table 1-25. Baseline. 2019 landings for the limited entry and open access fixed gear fisheries south of 36° N. lat. (in mt) compared to the non-trawl allocation.

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. a/ (mt)
Arrowtooth flounder	Coastwide	--	--	--	391.9
Big skate	Coastwide	0.4	--	--	71.0
Black rockfish	California	--	--	--	339.7
Bocaccio	S. of 40° 10' N. lat.	1.2	--	--	1,036.4
Canary rockfish b/	Coastwide	--	--	--	351.6
Chilipepper rockfish	S. of 40° 10' N. lat.	< 0.1	--	--	565.1
Darkblotched rockfish	Coastwide	--	--	--	42.4
Dover sole	Coastwide	0.2	< 0.1	0.2	2,420.1
English sole	Coastwide	--	--	--	446.2
Lingcod	S. of 40° 10' N. lat.	0.3	0.2	0.5	599.0
Longnose skate	Coastwide	1.1	--	--	157.2
Longspine thornyhead	N. of 34° 27' N. lat.	1	--	--	129.0
Longspine thornyhead	S. of 34° 27' N. lat.	10.8	0.2	11	--
Mixed thornyheads	--	3.1	< 0.1	3.1	--
Pacific cod	Coastwide	--	--	--	54.7
Pacific hake	Coastwide	0.1	--	--	0.0
Petrale sole	Coastwide	< 0.1	--	--	186.4
Sablefish	S of 36° N lat.	348.2	14.6		1,151.8
Shortbelly rockfish	Coastwide	--	--	--	--
Shortspine thornyhead	N. of 34° 27' N. lat.	8.6	--	--	67.5
Shortspine thornyhead	S. of 34° 27' N. lat.	77	0.9	77.9	706.0
Spiny dogfish	Coastwide	0.1	--	--	--
Splitnose rockfish	S. of 40° 10' N. lat.	< 0.1	--	--	82.4
Starry flounder	Coastwide	--	--	--	171.8
Widow rockfish	Coastwide	0.1	--	--	1,302.9
Minor nearshore rockfish	S. of 40° 10' N. lat.		--	--	1,005.5
Minor shelf rockfish	S. of 40° 10' N. lat.	5.1	--	--	1,163.6
Minor slope rockfish	S. of 40° 10' N. lat.	8.1	0.2	8.3	247.9
Other flatfish	Coastwide	0.1	--	--	458.1
Other groundfish	--	--	--	--	--
Other rockfish	--	--	--	--	--
Ecosystem component species	--	4.9	< 0.1	4.9	--

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

b/ The non-nearshore share for canary rockfish in 2019 was 144.3 mt.

1.6.4 Impact (Groundfish Mortality)- Nearshore

The nearshore fishery refers to LEFG and OA fisheries that occurs shoreward of the RCA off Oregon and California. There is not a nearshore fishery off Washington since they have 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. The most commonly used gear in these fisheries are jig and pole gears; however, some vessels use longline gear to target nearshore species and, in fewer instances, pots or traps are used in the nearshore fishery off California. There is a state nearshore prohibition on pot gear in Oregon to prevent gear conflicts with the recreational sector, but with some grandfather exemptions.

The majority of vessels participating in nearshore commercial fisheries do not hold Federal LE permits. California and Oregon restrict participation in the nearshore groundfish fishery by requiring a state LE permit to take nearshore groundfish species. Therefore, while these fisheries are considered federal OA 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.

Projections of discard mortality of targeted stocks and total mortality of overfished stocks are generated using the nearshore model, which mirrors the estimation procedures used by the 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 is that WCGOP estimates are based on observer data and landings from a given year, whereas the nearshore model uses multi-year data of the same. Detailed nearshore model descriptions are contained in previous biennial analyses, and as such as just summarized here.

In April 2018, the CFGC changed the transfer provisions for the Deeper Nearshore Fishery Permit (DNSFP) and the Shallow Nearshore Fishery Permit (SNFP) to allow the transferability for the DNSFP (previously a non-transferable moratorium) and the SNFP to be transferable on a one-to-one basis (previously was two-for-one basis). This was the first time any 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.

The federal regulations for the nearshore fishery are the same as those described in Section above. These fisheries both utilize the same non-trawl allocations for target stocks, but have separate yelloweye rockfish HGs and ACTs for the coastwide non-nearshore fishery, as well as separate shares of each for the Oregon nearshore fishery, and the California nearshore fishery. Both the HG and ACT are considered soft-caps federally (i.e., do not prompt federal automatic actions), but are the reference points used by the Council to manage yelloweye rockfish impacts for each non-trawl sector. The Council 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 provides management flexibility in case a non-trawl sector exceeds their ACT. Reductions

in trip limits or expansion of the non-trawl RCA can be used to mitigate high yelloweye rockfish impacts if necessary. There are also state nearshore shares of the coastwide nearshore canary rockfish HG, which is a relic from when the stock was overfished, but remain in place since there have not been any proposals to combine the state shares.

Table 1-26 shows the 2019 landings with Table 1-27 providing an estimate of projected total mortality of overfished stocks based on the most current nearshore model update (i.e., includes 2018 observed bycatch rates). California and Oregon nearshore fisheries are both projected to be well within their respective shares for canary rockfish, yelloweye rockfish, bocaccio rockfish south of 40°10' N. lat., and zero impacts to cowcod south of 40°10' N. lat. are expected (not shown).

Table 1-26. Baseline. 2019 nearshore landings based on 2019 regulations.

Stock	Area	Total (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	123.8	123.8	0.0	--	--
--Black rockfish		116.3	116.3	0.0	--	--
--Blue/deacon rockfish		7.5	7.5	0.0	--	--
Black rockfish	CA	48.5	--	48.5	45	3.5
Bocaccio	S. 40°10' N. lat.	2.0	--	2.0	0.0	2.0
Cabezon/ Kelp greenling	OR	39.2	39.2	0.0	--	--
--Cabezon		29.5	29.5	0.0	--	--
--Kelp greenling		9.6	9.6	0.0	--	--
Cabezon	CA	22.9	--	22.9	1.9	21
Canary Rockfish	OR & CA	9.4	3.9	5.5	1.2	4.3
Kelp greenling	CA	2.8	--	2.8	0.2	2.6
Lingcod	N. 40°10' N. lat.	79.3	72.5	6.8	6.8	--
Lingcod	S. 40°10' N. lat.	21.9	--	21.9	--	21.9
California scorpionfish	S. 40°10' N. lat.	1.3	--	1.3	--	1.3
Nearshore Rockfish N. a/	N. 40°10' N. lat.	20.7	12.1	8.6	8.6	--
Nearshore Rockfish S.	S. 40°10' N. lat.	102.5	--	102.5	--	--
--Shallow Nearshore Rockfish b/		57.1	--	57.1	--	57.1
--Deeper Nearshore Rockfish c/		45.4	--	45.4	--	45.4

a/ Nearshore Rockfish 42° - 40°10' N. lat. totals 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 south of 40°10' N. lat. totals consists of black-and-yellow rockfish, China rockfish, gopher rockfish, grass rockfish, and kelp rockfish. These species are part of the Nearshore Rockfish complex south of 40°10' N. lat.

c/ In this table, Deeper Nearshore Rockfish south of 40°10' N. lat. total consists of blue rockfish, brown rockfish, calico rockfish copper rockfish, olive rockfish, quillback rockfish, and treefish. 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.

Table 1-27. 2019 nearshore estimated total mortality of overfished stocks.

Stock	Nearshore		Oregon		California			
	ACT	Proj.	Share	Proj.	Share	Total Proj.	40°10' – 42° Proj.	S. 40°10' Proj.
COWCOD S. of 40°10' a/	---	0.0	---	0.0	---	0.0	0.0	0.0
YELLOWEYE b/	4.7	1.9	4.4	1.5	1.6	0.4	0.3	0.1

a/ Cowcod is managed under an ACT of 6 mt which is allocated to both trawl and non-trawl sectors.

b/ The Oregon state share for yelloweye rockfish is 73% and the California state share is 27%.

b/ The Council manages the nearshore fishery to the ACT, but a higher 6 mt HG exists for flexibility if needed.

1.7 Tribal Fishery- Baseline 2019

1.7.1 Tribal Fishery Management Measures

Tribal fisheries consist of trawl (bottom, midwater, and whiting), fixed gear, and troll. Principle management controls in the tribal fisheries include allocations, set-asides, HGs, and trip limits. The Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) conducted their groundfish fisheries in 2019 with the allocations and management measures as described in Table 1-28. Tribal allocations and set-asides in 2019 are outlined in Table 1-29.

Table 1-28. Baseline. Tribal fishery management measures and regulations.

Management Measures	Black Rockfish: For the commercial harvest of black rockfish off Washington State, a treaty Indian tribes' harvest guideline is set at 30,000 lb. for the area north of Cape Alava, WA (48°09.50' N. lat.) and 10,000 lb. for the area between Destruction Island, WA (47°40' N. lat.) and Leadbetter Point, WA (46°38.17' N. lat.). This harvest guideline applies and is available to the Pacific Coast treaty Indian tribes. There are no tribal harvest restrictions for black rockfish in the area between Cape Alava and Destruction Island. Sablefish: The sablefish allocation to Pacific coast treaty Indian Tribes is 10 percent of the sablefish ACL for the area north of 36° N. lat. and is reduced by 1.5 percent for estimated discard mortality. Lingcod: are subject to an overall catch of 250 mt for all treaty fishing. Pacific whiting: -The tribal allocation for 2019 is 77,251 mt. Pacific cod: are managed to the tribal HG of 500 mt. Petrale sole: are subject to a fleetwide harvest target of 290 mt. Bottom trawl vessels are restricted to small footrope trawl gear. Yellowtail rockfish: in the directed midwater trawl fisheries are subject to annual catch of 1,000 mt for the entire fleet, per year. Spiny dogfish: are subject to an expected total catch of 275 mt per year.

	Rockfish - Full retention. Rockfish taken during open competition tribal commercial fisheries for Pacific halibut would not be subject to trip limits. Thornyheads ● Shortspine thornyhead is limited to 50 mt annually. ● Longspine thornyhead is limited to 30 mt annually. Canary rockfish: are managed to the tribal harvest guideline of 50 mt YELLOWEYE ROCKFISH: 100 lbs. per trip Makah Tribe midwater trawl fisheries: Landings of widow rockfish will be managed to the tribal harvest guideline of 200 mt per year. Yellowtail rockfish will be managed not exceed 1,000 mt for the fleet. Nearshore rockfish: 300 lb. per trip limit per species or species group, or to the non-tribal LE trip limit for those species if those limits are less restrictive than 300 lb. per trip. Shelf Rockfish and Slope Rockfish: Redstripe rockfish are subject to an 800 lb. trip limit. Shelf (excluding redstripe rockfish), and Slope Rockfish groups are subject to a 300 lb. trip limit per species or species group, or to the non-tribal LEFG trip limit for those species if those limits are less restrictive than 300 lb. per trip. LEFG trip limits are specified in the regulations (Table 2 (North) in 660.00 Subpart E) Other rockfish: 300 lb. per trip limit per species or species group, or to the non-tribal LE trip limit for those species if those limits are less restrictive than 300 lb. per trip. Flatfish and Other Fish (small footrope bottom trawl): For Dover sole, English sole, Other Flatfish, and arrowtooth flounder trip limits will be established in tribal regulation only and adjusted in-season to stay within the overall harvest targets and overfished species limits. Spiny dogfish are managed within the LE trip limits for non-tribal fisheries.
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
Reporting	VMS declarations for trawl only

1.7.2 Impact (Groundfish Mortality)

For the 2019 fishing season, all tribal fisheries were managed not to exceed set-asides and HGs. 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 1-29.

Table 1-29. Baseline. Projected 2019 groundfish mortality in tribal fisheries.

Species	Current Treaty harvest guidelines and set-asides (2019) (mt)	2019 Total Mortality (mt)
Arrowtooth flounder	2,041	0.30
Black rockfish (WA) a/	18.14 mt)	0.04
Cabezon	N/A	0
Canary rockfish	50	12.54
Dover sole	1,497	15.37
English sole	200	13.65
Lingcod	250	23.11
Longnose skate	130	85.75
Longspine thornyheads	30	0.00
Other flatfish	60	5.35
Pacific cod	500	102.99
Pacific whiting	17.5% of TAC (77,251 mt)	4,129.05
Petrale sole	290	226.63
Sablefish north of 36° N. lat.	561	520.90
Shortspine thornyheads	50	9.15
Spiny dogfish	275	4.82
Widow rockfish	200	13.44
Yellowtail rockfish	1,000	108.62
Yelloweye rockfish	2.3	1.55

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 size 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 0.2 percent higher than was estimated for the 2019 – 2020 biennium.

1.8 Washington Recreational Fishery- Baseline 2019

1.8.1 Washington Recreational- Management Measures

Primary catch controls for the Washington recreational fishery are season dates, depth closures, bag limits, and GCAs, including YRCAs. Yelloweye rockfish is the overfished stock caught in the Washington recreational fishery. Seaward adjustments of the recreational RCAs, which focuses fishing effort in the nearshore area where yelloweye rockfish encounters and mortality of discarded fish are lower, are the main

management measure for reducing catches of this stock. Under the Baseline, Washington recreational fisheries would operate under the ACLs that were in place in 2019 including a 48 mt ACL for yelloweye rockfish, and the associated Washington recreational HG of 10.0 mt and an ACT of 7.8 mt (Table 1-30).

In addition to reducing encounters with yelloweye rockfish, there has been a need to shift some focus on reducing catch of black rockfish in the Washington recreational fishery to ensure catch does not exceed the Washington ACT. The higher yelloweye rockfish HG 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 are responsible for tracking and managing catches of Nearshore Rockfish north of 40°10′ N. lat. If harvest levels in Washington approach 75 percent of the state-specific HG (Table 1-30), the state of Washington will consult with the other west coast states via a conference call and determine whether inseason action is needed. The HG for Washington would be a state HG and not established in Federal regulations. In the event inseason action is needed, the state of Washington would take action through state regulation.

Table 1-30. Baseline – Washington Recreational. Harvest guidelines (HG) for the Washington recreational fisheries under the Baseline in 2019.

Species	2019 HG (mt)
Canary Rockfish	47.2
YELLOWEYE ROCKFISH	10.0 (HG) / 7.8 (ACT)
Black Rockfish	280
Nearshore Rockfish	19.4

Groundfish Seasons and Area Restrictions

Season Structure

Under the Baseline, the Washington recreational season was open from the second Saturday in March through the third Saturday in October (Table 4-55). The lingcod season in Marine Areas 1 – 4 is aligned with the recreational groundfish season and was also open the second Saturday in March through the third Saturday in October.

Depth restrictions were the primary tool used to keep recreational mortality of yelloweye rockfish within specified ACTs. Restrictions limiting the depth where groundfish fisheries are permitted were 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 were fewer in the south coast where incidental catch of yelloweye becomes progressively less. Washington coastal management areas are shown in Figure 1-1. Table 4-55 summarizes key features of the Washington recreational regulations under the Baseline Alternative.

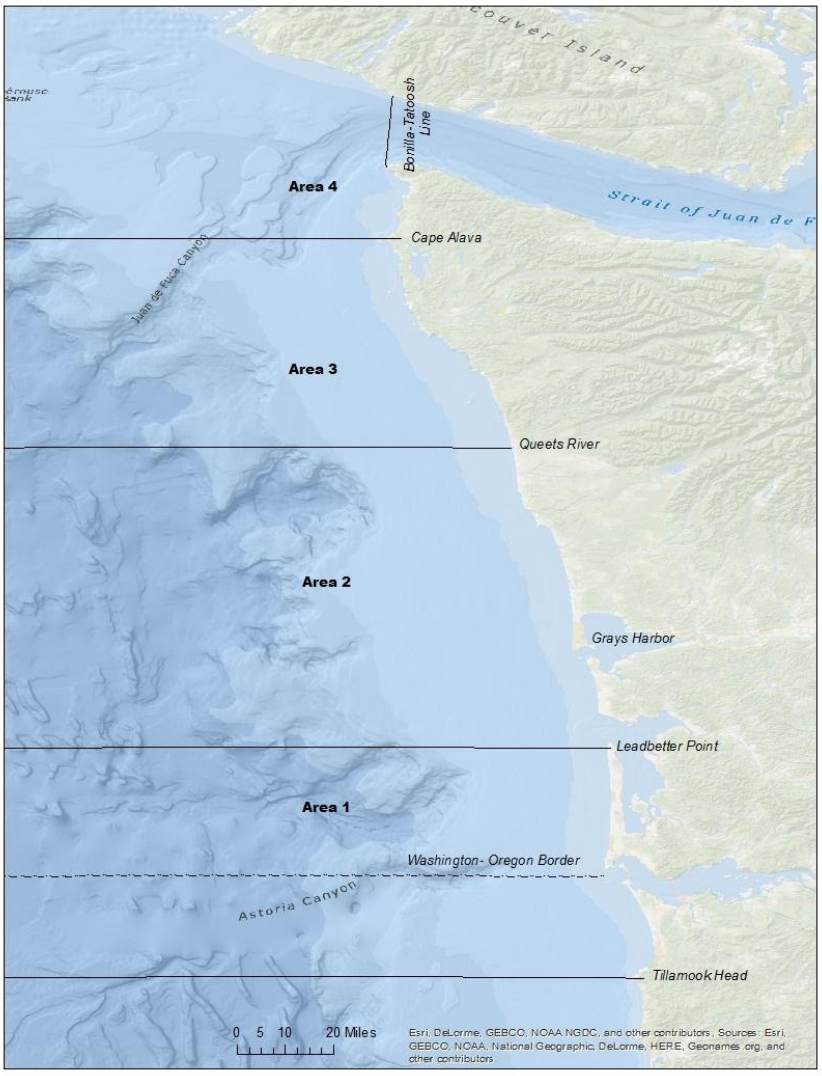

Figure 1-1. Baseline- Washington Recreational Management Areas.

Table 1-31. Baseline – Washington Recreational seasons and groundfish retention restrictions. Bottom fish = BF

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 June 1 -Labor Day a/ b/				BF Open		BF Closed	
2 (S. Coast)	BF Closed		BF Open c/ d/			BF Open d/					BF Closed	
1 (Col. River)	BF Closed		BF Open e/ f/								BF Closed	

a/ Retention of lingcod, Pacific cod and sablefish allowed >20 fm on days when Pacific halibut is open.

b/ Retention of yellowtail and widow rockfish is allowed > 20 fm on days open to salmon fishing in July and August.

c/ From March 13 through May 31 lingcod retention prohibited > 30 fathoms except on days open to the primary halibut season.

d/ Retention of lingcod prohibited seaward of 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.) year-round except on days open to the primary halibut fishery, and from June 1 -15 and September 1 - 15.

e/ Retention of groundfish, except sablefish, flatfish, and Pacific cod, prohibited during the all-depth Pacific halibut fishery. Lingcod retention allowed with halibut on board north of the WA-OR border

f/ Retention of lingcod prohibited seaward of 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.

North Coast (Marine Areas 3 and 4)

The retention of groundfish was prohibited seaward of a line approximating 20 fathoms from June 1 through the first Monday in September (Labor Day), except lingcod, Pacific cod and sablefish retention was permitted seaward of 20 fathoms on days that Pacific halibut fishing was open. In addition, yellowtail rockfish and widow rockfish were retained seaward of 20 fathoms on days open to salmon fishing during July and August. Fishing for, retention, or possession of groundfish and Pacific halibut was prohibited in the C-shaped YRCA (Figure 4-2).

South Coast (Marine Area 2)

The retention of lingcod was prohibited seaward of 30 fathoms from March 9 through May 31, except lingcod retention was allowed on days open to the primary Pacific halibut season. When lingcod was open, fishing for, retention, or possession of lingcod was prohibited in deep-water areas seaward of a line extending from 47°31.70' N. latitude, 124°45.00' W. longitude to 46°38.17' N. latitude, 124°30.00' W. longitude except as allowed on days open to the Pacific halibut fishery and from June 1 through 15 and September 1 through 15 (Figure 4-2). Fishing for, retention or possession of groundfish or Pacific halibut was prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure 4-2).

Columbia River (Marine Area 1)

Retention of groundfish, except sablefish, flatfish other than halibut, Pacific cod, and lingcod north of the Washington – Oregon border was prohibited with halibut onboard during the halibut fishery, and fishing for, retention, or possession of lingcod in deep-water areas seaward of a line extending from 46°38.17 N. latitude, 124°21.00' W. longitude to 46°33.00' N. latitude, 124°21.00' W. longitude was prohibited during the lingcod season (Figure 1-2).

Area Restrictions

Under the Baseline Alternative, fishing for, retention, or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries was prohibited in the C-shaped YRCA in the north coast and the South Coast and Westport YRCAs in the south coast (Figure 1-2 a and b). Fishing for, retention, or possession of lingcod was prohibited seaward of a line connecting the following coordinates from the Queets River (47°31.70' N. latitude, 124° 45.00' W. longitude) to 46°33.00' N. latitude, 124°21.00' W. longitude, year-round (Figure 1-2 c).

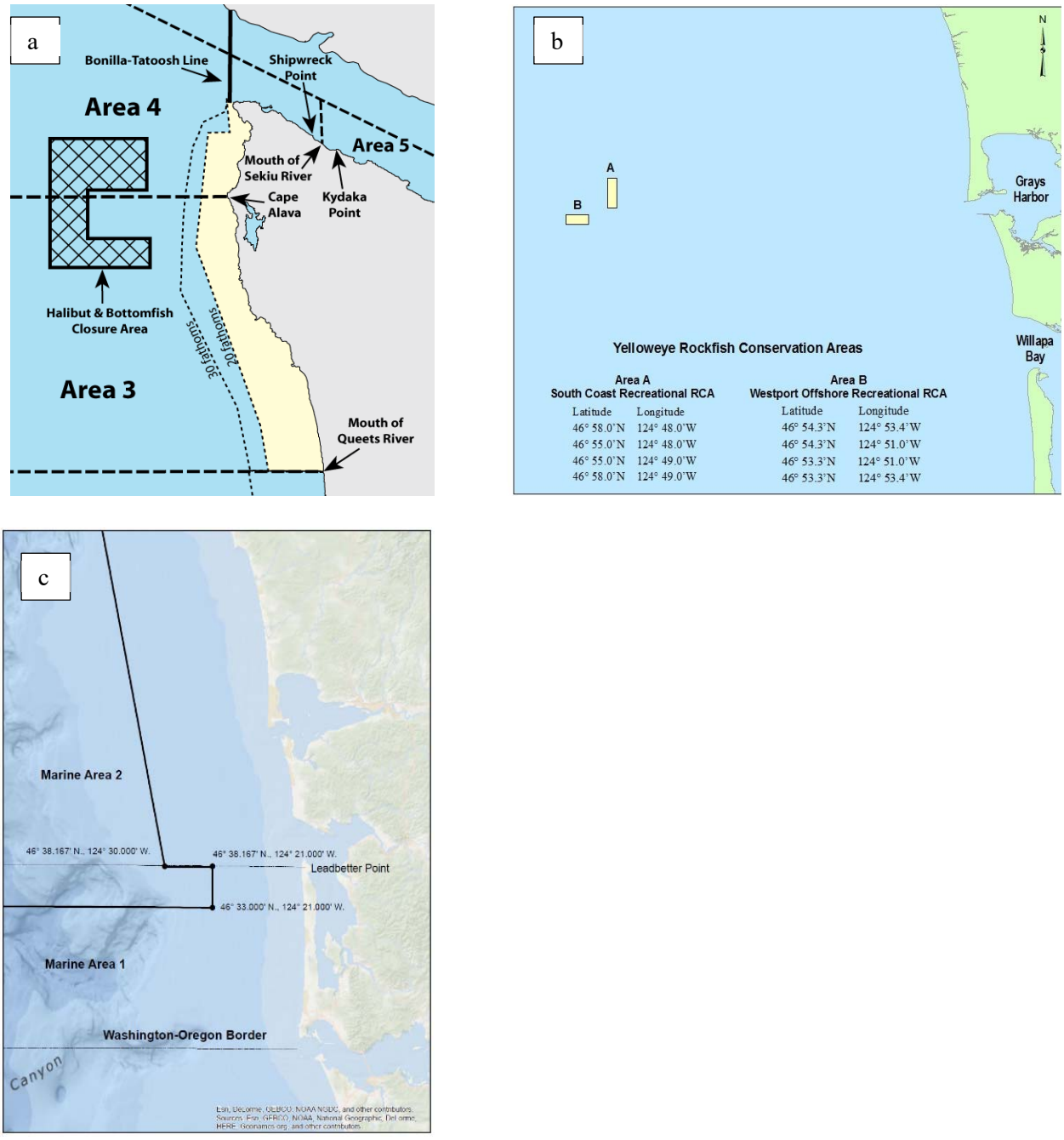

Figure 1-2. Baseline – Washington recreational area restrictions. a. C-Shaped YRCA; b. Washington South Coast and Westport YRCAs; c. Lingcod Restricted Area.

Groundfish Bag Limits

Under Baseline, the recreational groundfish bag limit, including rockfish and lingcod was 9 fish per day. Of the 9 recreational groundfish allowed to be landed per day, there were sub-limits of 7 rockfish, two lingcod, and one cabezon applied in Marine Areas 1-4. Three additional flatfish species, not including Pacific halibut, could be retained in addition to the 9 groundfish daily limit. Retention of yelloweye rockfish was prohibited.

Lingcod Seasons and Size Limits

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

Cabezon Size Limit

Under the Baseline Alternative, there was no size limit for cabezon.

Pacific Halibut Seasons

In 2019, the IPHC adopted a constant Total Allowable Catch for Area 2A which includes the areas off Washington, Oregon and California, which will be in place through 2022 barring any conservation concerns which will reinforce the stability of halibut seasons on the west coast. The 2019 recreational halibut season was open for fifteen days in the north coast (Marine Areas 3 and 4) and nine days in the south coast (Marine Area 2). The halibut seasons in these areas were structured to have the same season dates as much as possible but were managed to area specific quotas. The Columbia River subarea is co-managed with ODFW to keep catch within the subarea limit and the season was also structured to align with the halibut dates in the north coast and south coast subareas and was open for eight days. In the north coast (Marine Areas 3 and 4), groundfish retention was restricted to the area inside 20 fathoms with exceptions that allowed lingcod, sablefish, and Pacific cod retention on days open to the halibut fishery in that area. In the south coast (Marine Area 2), groundfish retention was also restricted when the halibut fishery is underway, but exceptions allow the retention of lingcod, Pacific cod, and sablefish when halibut are on board. In the Columbia River area (Marine Area 1), groundfish is prohibited with a halibut on board except for Pacific cod, sablefish, flatfish (except halibut) and lingcod north of the Washington-Oregon border. Groundfish impacts from the recreational halibut fishery are included in the estimates for the recreational groundfish fishery.

Inseason Management Response

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

Impact (Groundfish Mortality)

Final mortality estimates for overfished and non-overfished species under Baseline are summarized in Table 1-32. The Baseline Alternative includes reduction to the time that depth restrictions are in place and a longer lingcod season in Marine Area 4 compared to what was in place in 2017-2018. The reduced time period for

depth restrictions in Marine Areas 1 – 3 provided access to healthy lingcod and mid-water rockfish species and was possible because of a higher Washington yelloweye rockfish HG. Recreational fishing opportunities were expanded as a result of higher yelloweye rockfish HG but was done so in a precautionary manner due to uncertainty in projected mortality of yelloweye rockfish. Washington recreational groundfish fisheries were managed to an ACT for yelloweye rockfish set lower than the HG as an extra precaution to avoid exceeding the ACL. Under the Baseline, the canary rockfish sub-limit was removed and retention was permitted for the first time in many years. It was unclear how angler behavior might affect projected impacts for canary rockfish and several scenarios were explored that looked at a range of impacts based on the degree that anglers would actively seek out and target canary rockfish rather than simply retaining canary rockfish as they are encountered. The final canary rockfish estimate for 2019 indicates that anglers were becoming more comfortable retaining canary rockfish after a long period where retention was prohibited, and some anglers may have been targeting them rather than simply retaining canary that were encountered.

Table 1-32. Baseline – Washington recreational mortality estimates for 2019 (in mt).

Stock	2019 Mortality Estimate (mt)
Canary Rockfish	13.47
YELLOWEYE ROCKFISH	3.73
Black Rockfish	234.49
Lingcod	170.11
Nearshore Rockfish	10.04
Blue Rockfish	*1.24*
Quillback Rockfish	*3.16*
Copper Rockfish	*3.08*
China Rockfish	*2.56*
Brown Rockfish	--
Grass Rockfish	--
Yellowtail Rockfish	48.21
Vermilion Rockfish	2.69
Cabezon	9.01
Kelp Greenling	1.63

1.9 Oregon Recreational Fishery- Baseline 2019

1.9.1 Oregon Recreational 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 2019 ACLs (Table 1-1, Table 1-3, and Table 1-5) and Oregon recreational HGs or state quotas shown Table 1-33.

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 1-33), 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 OFWC, the Oregon HG is further divided for the commercial and recreational fisheries. The values shown in the Status quo analysis are the shares based on 2019 recreational and commercial sharing percentages in Oregon State Regulations. In the event inseason action is needed, the state of Oregon would take action through state regulation. Inseason updates would be provided to the Council at the September and November meetings.

Table 1-33. Oregon recreational Federal harvest guidelines (HG) or state quotas under the Baseline (mt).

Stock	2019 HG or State Quota
Black/Blue/Deacon Rockfish Complex OR a/	474.8
Canary rockfish b/	70.9
Cabezon/Greenlings Complex OR c/	59.4
Nearshore Rockfish North of 40°10' N. Lat. d/	11.7
YELLOWEYE ROCKFISH b/	7.1

a/ The state process in Oregon establishes the commercial and recreational quotas for black, blue, and deacon rockfish. The values are the recreational share based on the 2019 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 2019 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 23.3 mt, of which the recreational fishery is allocated 11.7 mt through state regulations.

Inseason Management Tools

Oregon has a responsive port-based monitoring program through the Oregon Ocean Recreational Boater Survey (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 of cabezon in Oregon in July and August of 2017 and the OFL being exceeded, 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 cabezon, preliminary, and sometimes raw, data is examined weekly allowing ODFW to make any necessary inseason adjustments in a timelier manner. In 2018 and 2019, the State of Oregon prohibited the retention of cabezon from the recreational fishery in mid-August, keeping impact below the state-specified HG.

Season, depth, days open per week, 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, 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, offshore depth closures may be adjusted inseason at 30, 25, or 20 fathoms 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 is reduced from 2019 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 would help lengthen the duration of a fishery approaching an HG.

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

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 Council-approved mortality rates for canary and yelloweye rockfish when descending devices are used were implemented in 2014. The use of descending devices became mandatory through state rule in Oregon beginning in 2017.

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 Federal or state HGs or targets. 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 RCA, promoting directed midwater rockfish opportunity. Fisheries would be monitored to ensure that mortality of yelloweye rockfish are within the harvest targets/guidelines.

In the event that the duration of total season is reduced from 12 months; the nearshore waters are closed to groundfish fishing due to management of nearshore species; or the Pacific halibut catch limit is reduced from 2019 levels, the fishery may be expanded to waters seaward of the RCA that is in effect at the time, promoting directed midwater rockfish and offshore lingcod opportunity. Fisheries would be monitored to ensure that mortality of yelloweye rockfish is not in excess of the HG.

Impacts (Projected Mortality)

The estimated mortality in 2019 is presented in Table 1-34 and is based on actual 2019 data through October, with estimates for November and December, given the season structure and bag limits currently in regulation.

Longleader gear (a legal gear in any time and area open to recreational groundfish) is a recreational fishing set-up that included up to 3 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° 18' 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 regulation was in place by the beginning of 2019.

To account for impacts for the new longleader opportunity it was assumed there would be 5,000 substitution long-leader trips (i.e., traditional recreational groundfish to long-leader) and 2,000 new long-leader 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 long leader trips, respectively. The projected mortality with the new longleader opportunity is included in the totals shown in Table 1-34.

Table 1-34. Baseline – Oregon Recreational. Projected mortality (mt) of species with Oregon recreational specific allocations under the Baseline, including estimates for the new longleader opportunity and allowing retention of flatfish species outside of the seasonal 40 fathom depth restriction.

Stock	Projected Mortality (mt)
Canary rockfish	38.4
YELLOWEYE ROCKFISH	4.5
Black/Blue/Deacon Rockfish OR	322.4
Cabezon/Greenlings a/	18.2
Nearshore Rockfish North of 40° 10' N lat.	17.3
Yellowtail rockfish	26.8
Widow rockfish	4.0

a/ Includes kelp and other greenlings

Table 1-35 shows the recent mortality of the ten 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 was in place under the Baseline, including any longleader gear trips in 2017 and 2018.

Table 1-35. Recent mortality (mt) of the ten most landed species in the Oregon recreational fishery under similar season structure, bag limits, area restrictions, etc. as the Baseline.

Species	2014	2015	2016	2017	2018	Average
Black/Blue/Deacon Rockfish a/	367.6	491.1	445.8	426.7	292.2	404.7
Black rockfish	349.5	461.5	425.3	402.7	278.8	383.6
Blue rockfish	18.1	29.6	7.8	5.0	2.5	12.6
Deacon rockfish b/			12.7	19.0	10.9	14.2
Lingcod	168.4	221.9	145.5	176.9	215.6	185.7
Nearshore Rockfish	7.8	2.3	2.0	17.0	21.6	10.1
Quillback rockfish	3.4	0.9	0.6	7.1	9.5	4.3
Copper rockfish	2.6	1.0	1.1	7.5	9.4	4.3
China rockfish	1.7	0.4	0.3	2.3	2.6	1.5
Brown rockfish	0.0	0.0	0.0	0.1	0.0	0.0
Grass rockfish	0.0	0.0	0.0	0.0	0.0	0.0
Cabezon/Greenling a/	12.9	14.2	14.4	26.8	16.6	17.0
Cabezon	9.1	10.2	11.7	23.7	13.5	13.6
Greenling	3.8	4.0	2.7	3.1	3.1	3.3

Species	2014	2015	2016	2017	2018	Average
Yellowtail rockfish	11.3	22.0	7.7	14.0	35.6	18.1
Vermillion rockfish	4.0	4.7	3.7	8.8	9.2	6.1
Canary rockfish	2.9	14.0	10.0	28.2	43.6	19.7
YELLOWEYE ROCKFISH	2.6	4.1	3.3	4.3	4.0	3.7
Sablefish	0.7	1.7	1.6	2.5	2.6	1.8

[a/] New complex beginning in 2019.

[b/] Deacon rockfish not separated out until 2016, prior to that included in blue rockfish

1.10 California Recreational Fishery- Baseline 2019

1.10.1 California Recreational Management Measures

Under the Baseline, trawl and non-trawl allocations for overfished species and species of concern were established for the 2019-2020 cycle (Table 1-36). The California recreational fishery was allocated a share of the non-trawl allocation, through use of a HG, for bocaccio, canary rockfish, 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 yelloweye rockfish ACL for the 2019-2020 cycle. This increase is the result of an updated rebuilding analysis in 2017 which found that the stock was rebuilding faster than had been estimated based on the most recent stock assessment results. However, as a matter of precaution to ensure fishery sectors did not exceed the increased ACL, the Council recommended more conservative ACT limits be used for the recreational sectors; for the CA recreational sector, it was 9.1 mt for 2019. Unless a recreational HG is provided, the non-trawl allocation in California was shared by both commercial and recreational fisheries. Model projections were calculated for the five recreational groundfish management areas using updated RecFIN estimates from 2017 through October 2019.

Table 1-36. Baseline – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries in 2019/2020.

Stock	Non-Trawl Allocation	California Recreational HG
Boccaccio	1250.2/1197.8	863.4/827.2
Canary rockfish	384.1/361.4	127.6/120
Cowcod	3.8	
Darkblotched	37.4/39.9	
Nearshore rockfish North of 40°10´ N lat.	78.6/79.3	
POP	215.9/210.3	
Petrale sole	129.4/126.2	
Yelloweye rockfish	38.6/39.5	11.6/11.9

Groundfish Seasons and Area Restrictions

Season Structure

Current regulations specify seasons and depth constraints for the five groundfish management areas off California (shown in Figure 1-3) which have been primarily constrained by yelloweye rockfish and cowcod in recent years.

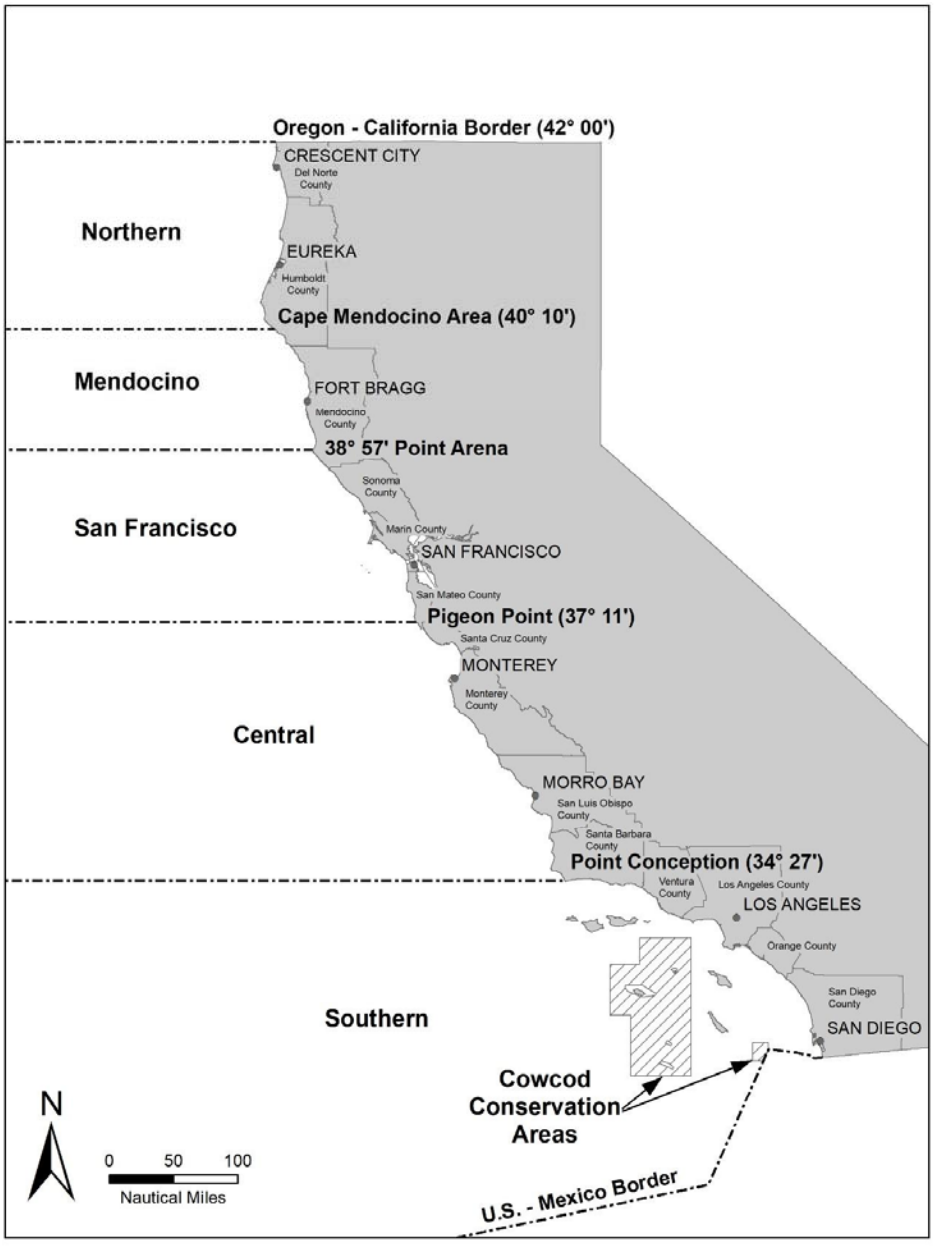

Figure 1-3. Recreational Groundfish Management Areas in California.

In 2019, the California recreational fishery had increased seasons length in some management areas (Figure 1-4). The season length in the San Francisco Management area was extended by two weeks and opened on

April 1. In addition, the season specific to California scorpionfish was returned to a year-round fishery in the Southern Management Area and opened starting September 1st to align with all other management areas (expect the Northern Management Area).

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 (see Figure 1-4). However, recreational fishing for Other Flatfish[3], petrale sole, and starry flounder is permitted within the RCA. In 2019, the depth restriction for RCAs in the Southern Management Area was relaxed from 60 fm to 75 fm (Figure 1-4). While in regulation since 2017, 2019 was the first year that the all depth fishery in the Northern and Mendocino Management Areas occurred as scheduled from November 1st through December 31.

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 <20fm						All Depth	
San Francisco	Closed			April 1 – Dec 31 <40fm								
Central	Closed			April 1 – Dec 31 <50fm								
Southern	Closed		Mar 1 – Dec 31 <75 fm									

Figure 1-4. Baseline California recreational groundfish season structure and RCA boundaries for 2019.

Cowcod Conservation Area

The Cowcod Conservation Areas (CCAs) were established in 2001 to protect cowcod, which had been declared overfished (Figure 1-5). 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 miles and the Eastern CCA encompasses 100 miles. Limited take by recreational and commercial fixed gears of groundfish species is permitted within the CCAs.

Within the Western CCA, the 2019 recreational fishery was permitted increased opportunity by extending the shoreward boundary from 20 fm to 40 fm during the open season of March 1-December 31 (Figure 1-6) 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.

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

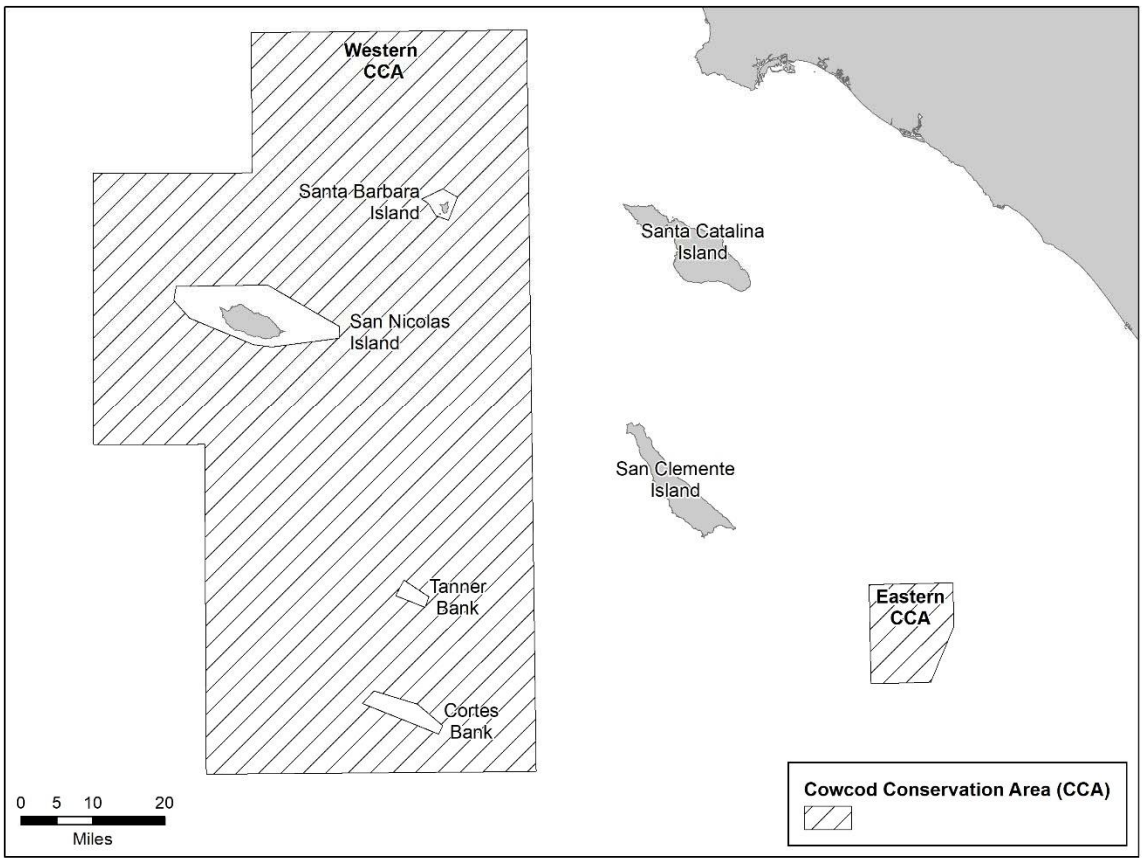

Figure 1-5. Overview of Western and Eastern Cowcod Conservations Areas located in the Southern Management Area.

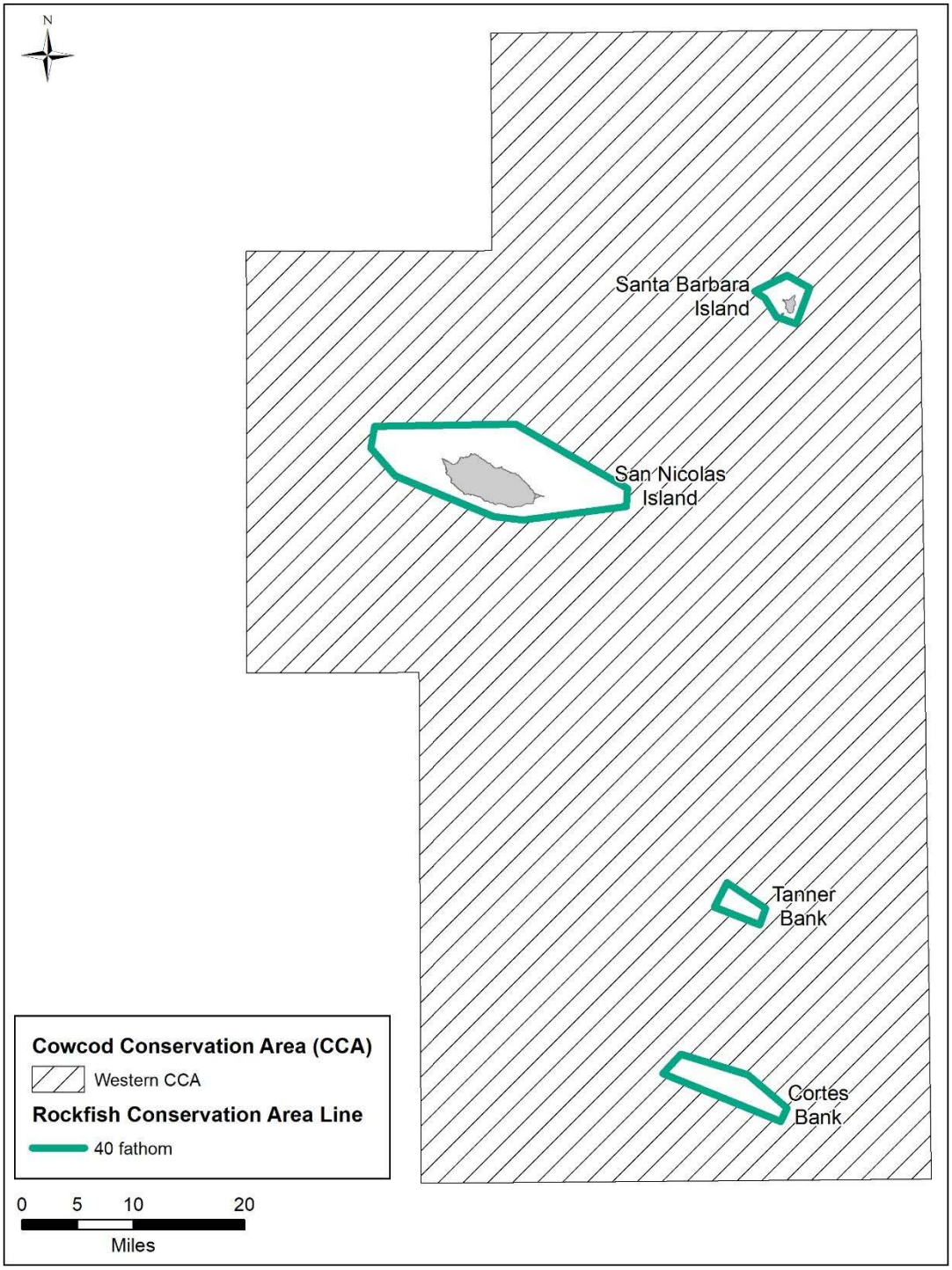

Figure 1-6. Overview of the 40-fathom depth contour inside the Western Cowcod Conservation Area.

Yelloweye Rockfish Conservation Areas

In 2008, four YRCAs were adopted for use in management as part of the 2009-2010 biennial specifications (2009-2010 FEIS). The four YRCAs are 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. However, this management measure has never been implemented in California.

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. Retention of bronzespotted rockfish, cowcod, and yelloweye rockfish would continue to be prohibited. Species subject to sub-bag limits within the overall 10-fish RCG bag limit are as follows and reflect inseason management action effective June 1, 2019 to increase the sub-bag limit for black rockfish and canary rockfish (84 FR 25708):

- Black rockfish - 4 fish;
- Cabezon - 3 fish;
- Canary Rockfish - 3 fish.

A less-than-optimistic stock assessment for black rockfish in 2015 resulted in a reduction to the harvest limit and sub-bag limit for the species during the 2019-2020 biennium management and specifications process. A review of recreational catch data in early 2019 showed that catch of black rockfish had been lower than expected in 2017 and 2018. This prompted the increase in the statewide black rockfish sub-bag limit from 3 fish to 4 fish. (84 FR 25708).

Limited retention of canary rockfish in California's recreational fishery began in 2017 as a result of the stock being declared rebuilt. Because retention of canary rockfish had been prohibited in recreational fisheries off California for more than a decade, incremental increases to the daily sub-bag limit were implemented in 2018, and again in 2019 to balance fishing opportunity while keeping catch within harvest limits.

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*- 15 inches, total length;
- Leopard shark- 36 inches, total length (state regulations only)

Gear restrictions apply to all species within the RCG Complex. No more than one line and two hooks maybe used to take or possess species within the complex. Note that regulations specific to lingcod are described below.

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

The lingcod season structure is aligned with the RCG complex in each management area. The lingcod bag limit in the Northern Management Area was 2 fish for the entire 2019 season. In all other management areas, the bag limit was 1 fish at the start of the season but was increased to 2 fish as a result of Council recommended inseason action effective June 1, 2019 (84 FR 25708). The minimum size limit was 22 inches total length. The same 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 same 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 (Mendocino County). This fishery is structured to provide recreational fishing opportunities between May 1 and October 31. 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 in the RecFISH model and within the California recreational groundfish fishery impacts.

Inseason Management Response

CDFW tracks groundfish mortality on a weekly and/or monthly basis to ensure that mortality remains within allowable limits. Black rockfish, canary rockfish, cowcod and yelloweye rockfish are tracked on a weekly basis using preliminary California Recreational Fisheries Survey (CRFS) field reports. 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 six 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 mortality inseason on a weekly basis.

For the 2017-2018 biennium, a new inseason process was adopted for use in California. 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 canary rockfish, yelloweye rockfish, and black 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 canary rockfish, yelloweye rockfish, or black rockfish in California, has been attained or is projected to be attained prior to the first day of the next Council meeting. Any modifications may only be used to restrict catch of canary rockfish, yelloweye rockfish, or black rockfish in California. However, given the mixed nature of the fishery, there may be impacts to other species, similar to all inseason management measure adjustments.

1.10.2 Impact (Groundfish Mortality)

Table 1-37 provides projected mortality in the California recreational fishery for 2019.

Table 1-37. Baseline Mortality in the California recreational fishery for 2019.

Stock	Projected Recreational Mortality	California Recreational HG 2019/20	Non-Trawl Allocation 2019/20 a/
Bocaccio	152.9	863.4/827.2	1250.2/1197.8
Canary Rockfish	69.8	127.3/119.7	383.3/360.6
Cowcod	2.7		3.8
Yelloweye Rockfish	6.0	11.6/11.9	38.6/39.5
Black Rockfish	112.6		329/326
Cabezon	23.7		146.7/145.6
California Scorpionfish	157.0		311/305
Greenlings b/	5.1		b/
Lingcod N. of 40°10' N. lat. c/	48.9		2526.2/2344.7
Lingcod S. of 40°10' N. lat.	357.9		565.2/471.7
Widow Rockfish	20.6		1042.4/985.6
Nearshore Rockfish N. of 40°10' N. lat. d/	20.0		78.6/79.3 e/
Nearshore Rockfish S. of 40°10' N. lat.	535.4		1357.3
Petrale sole	6.1		129.4/126.2
Starry flounder	3.5		216.6

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 latitude and 40°10' N latitude, while the non-trawl allocation is applicable for the entire area North of 40°10' N latitude.

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

e/The CA fishery HG is 36.6/37.9 mt is shared between the recreational and commercial non trawl sectors.

2. No Action – Default Harvest Control Rule

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 details the No Action harvest specifications for the species where a change to the DHCR is being considered. This list is for reference.

- Oregon Black Rockfish: The HCR is specified at ACL=ABC (P* = 0.45), resulting in an ACL of 479 mt in 2021 and 474 mt in 2022
- Cowcod: The HCR is specified at ACL = ABC (P*0.45) resulting in an ACL of 98 mt in 2021 and 96 mt in 2022. These amounts are approximately 88 mt higher than the baseline as a result of the stock being declared rebuilt
- Petrale Sole: The HCR is specified at an ACL = ABC (P* = 0.45) resulting in ACLs of 4,115 mt for 2021 and 3,660 mt for 2022
- Shortbelly Rockfish: The ACL is specified at 500 mt for both 2021 and 2022
- Sablefish N of 36° N. lat. and S. of 36° N. lat: The HCR is specified as ACL = ABC (P* = 0.40). The ACLs for these stocks are being considered under two apportionment methods. Table 2-1 shows the ACLs based on these apportionment Options as described in Agenda Item H.6.a, GMT Report 1, November 2019.

Table 2-1. No Action. ACLs for 2021 and 2022 sablefish ACLs north and south of 36° N lat. based on the proposed apportionment methods.

		Long-term Apportionment (Method 1)		5-year Average Apportionment (Method 2)	
Year	Coastwide ABC	ACL N of 36° 73.6%	ACL S of 36° 26.4%	ACL N of 36° 78.4%	ACL S of 36° 21.6%
2021	8,208	6,041	2,167	6,435	1,765
2022	7,811	5,749	2,062	6,124	1,679

2.1 Deductions from the ACL

Table 2-9 and Table 2-10 detail the deductions from the ACLs in 2021 and 2022, respectively, under No Action. The Council recommended changes to the deductions for multiple species, including petrale sole, cowcod and yelloweye rockfish, which are discussed below.

Tribal Fishery: The values under No Action are the same as in 2019, except that the set-aside for petrale sole was increased from 290 mt to 350 mt, longnose skate was increased from 130 to 220 mt, and yelloweye rockfish was increased from 2.3 to 5.0 mt. A 2 mt set-aside for cabezon was established to better accommodate tribal fisheries (Agenda Item H.8.a, Supplemental Revised Tribal Report 3, November 2019).

The Quinault Indian Nation has indicated that they plan to be active in the groundfish fishery in the 2021-2022 biennium (Agenda Item H.8.a, Supplemental Tribal Report 2, November 2019).

Research: The Council recommended the research off-the-top deductions be equal to the maximum historical scientific research catch from 2005 to 2018, except for cowcod and yelloweye rockfish. The adjustments to research set-asides are described in Agenda Item H.8.a, Supplemental GMT Report 1, November 2019 and appendices one and two of that report detail the historical maximums by species and species complexes. For cowcod, the Council recommended increasing the research set-aside to 10 mt to account for research needs off the coast of California, as described in Agenda Item H.8.a, Supplemental CDFW Report 2, November 2019. For yelloweye rockfish, the GMT recommended the Council adopt an amount different than the historical high that would be based on the anticipated needs of the specific research project. The Council adopted a research set-aside of 2.92 mt.

Incidental Open Access (IOA): The Council recommended that IOA off-the-top deductions for most species to be set at the maximum historical values (2007-2018), with the exception of petrale sole, sablefish south of 36° N. lat., and darkblotched rockfish (described below). The historical values are derived from the WCGOP groundfish mortality reports and the GEMM data product The values, with the noted exceptions, are set at the maximum value from 2007 to 2018.[4] Additionally, the Council is considering changes to IOA set-asides for the salmon troll fishery. The first would increase incidentally caught yellowtail rockfish trip limit for salmon trollers in the non-trawl RCA north of 40°10' N. lat. The second would create a yellowtail rockfish trip limit for salmon trollers in the non-trawl RCA south of 40°10' N. lat. As salmon troll bycatch is an IOA fishery, these impacts are included here.

Petrale Sole

For petrale sole, the Council recommended an amount different from the maximum historical value based on recommendation from the GMT, as described in Agenda Item H.8.a, Supplemental GMT Report 1, November 2019. The Council recommended using the 2007-2018 average IOA mortality of 13.3 mt instead of the historical maximum of 34.3 mt. This average value is expected to accommodate annual IOA bycatch as this fleet has attained less than this amount since the IFQ program was implemented. This reduction would make an additional 19.95 mt of quota pounds available to the IFQ fishery.

Sablefish South of 36° N. lat.

The Council also recommended increases to the off-the-top deduction for sablefish south of 36° N. lat. from 11.8 mt to 25 mt based on indications that a strong year class may enter the fishery in the 2021-2022 biennium. The GMT, in Agenda Item H.8.a, Supplemental GMT Report 1, November 2019, did not recommend a similar increase for sablefish north of 36° N. lat. even after noting that IOA mortality may increase in 2021-2022 (e.g., due to higher Pacific halibut total allowable catches, the potentially strong year class entering the fishery, etc.). This recommendation was made based on current market conditions are such that, at present, are resulting in lower than normal IFQ attainments. Therefore, there would be a low likelihood of exceeding the ACL by selecting the 69 mt off-the-top deduction.

[4] 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

The Council requested for the GMT to examine a recommendation from the GAP regarding adjusting darkblotched rockfish IOA set-asides. As described in Agenda Item H.8.a., Supplemental GMT Report 1, November 2019, the set-asides for the IOA sector are typically set at the historical maximum mortality. Table 2-2 below shows the historical total mortality and the IOA set-aside from 2005-2018. As shown, since the implementation of set-aside management in 2011 with the change to ACLs, the IOA sector has taken less than 40 percent of the set-aside except for 2014.

The 2014 mortality is approximately 3.6 to 6.8 times higher than the years from 2005-2018 (Table 2-2). Additionally, the majority of bycatch is in the pink shrimp fishery Previously, the GMT discussed at length how the 24.6 mt was anomalous compared to all other years and may, instead, represent a high recruitment year. During the development of the 2017-2018 biennial cycle, the GMT discussed the pros and cons of maintaining the maximum of 24.6 mt for the IOA sector (Agenda Item I.9.a., Supplemental GMT Report 3, November 2015). Ultimately, the GMT recommended that the Council consider the maximum in 2017-2018 and in 2019-2020.

Table 2-2. Total mortality, annual set-aside, and percent attainment of darkblotched rockfish from IOA sector, 2005-2018. (source: GEMM)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mortality	13.6	0.1	18.5	12.4	18.6	12.5	5.5	5.0	3.8	24.6	5.3	6.4	6.7	3.6
Set-aside	-	-	-	-	-	-	15	15	18.4	18.4	18.4	18.4	24.5	24.5
Percent Attainment	-	-	-	-	-	-	37%	33%	21%	134%	29%	35%	28%	15%

However, if the Council wished to examine a different set-aside for darkblotched rockfish, the following table shows three options for the IOA set-aside based on the maximum, average, and median for 2005-2018. Additionally, Table 2-3 shows the resulting trawl allocations, annual vessel limits (6.8 percent), and at sea set-aside values based on the A-21 formula. Other options for the at-sea set-asides for darkblotched rockfish are being considered and may change the IFQ allocations and resulting annual vessel limit (AVL).

Table 2-3. Set-aside options and resulting trawl allocation, CP and MS set-asides (using Amendment 21 formula), IFQ allocation, AVL (lbs.), and non-trawl allocation for 2021. All values in mt, except AVL.

Option	Set-aside	HG	Trawl All	CP	MS	IFQ	AVL lbs.	Non-Trawl Alloc.
Option 1: Historical Maximum	24.6	848.1	805.7	24.7	17.4	763.6	116,348	42.4
Option 2: Average	9.8	862.9	819.8	25.1	17.7	777.0	118,379	43.1
Option 3: Median	6.6	866.1	822.8	25.2	17.8	779.8	118,818	43.3

Selecting the historical maximum would address even the highest observed annual catch. The five-year median would account for three of the most recent five years' bycatch levels, while the mean would account for four years.

If the Council adopted an option other than the historical maximum, the resulting impact would be less than 1 mt combined to the at-sea sectors (under status quo) and between approximately 2,000 and 2,500 additional pounds for the individual fishing quota AVL (13.4 mt-16.2 mt to the sector overall). Given that darkblotched has been noted to be a constraining species at the individual level, this could provide some additional opportunity to individuals. Overall attainment in the IFQ sector of darkblotched has averaged 50 percent in 2018-2019.

In terms of the risk of the IOA sector exceeding its set-aside and the risk to the ACL, even if the Council were to choose the average option, the non-trawl sector has only taken between 3.7-5.7 mt in the last five years. That, on average, is only approximately 11 percent of the proposed non-trawl allocation in 2021 for any of the proposed options in Table 2-3. Therefore, even if the IOA fisheries were to take the 24.6 mt historical maximum, there would be little risk to the ACL.

Yellowtail Rockfish Retention within the Non-trawl RCA in the Salmon Troll Fishery North of 40°10' N. lat.

At the November 2019 meeting, WDFW received a request to increase the ratio and the monthly yellowtail rockfish limits for the salmon troll fishery north of 40°10' N. lat. The current trip limit reads:

> *Salmon trollers may retain and land up to 1 lb. of yellowtail rockfish for every 2 lbs. of salmon landed, with a cumulative limit of 200 lb./month, both within and outside of the RCA. This limit is within the 200 lb. per month combined limit for minor shelf rockfish, widow rockfish and yellowtail rockfish, and not in addition to that limit.*

As part of the 2017-2018 management cycle, yellowtail rockfish was removed from the open access multi-stock trip limit and set at 500 lbs. per month; however, the salmon troll yellowtail rockfish trip limit did not reflect this change. Therefore, in addition to providing additional opportunity to salmon troll participants for a stock with moderate attainment, adjusting the salmon troll trip limit may be warranted to reflect the changes in the OA groundfish sector. The proposed trip limits for 2021-2022 are to remain status quo (Option 1), remain status quo on the ratio but increase the monthly limit (Option 2), adjust the ratio to a 1:1 and increase the monthly limit (Option 3), or eliminate the ratio so that trollers would fish subject only to a monthly limit (Table 2-4). Note, the adjusted 2021-2022 salmon troll monthly limit would continue to be within the general OA monthly limit for yellowtail rockfish north of 40°10' N. lat. of 500 lbs., not in addition to the OA trip limit. All of the alternative options would remove yellowtail rockfish from the current complex management. All other regulations regarding groundfish retention in the commercial salmon fishery would still apply as noted in the 50 CFR 660 Subpart H.

Table 2-4. Status quo and proposed adjustments to the yellowtail rockfish trip limit in the Salmon Troll fishery north of 40°10' N. lat.

Option	Ratio (per trip)	Monthly Limit
1 (SQ)	1 lb. yellowtail per 2 lbs. of salmon	200 lbs.
2	1 lb. yellowtail per 2 lbs. of salmon	500 lbs.
3	1 lb. yellowtail per 1 lb. salmon	500 lbs.
4	No ratio – any salmon on board	500 lbs.

The first and only analysis of the current limit was by the GMT in 2001 at the request

of Washington salmon trollers (Agenda Item F.5.b Supplemental GMT Report, April 2001) and has been the trip limit since 2002. There are three main elements of current salmon troll yellowtail rockfish allowance: (1) the allowable ratio of yellowtail rockfish to salmon per trip, (2) the cumulative monthly limit for yellowtail rockfish; and (3) the additional species included in the OA monthly limit. The ratio is the main mechanism for limiting opportunity for the targeting of yellowtail rockfish, another is the monthly cumulative limit within the minor shelf rockfish, widow rockfish, and yellowtail rockfish OA trip limit. The intent of the original language was to not allow trollers to fish over and above what they could land when operating in the OA fishery outside of the salmon troll fishery.

Although this trip limit is to allow for the incidental take of yellowtail rockfish in the salmon troll fishery, the incidental rate of encounter of yellowtail rockfish is difficult to evaluate because the salmon troll fishery is not observed by WCGOP and so discards are unknown. Just as in 2001, landings information is the best available data to evaluate the trip limit change. However, interpretation of landings information is complicated because only a portion of the troll fleet chooses to retain groundfish and therefore it is difficult to determine if there is additional incidental catch not being retained.

The following summarizes the findings of the trip limit and economic analysis that can be found in Item G.6, Attachment 4, Yellowtail Rockfish Retention: Salmon Troll N. of 40°10 N. lat., April 2020

1. During the non-trawl RCA era, annual yellowtail rockfish landings from the salmon troll fishery north of 40° 10' N lat. have been 2 - 4 mt.
2. Current trip limits are rarely constrained by the ratio or the poundage.
3. Minimal mortality expected with any option in.
4. Doubling landings to 4 - 8 mt would take extreme behavioral changes.
5. Targeting is unlikely due to the low price per pound for yellowtail rockfish.

The proposed IOA set aside for yellowtail rockfish north of 40° 10' N. lat. is 7 mt based on the historical maximum catch (sourced from GEMM product, Somers et al. 2019)--the Council's preference for setting off-the-top deductions for IOA fisheries. Table 2-5 shows the maximum catch was in 2005, yet the catch has since been less than 4.5 mt and averaging only 2.7 mt overall. Therefore, the GMT believes there is no need to increase the IOA set aside as additional impacts from the trip limit adjustment would likely be within the 7 mt set aside.

Table 2-5. Annual and average mortality (mt) of yellowtail rockfish north of 40° 10' N. lat. from the IOA fisheries, 2005-2018.

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Avg
Mortality	7.0	3.6	2.8	0.2	0.8	1.7	1.3	3.3	1.5	3.3	4.5	3.2	1.7	2.9	2.7

G.6, Attachment 3, Yellowtail Rockfish Retention: Salmon Troll N. of 40°10 N. lat., April 2020 provides a detailed analysis of this item

Yellowtail Rockfish Retention within the Non-trawl RCA in the Salmon Troll Fishery South of 40°10' N lat.

This management measure would allow retention of yellowtail rockfish within the commercial non-trawl RCA as incidental catch in the salmon troll fishery south of 40°10 N latitude by means of a cumulative monthly trip limit that is within the groundfish OA trip limit for shelf rockfish . At the September 2019 Council meeting, the Salmon Advisory Subpanel (SAS) requested that retention of groundfish within the commercial non-trawl RCA, coastwide, be added to the Groundfish Workload and New Management Measures list (Agenda Item H.2.a, Supplemental SAS Report 2, September 2019). At that time, the GMT recommended to incorporate the request into the non-trawl RCA modification package as the goal of the request may be met once more of the fishing grounds on the shelf were re-opened from reducing the size of the non-trawl RCA.

Noting that this measure could be considered new due to the lack of prior analysis, a summary is shown here with a new management measure analysis template provided below in Chapter 5.4.

The proposed open access trip limit language to retail yellowtail rockfish in the salmon troll fishery south of 40°10' N latitude is as follows:

> *Salmon trollers may retain and land up to 1 lb of yellowtail rockfish for every 2 lbs. of Chinook salmon[5] landed, with a cumulative limit of 200 lb/month, both within and outside of the RCA. This limit is within the open access* (insert 2021 trip limit) *shelf rockfish trip limit and not in addition to that limit. All groundfish species are subject to the open access limits, seasons, size limits and RCA restrictions listed in the table above, unless otherwise stated here.*

Although yellowtail rockfish is managed with stock specific harvest specifications north of 40° 10' N. lat., south of 40°10' N. lat., it is managed as part of the shelf rockfish complex. Based on the analysis presented in Chapter 5.4, the projected impacts could be up to 22 mt based on a landings scenario discussed with industry in which vessels that caught 50 percent of the salmon (80 vessels in 2019) landed the maximum amount of yellowtail rockfish based on the Chinook salmon landed. However, it is likely that the actual estimates would be much lower as only 53 salmon permitted vessels landed yellowtail rockfish in 2019 and Vessel Monitoring System (VMS) is only required in the EEZ (i.e. outside of state waters for open access vessels). With the additional cost of VMS to fish within the RCA and retain groundfish, the number of participants may likely be lower. While the price per pound of yellowtail rockfish is higher in the south than the north, the lack of yellowtail rockfish landings north of 40° 10' N. lat, that have access to the RCA for retention suggests that the mortality may be closer to that in Table 2-5.

[5] Retention of coho salmon is prohibited south of 40°10' N. lat.

Exempted Fishing Permits: The Council forwarded six EFPs for analysis in November 2019. These EFPs are summarized in Table 2-6. The amounts of set-asides by species and/or complex for each EFP are detailed in Agenda Item H.5.a, Supplemental GMT Report 1, November 2019. However, at the March 2020 Council Meeting, the Council was notified that the EFP sponsored by the Coastal Conservation Association & Okuma Fishing Tackle was withdrawn from consideration. The set-aside amounts, by applicant, are shown in Table 2-6. The cumulative requested set-asides, by species and complex, are shown in Table 2-9 and Table 2-10:

Table 2-6. Table summarizing EFPs recommended by Council for further analysis.

Title and Sponsor	Short Description
Recreational Cowcod Retention in California – California Department of Fish and Wildlife	The purpose of this EFP is to provide an exemption to allow for retention of cowcod for biological data collection for use in future stock assessments. No set-aside requested.
Midwater Jig Fishing in California – San Francisco Community Fishing Association & Dan Platt (Platt)	Commercial jig fishing targeting yellowtail rockfish in the non-trawl RCA off California, which is a renewal of the 2019-2020 EFP
Midwater Hook and Line Rockfish Fishing in Oregon – Scott Cook (cook)	Commercial Midwater Hook & Line Rockfish Fishing in the RCA off the Oregon Coast
Monterey Bay Regional EFP Targeting Chilipepper Rockfish- Real Good Fish (Lovewell)	Commercial fishery to targeting chilipepper rockfish in the non-trawl RCA in the Monterey Bay region.
Recreational Yelloweye Sampling in Washington – Washington Department of Fish and Wildlife	The purpose of this EFP is to allow retention 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.

Table 2-7. Set-aside amounts (in mt) requested by Dan Platt (Platt), Scott Cook (Cook), and Real Good Fish (Lovewell) for their EFP for each species.

Species	Area	Platt	Cook	Lovewell
Arrowtooth flounder	Coastwide	-	0.10	-
Big skate	Coastwide	-	0.10	-
Bocaccio	S of 40º10' N. lat.	10.00	-	30.00
Cabezon (CA)	S of 42º N. lat.	1.00	-	-
Canary rockfish	Coastwide	2.00	5.00	1.00
Chilipepper	S of 40º10' N. lat.	30.00	-	40.00
Cowcod	S of 40º10' N. lat.	0.15	0.00	0.5
Darkblotched rockfish	Coastwide	0.10	0.10	0.40
Dover sole	Coastwide	-	0.10	-
English sole	Coastwide	-	0.10	-
Lingcod	N of 40'10º N. lat.	-	0.10	-

Lingcod	S of 40'10º N. lat.	1.50	-	-
Longnose skate	Coastwide	-	0.10	-
Pacific cod	Coastwide	-	0.10	-
Pacific whiting	Coastwide	1.00	0.10	-
Petrale sole	Coastwide		0.10	-
Pacific ocean perch	N of 40º10' N. lat.	-	0.10	-
Sablefish	N of 36º N. lat.	1.00	0.10	-
Shortbelly rockfish	Coastwide	-	0.10	-
Shortspine thornyhead	N of 34º27' N. lat.	-	0.10	-
Spiny dogfish	Coastwide	1.00	0.10	-
Splitnose rockfish	S of 40º10' N. lat.	1.50	-	-
Starry flounder	Coastwide	-	0.10	-
Widow rockfish	Coastwide	9.00	10.00	-
Yelloweye Rockfish	Coastwide	0.06	0.12	0.06
Yellowtail rockfish	N of 40º10' N. lat.	10.00	10.00	20.00
Stock Complexes				
Nearshore rockfish north	N of 40º10' N. lat.	-	0.50	-
Nearshore rockfish south	S of 40º10' N. lat.	-	-	-
Shelf rockfish north	N of 40º10' N. lat.	3.00	1.50	-
Shelf rockfish south	S of 40º10' N. lat.	30.00	-	-
Slope rockfish north	N of 40º10' N. lat.	1.00	0.50	-
Slope rockfish south	S of 40º10' N. lat.	1.00	-	-
Other fish	Coastwide	-	0.10	-
Other flatfish	Coastwide	-	0.10	-
Oregon black/blue/deacon	Oregon	-	0.50	-
Oregon cabezon/kelp greenling	Oregon	-	0.10	-

Recreational (sablefish north of 36° N. lat. only): The allocation framework for sablefish north of 36° N lat. specifies that anticipated recreational catches of sablefish be deducted from the ACL prior to the commercial limited entry and open access allocations. As this stock is the only one with an off-the-top deduction for recreational fishery, it displayed separately for reference. The deduction would be the maximum historical value from recreational fisheries from 2004 to 2018 (Table 2-8).

Table 2-8. 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 2021 and 2022 under the status quo apportionment methodology.

Year	ACL	Tribal Share	Research	Rec.	EFP	Commercial HG
2021	6,049.3	604.0	30.7	6.0	1.1	5,407.5
2022	5,756.7	575	30.7	6.0	1.1	5,143.9

Table 2-9. No Action 2021. Estimates of tribal, EFP, research, and IOA groundfish mortality (in mt) used to calculate the fishery HG in 2021.

Stock/Complex	Area	ACL	Tribal	EFP	Research	OA	Sum	Fishery HG
Arrowtooth flounder	Coastwide	9,933.0	2,041.0	0.1	13.0	41.0	2,095.1	7,837.9
Big skate	Coastwide	1,477.0	15.0	0.1	5.5	36.7	57.3	1,419.7
Black rockfish	Washington	293.0	18.0	-	0.1	0.0	18.1	274.9
Black rockfish	California	348.0	-	-	0.1	1.2	1.3	346.7
Blue/Deacon/Black rockfish	Oregon	570.0	-	0.5	0.1	1.7	2.3	567.7
Bocaccio	S of 40°10' N. lat.	1,748.0	-	40.0	5.6	2.2	47.8	1,700.2
Cabezon	California	210.0	-	1.0	0.0	0.3	1.3	208.7
Cabezon/Kelp greenling	Oregon	20.0	2.0	-	-	-	2.0	18.0
Cabezon/Kelp greenling	Washington	198.0	-	0.1	0.1	0.1	0.2	197.8
California scorpionfish	Coastwide	291.0	-	-	0.2	3.7	3.9	287.1
Canary rockfish	Coastwide	1,338.0	50.0	8.0	10.1	1.3	69.4	1,268.6
Chilipepper	S of 40°10' N. lat.	2,358.0	-	70.0	14.0	13.7	97.7	2,260.3
Cowcod	S of 40°10' N. lat.	98.0	-	0.65	10.0	0.2	10.85	87.2
Darkblotched rockfish	Coastwide	882.0	0.2	0.6	8.5	24.6	33.9	848.1
Dover sole	Coastwide	50,000.0	1,497.0	0.1	50.8	49.3	1,597.2	48,402.8
English sole	Coastwide	9,175.0	200.0	0.1	8.0	42.5	250.6	8,924.1
Lingcod	N of 40°10' N. lat.	5,369.0	250.0	0.1	16.6	11.7	278.4	5,090.6
Lingcod	S of 40°10' N. lat.	1,102.0		1.5	3.2	8.3	13.0	1,089.0
Longnose skate	Coastwide	1,823.0	220.0	0.1	12.5	18.8	251.4	1,571.6
Longspine thornyhead	N of 34°27' N. lat.	2,634.0	30.0	-	17.5	6.2	53.7	2,580.3
Longspine thornyhead	S of 34°27' N. lat.	832.0	-	-	1.4	0.8	2.2	829.8
Nearshore Rockfish North	N of 40°10' N. lat.	79	1.5	0.5	0.5	0.6	3.1	75.9
Nearshore Rockfish South	S of 40°10' N. lat.	1,016.0	-	0.0	2.7	1.7	4.4	1,011.6
Other Fish	Coastwide	223.0	-	0.1	6.3	15.0	21.3	201.7

Other Flatfish	Coastwide	4,802.0	60.0	0.1	23.6	137.2	220.9	4,581.1
Pacific cod	Coastwide	1,600.0	500.0	0.1	5.5	0.5	506.1	1,093.9
Pacific ocean perch	N of 40°10' N. lat.	3,854.0	9.2	0.1	5.4	10.0	24.7	3,829.3
Pacific whiting	Coastwide	**TBD**	**TBD**	1.1	**TBD**	1,500.0	1,501.1	**TBD**
Petrale sole	Coastwide	4,115.0	350.0	0.1	24.1	13.3	387.5	3,727.5
Sablefish	N of 36º N lat.	6049.3	**Table 2-8**					
Sablefish	S of 36° N. lat.	2,159.0	-	-	2.4	25.0	27.4	2,131.3
Shelf Rockfish North	N of 40°10' N. lat.	1,511.0	30.0	4.5	15.3	25.6	75.4	1,435.6
Shelf Rockfish South	S of 40°10' N. lat.	1,438.0	-	30.0	15.1	67.7	112.8	1,325.2
Shortbelly rockfish	Coastwide	500.0	-	0.1	8.2	21.6	29.9	470.1
Shortspine thornyhead	N of 34°27' N. lat.	1,428.0	50.0	0.1	10.5	17.8	78.4	1,349.6
Shortspine thornyhead	S of 34°27' N. lat.	756.0	-	-	0.7	6.0	6.7	749.3
Slope Rockfish North	N of 40°10' N. lat.	1,595.0	36.0	1.5	10.5	18.9	66.9	1,528.1
Slope Rockfish South	S of 40°10' N. lat.	709.0		1.0	18.2	19.7	38.9	670.1
Spiny dogfish	Coastwide	1,621.0	275.0	1.1	34.3	33.6	344.0	1,277.0
Splitnose rockfish	S of 40°10' N. lat.	1,666.0		1.5	11.2	5.8	18.4	1,647.6
Starry flounder	Coastwide	392.0	2.0	0.1	0.6	45.7	48.4	343.6
Widow rockfish	Coastwide	14,725.0	200.0	28.0	17.3	3.1	248.3	14,476.7
Yelloweye rockfish	Coastwide	50.0	5.0	0.24	2.92	0.7	8.9	41.2
Yellowtail rockfish	N of 40°10' N. lat.	6,050.0	1,000.0	40.0	20.6	7.0	1,067.5	4,982.5

Table 2-10. No Action 2022. Estimates of tribal, EFP, research, and IOA groundfish mortality in metric tons, used to calculate the fishery HG in 2022.

Stock/Complex	Area	ACL	Tribal	EFP	Research	OA	Sum	Fishery HG
Arrowtooth flounder	Coastwide	8,458.0	2,041.0	0.1	13.0	41.0	2,095.1	6,362.9
Big skate	Coastwide	1,389.0	15.0	0.1	5.5	36.7	57.3	1,331.7
Black rockfish	Washington	291.0	18.0	-	0.1	-	18.1	272.9
Black rockfish	California	341.0	-	-	0.1	1.2	1.3	339.7
Blue/Deacon/Black rockfish	Oregon	562.0	-	0.5	0.1	1.7	2.3	559.7
Bocaccio	S of 40°10' N. lat.	1,724.0	-	40.0	5.6	2.2	47.8	1,676.2
Cabezon	California	195.0	-	1.0	0.0	0.3	1.3	193.7
Cabezon/Kelp greenling	Oregon	17.0	2.0	-	-	-	2.0	15.0
Cabezon/Kelp greenling	Washington	190.0	-	0.1	0.1	0.1	0.2	189.8
California scorpionfish	Coastwide	275.0	-	-	0.2	3.7	3.9	271.1
Canary rockfish	Coastwide	1,307.0	50.0	8.0	10.1	1.3	69.4	1,237.6
Chilipepper	S of 40°10' N. lat.	2,259.0	-	70.0	14.0	13.7	97.7	2,161.3
Cowcod	S of 40°10' N. lat.	96.0	-	0.65	10.0	0.2	10.85	85.2
Darkblotched rockfish	Coastwide	831.0	0.2	0.6	8.5	24.6	33.9	797.1
Dover sole	Coastwide	50,000.0	1,497.0	0.1	50.8	49.3	1,597.2	48,402.8
English sole	Coastwide	9,101.0	200.0	0.1	8.0	42.5	250.6	8,850.8
Lingcod	N of 40°10' N. lat.	4,958.0	250.0	0.1	16.6	11.7	278.4	4,679.6
Lingcod	S of 40°10' N. lat.	1,172.0	-	1.5	3.2	8.3	13.0	1,159.0
Longnose skate	Coastwide	1,761.0	220.0	0.1	12.5	18.8	251.4	1,509.6
Longspine thornyhead	N of 34°27' N. lat.	2,452.0	30.0	-	17.5	6.2	53.7	2,398.3
Longspine thornyhead	S of 34°27' N. lat.	774.0	-	-	1.4	0.8	2.2	771.8
Nearshore Rockfish North	N of 40°10' N. lat.	77.0	1.5	0.5	0.5	0.6	3.1	73.9
Nearshore Rockfish South	S of 40°10' N. lat.	1,010.0	-	0.0	2.7	1.7	4.4	1,005.6
Other Fish	Coastwide	223.0	-	0.1	6.3	15.0	21.3	201.7

Other Flatfish	Coastwide	4,838.0	60.0	0.1	23.6	137.2	220.9	4,617.1
Pacific cod	Coastwide	1,600.0	500.0	0.1	5.5	0.5	506.1	1,093.9
Pacific ocean perch	N of 40°10' N. lat.	3,711.0	9.2	0.1	5.4	10.0	24.7	3,686.3
Pacific whiting	Coastwide	**TBD**	**TBD**	1.1	**TBD**	1,500.0	1,501.1	**TBD**
Petrale sole	Coastwide	3,660.0	350.0	0.1	24.1	13.3	387.5	3272.5
Sablefish	N of 36º N lat.	5,756.7	**See Table 2-8**					
Sablefish	S of 36° N. lat.	2,054.0	-	-	2.4	25.0	27.4	2,026.9
Shelf Rockfish North	N of 40°10' N. lat.	1,450.0	30.0	4.5	15.3	25.6	75.4	1,374.6
Shelf Rockfish South	S of 40°10' N. lat.	1,428.0	-	30.0	15.1	67.7	112.8	1,315.2
Shortbelly rockfish	Coastwide	500.0	-	0.1	8.2	21.6	29.9	470.1
Shortspine thornyhead	N of 34°27' N. lat.	1,393.0	50.0	0.1	10.5	17.8	78.4	1,314.6
Shortspine thornyhead	S of 34°27' N. lat.	737.0	-	-	0.7	6.0	6.7	730.3
Slope Rockfish North	N of 40°10' N. lat.	1,568.0	36.0	1.5	10.5	18.9	66.9	1,501.1
Slope Rockfish South	S of 40°10' N. lat.	705.0	-	1.0	18.2	19.7	38.9	666.1
Spiny dogfish	Coastwide	1,585.0	275.0	1.1	34.3	33.6	344.0	1,241.0
Splitnose rockfish	S of 40°10' N. lat.	1,630.0	-	1.5	11.2	5.8	18.4	1,611.6
Starry flounder	Coastwide	392.0	2.0	0.1	0.6	45.7	48.4	343.6
Widow rockfish	Coastwide	13,788.0	200.0	28.0	17.3	3.1	248.3	13,539.7
Yelloweye rockfish	Coastwide	51.0	5.0	0.24	2.92	0.69	8.85	41.2
Yellowtail rockfish	N of 40°10' N. lat.	5,831.0	1,000.0	40.0	20.6	7.0	1,067.5	4,763.5

2.2 Allocating the Fishery HG

As described under the Baseline (Section 1.2), the fishery HGs for most species are further allocated between the trawl and non-trawl fisheries based on percentages adopted under A- 21 to the PCGFMP or decided during the biennium. Sablefish north of 36° N. lat. is allocated under the Amendment 6 framework, which allocates the commercial HG between the limited entry (trawl and fixed gear) and open access sectors.

The Council reviewed the performance of the trawl and non-trawl fisheries in recent years to determine two-year allocations for the 2021-2022 biennium (Agenda Item H.8.a, Supplemental GMT Report 2, November 2019) and recommended to maintain the 2020 trawl and non-trawl allocations. Table 2-11 and Table 2-12 detail trawl and non-trawl allocations in 2021 and 2022, respectively, under No Action (Method 1 for sablefish apportionment). The status quo within trawl and within non-trawl allocations are noted in the sector descriptions as appropriate. Table 2-13 describes the limited entry and open access allocations and the trawl and non-trawl allocations within the limited entry HG for sablefish north of 36° N. lat. assuming the status quo at-sea set aside of 50 mt.[6] Furthermore, the Council is considering three different ACT options for cowcod under the status quo allocation percentages (36 percent trawl, 64 percent non-trawl) as shown in Table 2-14. Allocations for yelloweye rockfish, the only remaining rebuilding species, for 2021-22 can be found in Table 2-19. Note that for select species, different allocations are under consideration under the No Action alternative. A summary of these allocation options can be found in Table 2-15.

Table 2-11. No Action 2021. Stock-specific fishery HGs or ACTs and allocations for 2021 (in mt).

STOCK	AREA	Fishery HG or ACT	Alloc. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Arrowtooth flounder	Coastwide	7,837.9	A-21	95	7,446.0	5	391.9
Big skate	Coastwide	1,419.7	Biennial	95	1,348.7	5	71.0
Black rockfish	Washington	274.9	None	-	-	-	-
Black rockfish	California	346.7	None	-	-	-	-
Blue/Deacon/Black rockfish	Oregon	567.7	None	-	-	-	-
Bocaccio	S of 40°10' N. lat.	1,700.2	Biennial	39.04	663.8	60.96	1,036.4
Cabezon	California	208.7	None	-	-	-	-
Cabezon/Kelp greenling	Oregon	18.0	None	-	-	-	-
Cabezon/Kelp greenling	Washington	197.8	None	-	-	-	-
California scorpionfish	Coastwide	287.1	None	-	-	-	-
Canary rockfish	Coastwide	1,268.6	Biennial	72.281	917.0	27.719	351.6
Chilipepper	S of 40°10' N. lat.	2,260.3	A-21	75	1,695.2	25	565.1

[6] The Council is considering changing the at-sea set aside for 2021-22, see Chapters 2.3. and 2.4

Cowcod	S of 40°10' N. lat.	87.2	Biennial	36	31.4	64	55.8
Darkblotched rockfish	Coastwide	848.1	A-21	95	805.7	5	42.4
Dover sole	Coastwide	48,402.8	A-21	95	45,982.7	5	2,420.1
English sole	Coastwide	8,924.1	A-21	95	8,477.9	5	446.2
Lingcod	N of 40°10' N. lat.	5,090.6	A-21	45	2,290.8	55	2,799.8
Lingcod	S of 40°10' N. lat.	1,089.0	A-21	45	490.1	55	599.0
Longnose skate	Coastwide	1,571.6	Biennial	90	1,414.4	10	157.2
Longspine thornyhead	N of 34°27' N. lat.	2,580.3	A-21	95	2,451.3	5	129.0
Longspine thornyhead	S of 34°27' N. lat.	829.8	None	-	-	-	-
Nearshore Rockfish North	N of 40°10' N. lat.	75.9	None	-	-	-	-
Nearshore Rockfish South	S of 40°10' N. lat.	1,011.6	None	-	-	-	-
Other Fish	Coastwide	201.7	None	-	-	-	-
Other Flatfish	Coastwide	4,581.1	A-21	90	4,123.0	10	458.1
Pacific cod	Coastwide	1,093.9	A-21	95	1,039.2	5	54.7
Pacific ocean perch	N of 40°10' N. lat.	3,829.3	A-21	95	3,637.8	5	191.5
Pacific whiting	Coastwide	**TBD**	A-21	100	**TBD**	-	-
Petrale sole	Coastwide	3,727.5	A-21	95	3,541.1	5	186.4
Sablefish	N of 36° N lat.	5,406.9	**See Table 2-13**				
Sablefish	S of 36° N lat.	2,131.3	A-21	42	895.1	58	1,236.2
Shelf Rockfish North	N of 40°10' N. lat.	1,435.6	Biennial	60.2	864.2	39.8	571.4
Shelf Rockfish South	S of 40°10' N. lat.	1,325.2	Biennial	12.2	161.7	87.8	1,163.6
Shortbelly rockfish	Coastwide	470.1	None	-	-	-	-
Shortspine thornyhead	N of 34°27' N. lat.	1,349.6	A-21	0.067	50.0	99.933	706.0
Shortspine thornyhead	S of 34°27' N. lat.	749.3	A-21	95	1,282.1	5	67.5
Slope Rockfish North	N of 40°10' N. lat.	1,528.1	A-21	81	1,237.8	19	290.3
Slope Rockfish South	S of 40°10' N. lat.	670.1	A-21	63	422.1	37	247.9
Spiny dogfish	Coastwide	1,277.0	None	-	-	-	-
Splitnose rockfish	S of 40°10' N. lat.	1,647.6	A-21	95	1,565.2	5	82.4
Starry flounder	Coastwide	343.6	A-21	50	171.8	50	171.8
Widow rockfish	Coastwide	14,476.7	A-21	91	13,173.8	9	1,302.9
Yelloweye rockfish	Coastwide	41.2	Biennial	8	3.3	92	37.9
Yellowtail rockfish	N of 40°10' N. lat.	4,982.5	A-21	88	4,384.6	12	597.9

Table 2-12. No Action 2022. Stock-specific fishery HGs or ACTs and allocations for 2022 (in mt).

STOCK	AREA	Fishery HG or ACT	Allocat. Type	Trawl		Non-Trawl	
				%	mt	%	mt
Arrowtooth flounder	Coastwide	6,362.9	A-21	95	6,044.8	5	318.1
Big skate	Coastwide	1,331.7	Biennial	95	1,265.1	5	66.6
Black rockfish	Washington	272.9	None	-	-	-	-
Black rockfish	California	339.7	None	-	-	-	-
Blue/Deacon/Black rockfish	Oregon	559.7	None	-	-	-	-
Bocaccio	S of 40°10' N. lat.	1,676.2	Biennial	39.04	654.4	60.96	1,021.8
Cabezon	California	193.7	None	-	-	-	-
Cabezon/Kelp greenling	Oregon	15.0	None	-	-	-	-
Cabezon/Kelp greenling	Washington	189.8	None	-	-	-	-
California scorpionfish	Coastwide	271.1	None	-	-	-	-
Canary rockfish	Coastwide	1,237.6	Biennial	72.281	894.6	27.719	343.1
Chilipepper	S of 40°10' N. lat.	2,161.3	A-21	75	1,621.0	25	540.3
Cowcod	S of 40°10' N. lat.	85.2	Biennial	36	30.7	64	54.5
Darkblotched rockfish	Coastwide	797.1	A-21	95	757.3	5	39.9
Dover sole	Coastwide	48,402.8	A- 21	95	45,982.7	5	2,420.1
English sole	Coastwide	8,850.8	A- 21	95	8,408.3	5	442.5
Lingcod	N of 40°10' N. lat.	4,679.6	A- 21	45	2,105.8	55	2,573.8
Lingcod	S of 40°10' N. lat.	1,159.0	A-21	45	521.6	55	637.5
Longnose skate	Coastwide	1,509.6	Biennial	90	1,358.6	10	151.0
Longspine thornyhead	N of 34°27' N. lat.	2,398.3	A-21	95	2,278.4	5	119.9
Longspine thornyhead	S of 34°27' N. lat.	771.8	None	-	-	-	-
Nearshore Rockfish North	N of 40°10' N. lat.	73.9	None	-	-	-	-
Nearshore Rockfish South	S of 40°10' N. lat.	1,005.6	None	-	-	-	-
Other Fish	Coastwide	201.7	None	-	-	-	-

Other Flatfish	Coastwide	4,617.1	A- 21	90	4,155.4	10	461.7
Pacific cod	Coastwide	1,093.9	A- 21	95	1,039.2	5	54.7
Pacific ocean perch	N of 40°10' N. lat.	3,686.3	A- 21	95	3,502.0	5	184.3
Pacific whiting	Coastwide	**TBD**	A- 21	100	**TBD**	-	
Petrale sole	Coastwide	3,272.5	A- 21	95	3,108.8	5	163.6
Sablefish	N of 36° N lat.	5,143.9	**See Table 2-13**				
Sablefish	S of 36° N lat.	2,026.9	A- 21	42	851.3	58	1,175.6
Shelf Rockfish North	N of 40°10' N. lat.	1,374.6	Biennial	60.2	827.5	39.8	547.1
Shelf Rockfish South	S of 40°10' N. lat.	1,315.2	Biennial	12.2	160.5	87.8	1,154.8
Shortbelly rockfish	Coastwide	470.1	None	-	-	-	-
Shortspine thornyhead	N of 34°27' N. lat.	1,314.6	A- 21	95	1,248.9	5	65.7
Shortspine thornyhead	S of 34°27' N. lat.	730.3	A- 21	0.067	50.0	99.933	687.0
Slope Rockfish North	N of 40°10' N. lat.	1,501.1	A- 21	81	1,215.9	19	285.2
Slope Rockfish South	S of 40°10' N. lat.	666.1	A- 21	63	419.6	37	246.4
Spiny dogfish	Coastwide	1,241.0	None	-	-	-	-
Splitnose rockfish	S of 40°10' N. lat.	1,611.6	A- 21	95	1,531.0	5	80.6
Starry flounder	Coastwide	343.6	A- 21	50	171.8	50	171.8
Widow rockfish	Coastwide	13,539.7	A- 21	91	12,321.1	9	1,218.6
Yelloweye rockfish	Coastwide	41.2	Biennial	8	3.3	92	37.9
Yellowtail rockfish	N of 40°10' N. lat.	4,763.5	A- 21	88	4,191.9	12	571.6

Table 2-13. No Action Alternative sablefish north of 36° N. lat. allocations under both apportionment methods for 2021-22.

Apportionment Method	Year	Commercial HG	Limited Entry HG		Limited Entry Trawl		Limited Entry FG		Open Access HG	
			%	MT	%	MT	%	MT	%	MT
Method 1 (Long Term Avg.)	2021	5,399	90.6	4,892	58	2,837	42	2,054	9.4	508
	2022	5,136		4,654		2,699		1,954		483
Method 2 (5 Year Avg.)	2021	5,754		5,213		3,023		2,189		541
	2022	5,474		4,959		2,876		2,083		515

Table 2-14. Cowcod ACT options for 2021-22 and associated trawl and non-trawl allocations under status quo proportions.

ACT (mt)	Trawl		Non-Trawl	
	%	MT	%	MT
60	36	21.6	64	38.4
40		14.4		25.6

2.2.1 Allocation Alternatives

The Council is considering revising the two-year allocations of canary rockfish and the A-21 allocations of petrale sole, widow rockfish, lingcod south of 40°10' N. lat., and the slope rockfish complex south of 40°10' N. lat. to provide additional opportunities to fishery participants and increase overall attainments of the stocks (Table 2-15). Allocations of stocks are routinely reviewed to examine the needs of the fishery and promote utilization of the stocks in an efficient manner. Specifically, formal allocations, such as those in developed under A-21, are assessed every six years as required by MSA Section 303A on Limited Access Privilege Programs and described under COP 27. These options affect the trawl and non-trawl allocation for each harvest specification alternative, but were designed to optimize benefits between IFQ and the non-trawl sectors without negatively impacting either group. The IFQ allocations are also impacted by options to revise the at-sea set-asides. A holistic overview of the integrated effects of the allocation options and the at-sea set-aside options for IFQ, non-trawl, and at-sea whiting are presented in Chapters 2.3 and 2.4.

Table 2-15. Alternative allocation options considered under No Action for 2021-2022.

Species	Area	Year	Option	Fishery HG	Allocation Type	Trawl		Non-Trawl	
						%	mt	%	Mt
Petrale sole	Coastwide	2021	1 (Status Quo)	3727.5	Amendment 21	95	3541.1	5	186.4
		2022		3272.5		95	3108.9	5	163.6
		2021	2	3727.5	Biennial	-	3687.5	-	30
		2022		3272.5		-	3232.5	-	30
Canary Rockfish	Coastwide	2021		1268.6	Biennial		917.2		351.4
		2022		1237.6			894.8		342.8
		2021		1268.6	Biennial		862.1		406.5
		2022		1237.6			831.1		406.5
Widow rockfish	Coastwide	2021	1 (Status Quo)	14476.7	Amendment 21	91	13173.8	9	1302.9
		2022		13539.7		91	12321.1	9	1218.6
		2021	2	3727.5	Biennial	-	14176.7	-	300
		2022		3272.5		-	13239.7	-	300
Lingcod	South of 40 10 N. lat	2021	1 (Status Quo)	1089	Amendment 21	45	490.05	55	598.95
		2022		1159		45	521.55	55	637.45
		2021	2	1089	Biennial	43	468.27	57	620.73
		2022		1159		43	498.37	57	660.63
		2021	3	1089	Biennial	25	272.25	75	816.75
		2022		1159		25	289.75	75	869.25
Slope rockfish complex	South of 40 10 N. lat	2021	1 (Status Quo)	670.1	Amendment 21	63	422.16	37	247.94
		2022		666.1		63	419.64	37	246.46
		2021	2 a/	670.1	Biennial		526.4		113.2
		2022		666.1			515.6		142.1

a/ This option has specific blackgill and "other slope" species shares for trawl and non-trawl that combine to make the trawl and non-trawl allocations shown in this table. Please see Chapter 2.3.2.2 for further details on the within trawl and non-trawl shares of blackgill and other slope species.

There are important factors to consider when reviewing and making allocation decisions as fully described in pages 3-5 of the 5-Year Intersector Allocation Review (June 2017) that are summarized as following:

- Are there ecological impacts to target stocks, bycatch, habitat, ecosystems?
- Are there economic, utilization, and social benefits while not causing negative impacts?
- Are the allocations fair and equitable, and plan for future conditions?

None of these options are expected to negatively impact the environment. While they will likely increase effort for targets stocks, there are accountability measures in place for both sectors to keep total mortality within the ACL. Additionally, there are effective mitigation options for bycatch species (e.g., IFQ and

sector-specific non-trawl ACTs for yelloweye rockfish that are monitored and managed inseason) as well as ESA-listed species (e.g., BACs for bottom trawl for salmon). Finally, there are no new expected impacts to habitat or ecosystems as changes to the allocations would not result in opening of new areas to trawling impacts.

The proposed options are expected to result in ~$1.4 million ex-vessel revenue per year for the stocks listed above. The flow of benefits works both ways. The non-trawl sectors receive higher allocations of target stocks valuable to recreational and commercial FG fisheries: lingcod south of 40°10' N. lat., canary rockfish, and blackgill rockfish south of 40° 10' N. lat. The IFQ fisheries receive higher allocations of some of their most valuable stocks: widow rockfish, petrale sole, and "other southern slope rockfish". None of the options are expected to negatively impact sectors or individuals with the exception of option 2 for lingcod south of 40° 10' N. lat. that could constrain individual IFQ vessels (discussed in 2.3). These proposals were carefully designed to shift allocations from low attainment sectors to high attainment sectors with some buffering as to not negatively impact the low attainment sectors, which will be demonstrated in the analyses in this document. It is also important to note that all these proposed options could be re-evaluated each biennium and could be adjusted if they unexpectedly become constraining to sectors.

An extension of the Intersector Allocation Review analysis is provided below for the proposals to revise the A-21 allocations of lingcod south of 40°10' N. lat., petrale sole, and widow rockfish which require a FMP amendment as these are formalized allocations. Further details on the historical attainment and allocations for southern slope rockfish can be found in the draft EA for Amendment 26 and therefore are not incorporated in this document; although the Council rescinded their FPA on A-26, the analysis from the draft EA is still relevant since the new allocation proposal uses the same FPA allocations, but just in different manners (i.e., formal allocations for A-26, informal shares for the allocation proposal). As canary rockfish is a two year allocated species and therefore does not require a FMP amendment, the additional analysis is provided within the analytical document (see Section 2.3, 1.1 for more details). Note that the tables only show allocations starting in 2011 for petrale sole and widow rockfish as the A-21 allocations were first implemented with the start of the IFQ program. However, for lingcod south of 40°10' N. lat., the allocations start in 2013 since the stock was managed north and south of 42° N. lat. in 2011-12. Mortality for the IFQ section prior to 2011 was from the limited entry trawl fleet.

2.2.1.1 Petrale sole

Petrale sole are a trawl dominant stock that has considerable economic importance to the IFQ fishery. Option 1 uses the status quo A-21 trawl (95 percent) and non-trawl (5 percent) and Option 2 would provide non-trawl 30 mt with the remainder to trawl (Table 2-15). These apply to all alternatives and would increase the average 2021-22 trawl allocation by 145 mt for No Action (P*0.45), 133 mt for Alternative 1 1 (P*0.40; PPA), and 131 mt for Alternative 2 as shown in (Table 2-16). As will be discussed in the IFQ section, the average expected ex-vessel revenue gains per year with Option 2 are $400,000 for No Action, and approximately $360,000 for Alternatives 1 and 2. Option 1 is projected to strand 120-130 mt of non-trawl allocation depending on the ACL Alternative even when assuming their 2021-22 catch will be equal to their 5-year maximum (14 mt vs 8 mt average; see Table 2-16). Option 2 is not expected to negatively impact the non-trawl sectors since their maximum mortality is still less than half their allocations for all alternatives.

Table 2-16. Historical mortality for petrale sole in the trawl and non-trawl sectors in regard to their A-21 allocations (95%, 5%) and predicted mortality in relation their average 2021-22 allocations (NA = No Action; A1 = Alt. 1 (PPA); A2 = Alt. 2; O1 = Option 1; O2 = Option 2).

Year	Trawl			Non-Trawl			Sector-specific mortality			
	Alloc.	Catch	%	Alloc.	Catch	%	IFQ	At-sea	Rec	FG
2002		1,753			1		1753	0	1	1
2003		1,692			1		1692	0	1	1
2004		1,806			1		1806	0	1	1
2005		2,741			1		2741	0	0	0
2006		2,659			1		2659	0	1	1
2007		2,296			2		2296	0	1	0
2008		2,181			6		2181	0	1	5
2009		1,891			1		1891	0	1	0
2010		849			1		849	0	0	0
2011	865	812	94%	46	1	3%	812	0	1	1
2012	1,040	1,057	102%	55	2	3%	1057	0	1	1
2013	2,240	2,126	95%	118	3	3%	2,126	0	1	2
2014	2,297	2,319	101%	121	2	1%	2,319	0	1	0
2015	2,450	2,500	102%	129	4	3%	2,500	0	2	2
2016	2,539	2,475	97%	134	5	4%	2,475	0	3	2
2017	2,750	2,733	99%	145	8	5%	2,733	0	6	2
2018	2,633	2,649	101%	139	9	7%	2,649	0	5	4
2019	2,458	2,392	97%	129	14	11%	2,392	0	9	5
NA O1	3,325	3,287	99%	175		8%	3,303	0		5
NA O2	3,470	3,430	99%	30		47%	3,448	0		
A1 O1	3,098	3,062	99%	163	14	9%	3,078	0	9	
A1 O2	3,232	3,194	99%	30		47%	3,210	0		
A2 O1	3,052	3,016	99%	161		9%	3,032	0		
A2 O2	3,183	3,146	99%	30		47%	3162	0		

2.2.1.2 Widow rockfish

Widow rockfish are one of the most abundant and economically important groundfish stocks on the West Coast. The vast majority (97.8 percent) of mortality in 2019 was attributed to the IFQ sector, of which they are the main target stock of the mid-water rockfish trawl fishery that re-emerged in 2017. They are also encountered as bycatch in the at-sea (and shoreside) whiting fisheries and are a relatively minor target stock in the recreational and fixed gear fisheries (2002-2019 average = 10 mt; maximum = 31 mt).

Although non-trawl fisheries have been constrained by the non-trawl RCA since 2002 and seasonal depth restrictions for recreational fisheries, widow rockfish have always been a trawl dominant stock. Prior to the depth restrictions, the maximum non-trawl catch was 195 mt catch in the 1980's-90's Table 1 from 2019

Update Assessment) compared to trawl landings that were oftentimes higher than 10,000 mt per year with a maximum of 30,000 mt (Figure 2-1).

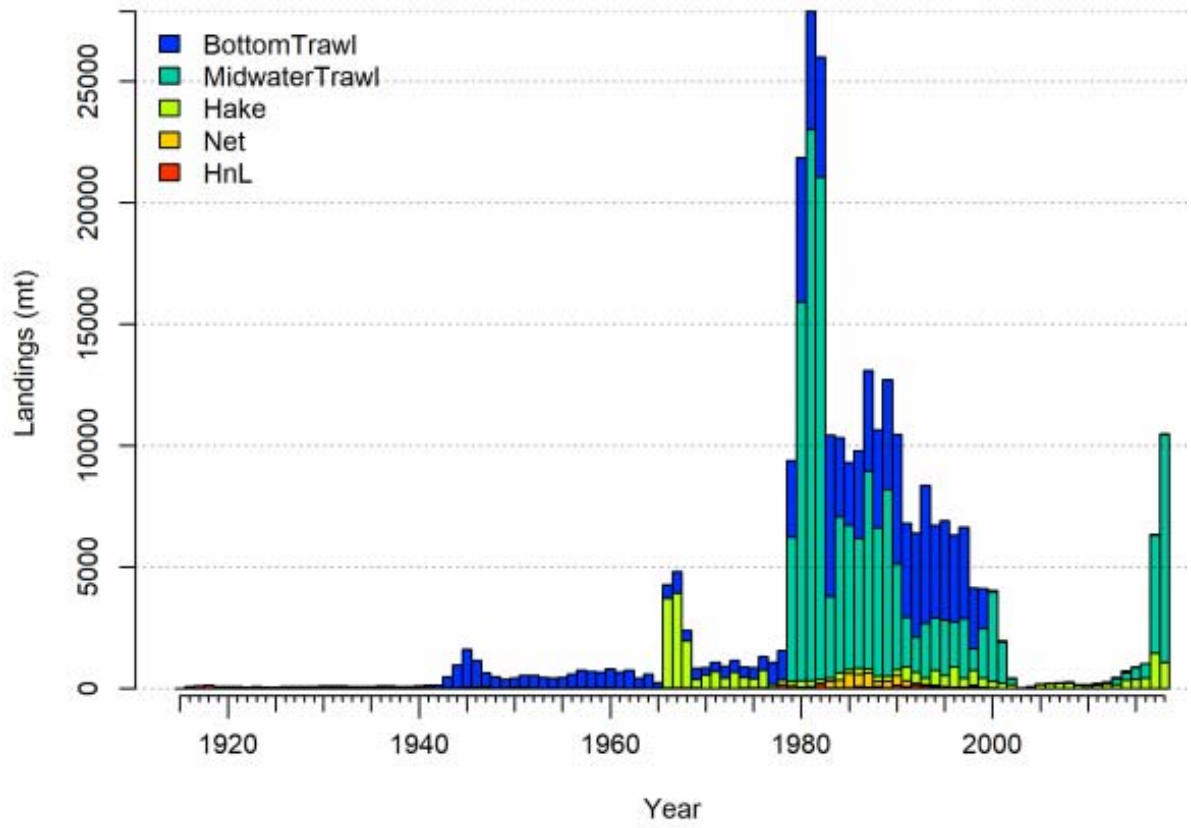

Figure 2-1. Historical attainments of widow rockfish by gear to demonstrate they have always been a trawl dominant stock even before the overfished era and non-trawl depth restrictions in the 1980s'-1990's. The hook-and-line (HnL) fleet includes recreational and commercial FG.

There are two allocation options for widow rockfish (Table 2-15). Option 1 would use the A-21 allocations (91 percent trawl; 9 percent non-trawl) and result in an average 12,747 mt trawl allocation and 1,261 mt non-trawl allocation for 2021-22. Option 2 would make widow rockfish a two year allocation species, and would allocate 300 mt for non-trawl and the remainder to trawl. As shown in Figure 2-1, the non-trawl allocation is over 1,000 mt higher than the maximum non-trawl catch even when going back to the 1980's-1990's before depth restrictions were implemented. The Council specifically proposed Option 2 as a means to buffer non-trawl impacts (~10x higher than their 2002-2019 max) while providing an extra ~961 mt on average to the trawl sectors in order to increase economic benefits for IFQ.

Option 2 is projected to increase IFQ ex-vessel revenue by $0.5 million per year on average noting that additional revenue could result from additional proposals to modify the at-sea set asides (see IFQ section for further details). The projected non-trawl attainment for 2021-22 is ~80 mt which is an average 6 percent attainment for 2021-22 under Option 1 and 27 percent for Option 2 (Table 2-17). Note that the 80 mt projection is based on proposals to raise the LEFG and OA trip limits along with allowing combination halibut and longleader trips in the Oregon recreational fishery and is uncertain. This projection is more

than double the 2002-2019 maximum (33 mt) and is therefore the Option 2 allocation of 300 mt is unlikely to be constraining. However, in the future, the Council could consider shifting more back to the non-trawl sector if widow rockfish unexpectedly became constraining, for example, if the non-trawl RCA were to open up (scoping of potential changes tentatively scheduled for the June Council meeting).

Table 2-17. Historical mortality for widow rockfish in the trawl and non-trawl sectors in regard to their A-21 allocations (91%, 9%) and predicted mortality in relation to their average 2021-22 allocations (O1 = Option 1; O2= Option 2).

Year	Trawl			Non-Trawl			Sector-specific mortality			
	Alloc.	Catch	%	Alloc.	Catch	%	IFQ	At-sea	Rec	FG
2002		396			7		260	136	6	0
2003		28			7		15	12	6	1
2004		61			7		41	20	6	0
2005		163			7		260	136	6	0
2006		197			5		15	12	6	1
2007		242			11		41	20	6	0
2008		220			6		84	79	7	0
2009		159			2		56	141	4	1
2010		122			1		95	146	9	2
2011	490	175	36%	49	2	4%	138	37	2	0
2012	490	234	48%	49	7	13%	155	79	6	0
2013	1,284	443	34%	127	20	15%	412	31	19	1
2014	1,284	711	55%	127	19	15%	654	56	18	1
2015	1,711	850	50%	169	8	5%	815	35	7	1
2016	1,711	985	58%	169	4	2%	798	187	2	1
2017	12,292	6,340	52%	1,216	9	1%	5,864	476	7	2
2018	11,350	10,521	93%	1,123	33	3%	10,314	207	31	2
2019	10,541	9,518	90%	1,042	25	2%	9,319	199	25	2
O1	12,747	11,461	90%	1,261	80	6%	11,168	294	44	36
O2	13,708	12,354	90%	300	80	27%	12,061	294	44	36

2.2.1.3 Lingcod south of 40°10' N. lat.

Lingcod are a valuable target stock for non-trawl and trawl fisheries, but have been subject to low IFQ attainments whereas non-trawl sectors have been constrained via reduced bag and trip limits. During the A-21 era when the stock has been managed north and south of 40°10' N. lat. (2013-2019), the trawl sector has averaged seven percent per year with an 18 percent maximum in 2019 (Table 2-18). The non-trawl sector exceeded their allocations in 2015-2016, but have averaged 63 percent in the last three years. Although the non-trawl attainment has declined to 52 percent in 2019, it was mainly due to conservative management to prevent further overages.

The Council requested analysis of three different allocations with the intent of increasing non-trawl opportunity while not constraining the IFQ fishery. Option 1 would use the status quo A-21 allocations (45 percent trawl/55 percent non-trawl), Option 2 would shift two percentage points from the trawl allocation over to non-trawl (47 percent trawl/57 percent non-trawl), and Option 2 would shift twenty percent points from trawl (25 percent trawl/75 percent non-trawl). The projected mortality in relation to the 2021-2022 allocation options is shown in Table 2-27.

None of the allocation options are expected to negatively impact the IFQ fishery as whole, but Option 3 could constrain an individual whose 2019 catches were right below the AVL associated with Option 3 (see the IFQ section for more detail). The IFQ fishery is projected to catch 87.3 mt for all three options since it is a low attainment stock of which catch is not projected to increase or decrease with the three proposed options. The projected average attainments for the IFQ fishery are 17 percent for Option 1, 18 percent for Option 2, and 31 percent for Option 3. Higher than projected IFQ attainments could occur due to removal of the trawl RCA off California, but it would have been too speculative to model potential increases since there have been vast reductions in fleet size off California compared to the 1980's and 1990's before the RCAs. In addition, there may not be much additional increases associated with reopening the RCA because trawlers have had access to some of the prime lingcod grounds on the shelf seaward of the RCA while it was in place, but still had low attainments. Bycatch constraints of yelloweye rockfish have also been a constraint, but the 82 mt lingcod projection for 2021-22 accounts for a threefold increase in IFQ yelloweye rockfish allocations from 2018 (1.1 mt) to 2021-22 (3.4 mt average).

The main benefit to the non-trawl sector would be to provide flexibility and stability for the commercial LE and OA fixed gear and recreational fisheries by reducing the need for inseason action. The adjustments in the allocations would allow the non-trawl sector to plan for and prosecute their fishing activities with a reduced risk of a decrease in opportunity being implemented inseason, thereby increasing efficiency in the sector. Furthermore, the communities that depend upon the non-trawl sector (e.g. charter operators, fixed gear commercial fisheries, docks, and tackle shops) would have the ability to plan fishing activities for the biennium given the regulatory measure put in place prior to the fishing season commencing.

The average 2021-2022 non-trawl allocation under Option 1 would be 618 mt, under Option 2, 641 mt, and under Option 3, 843 mt (Table 2-18). In the subsequent sections of the document, there are proposals to make minor adjustments to the shoreward boundary to both the commercial and recreational RCAs as well as to remove the period 2 (Mar-Apr) closure for both the LE and OA fisheries south of 40°10' N. lat. The table below contains the impact projections that are based on the commercial fishery proposal to remove the period 2 closure (70 mt from LE and OA No Action Option 2) and the recreational fishery proposal for minor depth adjustments in the recreational fishery (419.5 mt from CA Recreational Alternative 1 Option 2). Currently, there is no depth-based projection model for the commercial LE and OA fisheries to project the impacts of the proposed minor adjustments to the commercial RCA. The non-trawl projection of 489.5 mt would be 76 percent of the lingcod allocation Option 1, 73 percent of Option 2, and 58 percent of Option 3.

Table 2-18. Historical mortality of lingcod south of 40°10' N. lat. for the trawl and non-trawl sectors in regard to their A-21 allocations (45%, 55%) and predicted mortality in relation their average 2021-22 allocations (O1 = Option 1; O2= Option 2; O3 = Option 3).

Year	Trawl			Non-Trawl			Sector-specific mortality			
	Alloc.	Catch	%	Alloc.	Catch	%	IFQ	At-sea	Rec	FG
2002		29			274		28.6326	0	247	27
2003		25			274		24.7396	0	247	27
2004		27			284		27.0662	0	247	37
2005		21			360		20.8397	0	333	27
2006		11			297		11.1977	0	270	28
2007		38			161		37.7371	0	138	23
2008		28			106		28.4264	0	85	21
2009		31			116		31.1778	0	98	18
2010		22			97		22.3937	0	80	17
2011		7			209		6.61858	0	188	22
2012		13			262		13.4725	0	235	27
2013	496	14	3%	606	418	69%	13.8	0	382	37
2014	474	16	3%	580	551	95%	16.2	0	426	59
2015	448	29	6%	547	688	126%	29.1	0	597	83
2016	422	21	5%	515	643	125%	21.1	0	593	60
2017	559	23	4%	683	507	74%	22.6	0	453	60
2018	511	49	10%	624	400	64%	48.9	0	346	54
2019	463	82	18%	565	295	52%	81.5	0	252	43
O1	506	87	17%	618	489.5	79%	87.2	0	419.5	70
O2	483	87	18%	641	489.5	76%	87.2	0	419.5	70
O3	281	87	31%	843	489.5	58%	87.2	0	419.5	70

2.2.2 Rebuilding Species Allocation.

As of the 2021-2022 biennium, yelloweye rockfish will be the only species remaining on the rebuilding list. Table 2-19 details the allocation structure under No Action. Note that the non-trawl sector is managed with both HGs and ACTs at the sector level.

Table 2-19. Yelloweye rockfish allocations, HGs, and ACTs for 2021-22 under the No Action alternative.

Year	2021		2022	
ACL	50		51	
Fishery HG	41.2		42.2	
Trawl (8%)	3.3		3.4	
At-Sea	0		0	
IFQ	3.3		3.4	
Non-trawl (92%)	**HG**	**ACT**	**HG**	**ACT**
	37.9	29.5	38.8	30.4
Non-nearshore (5.4%)	2.0	1.6	2.1	1.6
Nearshore (15.5%)	5.9	4.6	6.0	4.7
---OR (72.7%)	4.3	3.3	4.4	3.4
---CA (27.3%)	1.6	1.2	1.6	1.3
WA Rec (25.6%)	9.7	7.5	9.9	7.8
OR Rec (23.3%)	8.8	6.9	9.0	7.1
CA Rec (30.2%)	11.4	8.9	11.7	9.2

2.2.3 Shortbelly Rockfish

Shortbelly rockfish are managed coastwide with constant 6,950 mt OFL and a 4,184 mt ABC (P*0.40) for both 2021-22. Under No Action, they would be managed with a more precautionary 500 mt ACL and a 470.1 mt fishery HG, under which all groundfish fisheries would be managed together. Shortbelly are not allocated separately to trawl and non-trawl fisheries, nor are they managed with QPs or trip limits in the IFQ sector. The majority of shortbelly rockfish impacts result from the whiting fisheries, and to a lesser extent the non-whiting trawl fishery. Given that, the analyses presented in this section pertain to all fisheries under the No Action ACL.

Shortbelly rockfish are a stock of concern in the 2021-22 biennium since the 500 mt ACL was exceeded in both 2018 (508 mt; source = GEMM) and 2019 (655 mt projection; source = PacFIN). As described below, the Council is considering increasing the shortbelly rockfish ACL in 2021-22 to 3,000 mt (Alternative 1), or designating shortbelly rockfish as an Ecosystem Component Species (Alternative 2).

Extensive impact analyses of the shortbelly rockfish alternative harvest specifications have already been completed in the 2019 stand-alone process where the Council raised the 2020 ACL to 3,000 mt (Agenda Item H.4, Supplemental **REVISED** Attachment 1, November 2019; Agenda Item H.4.a, Supplemental GMT Report 1, November 2019). There is also a detailed GMT report (Agenda Item I.7.a, Supplemental GMT Report 1, June 2019) that provides background on shortbelly rockfish harvest specifications and bycatch projections. The GMT has also provided an impact analysis of all three shortbelly rockfish alternatives for 2021-22 Agenda Item H.6.a, GMT Report 2, November 2019).

- The main points from previous analyses regarding shortbelly rockfish are as follows:
- Shortbelly rockfish are an important forage fish to predators of the ecosystem
- The three main objectives of using more precautionary ACLs were: (1) prevent a targeted fishery from developing; (2) limit bycatch; and (3) but at the same time, not to constrain fisheries
- A targeted fishery is unlikely to develop based on industry public comment that they have no value to fillet markets nor to bait, and that it would be unprofitable to target them for fishmeal
- The majority of impacts have been attributed to the whiting fisheries, to lesser degrees by the non-whiting trawl fisheries, and with negligible non-trawl impacts (< 1 mt)
- The No Action 500 mt ACL is likely to constrain fisheries as 40 percent of bootstrap simulations exceeded 500 mt with some projections as high as 1,000 mt
- It would be beneficial to provide some buffering to the ACL to not constrain fisheries since bycatch projections are highly speculative since the factors causing the recent high bycatch (2017-2019) are uncertain and difficult to predict
- That higher bycatch allocations, such as the full ABC, would not be expected to negatively impact the shortbelly rockfish forage base since all indications are that the stock is thriving
- Other prey species (e.g., anchovy) are also abundant and can help support a robust forage base
- The high shortbelly rockfish bycatch appears to be from a northerly range expansion, and they have not abandoned the southern portion of their range off California where they normally occur

In conclusion, there are numerous rationale for the Council to consider raising the No Action shortbelly rockfish ACL for 2021-22, as they did for 2020 based on the extensive impact analyses that have already been completed.

2.2.4 Harvest Guidelines

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

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

The Council did not recommend any federally-specified component stock HGs for these stocks.

2.2.4.2 Blackgill Rockfish South of 40°10' N. lat.

In April 2019, the Council decided in April 2019 (April 2019 Motion for FPA) to keep blackgill rockfish south of 40°10' N. lat. in the southern slope complex to increase flexibility, reduce potential constraints to the IFQ fleet, and provide greater harvest amounts for the commercial non-trawl sectors that target blackgill rockfish. The Council recommended HGs for blackgill rockfish of 176.5 mt and 174.0 mt for 2021-2022, respectively. As described above in Table 2-15, there is an option to change the allocation of the slope rockfish complex between the trawl and non-trawl sectors for blackgill rockfish and the remaining slope rockfish species. For specific shares, please see Chapter 2.3 and further analyses in Chapter 1.1.

2.2.4.3 Nearshore Rockfish

The Council adopted the recommendations of the GMT as described in Agenda Item H.8.a, Supplemental GMT Report2, November 2019 for nearshore rockfish HGs (Table 2-20) for consideration.

Table 2-20. No Action: State specific HGs for the Nearshore Rockfish Complex north of 40°10' N. lat. in 2021 and 2022 in mt.

State	2021 HG	2022 HG
WA	18.4	17.7
OR	22.7	22.2
CA (40°10′ to 42° N. lat.)	37.6	37.4

2.3 Shorebased IFQ- No Action DHCR

2.3.1 Shorebased IFQ – Management Measures

Under No Action for 2021-22, the principal management measures for the IFQ fishery remain the same as under Baseline (2019) except:

- As of January 16, 2020, post-season trading of QP from January 1 - March 14 is allowed so that vessels can use previous year QP to cover QP deficits in the previous year (84 FR 68799). Vessels are prohibited from participating in the IFQ fishery if they are in QP deficit.
- *RCAs:* As of January 1, 2020, the trawl RCA was removed off of Oregon and California and is now only in place from 100-150 fathoms in the waters off Washington (north of 46°16' N. lat.; 84 FR 63966). Modifications to EFHCAs are also described in that same rule. Trawl gear restrictions (e.g., small footrope shallower requirement shoreward of the RCA) will continue but will be based on the regulatory depth contours consistent with the former trawl RCA (see §660.112 of the Amendment 28 final rule on EFH and RCAs at 84 FR 63966). Selective flatfish nets are still required shoreward of 100 fm from 40°10' - 42° N. lat. as well as the depth restriction that prohibits fishing with mid-water trawl gear shoreward of the boundary line approximating 150 fm south of 40°10' N. lat.
- *Block Area Closures (BACs):* The Amendment 28 final rule (84 FR 63966), effective January 1, 2020, developed Block Area Closures (BACs) as a new discrete spatial management tool that is more flexible and responsive than the trawl RCA. BACs could be used to restrict groundfish bottom trawling from shore to 700 fathoms and state waters off Oregon and California. No BACs are implemented in the final rule, but in a future action, the Council may recommend that NMFS implement one or more BACs via routine inseason action. The size of the BACs can be bounded by depth contours or latitudes defined in groundfish regulations. The Council also approved BACs during the final action for salmon mitigation measures in November 2019 as a potential inseason salmon mitigation tool for all trawl fisheries including mid-water gears for both whiting and non-whiting. Whiting vessels could be exempt from a BAC if they submit salmon mitigation plans (SMPs) that are approved by NMFS.

2.3.2 Impact (Groundfish Mortality)

The No Action Alternative analyzes the shorebased IFQ fishery under the default HCR ACLs and associated status quo allocations (Table 2-9 and Table 2-10). Notable changes to No Action from the 2019 Baseline under status quo management measures and allocations include:

Cowcod south of 40°10' N. lat. is declared rebuilt resulting in an increase in the ACL from 10 mt in 2019 to 98 mt in 2021 and 96 mt in 2022. A more precautionary ACT is being considered.

- Sablefish is no longer in the precautionary zone per the 2019 assessment and the coastwide ABC increases from 7,750 mt in 2019 to 8,202 mt in 2021 and 7,811 mt in 2022. Additionally, two different methods are being considered to apportion the coastwide ABC to the ACLs for the north and south of 36° N. lat management areas: Method 1 uses the long-term average survey biomass distributions whereas Method 2 using a rolling 5-year-average
- New 2019 stock assessments resulted in significant increases in the 2021-2022 trawl allocations for petrale sole (44 percent and 26 percent, respectively), widow rockfish (25 percent and 17 percent respectively), and big skate (~ three times higher).

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

- Manage cowcod south of 40°10' N. lat. with an ACT range of 40 to 60 mt, which are all several times higher than the Baseline 6 mt ACT
- Have an unlimited IFQ big skate trip limit to reflect the higher allocations and low catches
- Modify the A- 21 allocations to two year allocations as follows:
    - For southern slope rockfish, create separate trawl and non-trawl shares for blackgill rockfish (more to non-trawl) and other slope species (more to trawl) and analyze IFQ trip limit management for blackgill rockfish.
    - For lingcod south of 40° 10' N. lat, increase amount to non-trawl sector
    - For widow rockfish and petrale sole, increase amount to trawl sector
- For canary rockfish, a two year allocation species, increase amount to non-trawl sector and reduce amount to at-sea sector.

There are also numerous proposals to change the at-sea set-asides (discussed further at Chapter 2.4). As at-sea set-asides are deducted from the trawl allocation prior to setting the IFQ allocation, the potential impacts are discussed below for select species.

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:

1. Analysis of the No Action harvest specifications under status quo management measures
2. Stock-specific integrated impacts sections that include new management measures:
    a) Pacific halibut north of 40°10' N. lat.
    b) Cowcod south of 40°10' N. lat.
    c) Sablefish
    d) Big skate
    e) Canary rockfish

f) Lingcod south of 40°10’ N. lat.
g) Slope rockfish complex south of 40°10’ N. lat. and blackgill rockfish
h) Petrale sole
i) Widow rockfish
j) Other stocks

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

Table**Error! Reference source not found.** 2-21 shows the proposed IFQ allocations and attainments for 2021-2022 compared to Baseline for the No Action harvest specifications under status quo management measures. Note that for sablefish, there are two different methods being proposed that affect how the coastwide ABC is apportioned to the ACLs for management areas north and south of 36° N. lat. Table**Error! Reference source not found.** 2-21 shows the Method 1 apportionment results (long-term average survey distributions) since that is the status quo approach. Chapter 2.3.2.2 below compares the impacts under both apportionment methods (noting that the ACLs derived from method 2 were selected as the PPA in November) and alternative at-sea set-asides.

Projections were made based on input data from the IFQ fishery from 2016-2019. They should be considered baseline projections in that respect, as they do not directly reflect potential future fishery actions, such as opening the RCA to fishing in Oregon and California (implemented in 2020). The re-openings of the RCA are expected to increase attainments of stocks that occur in the outer shelf and inner slope break (e.g., darkblotched rockfish); however, these potential increases cannot be reliably be predicted at this time due to a lack of informative data since the trawl RCA has been in place for nearly two decades during which numerous major changes have altered the IFQ fishery (e.g., fleet consolidation, shift from trip limit management to IFQ, changes in markets, etc.).

Particularly notable changes in allocations would occur under the No Action Alternative for three IFQ species categories, compared with 2019 levels. Those include darkblotched rockfish (+13 percent on average), petrale sole (+35 percent on average), and widow rockfish (+21 percent on average).

Owing to their consistently high attainment in the IFQ fishery (Table**Error! Reference source not found.** 2-21), projected catch for petrale sole and sablefish North of 36° N. lat. closely follow the allocation values themselves. Their projected attainment levels for 2021 are 99.7 and 98.6 percent respectively; for 2022, they are 99.7 and 98.9 percent. In contrast, projected attainment rates for sablefish south of 36° N. latitude continue to be low (~9 percent) which has been attributed to a lack of processing infrastructure, lack of markets, and closed areas (i.e., Western CCA).

The remaining species vary in their expected response to change in allocations in the non-whiting IFQ sector. For instance, widow rockfish has shown explosive increase in catch and attainment, and has established a very close relationship between catch and allocation since harvest specifications rose sharply after the stock was declared rebuilt in 2015. As such, projected catch closely follows the change in allocation from 2019, to that of 2021 and 2022. By contrast, species like arrowtooth flounder, English sole, and Dover sole show little evidence of a causal relationship between catch and allocation. As such, their projected catch reflects their predominant method of prediction in the model, weighted average historical catch. Catch of arrowtooth flounder for example, is not expected to respond significantly to reduction in the allocation from 2019 levels to 2021 and 2022, but rather resemble average catch of the most recent three years. Note that there are no projections provided for cowcod south of 40° 10’ N. lat. Given the range of

ACT values, projections will be provided in June under the Council's PPA. In the interim, please see the discussion of cowcod found below Table**Error! Reference source not found.** 2-21.

Although the model has the ability to project selected species as bycatch, it is not currently informed by catch composition within complexes, such as Dover sole-Thornyhead-Sablefish (DTS), and any potential upswing in thornyheads or Dover sole concurrent with projected increased sablefish catch is not reflected here. It is possible that the otherwise declining Dover sole catch trend over the past few years could be balanced somewhat by coincidental catch due to an increase in sablefish catch, because of their relationship within the complex. In that case, the outcome for Dover sole is also not expected to be very different from the projections here, since they are based predominantly on weighted average annual catch. Fishers also have some control over their catch composition, and could potentially focus more intensively on the high-value sablefish without catching much additional comparatively low-value Dover.

These projections reflect data that includes surplus carryover trends for 2016-2019. Under the current No Action alternative for sablefish, the sum of the northern and southern ACLs is set equal to the ABC. If this is the case for the FPA, then no surplus carryover is allowed under the law. The court ruling *Conservation Law Foundation v. Pritzker*, No. 13-00821 (D.D.C. Apr. 4, 2014), stated that under the plain language of 302(h)(6) of the MSA, 16 U.S.C. § 1852(h)(6), neither the Council nor NMFS may establish a total potential catch level that exceeds the ABCs recommended by the SSC. This total potential catch level includes surplus carryover. In 2019, the difference between the sum of the ACLs and the ABC was smaller than the amount of otherwise eligible surplus carryover for sablefish; this restricted the amount of surplus sablefish carryover which could be legally issued in 2019. If no carryover can be issued, then the actual future catch could be somewhat less than projected, or if fishers are aware, they could strive to catch all available sablefish within the quota year, which could potentially inflate attainment.

Projections for the whiting sector were constrained to 2019 levels, since the Pacific whiting allocation was fixed at the 2019 level among all alternatives (as a placeholder). The overall purpose of the analysis was not to predict whiting catch, which is an internationally managed species, with a separate process, but rather to better predict total IFQ groundfish impacts including bycatch from the whiting fishery and the total economic value of IFQ fishery including both the whiting and non-whiting components. All other species in the whiting sector were modeled as bycatch fixed at 2019 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.

Table 2-21. No Action-Shorebased IFQ. 2021-22 Allocations, Projected Catch and Attainment under No Action, Method 1. Baseline 2019 Allocations and catch provided for reference.

Species	Baseline 2019		2021 No Action			2022 No Action		
	Allocation	Catch	Allocation	Proj. Catch	% Attain	Allocation	Proj. Catch	% Attain
Arrowtooth flounder	12,735.10	891.34	7,446.00	870.41	11.69%	5,974.75	842.99	14.11%
Bocaccio rockfish South of 40°10' N.	800.7	323.58	663.76	268.56	40.46%	654.39	264.79	40.46%
Canary rockfish	953.6	406.99	871.2	379.68	43.58%	848.78	372.22	43.85%
Chilipepper rockfish South of 40°10' N.	1,838.30	585.93	1,695.23	540.4	31.88%	1,620.97	516.76	31.88%
Cowcod South of 40°10' N.	2.2	0.77						
Darkblotched rockfish	658.4	355.84	763.6	401.07	52.52%	717.74	381.36	53.13%
Dover sole	45,979.20	5,947.99	45,977.66	5,947.98	12.94%	45,977.66	5,947.98	12.94%
English sole	9,375.10	213.33	8,473.18	210.79	2.49%	8,409.53	210.6	2.50%
Lingcod North of 40°10' N.	2,051.90	478.97	2,275.77	526.46	23.13%	2,090.82	487.23	23.30%
Lingcod South of 40°10' N.	462.5	82.34	490.05	87.15	17.78%	521.55	92.65	17.76%
Longspine thornyheads North of 34°27' N.	2,420.00	309.08	2,446.29	311.94	12.75%	2,273.77	293.16	12.89%
Minor shelf rockfish North of 40°10' N.	1,155.20	505.17	829.23	397.14	47.89%	792.51	384.97	48.58%
Minor shelf rockfish South of 40°10' N.	188.6	8.67	161.67	8.08	5.00%	160.45	8.06	5.02%
Minor slope rockfish North of 40°10' N.	1,248.80	239.01	937.76	229.68	24.49%	915.89	228.8	24.98%
Minor slope rockfish South of 40°10' N.	1,049.10	46.58	422.16	42.17	9.99%	419.64	42.15	10.04%
Other flatfish	5,603.70	483.49	4,087.99	462.72	11.32%	4,120.39	463.29	11.24%
Pacific cod	1,034.10	14.17	1,034.21	14.17	1.37%	1,034.21	14.17	1.37%
Pacific halibut (IBQ) North of 40°10' N.	69.58	32.9	69.58	32.88	47.25%	69.58	32.24	46.34%
Pacific ocean perch North of 40°10' N.	3,697.30	534.17	3,268.69	474.82	14.53%	2,937.49	428.96	14.60%
Pacific whiting	169,126.03	144,851.68	169,126.03	144,851.68	85.65%	169,126.03	144,851.68	85.65%
Petrale sole	2,453.00	2,446.02	3,536.12	3,524.74	99.68%	3,103.88	3,094.25	99.69%
Sablefish North of 36° N.	2,581.30	2,572.37	2,787.13	2,762.52	99.12%	2,826.38	2,634.94	93.23%

Sablefish South of 36° N.	834	76.93	898.63	79.66	8.86%	693.67	78.32	11.29%
Shortspine thornyheads North of 34°27' N.	1,506.80	569.87	1,212.12	458.79	37.85%	1,178.87	446.26	37.85%
Shortspine thornyheads South of 34°27' N.	50	0	50	0	0.00%	50	0	0.00%
Splitnose rockfish South of 40°10' N.	1,646.70	20.11	1,565.22	20.11	1.28%	1,531.02	20.11	1.31%
Starry flounder	211.6	0.48	166.8	0.48	0.29%	166.8	0.48	0.29%
Widow rockfish	9,928.80	9,331.09	12,409.70	11,435.82	92.15%	11,606.53	10,754.43	92.66%
Yelloweye rockfish	3.4	0.57	3.29	0.62	18.84%	3.37	0.58	17.21%
Yellowtail rockfish North of 40°10' N.	4,305.80	3,254.75	4,064.60	3,146.18	77.40%	3,871.88	3,059.43	79.02%

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2020). Pacific whiting values include inseason allocation reapportionments.

b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2021 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2019 values were used.

c/ The 2021/2022 Pacific whiting TAC was unavailable during the preparation of the analysis; therefore the 2019 values were used (post-reapportionment).

2.3.2.2 Stock-specific impacts under alternative management measures

a) Pacific Halibut north of 40°10' N. lat.

The halibut IBQ amount is expected to remain at a similar level in 2021-22, given that the IPHC stated in their November 2019 interim meeting that "*a fixed TCEY for IPHC Regulatory Area 2A of 1.65 m lbs. is intended to apply for a period from 2019-2022, subject to any substantive conservation concerns.*" (IPHC–2019–AM095–R, Report of the 95th Session of the IPHC Annual Meeting, Item 69 c, page 19)

The current trawl bycatch mortality limit (cap) is 15 percent of the Area 2A TCEY for legal size halibut (net weight), not to exceed 100,000 pounds annually (beginning in 2015) for legal size halibut (net weight). This is also not expected to change in 2021-2022. The term "legal sized" halibut refers to halibut with a total length of 32 inches and above, or O32. The projected IBQ attainment is 47.9 percent in 2021 and 48.6 percent in 2022 (Table**Error! Reference source not found.** 2-21**)**.

b) Cowcod south of 40°10' N. lat.

Under No Action, cowcod would be managed with an ACL = ABC (P*=0.45) that would result in a 98 mt ACL in 2021 and a 96 mt ACL in 2022 (compared to 10 mt under Baseline). The trawl allocation would continue to be set at 36 percent of the fishery HG, and would be 31.4 mt in 2021 and 30.7 mt in 2022 (compared to 2.2 mt under Baseline). The entire trawl allocation is allocated to the IFQ fishery since there are no at-sea set-asides for cowcod due to the prohibition on processing at-sea south of 42° N. lat.

The Council is however focusing on using a more precautionary ACT set below the ACL due to assessment uncertainty and because the stock was just declared rebuilt from being overfished in 2019. A 40 mt to 60 mt range of ACTs were proposed by the Council using the status quo 36 percent trawl and 64 percent non-trawl allocations (Table 2-14). The numerical trawl allocations and annual vessel limits are shown in Table 2-22, which also includes 2020 since the Council took action in November 2019 to raise the 2020 trawl allocation and AVLs to prevent premature closure of IFQ participants who were constrained by cowcod (November 2019 Council Decision Summary Document). This was done by eliminating the 2020 ACT and reducing the research set-aside from 2 mt to 1 mt.

Table 2-22. No Action- Cowcod south of 40° 10'N. lat. ACLs, ACT range, trawl allocation, and annual vessel limits under No Action compared to Baseline (2019) and 2020.

Year	ACL (mt)	ACT (mt)	Trawl allocation (mt; 36%)	Annual vessel limit (lbs.; 17.7%)
Baseline	10	6	2.2	858
2020	10	0	3.2	1,264
2021-22	98 = 2021 96 = 2022	0	31.1*	12,136*
		40	14.4	5,619
		60	21.6	8,429

*Uses the 2021-22 average based on the fishery HG accounting for off-the-top set-asides

The range of ACT options under consideration for 2021-22 result in considerably higher annual vessel limits in 2021-22 compared to Baseline as well as 2020 (Table 2-22). These higher annual vessel limits are expected to greatly reduce individual vessel constraints that became problematic in 2019 during which the maximum catch by any vessel was 628 lbs. (source = IFQ vessel account database). Even the lowest ACT of 40 mt provides an annual vessel limit that is six times higher than any boat caught in 2019. As such, no vessels are expected to be constrained with the proposed range of ACTs.

In regard to the IFQ fishery as a whole, it is difficult to project the expected benefits of the No Action ACLs and range of ACTs being considered for 2021-22. Average trawl mortality while the stock was overfished (2003-2019) was less than 1 mt per year (Agenda Item H.4 Supplemental REVISED Attachment 1 November 2019); however, historical trawl landings were oftentimes as high as 40-60 mt per year during the 1960's-1980's in the Southern California Bight, where cowcod are most common (see Figure 5 of the 2019 full assessment). Future IFQ attainments may continue to be at lower levels similar to the overfished era due to the reduction in the fleet and the 2020 closure of the California Bight to bottom trawl as a new EFHCA area during Amendment 28. That being said, higher cowcod allocations and AVLs would be expected to provide more opportunity in the area especially with the removal of the trawl RCA. Additional cowcod impacts would be expected in 2021-22, but by what degree is uncertain; however, it would not cause risk to the ACL since cowcod are managed with IFQ.

c) Sablefish

In addition to the ABC alternatives for sablefish under a P* of 0.4 (No Action) and 0.45 (Alternative 1), the Council is considering different methods of apportioning the coastwide ABC to the ACLs for north and south of 36 N. lat. (Agenda Item H.6.a Supplemental GMT Report 3, November 2019). Method 1 uses the long-term (2002-2018) average bottom trawl survey biomass distributions to apportion the coastwide ABC. Method 2 (PPA) uses the rolling 5-year average survey biomass distributions (2014-2018).

As mentioned in Agenda Item H.6.a, Supplemental SSC Report 1, the SSC determined that sablefish ACL apportionment is a policy matter, as it is an allocation issue which is outside the scope of their responsibilities. The SSC also stated that if the Council would like to continue using a method that apportions ACLs in proportion to the current distribution of sablefish biomass, then Method 2 (the 5-year average) is likely to better achieve that goal. Neither method presents a biological risk. In November, the Council selected Method 2 as the PPA since it better reflects recent biomass distributions and because it is expected to result in an overall economic benefit coastwide as it would increase the proportion of sablefish allocated to the north where attainments are high and sablefish can be a constraining species. However, some Council members did express that they would prefer to be precautionary with sablefish in general and had potential concerns with the higher expected catches of Method 2.

No Action and Alternative 1 are considered the main harvest specification alternatives since they pertain to the coastwide ABC, and Methods 1 and 2 are considered Sub-Options that affect the ACLs for both management areas. There are therefore four different sablefish ACL Options being considered for 2021-22 that are shown in Table 2-23 for the northern and southern management areas, respectively. Table**Error! Reference source not found.** 2-21 above describes the No Action allocations under Method 1, which is based on the long-term average bottom trawl survey distributions since that is the status quo approach.

In addition to considering these ACL apportionment methods, the Council is also considering a change to the at-sea set aside of sablefish north of 36° N. lat. At-sea set asides are taken off the top of the trawl allocation prior to setting the IFQ allocation. For three consecutive years (2017-2019), the at-sea sector has exceeded its set aside of 50 mt, which was one of the causes of the fishery exceeding the northern ACL

Table 2-23. The four sablefish harvest specification alternatives being considered for 2021-22 and the resulting north and south of 36° N. lat. ACLs, compared to 2019 and 2020 values.

Year	Coastwide ABC		North of 36° N. lat. ACLs				South of 36° N. lat. ACLs			
	No Action P*0.40	Alt 1 P*0.45	**No Action Method 1** (P*0.40 + 73.6% long-term avg.)	**No Action Method 2** (P*0.40 and 78.4% 5-year avg.)	**Alt 1 Method 1** (P*0.45 + 73.6% long-term avg.)	**Alt 1 Method 2** (P*0.45 + 78.4% 5-year avg.)	**No Action Method 1** (P*0.40 + 26.4% long-term avg.)	**No Action Method 2** (P*0.40 and 21.5% 5-year avg.)	**Alt 1 Method 1** (P*0.45 + 26.4% long-term avg.)	**Alt 1 Method 2** (P*0.45 + 21.5% 5-year avg.)
2019	7,750	---	5,606	---	---	---	1,990	---	---	---
2020	7,896	---	5,723	---	---	---	2,032	---	---	---
2021	8,208	8,791	6,041	6,435	6,470	6,892	2,167	1,765	2,321	1,890
2022	7,811	8,375	5,749	6,124	6,164	6,566	2,062	1,679	2,211	1,801

in 2017. However, as the likelihood of the at-sea sector exceeding the set aside at the time of developing the 2019-20 harvest specifications was low, the Council chose to maintain the 50 mt set aside value in 2019 so to limit the risk of stranding unused set aside in the at-sea sector that could be used in the IFQ sector. Based on the suite of Options forwarded for consideration by the Council in November, set-asides values for the at-sea sector range from 50 mt to 178 mt (combined) for sablefish north of 36° N. lat.

Table 2-24 shows the 2021-22 allocations and projected catch under No Action ACLs for methods 1 and 2. Both IFQ allocations are based on the status quo set aside of 50 mt for the at-sea sector. As shown, Method 2 results in a 6.7 and 5.2 percent increase to the 2021-22 allocations respectively with a resulting 6.2 percent increase in the catch of northern sablefish. While the southern sablefish allocations are in turn decreased under Method 2, there is a projected 14 percent reduction in the catch. If the Council were to increase the set aside from 50 mt to 100 mt (Option c for combined, Option e for sector specific) for the at-sea sector, the overall impacts to the IFQ sector in terms of the allocation would be less under Method 2 compared to Method 1. Option d for the at-sea sectors would result in a set aside of 178 mt, which would cover the recent historical maximum (status quo methodology) at the sector specific level; however, it would be likely to strand quota in the at-sea sectors given the recent five-year average of approximately 76 mt. If the Council chose Option d for at-sea set asides (i.e. max of 178 mt), the result would be that the Method 2 allocation would be only 8 mt higher than the proposed Method 1 allocation under status quo (i.e. 50 mt set aside).

Table 2-25 shows that with the increase in allocation under Method 2 compared to Method 1, there is a corresponding projected increase in ex-vessel revenue for sablefish north of 36° N. lat. of $481,965 in 2021 and $458,754 in 2022. This is attributed to the shift of IFQ allocation between from the South to the North. In the South, attainment of the allocation is quite low (2012-2019, mean = 21.3 percent, S.D. = 12.6; 2011 was an outlier at 86 percent); while in the North, attainment is consistently very high (2011-2019, mean = 96.8 percent, S.D. = 4.68). With the allocation shift between methods, there are projected decreases for the IFQ fishery south of 36° N. lat. of $29,958 in 2021 and $34,511 in 2022. It is important to note these projected results are based on a model assumption that catch in the South covaries to some degree with allocation, albeit much less so than in the North. It is however plausible that catch levels may remain similar to the Baseline (77 mt) no matter which alternative and apportionment method is selected, given that sablefish catch has been low in the south for many years; it could remain static due to processing limitations in the area, and not be constrained by any of the Alternatives, as the proposed allocations are all above the baseline catch.

Both catch and attainment of southern IFQ sablefish have shown a clear decreasing trend since early in the IFQ program, considering data from 2012 through 2019, (from 44 to 10 percent attainment respectively, discounting the high outlier year of 2011); this decreasing trend was particularly steep during 2016-2018 (26, 15, and 6 percent attainment, respectively). It is difficult to say whether the small uptick in catch and attainment in 2019 will represent the beginning of a new trend, or if the longer standing negative trend will continue, or whether the decline in catch and attainment in the South has presently bottomed out and will become static.

For the coastwide IFQ fishery, Method 2 for No Action is projected to increase coastwide sablefish ex-vessel revenues by $452,007 in 2021 and $424,243 in 2022 compared to Method 1. This takes into account the gains in the North, which are ~11 times greater than the reductions to the south (Table 2-24). These gains are conservative since the attainment rate to the south may remain static rather than decrease as the IFQ model projects.

Table 2-24. 2021-2022 No Action sablefish IFQ allocations and projected catch under Method 1 (long term average) and Method 2 (five year average) for apportioning sablefish north and south of 36 N. lat. 2019 Baseline allocations and catch are provided for reference.

Species	2019		2021				2022			
	Baseline		Method 1		Method 2		Method 1		Method 2	
	Allocation	Catch	Allocation	Proj. Catch	Allocation	Proj. Catch	Allocation	Proj. Catch	Allocation	Proj. Catch
Sablefish North of 36° N.	2,581.30	2,572.37	2,787.13	2,762.52	2,973.46	2,934.66	2,649.03	2,634.94	2,826.38	2,798.79
Sablefish South of 36° N.	834	76.93	898.63	79.66	729.79	68.76	854.53	78.32	693.67	65.78

Table 2-25. 2021-22 No Action IFQ allocations, projected catch, projected ex-vessel revenue (based on 2019 average prices), and resulting difference in ex-vessel revenue from Method 1 to Method 2 for both sablefish apportionment Methods 1 and 2 for north and south areas and total coastwide impacts.

Method	Year	North				South				Coastwide	
		Allocation	Projected Catch	Projected IFQ $ ex-vessel revenue		Allocation	Projected Catch	Projected IFQ $ ex-vessel revenue		Projected IFQ $ ex-vessel revenue	
				Total $	$ difference with Method 2			Total $	$ difference with Method 2	Total $	$ difference with Method 2
1	2021	2,787.13	2,762.52	$7,734,620	NA	899	79.7	$219,062	NA	$7,953,682	NA
	2022	2,649.03	2,634.94	$7,377,416	NA	855	78.3	$215,395	NA	$7,592,811	NA
2	2021	2,973.46	2,934.66	$8,216,584	$481,965	723	68.76	$189,105	-$29,958	$8,405,689	$452,007
	2022	2,826.38	2,798.79	$7,836,170	$458,754	694	65.78	$180,884	-$34,511	$8,017,054	$424,243

d) *Big skate*

Under No Action, the ACLs for big skate increase by nearly threefold (1,477 mt in 2021 and 1,389 mt in 2022) compared to the Baseline (494 mt). As described above, big skate are not an IFQ species but rather are managed with trip limits that are set to attain an unofficial landings target (i.e. trawl allocation minus expected at-sea total mortality and IFQ discard mortality). Big skate trip limits have been used to manage mortality since 2015, due to concerns that additional targeting could risk exceeding the constant 494 mt ACL. The Baseline trip limits are shown in Table 1-13 and the 2019 landings (135 mt) were only 35 percent of the 388.5 mt landings target.

The Council forwarded a proposal that would make big skate trip limits unlimited for the IFQ sector in the 2021-22 biennium under No Action. An unlimited trip limit is not expected to be problematic given that the higher 2021-22 ACLs and IFQ landings targets are nearly three to eight times higher than historical big skate total mortality during the eras before and after trip limits were adopted (Agenda Item H.8.a, Supplement GMT Report 3, November 2019). Furthermore, the GAP suggested that big skate mortality will be lower in the future, because some of the few participants that targeted big skate have retired (Agenda Item I.7.a, Supplemental GMT Report 1, June 2019). This appears to be reflected in recent trawl mortality estimates, which decreased from a high of 431.8 mt in 2014 to only 148.5 mt in 2018, and with only 135 mt of landings estimated in 2019.

Catch of big skate in the IFQ fishery is expected to increase with an unlimited trip limit, but to what degree is uncertain because vessels are rarely catching the lower Baseline trip limits in 2019. An unlimited trip limit would allow IFQ participants more opportunity to target big skate when there is market demand, which the GAPs indicates can be intermittent. If attainment rates were to unexpectedly increase by high amounts, then the trip limit could be reduced inseason.

e) *Canary rockfish*

Canary rockfish are managed with two-year allocations that the Council can adjust each biennium (Table 2-26). There are two allocation Options being considered for 2021-22 which are detailed on page 15 of Agenda Item H.8.a Supplemental GMT Report 2 November 2019 and summarized in Table 2-15.

In summary, Option 1 (status quo) uses the allocation framework that was established in the 2019-2020 biennium: 72.3 percent trawl and 27.7 percent non-trawl. The IFQ allocation is set by deducting a fixed 46 mt at-sea set-aside from the trawl allocation (30 mt for MS sector, 16 mt for CP), and each non-trawl fishery HG is set using status quo proportions on the non-trawl allocation. Since the ACL decreases under No Action, all fisheries receive the same proportional decreases to their allocations and HGs except at-sea which is fixed at 46 mt. A potential concern raised by the GMT is that Option 1 results in the non-trawl sectors getting less than the fixed amounts they received in the 2017-2018 biennium that were based on the needs of each fishery.

Option 2 sets the non-trawl HGs at the same needs-based levels established in 2017-2018 and follows the same framework where the remainder of the fishery HG is allocated to the trawl fisheries, and with a fixed at-sea deduction and the remainder to IFQ. Note that the at-sea set-aside is reduced from 46 mt under No Action/Option 1 to 20 mt under Option 2, which was recommended by the Council as it is expected to accommodate at-sea bycatch (less than 7 mt per year since 2011) and provides a means to prevent IFQ from absorbing the full 31 mt ACL reduction from 2021-22. By reducing at-sea by 26 mt, IFQ only absorbs 5

mt of the ACL reduction. Note that other Options for setting the canary rockfish at-sea set-aside are discussed in Chapter 2.4, along with assessments of likelihood for exceeding the set-aside.

Neither allocation Option is expected to constrain or negatively impact the IFQ fishery in 2021-22. The projected IFQ total mortality is ~380 mt (Table 2-21) and 2021-22 allocations that range from 811 mt to 871 mt (Table 2-26**)**. As discussed under the Baseline, canary rockfish are a moderately attained stock (< 40 percent) that trawlers report they actively avoid as to not constrain opportunity for more abundant mid-water shelf stocks that can co-occur (e.g., widow and yellowtail rockfishes).

Table 2-26. Canary rockfish two-year allocation options for 2021-22 under No Action.

	% SQ	2021		2022	
		Option 1 (SQ)	Option 2	Option 1 (SQ)	Option 2
ACL	---	1,338	1,338	1,307	1,307
Off-top	---	69.4	69.4	69.4	69.4
Fishery HG	---	1,268.6	1,268.6	1,237.6	1,237.6
Trawl Allocation	72.3%	917.2	862.1	894.8	831.1
--IFQ	---	871.2	842.1	848.8	811.1
--CP	---	16	20	16	20
--MS	---	30		30	
Non-trawl	27.7%	351.4	406.5	342.8	406.5
--Non-nearshore	11.4%	40.1	46.5	39.1	46.5
--Nearshore	24.6%	86.4	100	84.3	100
--WA Rec.	12.3%	43.2	50	42.2	50
--OR Rec	18.5%	65.0	75	63.4	75
--CA Rec.	33.2%	116.7	135	113.8	135

f) *Lingcod south of 40°10' N. lat.*

Under No Action, the current Option 1 (A- 21) allocations are 45 percent trawl and 55 percent non-trawl (Table 2-27). As detailed in pages 27-30 of Agenda Item H.8.a Supplemental GMT Report 2 November 2019, the trawl attainments have been less than 20 percent per year of the allocation during the IFQ era (2011-2019) whereas non-trawl attainments have been greater than 90 percent during that time frame. To stay within the non-trawl allocations, low trip limits and bag limits have been required in the non-trawl fisheries.

To provide more opportunity in the non-trawl fisheries, the Council requested additional allocation Options for 2021-22 (Table 2-27) that would revise the A- 21 allocations and make them two-year allocations (similar to canary rockfish above). Option 2 would shift two percentage points of the trawl allocation to non-trawl (43 percent trawl; 47 percent non-trawl). Option 3 would shift up to 20 percentage points of the non-trawl allocation to non-trawl (25 percent trawl; 75 percent trawl).

None of the allocation Options are expected to negatively impact the IFQ fishery as a whole in 2021-22. As shown in

Table 2-28, the actual 2011-2019 total mortality has been less than 52 mt per year and the predicted 2021-22 mortality is 87.2 mt for both years. The predicted 2021-22 attainments are approximately 17 percent for Option 1, 18 percent for Option 2, and 31 percent for Option 3.

It is also important to consider potential constraints to individual IFQ participants with different allocation Options, which is best examined by comparing vessel-level catches to AVL for each Option. AVLs s are the best measure of potential constraint because they cap vessels at 13.3 percent of the trawl allocation even if unused QP are available for lease. The AVL for 2021, the lower allocation of the two years, would be 143,635 lbs. for Option 1, 137,223 lbs. for Option 2, and 80,880 lbs. for Option 3. The maximum vessel catch in 2019 was 78,371 lbs., three boats were between 40,000 lbs. and 78,371 lbs., and the remainder caught less than 10,000 lbs. As such, Options 1 and 2 are not expected to result in any vessel constraints, but Option 3 may be constraining as one of the vessels in 2019 was within 2,509 lbs. of the proposed 2021 annual vessel limit.

Table 2-27. Lingcod south of 40°10' N. lat. Options for setting the trawl and non-trawl allocations in 2021-22.

Option	Year	ACL	Fishery HG	Trawl allocation		Non-trawl allocation	
				%	mt	%	mt
1 (SQ)	2021	1,102	1,089	45%	490.1	55%	599.0
	2022	1,172	1,159	45%	521.6	55%	637.5
2	2021	1,102	1,089	43%	468.3	57%	620.7
	2022	1,172	1,159	43%	498.4	57%	660.6
3	2021	1,102	1,089	25%	275.5	75%	816.8
	2022	1,172	1,159	25%	293.0	75%	869.3

Table 2-28. Actual (2013-2019) and projected (2021-2022) total mortality of lingcod south of 40° 10' N. lat. in the IFQ sector.

Year	2013	2014	2015	2016	2017	2018	2019	2021	2022
Mortality (mt)	13.8	16.2	29.1	21.1	22.6	48.9	81.5	87.2	87.2
Allocation	496	474	448	422	559	511	463	**See Table 2-27**	
% Attainment	2.8%	3.4%	6.5%	5.0%	4.0%	9.6%	17.6%		

g) Slope rockfish complex south of 40°10' N. lat. and blackgill rockfish

Under No Action, the southern slope rockfish complex including blackgill rockfish would be managed with status quo Option 1 A- 21 trawl (63 percent) and non-trawl allocations (37 percent). The projected IFQ impacts are shown in Table**Error! Reference source not found.** 2-21 and have the IFQ sector attaining ~10 percent of their No Action allocation.

The Council also forwarded a GMT allocation Option 2 that would use a customized approach to establish separate trawl and non-trawl shares of blackgill rockfish, the other southern slope rockfish species, and the complex as a whole (Agenda Item H.8.a, Supplemental GMT Report 2, November 2019). The objective of Option 2 would be to meet the same objectives of Amendment 26 (A-26), which the Council rescinded taking action on. The main components of the rescinded FPA for A-26 were to remove blackgill rockfish from the complex, shift more of the blackgill rockfish allocation to non-trawl (41 percent trawl; 59 percent non-trawl), and shift more of the other southern slope complex allocation to trawl (91 percent trawl; 9 percent non-trawl). These allocation shifts were designed to optimize benefits in each sector given that blackgill rockfish is an important non-trawl species and the other slope species are trawl dominant. The Council however rescinded their FPA based on public comment that removing blackgill rockfish could constrain the IFQ fishery if managed on their own; however, there was still universal support for finding a

future mechanism to obtain the FPA allocation shifts for both blackgill rockfish and other slope species while keeping blackgill rockfish in the complex.

The GMT therefore developed Option 2 for accomplishing the A-26 allocation objectives while keeping blackgill rockfish in the complex (Agenda Item H.8.a, Supplemental GMT Report 2, November 2019). A short summary of the background of Option 2 and the five tasks used in developing Option 2 is provided here. For more background, please review the GMT report and the draft environmental assessment (EA) for A-26 (Agenda Item G.4 Attachment 1 April 2019). The A-26 draft EA analysis is applicable here, although the FPA was rescinded, because Option 2 accomplishes the same A-26 allocations and management measures, without removing blackgill rockfish from the complex. Instead, it uses informal shares to manage amongst sectors.

The five main tasks of Option 2 are as follows:

1. Set an HG for blackgill rockfish equal to the component ACL
2. Establish trawl/non-trawl shares of the blackgill rockfish HG
3. Set trip limits for non-trawl to stay within their share of blackgill rockfish
4. Implement IFQ trip limits to keep them to their share of blackgill rockfish
5. Create customized two year allocations based on the sum of the blackgill and other slope shares minus deductions for off-the-top deductions

A main issue of Option 2 however was developing a mechanism to keep the trawl sector to their share of blackgill rockfish, which is a stock of concern since they were previously in the precautionary zone and are characterized by slow growth and late maturation. If blackgill rockfish had been removed from the complex under A-26, this could have been accomplished with blackgill-specific QP. Since blackgill rockfish were not removed from the complex, this created an issue because trawlers receive southern slope QP that can be used to take any complex species, including blackgill rockfish. Therefore, IFQ vessels theoretically could take only blackgill rockfish with their southern slope QPs and exceed the entire blackgill rockfish ACL contribution.

The GMT therefore proposed analyzing the effect of a blackgill rockfish trip limit for IFQ vessels. While the year could begin with an unlimited IFQ blackgill rockfish trip limit in regulation, it could then be adjusted downward if needed inseason to keep them to their share (e.g., 100 lbs. bimonthly) or to the ACL contribution if non-trawl attainments are low. Although there is not a legal requirement to manage stocks in complexes to their component ACLs or shares, a main focus of Option 2 was to manage blackgill rockfish to the component ACL for conservation reasons described above. As described in detail below, the GMT concluded that a trip limit could effectively mitigate additional total mortality of blackgill rockfish by the IFQ sector given that the majority of impacts are attributed to landings from just a few vessels.

The Option 2 proposed blackgill rockfish shares, other slope rockfish shares, and southern slope rockfish complex trawl and non-trawl allocations are shown in Table 2-29. Each share is based on the A-26 framework applied to the component ACL(s) level; however, to account for off-the-top deductions taken at the complex level under status quo proportions and prevent exceedance of the complex ACL, the GMT recommended apportioning the off-the-top deductions on a pro-rata basis to the "total share" percentage. For more detail, please see Agenda Item H.8.a., Supplemental GMT Report 2, November 2019.

Table 2-29. Proposed two-year allocations for southern slope rockfish complex in 2021-22 under Option 1 and 2 and the proposed shares used to manage blackgill and the other slope species within Option 2.

Option	Category	2021		2022	
		Trawl	Non-trawl	Trawl	Non-trawl
Option 2	Blackgill share	72.4	104.2	71.4	102.7
	Other slope share	484.5	47.9	483.2	47.8
	Total share	556.9	152.1	554.5	150.5
	% of total share	78.5%	21.5%	78.6%	21.4%
	Total off-top deductions for southern slope complex	38.9		38.9	
	Apportioned off-the-top deductions based on % of total share	30.5	8.4	30.5	8.4
	Allocation	526.4	113.2	515.6	142.1
Option 1 (SQ)	Allocation*	422.2	247.9	419.6	246.5

*Option 1 uses the status quo A-26 trawl (63 percent) and non-trawl (37 percent) allocations for the complex as a whole without shares of blackgill rockfish and "other slope"

The IFQ fishery is projected to be within the Option 2 blackgill rockfish shares since the 5-year-average (2014-2018) total mortality has been 24.7 mt with a 38.5 mt maximum (Table 2-30). The IFQ fishery is also projected to be within their Option 2 share of "other slope species" as the 5-year-average is 42 mt with a maximum of 61.7 mt. Lastly, the IFQ sector is projected to be within the total southern slope rockfish two year allocations based on IFQ model projections of 47 mt and 42 mt (Table**Error! Reference source not found.** 2-21). There has not yet been enough time to customize the IFQ model to provide separate blackgill rockfish and other slope rockfish projections, which is why averages and the maximum were used.

Since the IFQ sector is expected to be well within their share of the blackgill rockfish HG, an unlimited IFQ trip limit appears fine to start off 2021-22. As described above, given recent mortality, it may be unlikely than an lower inseason trip limit (e.g., 100 lbs. bimonthly) would be needed. However, if total IFQ mortality did approach the blackgill rockfish IFQ shares, then a 100 lb bimonthly trip limit as proposed by the GMT would be expected to reduce landings by 90-98 percent and total mortality by similar amounts. This is based on a retrospective analysis that compared their actual landings without a trip limit to their projected landings had a 100 lb bimonthly limit been in place for all periods. The trip limit analysis capped vessels at 100 lbs. bimonthly if they caught more than that and assumed there would not be an increase in discards since the majority of landings are attributed to a few vessels that appear to target blackgill rockfishes. It is uncertain when a trip limit would be needed, but this analysis demonstrates that a trip limit would be a highly effective mitigation measure for managing the IFQ fishery to their blackgill rockfish shares. To prevent confusion, it would be beneficial to add a line to the trip limit tables for the IFQ fishery that would start out unlimited at first and could be adjusted downward inseason.

Table 2-30: 2011-2018 blackgill rockfish discard mortality and landings (mt) 2011-2018, percent attainment of the proposed 2021 blackgill rockfish share under Option 2, and retrospective projected landings (mt) and corresponding percent reductions under a 100 lb. bimonthly trip limit for the entire year.

Year	Discard mortality (mt)	Actual landings (mt)	Percent Attainment of 2021 Blackgill Share (72.4 mt) under Option 2	Retrospective projected landings (mt) with 100 lb. bi-mo. trip limit	% reduction in landings with trip limit
2011	0.1	16.4	22.8%	1.7	89.9%
2012	0.4	79.3	110.1%	1.9	97.6%
2013	0.4	54.5	75.8%	1.7	96.9%
2014	1.0	37.5	53.2%	1.6	95.7%
2015	1.2	18.3	26.9%	1.3	92.7%
2016	0.9	10.8	16.2%	1.0	90.6%
2017	0.2	38.9	54.0%	0.9	97.6%
2018	0.2	33.9	47.1%	0.7	97.8%

h) *Petrale sole*

Under No Action, petrale sole would continue to be managed with the ACL = ABC and a P*=0.45. The Council's PPA however is to use a more precautionary ACL = ABC with a P*=0.40 (Alternative 1) based on guidance from the GMT (Agenda Item H.6.a GMT Report 2 November 2019):

> "*The GMT supports being precautionary with petrale sole due to several specific issues that are cited in the update assessment. Specifically, the 2018 biomass estimate from the trawl survey declined, which the assessment failed to fit, and new fecundity data for petrale sole are likely to result in slightly more depleted estimates of stock size when incorporated into the next full assessment. For these reasons, the GMT does not support the No Action Alternative".*

That being said, the No Action petrale sole harvest specifications must still be analyzed since they use the default harvest control rule. As shown in Table**Error! Reference source not found.** 2-21, the IFQ sector is projected to catch 99.7 percent of their No Action IFQ allocations of 3,536.1 mt in 2021 and 3,103.9 mt in 2022. Compared to the Baseline IFQ allocation of 2,453.0 mt, the No Action IFQ allocations are 1,083 mt higher (+44 percent) in 2021 and 650.9 mt higher (+27 percent) in 2022. Given that 99.5 percent of IFQ catch is attributed to landings with an average $1.19 price per pound in 2019, the projected increase in ex-vessel revenue for petrale sole is +$2.8 million in 2021 and +1.7 million in 2022. The reason for the decline in IFQ allocation from 2021 to 2022 is because petrale sole are above the management target, which results in the long-term OFLs being designed to "fish down" the stock toward the management target to better meet MSY goals.

There are however two allocation alternatives being considered for petrale sole in 2021-22 that apply to all harvest specification alternatives. Option 1 uses the status quo A-21 formulas of 95 percent to trawl and 5 percent to non-trawl (Table 2-31). Option 2 would make petrale sole a two year allocation stock with a fixed 30 mt non-trawl allocation for 2021-22 with the remainder being allocated to the trawl sector. Option 2 was requested for analysis based on a GMT analysis that showed that historical (2005-2018) non-trawl

mortality averaged 3.6 mt per year with a high of 9.2 mt in 2018 (Agenda Item H.8.a, Supplemental GMT Report 1, November 2019). A fixed amount of 30 mt for non-trawl is not expected to constrain the non-trawl fisheries.

Table 2-31. Petrale sole allocations under No Action ACL and allocation options and projected increases in IFQ ex-vessel revenue associated with Option 2.

Option	Allocations (mt)						Projected IFQ ex-vessel revenue	
	Year	ACL	Fishery HG	Non-trawl	Trawl	IFQ	Total $	$ gain with Option 2
1* (SQ)	2021	4,115	3,727.5	186.4	3,541.1	3,536.1	9,230,482	NA
	2022	3,660	3,272.5	163.6	3,108.9	3,103.9	8,102,286	NA
2	2021	4,115	3,727.5	30	3,692.5	3,687.5	9,638,742	408,260
	2022	3,660	3,272.5	30	3,237.5	3,232.5	8,451,030	348,744

***Option 1 uses SQ A-21 trawl (95 percent) and non-trawl (5 percent) allocations whereas Option 2 fixes non-trawl at 30 mt and with the remainder to trawl*

i) *Widow rockfish*

Allocations for widow rockfish were set up during A- 21, which allocates 91 percent to trawl and 9 percent to the non-trawl. In addition, allocations for the at-sea sectors were determined by a formula in which the greater of 10 percent or 500 mt were allocated to the whiting sectors (shoreside, CP, and MS), and then that amount was allocated pro-rata to the sector's whiting allocation (42 percent, 34 percent, and 24 percent respectively). With the implementation of Amendment 21-4, the whiting sector's allocations for canary and widow rockfish are now managed as set-asides; however, the Council chose to use the A- 21 formulas as a starting point for determining set-aside values.

The Council is considering not only changes to the trawl-non trawl apportionment of the widow rockfish HG, but also the method for setting the at-sea set-aside value. Table**Error! Reference source not found.** 2-21 above uses the A- 21 formulas for 2021-22 for widow rockfish. As shown, the projected attainment of widow rockfish under No Action is just over 92 percent in both years. With the stock being declared rebuilt in 2015 followed by the trawl gear EFP (and subsequent implementation of the trawl gear rule), widow rockfish attainment in the IFQ sector has averaged 95 percent in 2018-2019 compared to 56 percent from 2015-2017.

Given these trends, the IFQ sector would likely be able to utilize any additional quota available. Under allocation Option 2 (i.e., 300 mt fixed for non-trawl and remainder to trawl), the trawl sector would increase their allocations by ~1000 mt each year, assuming status quo at-sea set-asides, as shown in Table 2-32. The at-sea sectors combined maximum mortality in a single year from 2015-2019 is only 476 mt and individual combined mortality (i.e. sector specific maximum from 2015-2019 combined) of 592.2 mt, with an average sector mortality of 220.6 mt (see Chapter 3.4) therefore, the proposed set asides under status quo of 764.1 and 714.6 mt for 2021-2022 would likely strand between 200-500 mt in the at-sea sector that could also be used in the IFQ fishery. At the most liberal allocation to the IFQ sector being considered (Option 2 for trawl-non trawl allocations and Option b for at-sea, based on the recent average), the IFQ's allocation could be up to 1546.4 mt higher in 2021 or 1412.6 in 2022 compared to No Action. This could result in over $800,000 in additional ex-vessel revenue (assuming 2019 average price), not including associated species landings.

Table 2-32. Comparison of widow rockfish allocations/set-asides for 2021-22 under No Action ACLs for Option 1 (based on Amendment 21 formula, including option for an at-sea set-asides) and Option 2 (300 mt to non-trawl, with remainder to trawl and at-sea set-aside based on recent five year average or Option b).

Option	Year	Harvest Specifications and Allocations (mt)					Projected IFQ $ ex-vessel revenue	
		ACL	Fishery HG	IFQ	At-Sea	Non-Trawl	Total $	$ gain with Option 2
Option 1	2021	14,725	14,476.7	12409.7	764.1	1302.9	$7,113,190	NA
	2022	13,788	13,539.7	11606.5	714.6	1218.6	$6,652,799	NA
Option 2	2021	14,725	14,476.7	13956.1	220.6	300	$7,999,581	$886,390
	2022	13,788	13,539.7	13019.1	220.6	300	$7,462,496	$809,697

j) *Other Groundfish Stocks*

The majority of other IFQ species would see little impact on potential utilization under any of the proposed at-sea set-asides discussed below. The largest proposed relative change from 2019 to set-asides under status quo methodology (i.e. recent maximum) would be for slope rockfish north of 40° 10' N. lat. (three times 2019 value in regulation) and shortspine thornyhead north of 34° 27' N. lat. (2.3 times greater). However, as shown in Table**Error! Reference source not found.** 2-21 above, the IFQ sector is expected to take less than 25 percent of the slope rockfish north complex and less than 40 percent of the shortspine thornyhead allocation in 2021-22. Given that, the status quo (i.e. Option a) values are likely to account for the recent mortalities seen in 2018-2019 in the at-sea sector without constraining the IFQ fishery.

2.4 At-Sea- No Action DHCR

2.4.1 At Sea Co-Ops- Management Measures

Under the No Action Alternative, DHCR ACLs would be implemented for 2021-22. Allocations and principle management measures for the at-sea sectors would be the same as described under the Baseline, except:

- Management of widow and canary rockfish as set-asides instead of allocations: Under Amendment 21-4 (84 FR 68799), widow and canary rockfish are managed as sector-specific set asides for the at-sea sectors. Additionally, the formulas for setting the set asides for widow rockfish, darkblotched rockfish, and POP will be removed from the FMP.

- Block Area Closures (BACs): The Council approved BACs during the final action for salmon mitigation measures in November 2019 as a potential inseason salmon mitigation tool for mid-water gears. Whiting vessels could be exempt from a BAC if they submit salmon mitigation plans (SMPs) that are approved by NMFS.

2.4.2 Impact (Groundfish Mortality) –At-Sea.

Under No Action, the 2019-20 ACLs for non-whiting species would be established using defaults harvest control rules. For Pacific whiting, the 2019 post-apportionment TAC and the allocations were used as a proxy for analysis since the 2021 and 2022 TACs are established in another process and are not yet available. See Table 1-14 above for Pacific whiting allocations and recent mortality.

Historically, set-asides for species other than darkblotched rockfish, widow rockfish, and POP have been set to account for the recent historic maximum. In general, if the previous biennium's set aside amount covered the recent maximums, then the value was maintained in the next biennium. For example, yellowtail rockfish north of 40° 10 N. lat. has been 300 mt since 2011 although bycatch has varied each year. The Council adopted a range of options for considering the method by which to determine the set asides amounts for all species (November 2019 Council Motions). Additionally, there is consideration for setting all species as sector specific set-asides or combined. Options for determining amounts are as follows:

- Option a: Status Quo methodology- Recent five year maximum (2015-2019) for setting set-aside amounts except for:
    - A-21 formula for darkblotched rockfish, widow rockfish, and POP
    - 2019 set asides for canary rockfish and sablefish
- Option b: Five year average- Recent five year average (2015-2019) for setting set aside amounts for all species with less than 90 percent attainment except for:
    - 100 mt for sablefish
    - 20 mt for canary
- Option c: Five year average with 1.2 multiplier for all species with less than 90 percent attainment except for:
    - 100 mt for sablefish
    - 20 mt for canary

In addition to the consideration for all species to have a combined set aside, the Council also forwarded for consideration an option in which each sector would have a sector specific set aside. Values were to be based on the status quo methodology (including the A-21 formula for select species), pro-rata to the whiting allocations, and a "needs based" approach. This analysis will provide an examination of the following options:

- Option d: Status Quo methodology- Recent five year maximum (2015-2019) for setting set-aside amounts except for:
- A-21 formula for darkblotched rockfish, widow rockfish, and POP
    - Baseline amounts for canary rockfish
- Option e: Option b values allocated pro-rata to sectors based on whiting allocations
- Option f: Option b approach (recent five year average) applied to sector level- all species

2.4.2.1 Combined Set Asides

Table 2-33 below shows the set asides under each of the options discussed above with the assumption that all species have a single combined set aside. For the action alternatives (options b and c), there is no proposed set aside for English sole, longspine thornyhead, Pacific cod, petrale sole, and starry flounder (Agenda Item H.8.a, Supplemental GMT Report 2, November 2019). These species have had less than 0.1

mt of mortality historically. In addition, the recent five year maximum, average, and the mortality for 2018 and 2019 is provided for reference. Each option is discussed below.

2.4.2.1.1 Option a: Status Quo Methodology

Widow rockfish, darkblotched rockfish, and POP set asides are set via the A-21 formula in the FMP. Although Amendment 21-4 removed the formulas from the FMP, the Council in their final action stated that the formulas should be used to determine the set-aside amounts unless the Council takes action to change the amounts (November 2018 Council Motion). The resulting set aside values from A-21 for darkblotched rockfish for 2021-22 do not cover the recent mortality seen in 2018 and 2019, but do account for the average. While darkblotched is not a highly attained species in the IFQ fishery (~50 percent in recent two years), additional increases to the set aside in the at-sea fishery could impact the IFQ fishery at the vessel level. Overall, there is little risk to the ACL for darkblotched though even if the at-sea sectors were to exceed the proposed set asides. For widow rockfish and POP, the values proposed under A-21 are likely to strand quota in the at-sea sectors. While POP is under attained in the IFQ fishery and therefore the option a values are not expected to impact the IFQ fleet, the use of option a for widow rockfish could result in lost IFQ revenue as described in Section 2.3.2.2 above.

For all other species, the combined set aside amounts in below are the baseline amounts from 2019 unless increased to cover the five year maximum mortality (shown with grey shading), except sablefish and canary rockfish. Sablefish north of 36° N. lat. has had a set aside of 50 mt since 2011. There has been significant discussion surrounding whether to increase the sablefish set aside from 50 mt given that at-sea sector has exceeded the set aside in 2017-2019. The GMT outlined in their November report that the sectors have been encountering a large amount of the 2016 year class in recent years, which resulted in voluntary avoidance measures taken by each fleet. Increasing the amount of sablefish to the at-sea sectors to cover incidental bycatch and thereby decreasing the overall allocation to the IFQ sector, where it is one of the most valuable species, is something the Council will need to consider. Prior to the recent interactions, sablefish bycatch in the at-sea sector has ranged from only 0.2 mt in 2009 to 27.7 in 2016. Impacts to the IFQ sector based on the at-sea set aside options are discussed in Section 2.3.2.2. As discussed in Agenda Item H.8.a, Supplemental GMT Report 2, November 2019, canary rockfish is part of a broader discussion of trawl/non-trawl allocations. Under Option a (coinciding with allocation option 1), the set asides remain at the current values of 30 mt for MS, 16 mt for CP for a total of 46 mt.

2.4.2.1.2 Option b: Five year average for species with less than 90 percent attainment except for sablefish and canary rockfish

Under option b, the recent five year average mortality (2015-2019) for species with less than 90 percent ACL attainment is the proposed set aside based on the GMT recommendation in November 2019. For sablefish, the Council recommended alternative of 100 mt is used as the proposed set aside. As shown, if the Council were to choose the five year average for sablefish north of 36° N. lat., the set aside would be 76.1 mt. For canary rockfish, a proposed 20 mt combined set aside is considered under this option (corresponding to allocation option 2 discussed in Section 2.3.2.2 above). This would be over a 56 percent reduction in the status quo set aside but would be 13.4-16.4 mt over the recent five year combined maximum and average respectively.

As shown, for those species with a proposed set aside, only the canary rockfish set aside of 20 mt would cover the recent five year historical maximum mortality. When examining the two most recent years of mortality, in addition to canary rockfish, proposed set asides for longnose skate and sablefish north would

cover 2019 mortality and the five year average for widow rockfish would be over both the 2018 and2019 mortality.

2.4.2.1.3 Option c: Option b with a 1.2 multiplier for species with less than 90 percent attainment

Under option c, sablefish north and canary rockfish set asides are the same as option b. For all other species, a 1.2 multiplier is used on the recent five year average mortality to determine proposed set asides. In addition to those species discussed under option b where the proposed set asides would cover the recent years mortality, the proposed set aside values for arrowtooth flounder and lingcod north would cover mortality in 2019 and shelf rockfish north, POP, and yellowtail rockfish north for 2018.

Table 2-33. No Action- At-Sea Set-Asides Option for 2019-2020, Historical Maximum Mortality (2015-2019), 2018 and 2019 mortality, and average 2015-2019 mortality (mt).

Species	Area	Value in 2019 Regulations	Option a (SQ)	Option b (5 year average)	Option c (5 year average with 1.2 multiplier)	Historical Mortality for CPs/MS			
						Maximum (2015-2019)	2018 (mt)	2019 (mt)	Average 2015-2019 (mt)
Yelloweye rockfish	Coastwide	0	0	0	0	0	0	0	0
Arrowtooth flounder	Coastwide	70	70	38.6	46.3	66.4	55.4	43.6	38.6
Canary rockfish	Coastwide	46	46	20	20	6.6	5.5	5	3.6
Darkblotched rockfish	Coastwide	36.3	42.1	38.8	46.6	76.4	65.1	76.4	38.8
Dover sole	Coastwide	5	10	2.1	2.5	6.3	2.7	6.3	2.1
English sole	Coastwide	5	5			0.2	0.2	0.1	0.1
Lingcod	N. of 40°10' N. lat.	15	15	1.4	1.7	3.4	3.4	1.7	1.4
Longnose skate	Coastwide	5	5	1	1.2	1.9	1.9	0.8	1
Longspine thornyhead	N. of 34°27’ N. lat.	5	5			0	0	0	0
Minor Shelf Rockfish	N. of 40°10' N. lat.	35	35	9.4	11.3	15.5	10.8	15.5	9.4
Minor Slope Rockfish	N. of 40°10' N. lat.	100	300	147.1	176.5	295	295	207.3	147.1
Other flatfish	Coastwide	20	35	16.5	19.8	33.1	31.6	33.1	16.5
Pacific cod	Coastwide	5	5			0.2	0	0	0
Pacific halibut a/	Coastwide	10	10	10	10	0.66	0.66		0.36
Pacific ocean perch	N. of 40°10' N. lat.	404.5	358.7	48.5	58.2	141.7	55.6	141.7	48.5
Petrale sole	Coastwide	5	5			0	0	0	0
Sablefish	N. of 36° N. lat.	50	50	100	100	153.3	116.8	71.2	76.1
Shortspine thornyhead	N. of 34°27’ N. lat.	30	70	35.2	42.2	69.4	69.4	57.4	35.2
Starry flounder	Coastwide	5	5			0	0	0	0
Widow rockfish	Coastwide	611.4	764.1	220.6	264.7	476	206.9	199	220.6
Yellowtail rockfish	N. of 40°10’ N. lat.	300	320	194.9	233.9	317.6	229.9	317.6	194.9

a/ Set-asides for Pacific halibut are set in an international process and are not proposed to change. 2019 values were not available at the time of the document development.

2.4.2.2 Sector Specific Set Asides

In the baseline, the only species in which there are sector specific set asides are darkblotched rockfish, widow rockfish, canary rockfish, and POP. All remaining species are managed as combined set asides. Under the following options shown in Table 2-34, each at-sea sector would have a sector specific set aside for each species. The 2018-2019 mortality by sector are shown for reference. All the below options include the removal of a set aside value for English sole, longpsine thornyhead, Pacific cod, petrale sole, and starry flounder of which there has been less than 0.1 mt caught in the last five years. Additionally, Pacific halibut is not listed as the 10 mt set aside is for the combined fisheries and is determined in another process.

2.4.2.2.1 Option d: Status quo methodology applied to sector level

As described above for option a, historically, set asides are generally carried over from the previous biennium (which was based on the historic maximum) unless the amounts are increased to account for recent higher mortality. Option d in Table 2-34 below sets the set aside as the five year maximum mortality from 2015-2019 except for the four species of which there are already sector specific values for in 2019. These values are maintained. As shown, the resulting set aside values for darkblotched rockfish from A-21 would not cover mortality for either sector in 2018 or 2019.

While option d looks at the maximum take in each sector in the last five years, it is important to consider that the decision on whether to set at the overall or sector level can impact the total deduction from the trawl allocation and thereby impact the IFQ sectors. The maximum take over all of a set aside species by the at-sea sector as a whole does not necessarily come from the year in which the CP or MS sector had the maximum amount of bycatch for their sector. For example, the total set aside under option d for yellowtail rockfish is 342.4 mt (163.7 mt for CP and 178.7 mt for MS). The maximum for CP occurred in 2019 while the maximum for MS occurred in 2018. The overall maximum in a single year was 317.6 mt which occurred in 2019. The difference between these two maximums is 24.8 mt. While only 0.6 percent of the proposed 2021 trawl allocation, it would impact the individual vessel limit by over 4,000 pounds. Other species where there is over a 1 mt difference between option a (where the combined maximum was used) and option d (sector specific maximum) are arrowtooth flounder (9.1 mt), other flatfish (3.3 mt), and shelf rockfish north (1.1 mt).

2.4.2.2.2 Option e: Pro-rata

A common method of apportioning quotas among the whiting sector is by using a pro-rata formula. That is, basing the proportions to each sector on the proportion of the whiting allocation that they are allocated. For example, A-21 formulas for darkblotched rockfish, widow rockfish, and POP allocated a specific amount to the whiting sectors (shoreside, CP, and MS) and then allocate the amounts pro-rata to the whiting allocation (42, 34, and 24 percent respectively). The values proposed under Option e below use the combined values under Option b (five year average except for sablefish and canary rockfish) and apply the pro-rata values of 58.6 and 41.4 percent for the CP and MS sectors respectively.

Under option e, proposed set asides for the both sectors would not cover recent mortality for over 60 percent of the set aside species proposed for 2021-22 (i.e. excluding those species with recommended removal of set asides).

2.4.2.2.3 Option f: Option b applied to sector level

One of the alternatives forwarded by the Council was to look at the sector specific set asides in terms of the needs of the sectors. Therefore, option f provides the set aside values with the five year average mortality for all species, including sablefish and canary rockfish. The vast majority of the species with proposed set asides for 2021-22 under this option would have set asides that would not cover recent mortality in 2018 and 2019.

Table 2-34. No Action- Sector Specific Set-aside Options with 2018 and 2019 sector mortality for reference (mt).

Stock/Species	Area	Option d		Option e.		Option f		2018 Mortality		2019 Mortality	
		CP	MS	CP	MS	CP	MS	CP	MS	CP	MS
Yelloweye rockfish	Coastwide	0	0	0.0	0.0	0	0	0	0	0	0
Arrowtooth flounder	Coastwide	65.5	10.0	22.6	16.0	34.6	4	45.4	10.0	40.9	2.7
Canary rockfish	Coastwide	16	30	11.7	8.3	1	2.6	0.9	4.7	1.7	3.3
Darkblotched rockfish	Coastwide	24.7	17.4	22.7	16.1	25.7	13.2	41.8	23.2	45.5	30.9
Dover sole	Coastwide	6.2	0.6	1.2	0.9	1.9	0.2	2.1	0.6	6.2	0.1
English sole	Coastwide	--	--	--	--	--	--	0.1	0.0	0.1	0
Lingcod	N. of 40°10' N. lat.	0.3	3.2	0.8	0.6	0.1	1.3	0.1	3.2	0.3	1.4
Longnose skate	Coastwide	0.9	1	0.6	0.4	0.5	0.5	0.9	1.0	0.7	0
Longspine thornyhead	N. of 34°27’ N. lat.	--	--	--	--	--	--	0.0	--	0	0
Minor Shelf Rockfish	N. of 40°10' N. lat.	4.2	12.3	5.5	3.9	2.4	7	1.1	9.7	4.2	11.3
Minor Slope Rockfish	N. of 40°10' N. lat.	219.3	75.7	86.2	60.9	112.6	34.5	219.3	75.7	161.4	45.9
Other flatfish	Coastwide	31.6	4.8	9.7	6.8	14.7	1.7	26.9	4.8	31.6	1.5
Pacific cod	Coastwide	--	--	--	--	--	--	0.0	0.0	0	0
Pacific ocean perch	N. of 40°10' N. lat.	210.3	148.4	28.4	20.1	31.1	17.4	30.8	24.8	94.4	47.3
Petrale Sole	Coastwide	--	--	--	--	--	--	0.0	0.0	0	0
Sablefish	N. of 36° N. lat.	92.2	85.8	58.6	41.4	48.1	28	92.2	24.6	53.1	18.1
Shortspine thornyhead	N. of 34°27’ N. lat.	59.6	9.8	20.6	14.6	30.5	4.7	59.6	9.8	52	5.4
Starry flounder	Coastwide	--	--	--	--	--	--	0.0	0.0	0	0
Widow rockfish	Coastwide	447.9	144.3	129.3	91.3	139	81.7	62.6	144.3	92.6	106.4
Yellowtail rockfish	N. of 40°10’ N. lat.	163.7	178.7	114.2	80.7	71.4	123.5	51.1	178.7	163.7	153.9

2.5 Limited Entry and Open Access Fixed Gear- No Action DHCR

2.5.1 Limited Entry and Open Access Fixed Gear – Management Measures

The No Action Alternative analyzes the LEFG and OA fisheries under the default HCR ACLs (Table 2-9 and Table 2-10) and associated management measures.

Under No Action, the economic impacts of the non-nearshore fisheries are mainly driven by sablefish ACLs of which the default harvest control rule (ACL = ABC P*0.40) is the basis of the allocations and trip limit alternatives for 2021-2022. Unlike the Baseline, the 40:10 adjustment which results in ACLs set below the ABC is no longer applicable since the stock is no longer in the precautionary zone in 2021-2022.

No Action for sablefish is also highly affected by the Method the Council will select to apportion the coastwide ABC to the ACLs for the north and south of 36° N lat. management areas as described in Agenda Item H.6.a Supplemental GMT Report 3, November 2019. A detailed overview of the background of these ACL apportionment Methods is included in the IFQ section above. Method 1 uses the long-term (2002-2018) average survey biomass distributions to apportion the coastwide ABC. Method 2 uses the rolling 5-year average survey biomass distributions (2014-2018). No Action and Alternative 1 are considered the main ACL alternatives, and Methods 1 and 2 are considered sub-Options that affect the ACLs for both management areas.

There are therefore four different sablefish ACL Options being considered for 2021-22

1. No Action Method 1;
2. No Action Method 2;
3. Alternative 1 Method 1;
4. Alternative 1 Method 2.

A detailed analysis of each sablefish ACL Option as shown above will be provided in the non-nearshore sections below, including summary tables that compare all four ACL Options at the end of the Alternative 1 section.

As described under Baseline, each of the non-trawl sectors, including the non-nearshore and nearshore, are primarily managed by the Council with sector-specific ACTs and HGs for yelloweye rockfish (Table 2-19).

Under No Action, in 2021-22, cowcod south of 40°10' N. lat. would be managed with the ACL = ABC P*0.45 (Table 2-11 and Table 2-12). The No Action ACLs of 98 mt in 2021 and 96 mt in 2022 reflect the stock rebuilding, and are more than nine times higher than the Baseline 10 mt ACL. The non-trawl allocation would remain at 64 percent of the fishery HG and would be 55.8 mt in 2021 and 55.4 mt in 2022. However, the Council's is considering managing the fisheries using more precautionary ACTs in the 40-60 mt range (Table 2-14) with status quo trawl (36 percent) and non-trawl allocations (64 percent). While No Action would facilitate the use of 40-60 mt ACTs in 2021-22, the ACLs would be higher than those preferred by the Council under Alternative 1 (described in Chapter 2.5).

Table 2-35. No Action. Cowcod south of 40°10' ACLs for 2021-2022, Options for ACTs, and the resulting non-trawl allocations based off the ACTs.

ACT Option	ACL		Non-trawl Allocation (64%)	
	2021	2022	2021	2022
40 mt	98	96	25.6	25.6
60 mt			38.4	38.4

The LEFG/OA fisheries under No Action for 2021-22 have the same principle management measures as under the Baseline in regard to closed areas, stock complexes, gear restrictions, permitting requirements, etc. (Table 1-16 and Table 1-17). There are however numerous proposals to increase the LEFG and OA trip limits as to better attain the No Action harvest specifications and non-trawl allocations.

There are also proposals to adjust the canary rockfish two year allocations, and to convert the A-21 allocations to two year allocations for petrale sole, widow rockfish, lingcod south of 40°10' N. lat., and the slope rockfish complex south of 40°10' N. lat. (i.e., separate blackgill rockfish and other slope rockfish shares for trawl and non-trawl) (see Chapter 2.2.1 and Chapter 2.3.2.2 for more details). None of these allocation proposals are expected to negatively impact the non-trawl sectors, as projected attainments are expected to be within the proposed allocations for all trip limit alternatives, which will be detailed below.

2.5.2 Non-Nearshore Trip Limit Analysis

The trip limit sections (and tier limits) for the non-nearshore fishery are organized as follows:

1) sablefish using ACL apportionment Method 1;
2) sablefish using ACL apportionment Method 2;
3) shortspine and longspine thornyhead north of 34°27' N. lat.;
4) non-sablefish south of 42° N. lat.;
5) non-sablefish north of 40°10' N. lat.;
6) non-sablefish south of 40°10' N. lat.

2.5.2.1 Sablefish allocations and trip and tier limits for No Action Method 1

The sablefish allocations and tier limits for 2021-22 are shown in Table 2-36 - Table 2-38. The landings targets and proposed trip limits for the LEN and OAN DTL fisheries north of 36° N. lat. are shown in Table 2-39; the proposed trip limits were designed to fully attain the landings targets. As is always done for DTL trip limit projections, a range of high and low projected attainments was provided to account for model uncertainty. Trip limit projections are uncertain since price and participation can vary considerably from year to year even when there are constant trip limits. Although the upper end of the range of predicted landings is above the landings targets, this is not expected to be a problem as the model overestimated LEN and OAN landings by 25-45 percent in 2019, because processors indicate prices will continue to be low in the future and cause lower than expected effort, and most importantly, because inseason actions can be used to reduce trip limits if landings are higher than projected.

The trip limits for the LES DTL fishery (Table 2-40) continue to be set at a constant 2,000 lbs. weekly year-round despite low projected attainment because lack of processing infrastructure and closed areas are considered the main hindrance to attainment.

There are however two trip limit Options for the southern open access (OAS) DTL fishery (Table 2-40). OAS Option 1 maintains the 2019 daily (300 lbs.) and weekly limits (1,600 lbs.) but uses a year-round 4,800 lbs. bi-monthly limit to be consistent the Council's inseason action for 2020 trip limits. The projected attainment for OAS Option 1 is less than 13 percent of the landings target. OAS Option 2 maintains the weekly and bi-monthly trip limits but eliminates the daily limit (Table 2-40). Option 2 was requested by the Council and the GAP because the daily trip limit can reduce profit margins (more trips needed to catch weekly limits) and removing it could create greater incentive for participation. It was a challenge to model OAS Option 2 trip limits because daily trip limits have been utilized as far back as trip limit regulation histories could be found dating back to the 1990s. It would also be highly speculative to try to precisely model the projected impacts of removing the daily limit because removing it could increase incentive for participants to catch more of the weekly limit, but by what degree is unknown at this time. It is possible that removing the daily limit could result in more vessels catching the full bi-monthly limits, which is the maximum limit for the fishery.

The current DTL model is unequipped to model removing the daily limit and thus a new custom analysis was needed. Therefore, a maximum retrospective landings scenario was conducted to evaluate what the fishery could have landed under the OAS Option 2 bi-monthly limit of 4,800 lbs. (Table 1-21). This maximum landings scenario assumes that every single active sablefish vessel would have landed the full 4,800 lbs. limit each period. This maximum landing scenario, while unlikely, demonstrates that is unlikely that OAS would exceed their 364 mt landings target in 2021. For instance, actual landings since 2012 have been less than 75 mt per year. Even under the maximum catch scenario, the fleet would have caught less than 100 mt per year since 2014(Table 2-41).

There was however a spike in actual OAS landings in 2009 and 2010 where the actual and maximum scenario landings would have been over the landings target, but that was when the bi-monthly trip limit was nearly double the proposed 4,800 lbs. bimonthly limit for 2021-22. Future OAS landings would not be expected to be as high now that there are lower bi-monthly limits. If landings were to unexpectedly raise to similar levels in 2021-2022 with removal of the daily trip limit, then inseason action could be taken to add the daily limit back in. The daily limit could be considered inseason since it has been analyzed under Option 1. Having actual data on the effects of removing the daily trip limit can better inform future impacts for both OAS and OAN where there has also been interest in removing the daily limit.

Table 2-36. No Action Method 1 - Limited entry sablefish FMP allocations of sablefish north of 36° N. lat., based on the default harvest control rule of a P* of 0.4 and a long-term average ACL apportionment Method 1.

Year	Sablefish Com. HG	LE Share	LE FG Share (mt)				Estimated Tier Limits (lbs.) a/		
			LE FG Total Catch Share	Landed Catch Share a/	Primary Season Share b/	LE FG DTL Share b/	Tier 1	Tier 2	Tier 3
2021	5,399	4,892	2,054	1,960	1,746	308	51,363	23,347	13,341
2022	5,136	4,654	1,954	1,865	1,661	293	48,863	22,211	12,692

a/ The limited entry fixed gear total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

b/ Shares do not include anticipated discard mortality.

Table 2-37. No Action Method 1. Open access FMP allocations of sablefish north of 36° N. lat., based on the default harvest control rule of a P* of 0.4 and a long-term average ACL apportionment Method 1.

Year	OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt) a/
2021	508	484
2022	483	461

a/ The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 2-38. No Action Method 1- Short-term sablefish allocations south of 36° N. lat. for the non-trawl sector, based on the default harvest control rule of a P* of 0.4 and a long-term average ACL apportionment Method 1. Limited entry and open access catch shares.

Year	Commercial HG	Non-Trawl Allocation	LE FG Total Catch Share	Directed OA Total Catch Share	LE FG Landed Catch Share a/	Directed OA Landed Catch Share a/
2021	2,140	1,241	869	372	850	364
2022	2,035	1,180	826	354	808	346

a/ The limited entry and open access fixed gear total catch shares are reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 2-39. No Action Method 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 2021. Catch shares are based on the default harvest control rule of a P* of 0.4 and a long-term average ACL apportionment Method 1.

Fishery	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Landings
LEFG	1,500 lbs./ week, not to exceed 4,500 lbs. / 2 months						294	252-308
OA	300 lbs. daily, or 1 landing / week up to 1,200 lbs., not to exceed 2,400 lbs./ 2 months						484	397-497

Table 2-40. No Action Method 1. Sablefish trip limits (lbs.) south of 36° N. lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2021. Catch shares are based on the default harvest control rule of a P* of 0.4 and a long-term apportionment Method 1.

Fishery	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Landings
LEFG	2,000 lbs./week						850	336-411
OA Option 1	300 lbs. daily, or 1 landing /week up to 1,600 lbs., not to exceed 4,800 lbs./2 months						364	26-39
OA Option 2	1,600 lbs. per week, not to exceed 4,800 lbs. bimonthly						364	< 100 a/

a/ Based on the maximum catch scenario in Table 2-41 of <100 mt from 2014-2019.

Table 2-41. No Action Method 1. Retrospective analysis of the Option 2 trip limit that would remove the daily trip limit in the open access south of 36° N lat. DTL fishery in relation to the 364 mt landings target. A dash indicates confidential data.

Year	Count of unique boats						Avg. bi-monthly limit lbs. a/	Actual landings (mt)	Option 2 max catch scenario w/ 4,800 bimonthly limit (mt) b/
	P1	P2	P3	P4	P5	P6			
2007	16	13	16	12	31	29	7,000	114	255
2008	17	18	22	20	23	13	3,833	120	246
2009	15	23	31	33	43	53	11,600	514	431
2010	37	42	54	57	69	19	9,733	783	605
2011	37	26	22	16	23	22	3,433	167	318
2012	20	23	18	18	14	12	2,700	73	229
2013	16	13	13	8	11	11	3,067	61	157
2014	9	12	7	7	4	6	3,200	35	98
2015	11	12	5	8	4	4	3,200	33	96
2016	7	8	4	-	5	10	3,200	25	76
2017	8	7	7	6	5	7	3,200	26	87
2018	10	9	9	5	4	4	3,600	22	89
2019	3	3	3	-	3	-	4,000	12	35

a/ For earlier years without a bimonthly limit, the weekly limit was multiplied by 8 as proxy of a max bimonthly limit

b/ Retrospective model that assumes every vessel would have caught the maximum proposed 4,800 lbs. bimonthly limit for 2021-22 instead of actual bimonthly limit.

The Council also forwarded a proposal that would also remove the daily limit for the northern OA sablefish fishery. Although this proposal could make the fishery more economically profitable (i.e., fewer trips to catch the weekly and bimonthly limits), it would also be expected to increase effort and potentially cause a mid-season closure. This would be counter to one of the GAP's main objectives to use conservative trip limits to maintain a year-round fishery. Reducing the weekly and bimonthly limits could potentially facilitate removal of the daily trip limit, but there is no data to inform the impacts of such since the daily trip limit has been in place as far back as regulation histories can be found dating back to mid-1990's. Evaluating the effects of removing the daily trip limit for OAS, where there is more room for experimentation due to low attainments, could provide a useful proxy dataset for considering future removal of the daily trip limit to the north.

2.5.2.2 Sablefish allocations and trip and tier limits for No Action Method 2

No Action Method 2 uses the DHCR of a P*0.40 to set the coastwide ABC and the 5-year-rolling-average trawl survey biomass distributions to apportion the ABC to the ACLs of north and south of 36° N. lat. The sablefish allocations and tier limits for 2021-22 are shown in Table 2-42 – Table 2-44. Higher DTL trip limit can be considered to the north (Table 2-45) since Method 2 apportions 4.8 percent more of the coastwide ABC to the ACL north of 36° N. lat. The same trip limits for the south are being considered for Method 2 (

Table 2-46) as for Method 1 (Table 2-40) under No Action, which includes the Option 2 proposal to remove the daily trip limit for OAS.

Table 2-42. No Action Method 2 - Limited entry sablefish FMP allocations north of 36° N. lat., based on the default harvest control rule of a P* of 0.4 and a rolling 5-year average ACL apportionment Method 2.

Year	Sablefish Com. HG	LE Share	LE FG Share (mt)				Estimated Tier Limits (lbs.) a/		
			LE FG Total Catch Share	Landed Catch Share a/	Primary Season Share b/	LE FG DTL Share b/	Tier 1	Tier 2	Tier 3
2021	5,754	5,213	2,189	2,089	1,775	328	54,737	24,880	14,217
2022	5,474	4,959	2,083	1,987	1,689	312	52,074	23,670	13,526

a/ The limited entry fixed gear total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

b/ Shares do not include anticipated discard mortality.

Table 2-43. No Action Method 2. Open access FMP allocations north of 36° N. lat., based on the default harvest control rule of a P* of 0.4 and a rolling 5-year average ACL apportionment Method 2.

Year	OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt) a/
2021	541	516
2022	515	419

a/ The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 2-44. No Action Method 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* of 0.4 and a rolling 5-year average ACL apportionment Method 2. Limited entry and open access shares under the No Action sharing alternative (70 percent limited entery:30 percent open access).

Year	Commercial HG	Non-Trawl Allocation	LEFG Total Catch Share	Directed OA Total Catch Share	LEFG Landed Catch Share a/	Directed OA Landed Catch Share a/
2021	1,737	1,008	705	302	690	296
2022	1,652	958	671	287	656	281

a/ The limited entry and open access fixed gear total catch shares are reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 2-45. No Action Method 2- Sablefish trip limits (lbs.) north of 36° N. lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2021. Catch shares are based on the default harvest control rule of a P* 0.4 and a rolling 5-year average ACL apportionment Method 2.

Fishery	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Landings
LEFG	1,600 lb week, not to exceed 4,800 lbs. / 2 months						313	276-337
OA	300 lbs. daily, or 1 landing per week up to 1,300 lbs., not to exceed 2,600 lbs. bimonthly						516	454-567

Table 2-46. Action Method 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 2021. Catch shares are based on the default harvest control rule of a P* of 0.4 and rolling 5-year average ACL apportionment Method 2.

Fishery	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Landings
LEFG	2,000 lbs./week						690	336-411
OA Option 1	300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 4,800 lbs. bimonthly						296	26-39
OA Option 2	1,600 lbs. per week, not to exceed 4,800 lbs. bimonthly						296	< 100 a/

a/ Based on maximum catch scenario from Table 2-41

2.5.2.3 Shortspine and Longspine Thornyhead North of 34°27' N. lat. allocations and trip limits under No Action

Similar to sablefish, shortspine and longspine thornyheads are assessed coastwide, and the coastwide ABC is apportioned as ACLs for north and south of 34°27' N. lat. based on trawl survey biomass distributions. Retention has been allowed for both LEFG and OA in the southern management zone; however, retention was only allowed for LEFG in the northern management zone prior to 2019. The reason for the prohibition for the OA is somewhat uncertain, but is believed to be a relic from a bygone era when the fisheries were managed with separate LE and OA allocations, there was no catch history for OA, and thus no allocation or opportunity for landings (Agenda Item E.4 Supplemental REVISED Attachment 4 June 2018). This appears to be the case since there was a set-aside for OA to account for their projected discard mortality prior to setting landings limits for LEFG.

The Council did allow OA retention in the northern management zone starting in 2019, but only for the area north of 40°10' N. lat. since that was the only area requested by fishermen in November 2018. It was later realized that allowing retention to the north of 40°10' N. lat. would result in an oversight where OA retention would be allowed throughout the entire coast except for in central California (34°27' N. lat. to 40°10' N. lat.). The GAP and the GMT therefore proposed allowing OA retention in Central California to

the Council at the June 2019 Meeting, but the Council elected to defer that proposal until this biennium as it came too late in the 2019-20 biennial process.

For 2021-2022, the following OA thornyhead trip limit proposals have been made for the northern management area (Table 2-47). Under Option 1 (status quo), there would be separate 50 lb monthly limits for shortspine and longspine thornyheads to the north of 40°10' N. lat., but retention would continue to be prohibited off Central California. Option 2 for the north of 40°10' N. lat. would maintain separate shortspine and longspine thornyhead limits, but would raise the shortspine monthly limit from 50 to 1,000 lbs. Option 3 would apply the OA trip limit from the south of 34°27' N latitude to 50 lbs. daily, no more than 1,000 lbs. bimonthly for both species combined.

For the central management area (34°27' to 40°10' N. lat.), Option 1 is status quo and retention of thornyheads would be prohibited (Table 2-47). Option 2 would allow 50 lbs. per month of both to be consistent with north of 40°10' N. lat. Option 3 would apply the OA trip limit from the south of 34°27' N. lat. and be consistent with Option 3 for north of 40° 10' N. lat.

Table 2-47. Shortspine and longspine thornyhead OA trip limit proposals by area for the management area north of 34°27' N. lat.

Area	Option	Trip limit	Comment
North of 40°10'	1 (SQ)	50 lbs. shortspine / month and 50 lbs. longspine / month	
	2	1,000 lbs. shortspine / month and 50 lbs. longspine / month	Separate trip limits for shortspine and longspine
	3	50 lbs. / day, no more than 1,000 lbs. / 2 months of shortspine and longspine combined	Consistent with S 34°27 OA limit for both shortspine and longspine combined
Central California (34°27' - 40°10')	1 (SQ)	Prohibited (shortspine and longspine)	
	2	50 lbs. shortspine / month and 50 lbs. longspine / month	Consistent with Option 1 (SQ) for N 40°10'
	3	50 lbs. / day, no more than 1,000 lbs. / 2 months of shortspine and longspine combined	Consistent with S 34°27 OA limit for both shortspine and longspine combined

Allowing 50 lbs. of shortspine thornyhead and 50 lbs. of longspine thornyhead per month for OA in the entire management area north of 34°27' N. lat. appears to be the only viable option for allowing retention off Central California while staying within the non-trawl allocations. This is Option 1 for north of 40°10' N. lat. and Option 2 for Central California.

The total mortality of shortspine thornyhead by the non-trawl sectors has been close to the 2021-22 non-trawl allocations of 67.5 and 65.6 mt. in both 2017-2018 (Table 2-48). The recent high attainment and the lower non-trawl allocation of shortspine thornyhead north of 34°27' N. lat. reduces the opportunity to increase limits for LE and OA. The higher trip limit proposals of 1,000 per month (Option 2 north of 40°10' N lat.) or 50 lbs. per day and up to 2,000 lbs. per month (Option 3 for both areas) are several times higher than a 50 lb. monthly limit (Option 1 north of 40°10' N lat.; Option 2 34°27' - 40°10' N. lat.), could increase targeting, and thus cause the non-trawl allocation to be exceeded.

The non-trawl fisheries would be expected to remain within the non-trawl allocation with a 50 lb. monthly OA limit for shortspine thornyhead in the whole northern management area. Although this would allow retention of Central California, minimal increases to total mortality would be expected (<1 mt). As shown in Table 2-48, allowing retention for the first time in 2019 to the north of 40°10' N. lat. did not cause total mortality to change by measurable amounts compared to previous five years when retention was prohibited. This is however based on landing and an assumption that discard rates would remain the same as prior years, and official discard mortality estimates for 2019 will not be available until August 2020.

Table 2-48. Shortspine thornyhead historical non-trawl catches for the management area north of 34°27' N lat. in relation to the 67.5 mt and 65.6 mt non-trawl allocations for 2021-22.

Year	Limited entry			Open Access			Non-trawl total (mt)
	Landings (mt)	Discard (mt)	Total (mt)	Landings (mt)	Discard (mt)	Total (mt)	
2003	40.1	1	41.1	1	13.7	14.7	55.8
2004	29.5	1.3	30.8	0.3	14.9	15.2	46
2005	18	0.9	18.9	0.2	7.6	7.9	26.8
2006	25.8	1.6	27.4	0.4	14.2	14.5	42
2007	21.4	4.7	26.1	0.3	0.7	1.1	27.2
2008	19.7	1.6	21.3	0.2	3.8	4	25.3
2009	33.3	1.6	35	0.8	4.8	5.6	40.5
2010	43.4	4.8	48.2	1.1	36.2	37.2	85.4
2011	59.8	2.2	62	1.4	7.8	9.1	71.1
2012	55.3	4.7	60	1.3	3.3	4.6	64.6
2013	52.9	4.3	57.1	0.2	4	4.2	61.3
2014	47.2	3.5	50.7	0.4	2.1	2.4	53.1
2015	41.9	3.1	44.9	0.2	3.3	3.5	48.4
2016	38.6	5.1	43.7	0.5	4.4	4.9	48.6
2017	55.7	3.9	59.6	0.4	1.3	1.7	61.3
2018	55.4	5.1	60.5	0.4	4.3	4.8	65.3
2019	44.9	3.9	48.7	0.8	3.1	3.8	52.6

*2019 discard mortality is a projection and will not be available until 2020

It appears that the main effect of allowing OA retention north of 40°10' N. lat. in 2019 was a conversion of regulatory discards to retained landings which does not affect total mortality. This was validated upon investigation of 2019 landings patterns of north of 40°10' N. lat. boats. Of the 180 non-nearshore OA boats, fewer than three appeared to target shortspine thornyhead as defined as catching at least 80+ percent of the trip limit in at least two months (Table 2-49). It also appears that fewer than 3 of the 59 OA boats south of 34°27' N. lat. appeared to target shortspine thornyhead in 2019 but based on a more conservative targeting assumption of catching over 200 lbs. in a period more than twice during the year.

Low participation from the OA sector is expected in Central California if thornyhead retention is allowed, as effort levels remain low even in adjacent areas where retention is currently allowed (as described above). The low 50 lb. monthly limit minimizes the amounts that could be taken in a year and could likely curtail increased fleet activity for these species. For example, if two boats caught the full 50 lb. monthly limit every single month, then that would only be an extra 1,200 pounds (0.5 mt) of landings. If the extra 0.5 mt

were added to the historical total non-trawl mortality (Table 2-48), then the non-trawl sector would still remain within the 2021-22 non-trawl allocations.

Table 2-49. Count of OA non-nearshore vessels by area in 2019 and the number that appear to target shortspine thornyhead in the areas where retention is allowed.

Area	# OA non-nearshore boats	# targeting shortspine thornyhead
Coastwide	450	
N 40°10’	180	<3
34°27’ - 40°10’	213	To be determined if retention allowed
S 34°27’	59	<3

*”Targeting” criteria discussed in text above

*Retention is allowed north of 40°10’ and south of 34°27’ N. lats.

Allowing separate OA 50 lb. monthly limits of both shortspine and longspine north of 34°27’ N. lat. is not expected to cause any concerns for longspine thornyhead. Total non-trawl mortality has been less than 15 mt per year since 2002 compared to the 2021-22 non-trawl allocations of 129.0 mt and 120.0 mt, respectively. Longspine thornyhead are less valuable to fishermen than shortspine thornyhead since they are smaller in size and fetch lower prices.

In summary, separate OA trip limits of 50 lbs. of shortspine and longspine thornyhead per month for the entire northern management area appears to be the only viable option at this time due to shortspine thornyhead constraints. If adopted, this action would be beneficial for Central California as it would allow fishermen to retain their incidental catches, likely reduce waste dead discard, and provide some minor targeting opportunities.

There are several options that the Council could take in the future to provide more shortspine thornyhead opportunity in the non-trawl fisheries. These Options include new full or update assessments, which would reduce the OFL to ABC deduction that is relatively high for shortspine thornyhead with the new time-varying sigmas since it is an older Category II assessment and/or to increase the P* from the current 0.40 to 0.45 maximum. Another Option would be to consider apportionment of the coastwide ABC (as is being considered for sablefish) to the north and south ACLs based on trawl survey biomass distributions could be revisited and can include economic considerations. Finally, the Council could also consider revising the A-21 trawl and non-trawl allocations since trawl is expected to take half their ~1,275 mt allocations whereas non-trawl is expected to fully take theirs.

2.5.2.4 Non-sablefish south of 42° N lat. allocations and trip limits under No Action

Other flatfish gear restriction removal south of 42° N lat.

Regulatory language within the trip limit tables currently state:

> *South of 42° N. lat., when fishing for ‘other flatfish’, vessels using hook-and-line gear with no more than 12 hooks per line, using hooks no larger than ‘Number 2’ hooks, which measure 0.44 (11 mm) point to shank, and up to two 1 lb. (0.45kg) weights per line are not subject to the RCAs.” ‘Other flatfish’ are specified in regulation to include butter sole, curlfin sole, Pacific sanddab, rex sole, rock sole, and sand sole (CFR§660.11).*

The proposed management measure forwarded by the Council would remove the gear restriction while fishing for 'other flatfish' inside the RCAs south of 42° N. lat. This management measure was originally put in place in 2003 to protect bocaccio rockfish--now rebuilt-- and was thought to provide protections to other overfished groundfish stocks in following years (e.g. petrale sole). The intent was to permit an artisanal sanddab fishery off California while still providing protections to overfished stocks. During the 2009-2010 management cycle, the flatfish gear restrictions were removed from recreational fishery, because it was not effective in preventing bycatch of overfished species (2009-2010 Harvest Specifications and Management Measure, Final Environmental Impact Statement). For the 2015-2016 management cycle, a similar measure was contemplated for the commercial fixed gear sector; however, it was removed from further consideration due to bycatch concerns (e.g. petrale sole, which was declared rebuilt in 2016) and the application of recreational gear bycatch rates as a proxy for commercial longline gears. This analysis can be found in Appendix B (2015-2016 Harvest Specifications and Management Measures, Final Environmental Impact Statement).

Since removal of this management measure was first considered for the commercial fixed gear sector, all overfished stocks of groundfish have been declared rebuilt, except for yelloweye rockfish—projected to be rebuild in 2029. However, habitat preferences of yelloweye rockfish (hard substrate, pinnacles) and the species comprising the other flatfish (sandy, soft bottom) complex are vastly different (Stock Assessment and Fishery Evaluation, November 2018). In addition to the differential habitat preferences between other flatfish and yelloweye rockfish, other overfished species which may have been encountered incidentally have rebuilt, leading to de minimus bycatch concerns should this gear restriction be removed.

Further, the other flatfish complex ACL has been under attained in recent years with 835 mt total fishing mortality of the 7,281 mt ACL in 2018 (or 11 percent of the ACL). The ACL for other flatfish is managed coastwide with an A-21 allocation of 90 percent trawl and 10 percent non-trawl and attainment of the non-trawl allocation has been low. In 2018, this equated to a non-trawl allocation of 707.7 mt and the sector only attained 5 percent of its allocation (non-trawl total mortality was 37.7 mt in 2018). Given this low attainment, there is little risk to other sectors or of overfishing to other flatfish.

Anecdotal information from stakeholders suggests that the current gear restriction does not allow for effective targeting of other flatfish, which may be contributing to the low attainment and resulting in forgone economic opportunity to California's coastal communities. California's groundfish fleet is comprised of many small vessels which were negatively impacted when the non-trawl RCAs were implemented, effectively closing large portions of historic fishing grounds. Removal of the other flatfish restriction would restore access to grounds with little risk of bycatch or overfishing, while providing economic benefit. However, the economic impact of the proposed management measure cannot be quantified at this time, though the result is likely to be beneficial and could, therefore, provide some relief to affected communities.

Removal of the flatfish gear restriction would also be consistent with the following National Standards: (1) result in more optimal yield without overfishing; (2) based on the best scientific information; and (8) take into account/benefit fishing communities. National Standard 1 is met by allowing increased access to an underutilized stock complex with little risk of overfishing or increase of bycatch. This action is also consistent with National Standard 2 by utilizing the best available scientific information, which indicates that many stocks have rebuilt and little risk of increased yelloweye rockfish encounters. Removal of the other flatfish gear restriction is also consistent with conservation requirements of National Standard 8, accounting for the importance of fishery resources to fishing communities. Many coastal communities in California are comprised of non-trawl fishermen who depend on income from fixed gear fisheries. This

measure will allow access to the underutilized other flatfish complex, resulting in beneficial impacts to local economies.

2.5.2.5 Non-sablefish north of 40°10' N. lat. allocations and trip limits under No Action

Limited Entry and Open Access - Minor Slope and Darkblotched Rockfish North of 40°10' N. lat.

Currently, the LEFG trip limits for slope rockfish north and darkblotched rockfish are 4,000 lbs. bimonthly and 500 lbs. per month for OA (Table 2-50). The Council is considering doubling the trip limits to 8,000 lbs. bimonthly for LEFG and 1,000 lbs. monthly for OA (Option 2). The main rationale for raising the LEFG trip limits is that the current trip limits are causing sablefish fishermen to have to discard some of their incidental catches of darkblotched and slope rockfishes. For OA, the primary rationale is that higher trip limits could make it more economical to target darkblotched and slope rockfishes. However, none of the OA vessels appeared to be constrained by the current Option 1 trip limits in 2019.

The proposed trip limits affect the non-trawl fisheries that have separate non-trawl allocations for the slope rockfish complex north of 40°10' N. lat. and for darkblotched rockfish coastwide. The projected non-trawl attainment for both is projected to be low for both Options 1 and 2 for slope rockfish (Table 2-50) and for darkblotched rockfish (Table 2-51). For the slope rockfish complex north of 40°10' N. lat, Option 2 is projected to increase landings and total mortality by 1.2 mt with an associated increase in ex-vessel revenue of $2,910. For darkblotched rockfish coastwide, Option 2 is projected to increase landings and total mortality by 0.2 mt and increase ex-vessel revenue by $439. The projected increases for landings and total mortality are the same because the main expected effect of the higher trip limits is to convert discarded dead fish to landed catch.

Table 2-50. No Action. Projected non-trawl attainment of the slope rockfish complex north of 40°10' N. lat. for LEFG and OA trip limit options for slope and darkblotched rockfish north of 40°10' N. lat. (in mt)

Option	Trip limit	Projected mortality (mt)	Non-trawl projected mortality* (mt)	Non-trawl allocation (mt)
LEFG 1 (SQ)	4,000 lbs./ 2 months slope and darkblotched	32.4	39.6	290.3
OA 1 (SQ)	500 lbs./ month slope and darkblotched	7.1		
Total for Option 1		39.5		
LEFG 2	8,000 lbs./ 2 months slope and darkblotched	33.6	40.8	
OA 2	1,000 lbs./ month slope and darkblotched	7.1		
Total for Option 2		40.7		

*Projected mortality and allocations are for the entire non-trawl sector including recreational.

Table 2-51. Projected non-trawl attainment of darkblotched rockfish coastwide for LEFG and OA trip limit options for slope and darkblotched rockfishes north of 40°10' N. lat.

Option	Trip limit	Projected mortality (mt)	Non-trawl projected mortality (mt)	Non-trawl allocation (mt)
LEFG 1 (SQ)	4,000 lbs./ 2 months slope and darkblotched	4.5	6.0	42.4
OA 1 (SQ)	500 lbs./ month slope and darkblotched	1.5		
Total for Option 1		6.0		
LEFG 2	8,000 lbs./ 2 months slope and darkblotched	4.7	6.2	
OA 2	1,000 lbs./ month slope and darkblotched	1.5		
Total for Option 2		6.2		

Limited Entry and Open Access - Widow Rockfish North of 40°10' N lat.

The Council requested analysis of a proposal to manage widow rockfish with their own trip limits north of 40°10' N. lat., but continuing to manage total mortality at the coastwide level. They are currently managed in a trip limit category that also includes shelf rockfish and shortbelly rockfish (Table 2-52) of which the current combined limit is 200 lbs. per month for both LE and OA (Option 1). Under Option 2, widow rockfish would be managed with a 4,000 lbs. bimonthly limit for LE and 2,000 lbs. monthly for OA; the trip limit for shelf rockfish and shortbelly rockfish would remain at 200 lbs. per month for both.

Option 2 is not projected to increase LEFG or OA widow rockfish landings or total mortality to the north of 40°10' N. lat.; widow rockfish are so infrequently encountered that total LEFG/ OA mortality is only expected to be 0.29 mt (Table 2-52). Since no vessels appeared constrained by the current trip limits, a potential rationale for Option 2 may have been to create higher limits that could make it more cost effective to target widow rockfish. Attainments for widow rockfish are constrained by the non-trawl RCA, but there are some open areas where schools can be encountered.

Total coastwide non-trawl mortality of widow rockfish is projected to be ~96 mt when also factoring in the coastwide recreational fisheries and the LEFG and OA fisheries south of 40°10' N lat. See Table 2-61 below in Chapter 2.5.2.6. As such, the non-trawl fisheries are projected to be within both widow rockfish allocations being proposed for 2021-22 (see Chapter 2.2.1 and Table 2-15 for more details).

Removing widow rockfish from the trip limit category is not projected to affect the attainments of shelf rockfish north complex nor shortbelly rockfish. For shelf rockfish north of 40°10' N. lat., the projected non-trawl attainment (60.5 mt) is less than ten percent of the non-trawl allocation in 2021 (571.4 mt). For shortbelly, the projected LEFG and OA mortality is <0.1 mt of the No Action 500 mt ACL and the Alt 1 ACL of 3,000 mt; there are no trawl and non-trawl allocations for shortbelly rockfish.

Table 2-52. Projected mortality (mt) and allocation (mt) of widow rockfish in 2021 given proposed LEFG and OA trip limits.

Option	Trip limit	Projected LEFG and OA mortality N 40°10' (mt)	Non-trawl projected mortality coastwide (mt)*	Non-trawl Option 1 (A-21) allocation (mt)	Non-trawl Option 2 allocation (mt
LEFG 1 (SQ)	200 lbs. / month shelf, shortbelly, and widow rockfishes	0.03	95.9	1,302.9	300
OA 1 (SQ)	200 lbs. / month shelf, shortbelly, and widow rockfishes	0.26			
Totals for Option 1		0.29			
LEFG 2	4,000 lbs./2 months widow rockfish (shelf and shortbelly remain at 200 lbs.)	0.03	95.9	1,302.9	300
OA 2	2,000 lbs./month widow rockfish (shelf and shortbelly remain at 200 lbs.)	0.26			
Totals for Option 2		0.29			

*Includes projection of 44.2 mt for recreational (accounting for increases to CA and OR projections) and 30 mt for LEFG OA south of 40°10' N lat.

Limited Entry and Open Access - Yellowtail Rockfish North of 40°10' N lat.

The Council forwarded a request made by a nearshore fisherman (Table 2-53) to triple the OA limit for yellowtail rockfish from 500 lbs. monthly (status quo; Option 1) to 1,500 lbs. monthly (Option 2). The Council also requested analysis of a proposal to triple the LE trip limit from 1,000 lbs. monthly to 3,000 lbs. monthly in order for it to remain higher than the OA limit.

Option 2 is expected to increase total mortality by 0.4 mt (Table 2-53), landings by 0.38 mt, and ex-vessel revenue by $1,860 from status quo. The projected non-trawl attainment is projected to be low for both trip limits options. Attainments could increase if more targeting occurs with the higher trip limits, but this would not be expected to be problematic given the low non-trawl attainment, mainly due to the non-trawl RCA.

Table 2-53. No Action. Yellowtail rockfish north of 40°10' N. lat. LEFG and OA trip limits and projected non-trawl attainments compared to the 2021 non-trawl allocation.

Option	Trip limit	Projected LEFG OA mortality (mt)	Non-trawl projected mortality (mt) *	Non-trawl Allocation (mt)
LEFG 1 (SQ)	1,000 lbs. / month	1	108.6	597.9
OA 1 (SQ)	500 lbs. / month	2.3		
Total for Option 1		***3.3***		
LEFG 2	3,000 lbs. / month	1	109	
OA 2	1,500 lbs. / month	2.7		
Total for Option 2		***3.7***		

*Projected mortality and allocations are for the entire non-trawl sector including 43 mt for WA, 61 mt for OR, and 1.3 from Ca recreational fisheries.

Limited Entry and Open Access - Canary Rockfish North of 40°10' N. lat.

Canary rockfish is managed with separate HGs and shares for the coastwide non-nearshore fishery, the Oregon nearshore fishery, and the California nearshore fishery. Projections, therefore, have to be specific to each and must also include expected mortality for each fishery where applicable. Specific projections for each fishery are provided in Table 2-54 below and Table 2-63 in Chapter 2.5.2.6. There are also two different canary rockfish allocations being proposed by the Council in 2021-22 that must be considered and that are more fully detailed in Chapter 2.3.2.2. In summary, the first allocation option is the status quo approach from the 2019-20 biennium that applies the pro rata allocation percentages to establish the non-trawl HGs. The second allocation option uses fixed allocation amounts for each non-trawl sector as was done in the 2017-18 biennium.

The status quo trip limits are 300 lbs. bimonthly for both LEFG and OA sectors. The Council forwarded a request to raise the trip limits to 3,000 lbs. bimonthly for LE and 1,000 lbs. monthly for OA (Option 2; Table 2-54). Canary rockfish are similar to yellowtail rockfish in that they are a desirable, but low attainment, stock due to the non-trawl RCA closing their primary shelf habitat. The request for the higher Option 2 canary rockfish trip limits appears to also be mainly about raising the trip limits in order for it to become more economically viable to target canary rockfish.

Option 2 is projected to increase landings by 4.9 mt and ex-vessel revenue by $24,200 from status quo. (Table 2-54). The majority of the projected increases are attributed to LEFG because none of the OA vessels were close to the lower Option 1 trip limits in 2019 that was the base year used in the model. The non-nearshore, Oregon nearshore, and California nearshore fisheries are projected to be well within their 2021-22 harvest guidelines and shares for both allocation options being considered by the Council.

Table 2-54. No Action. Canary rockfish trip limit Options for LEFG and OA North of 40°10' N. lat. and projected total mortality, coastwide, in relation to the non-nearshore and nearshore HGs and shares for both allocation Options being considered. Non-nearshore projected mortality from both north and south of 40°10' N lat. are shown in parentheses (N + S).

Option	Trip limit	Non-nearshore coastwide (mt)	Oregon nearshore (mt)	CA nearshore coastwide (mt)
LEFG 1 (SQ)	300 lbs. / 2 months	1.0 (0.8 + 0.2)	0.8	0.5 (0.1 + 0.4)
OA 1 (SQ)	300 lbs. / 2 months	9.3 (4.5 + 4.8)	0.3	4.1 (0.1 + 4.0)
Total for Option 1		***10.3***	***1.1***	***4.6 (0.2 + 4.4)***
LEFG 2	3,000 lbs. / 2 months	5.3 (2.3 + 3)	3.9	5.0 (1.8 + 3.2)
OA 2	1,000 lbs. / 2 months	32.5 (4.5 + 28)	0.3	28.0 (0.1 + 27.9)
Total for Option 2		***37.8***	***4.2***	***33.0 (1.9 + 31.1)***
Canary rockfish HG allocation Option 1		**40.1**	**23.1**	**63.4**
Canary rockfish HG allocation Option 2		**46.5**	**26.7**	**73.3**

Limited Entry - Pacific Ocean Perch North of 40°10' N. lat.

The Council forwarded a request to double the current 1,800 lb. bimonthly limit (Option 1) to 3,600 lbs. bimonthly (Option 2) for POP based on a proposal from a non-nearshore fisherman (Table 2-55). No increases to LEFG landings or total mortality are projected for Option 2. POP are infrequently encountered in any of the non-trawl sectors as the projected non-trawl mortality of 1.3 mt is minor relative to the 190.5 mt non-trawl allocation for 2021. The primary purpose of the higher trip limit request could be to make it more economically viable to target POP as none of these vessels appear constrained with the lower Option 1 trip limits.

Table 2-55. No Action. Pacific Ocean perch north of 40°10' N. lat. limited entry fixed gear trip limits and projected non-trawl attainments compared to the 2021 non-trawl allocation.

Option	Trip Limit	Projected LEFG mortality (mt)	Non-trawl projected mortality* (mt)	Non-trawl allocation (mt)
1 (SQ)	1,800 lbs. / 2 months	0.2	1.3	190.5
2	3,600 lbs. / 2 months	0.2	1.3	

*Includes recreational and OA projections

Limited Entry and Open Access - Lingcod North of 42° N. Lat.

Lingcod are managed north and south of 40°10' N lat. with stock-specific harvest specifications and non-trawl allocations. In the northern management area, the Council does however use more conservative LEFG and OA trip limits from 40°10′ - 42° N. lat. than north of 42° N lat. to reflect stock assessment differences in the area. The northern lingcod harvest specifications and allocations are based on the more optimistic north of 42° N. lat. stock assessment (66 percent depletion in 2019 reflected in the 2019 catch-only

projection) and a portion of the less optimistic stock assessment for the entire area south of 42° N. lat. (33.7 percent depletion in 2019 reflected in the 2019 catch-only projection).

Commercial fixed gear fisheries value lingcod for their high price, but attainments have been low in recent years. Due to concerns with bycatch of yelloweye rockfish associated with lingcod catch, the Council has recommended, and NMFS has implemented, several catch controls for lingcod (e.g., the non-trawl RCA and low lingcod trip limits).

However, the Council has been able to gradually reduce these controls and increase lingcod trip limits each year since 2016, due to the improving yelloweye rockfish status and by utilizing more accurate discard mortality rates. The GAP has supported a gradual phasing-in of a higher lingcod trip limit to avoid sudden increases in OA effort, flooding the lingcod markets, and potentially increasing yelloweye bycatch

The Baseline 2019 Option 1 lingcod trip limits north of 42° N. lat. are 2,000 lbs. bimonthly for LE and 900 lbs. monthly for OA (Table 2-56). The Council did however adopt even higher trip limits in 2020 to be consistent with their policy to gradually increase limits over time. The 2020 trip limits are 2,600 lbs. bimonthly for LE and 1,200 lbs. monthly for OA.

The Council also requested analysis of even higher Option 2 trip limits in 2021-22 than 2020 to further continue the gradual yearly increases (Table 2-56). The Option 2 trip limits would be 4,000 lbs. bimonthly for LE and 2,000 lbs. monthly for OA. Option 2 is expected to increase the LEFG and OA lingcod ex-vessel revenue by $172,825, landings by 26.4 mt per year and total mortality by 28.4 mt compared to 2019 (Table 2-56). The projected non-trawl attainment for lingcod north of 40°10’ N. lat. is less than 580 mt of the 2021 non-trawl allocation of 2,799.8 mt for both Options.

Regarding yelloweye rockfish bycatch, Option 2 is projected to increase non-nearshore mortality by less than 0.1 mt and Oregon nearshore mortality by 0.1 mt. This causes the non-nearshore projected mortality to increase from 1.3 mt to 1.4 mt of their 1.6 mt ACT (Table 1-24). The Oregon nearshore fishery increases from 1.5 mt to 1.6 mt of their 3.3 mt share of the nearshore ACT.

Table 2-56. No Action. Proposed lingcod north of 42° N. lat. trip limits for LEFG and OA and projected mortality from the non-trawl sectors for the lingcod management area north of 40°10' N lat. compared to the 2021 non-trawl allocation.

Option	Trip limit (North for 42° only)	Non-nearshore N 42° (mt)	Oregon nearshore (mt)	Total projected mortality N of 40°10' (mt)*	Non-trawl alloc. N of 40°10' (mt)
LEFG 1 (SQ)	2,000 lbs. / 2 months	14.2	4.9	549.2	2,799.8
OA 1 (SQ)	900 lbs. / month	28.3	61.5		
Total for Option 1 (SQ)		***42.5***	***66.4***		
LEFG 2	4,000 lbs. / 2 months	14.2	5.9	577.6	
OA 2	2,000 lbs. / month	36.2	81		
Total for Option 2		50.4	86.9		

* Includes 424 mt of projected recreational impacts + 16.3 mt for CA LEFG and OA 40°10'-42° N lat.

In conclusion, the non-trawl fisheries are projected to be well within the lingcod allocation and under the yelloweye rockfish ACTs under Option 2 for LEFG and OA lingcod trip limits north of 42° N lat. However, a potential concern could be that the Option 2 trip limits represent a larger increase than the Council has typically adopted during the gradual phase-in period from 2016-2020. The Council could therefore consider adopting a more gradual phased-in approach consistent with the past and outlined in Table 2-57. In short, the Council would have the 2021-22 limits start out slightly higher than the 2020 limits and could raise the 2021 limits via the inseason process if new data is supportive. This is the same approach adopted for 2019-20 as they started out with lower limits for both years but raised the 2020 limits. No further analysis would be needed to adopt the lower phased-in 2021-22 trip limits because they are within the range analyzed for the higher Option 2.

Table 2-57. No Action. Potential approach to continue a gradual approach of higher phased-in lingcod N. 42° N. lat. trip limits for LEFG and OA as has been done from 2016-2020.

Year	Limited entry	Open access	Comment
2019	2,000 lbs. / 2 months	900 lbs. / month	Lower limit established for both 2019-20
2020	2,600 lbs. / 2 months	1,200 lbs. / month	GMT provides Council for increased limits via inseason action in 2020
2021	3,200 lbs. / 2 months	1,500 lbs. / month	Like 2019-20, could start off with lower limit for both years
2022	4,000 lbs. / 2 months	2,000 lbs. / month	Then consider raising to the full Option 2 limits via inseason based on new data

2.5.2.6 Non-sablefish south of 40°10' N lat. allocations and trip limits for No Action

LE and OA Other - Slope Rockfish and Blackgill Rockfish South of 40°10' N. lat.

As described above in the IFQ section (Chapter 2.3.2.2), the Council requested further analysis of the use of custom Option 2 trawl and non-trawl shares of blackgill rockfish, other southern slope rockfish, and the complex as a whole (to match the allocations from the rescinded FPA on A-26). As part of this Option 2 proposal, the Council requested analysis of higher LE and OA trip limits to reflect the proposed increase to the non-trawl share of blackgill rockfish. Under the status quo (Option 1) A-21 allocation proportions, the 2021 blackgill rockfish HG of 176.5 mt would be spilt 63 percent to trawl (111.2 mt) and 37 percent to non-trawl (65.3 mt). Under the A-26 proportions, the 2021 HG would be split 41 percent to trawl (72.4 mt) and 59 percent to non-trawl (104.2 mt).

Blackgill rockfish south of 40°10' N. lat. status quo and proposed trip limits are in Table 2-58 with the associated projections compared to both allocation options being considered for 2021-2022 in Table 2-59. During the April 2019 inseason agenda item, the Council adopted the action to increase the bimonthly LE and OA trip limits for blackgill rockfish south of 40°10' N. lat. for periods 3 – 6 from 1,375 lbs. per 2 months to 4,000 lbs. per 2 months for LE and from 550 lbs. per 2 months to 800 lbs. per 2 months for OA (Agenda Item G.9.a., Supplemental GMT Report 1, April 2019).

Option 1 (Status quo) is a differential trip limit that increases greatly between Periods 2 and 3, potentially affecting the industry's ability to create sufficient demand and to stabilize markets. Option 2 purposes to make the trip limits consistent year-round and an increase for both LE and OA. Landings are projected to increase by 25.8 mt and ex-vessel revenue by $127,665. Similarly, Options 3 proposes consistency and increases; however, it is only allowable if the Amendment 26 allocation proportions are adopted for blackgill rockfish. Under Option 4 landings are projected to increase by 55.1 mt and ex-vessel revenue by $272,707.

Table 2-58. No Action. Status quo and proposed limited entry and open access for the blackgill rockfish sub trip limit in the Minor slope rockfish and darkblotched south of 40°10 N. lat. trip limit.

Option	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Oct-Sep	Nov-Dec
LEFG 1 (SQ)	40,000 lb./ 2 months, of which no more than 1,375 lb. may be blackgill rockfish		40,000 lb./ 2 months, of which no more than 4,000 lb. may be blackgill rockfish			
OA 1 (SQ)	10,000 lb./ 2 months, of which no more than 475 lb. may be blackgill rockfish		10,000 lb./ 2 months, of which no more than 800 lb may be blackgill rockfish			
LE 2	40,000 lb./ 2 months, of which no more than 6,000 lb. may be blackgill rockfish					
OA 2	10,000 lb./ 2 months, of which no more than 2,500 lb. may be blackgill rockfish					
LE 3	40,000 lb./ 2 months, of which no more than 10,000 lb. may be blackgill rockfish					
OA 3	10,000 lb./ 2 months, of which no more than 4,000 lb. may be blackgill rockfish					

Table 2-59. No Action. Projected blackgill rockfish, other slope rockfish, and darkblotched rockfish mortality compared to the 2021 non-trawl allocations based on A- 21 (SQ) and Amendment 26 allocation proportions.

Option	Blackgill rockfish non-trawl Projected mortality (mt)	Blackgill rockfish non-trawl share based on A-21 proportions (mt)	Blackgill rockfish non-trawl share based on A-26 proportions (mt)	Slope Rockfish Projected mortality (mt)*	Slope rockfish non-trawl share based on A-21 proportions (mt)	Slope rockfish non-trawl share based on A-26 proportions (mt)
LEFG 1 (SQ)	18.9	65.3	104.2	23.9	262.3	152.1
OA 1 (SQ)	2.0			2.4		
Total for Option 1	***20.9***			***26.3***		
LE 2	44.7			49.7		
OA 2	7.8			8.2		
Total for Option 2	***52.5***			***57.9***		
LE 3	***74.0***			***79.0***		
OA 3	***12.4***			***12.8***		
Total for Option 3	***86.4***			***91.8***		

*Slope rockfish projected mortality includes blackgill rockfish and other slope rockfish.

Limited Entry and Open Access - Minor Shelf Rockfish Complex and Vermilion South of 40°10' N. lat.

Since 2003, trip limits for the shelf rockfish complex have included landings of shelf rockfish south, shortbelly, widow rockfish, and chilipepper rockfish with a closure in period 2 (Mar-Apr). This combination as well as the seasonal closure south of 40°10' N lat. were established to reduce take of overfished species (i.e., bocaccio, canary rockfish, widow rockfish). Since the mid to late 1990s, widow rockfish, shortbelly rockfish, and chilipepper rockfish have had individual stock harvest specifications separate from the shelf rockfish complex. As of 2019, all groundfish species except yelloweye rockfish have been declared rebuilt.

The separate, higher harvest specifications and the healthy stock status of shortbelly rockfish, widow rockfish, and chilipepper suggest that removing these individual stocks from the shelf rockfish trip limit is warranted. The seasonal closure also appears no longer necessary given the healthy status of the once overfished species previously protected by the closure. Moreover, creating separate year-round trip limits for the minor shelf rockfish complex south of 40°10' N lat. could provide more opportunity and stability for the commercial non-trawl fishery and flexibility for managers considering future modifications to the non-trawl RCA. However, a sub-limit for the highly attained vermilion rockfish, a stock within the Minor Shelf Rockfish complex, is proposed to reduce take until a stock assessment is conducted.

Table 2-60 provides the status quo and proposed trip limits and impacts for the minor shelf rockfish complex south of 40°10' N lat.

Table 2-60. No Action. Status quo and proposed limited entry and open access for Minor shelf rockfish south of 40°10 N lat. Options and associated projected mortality compared to the 2021 non-trawl allocation.

Option	Area	Trip limit	Projected mortality (mt)	Non-trawl projected mortality (mt) *	Non-trawl alloc. (mt)
LEFG 1 (SQ)	40° 10' to 34° 27' N. lat.	500 lbs. / 2 months	1.7	710.7	1,154.6
	South of 34° 27' N. lat.	4,000 lbs. / 2 months, closed Period 2	22.1		
OA 1 (SQ)	40° 10' to 34° 27' N. lat.	400 lbs. / 2 months, closed Period 2	15.5		
	South of 34° 27' N. lat.	1,500 lbs. / 2 months, closed Period 2	23.3		
Total for Option 1			***62.6***		
LEFG 2	40° 10' to 34° 27' N. lat.	8,000 lbs. / 2 months, of which no more than 500 lbs. may be vermilion	69.5	836.1	
	South of 34° 27' N. lat.	8,000 lbs. / 2 months, of which no more than 3,000 lbs. may be vermilion	38.8		
OA 2	40° 10' to 34° 27' N. lat.	4,000 lbs. / 2 months, of which no more than 400 lbs. may be vermilion	50.2		
	South of 34° 27' N. lat.	3,000 lbs. / 2 months, of which no more than 1,200 lbs. may be vermilion	29.5		
Total for Option 2			***188***		
LEFG 3	South of 40° 10' N. lat.	4,000 lbs. / 2 months, of which no more than 500 lbs. may be vermilion	51.9	766.6	
OA 3	South of 40° 10' N. lat.	3,000 lbs. / 2 months, of which no more than 300 lbs. may be vermilion	66.6		
Total for Option 3			***118.5***		

***** Includes CA recreational maximum impact of 648.1 mt.

The projected mortality shown for these Options include only minor shelf rockfish to better compare to the non-trawl allocation, although the status quo trip limit includes widow rockfish, shortbelly rockfish, and chilipepper. For Option 2, which would maintain area specific trip limits, landings for the area between 40°10' and 34°27' N. lat. are projected to increase by 102.5 mt and ex-vessel revenue by $673,402 and for south of 34°27' N. lat. landings are projected to increase by 22.9 mt and ex-vessel revenue by $138,839. Under the Option 3 trip limits, mortality of minor shelf rockfish, including vermilion rockfish, is also projected to remain below the minor shelf rockfish complex non-trawl allocation, although landings are projected to increase by 55.9 mt and ex-vessel revenue by $332,744.

Limited Entry and Open Access - Widow Rockfish South of 40°10' N lat.

As discussed above, widow rockfish has been combined with minor shelf rockfish, shortbelly rockfish, and chilipepper since 2003 in a single trip limit to reduce the take of overfished species even though it has its own coastwide harvest specification. The 2015 stock assessment of widow rockfish estimated a less depleted stock status (a relative biomass that was well above the target) compared to previous assessments, leading to the Council's adoption of significantly higher widow rockfish ACLs in the 2017-2018 harvest specifications and management measures cycle. With a healthy stock status and individual harvest specification, creating a separate, year-round trip limit (i.e. removing period 2 [March-April] closure) for widow rockfish will provide more opportunity and stability for the commercial non-trawl fishery. Furthermore, the proposed higher trip limits for widow rockfish south of 40°10' N. lat. could provide opportunities for the non-trawl sector to attain more of the midwater rockfish.

The LE and OA status quo and proposed trip limit for widow rockfish south of 40°10' N. lat. with their respective projected mortality are in Table 2-61. The projected coastwide mortality for the proposed widow rockfish trip limits north and south of 40°10' N. lat. are projected below the coastwide non-trawl allocations for both allocation options (Option 1= status quo A-21 allocation; Option 2 =300 mt allocation for the non-trawl sector. Under trip limit Option 2, landings for the area between 40°10' and 34°27' N latitude are projected to increase by 27.5 mt and ex-vessel revenue by $155,169 and for south of 34°27; N latitude landings are projected to increase by 11.71 mt and ex-vessel revenue by $68,681. Under Option 3, landings are projected to increase by 50.3 mt and ex-vessel revenue by $268,287.

Table 2-61. No Action. Status quo and proposed trip limits Options for widow rockfish south of 40°10' N. lat. with the projected mortality compared to the 2021 non-trawl allocations.

Option	Area	Trip limit	Projected mortality (mt)	Non-trawl projected mortality (mt) *	Non-trawl alloc. Option 1 (A-21) (mt)	Non-trawl alloc. Option 2 (mt)
LEFG 1 (SQ)	40° 10' to 34° 27' N. lat.	Minor shelf, shortbelly, widow and chilipepper rockfishes: 2,500 lb./ 2months, of which no more than 500 lbs. /2 month may be any species other than chilipepper	0.2	36.2	1,302.9	300
	S of 34° 27' N. lat.	4,000 lbs. / 2 months, closed Period 2	2.0			
OA 1 (SQ)	40° 10' to 34° 27' N. lat.	400 lbs. / 2 months, closed Period 2	0.4			
	S of 34° 27' N. lat.	1,500 lbs. / 2 months, closed Period 2	0.1			
Totals for Option 1			***1.4***			
LEFG 2	40° 10' to 34° 27' N. lat.	10,000 lbs / 2 months	6.1	75.1		
LEFG 2	S of 34° 27' N. lat.	8,000 lbs / 2 months	12.5			
OA 2	40° 10' to 34° 27' N. lat.	6,000 lbs / 2 months	21.9			
OA 2	S of 34° 27' N. lat.	4,000 lbs / 2 months	0.2			
Total for Option 2			*43.5*			
LEFG 3	S of 40° 10' N. lat.	10,000 lbs. / 2 months	25.6	86.2		
OA 3	S of 40° 10' N. lat.	6,000 lbs. / 2 months	25.8			
Totals for Option 3			***51.4***			

**Includes 0.3 mt for non-trawl commercial fisheries north of 40°10' N. lat, an OR recreational impact of 13.2 mt, and a CA recreational impact of 30.2, and < 1 mt for WA recreational.*

Limited Entry and Open Access - Chilipepper Rockfish South of 40°10' N. lat.

Like shortbelly and widow rockfish, chilipepper rockfish was grouped with the minor shelf rockfish complex in 2003 into a single trip limit with a seasonal closure to help reduce the take of overfished species.

Chilipepper south of 40°10' N. lat. also has its own harvest specifications, much like widow rockfish and shortbelly rockfish. Creating separate and year-round trip limits would reduce regulatory complexity, and provide more flexibility, opportunity to diversify catch, and stability for the commercial non-trawl fishery. Projected mortality of chilipepper south of 40°10' N. lat. under LE and OA status quo and proposed trip limits were below the non-trawl allocation for the stock (Table 2-62). Under Option 1 landings are projected to increase by 10.9 mt and ex-vessel revenue by $48,717). Under trip limit Option 2, landings for the area between 40°10' and 34°27' N latitude are projected to increase by 22.7 mt and ex-vessel revenue by $101,607 and for south of 34°27; N latitude landings are projected to increase by 0.4 mt and ex-vessel revenue by $1,874. Under Option 3, landings are projected to increase by 10.9 mt and ex-vessel revenue by $66,433.

Table 2-62. No Action. Status quo and proposed trip limits for chilipepper south of 40°10' N. lat. with the projected mortality compared to the 2021 non-trawl allocation.

Option	Area	Trip limit	Projected impact (mt)	Non-trawl projected impact (mt) *	Non-trawl alloc. (mt)
LEFG 1 (SQ)	40° 10' to 34° 27' N. lat.	Minor shelf, shortbelly, widow and chilipepper rockfishes: 2,500 lb/ 2 months, of which no more than 500 lbs. /2 month may be any species other than chilipepper	4.9	11.5	540.3
	S of 34° 27' N. lat.	2,000 lbs. / 2 months, this opportunity only available seaward of the non-trawl RCA	0.1		
OA 1 (SQ)	40° 10' to 34° 27' N. lat.	400 lbs. / 2 months, closed Period 2	0.2		
	S of 34° 27' N. lat.	1,500 lbs. / 2 months, closed Period 2	0.2		
Total for Option 1			***5.6***		
LEFG 2	40° 10' to 34° 27' N. lat.	10,000 lbs / 2 months	19.8	38.9	
	S of 34° 27' N. lat.	8,000 lbs / 2 months	0.2		
OA 2	40° 10' to 34° 27' N. lat.	6,000 lbs / 2 months	12.2		
	S of 34° 27' N. lat.	4,000 lbs / 2 months	0.6		
Total for Option 2			***38.8***		
LEFG 3	S of 40° 10' N. lat.	10,000 lbs. / 2 months chilipepper	20.1	47.1	
OA 3	S of 40° 10' N. lat.	6,000 lbs. / 2 months chilipepper	21.2		
Total for Option 3			***41.2***		

***** Includes a CA recreational maximum impact of 50 mt based on No Action Sub-Option 3.

Limited Entry and Open Access - Canary Rockfish South of 40°10' N. lat.

As mentioned above in Chapter 2.5.2.5, canary rockfish is managed with separate HGs and shares to each fishery within the non-trawl sector under a coastwide ACL. Given the separate HGs and shares, impact projections must be specific to each fishery and must also include expected mortality for each fishery where applicable. Specific projections for each fishery are provided in Table 2-63 and above in Table 2-54 in Chapter 2.5.2.5. Furthermore, there are the two different canary rockfish allocations being proposed by the Council in 2021-22 that must be considered and are provided for reference in Table 2-63 below.

Since the 2017-18 biennium, when retention of canary rockfish was once again permitted, the Council has taken a precautionary approach to managing the stock by implementing low coastwide trip limits to reduce regulatory discarding and to prevent targeting. Given the re-emergence of midwater rockfish fishery in the trawl sector and the anticipated major modifications to the non-trawl RCA in the near future, providing more and equitable opportunities to attain midwater rockfish in the non-trawl sectors may be warranted for the 2021-22 biennium. The coastwide projected mortality for canary rockfish is within the HGs and shares for each fishery. The projected mortality for canary rockfish south of 40°10' N. lat. are projected to increase landings by 50.8 mt and ex-vessel revenue by $310,305.

Table 2-63. No Action. Canary rockfish trip limit Options for LE and OA south of 40°10' N. lat. and coastwide projected total mortality in relation to the non-nearshore and nearshore HGs and shares for both allocation Options being considered. Non-nearshore projected mortality from both north and south of 40°10' N. lat. are shown in parentheses (N + S).

Option	Trip limit	Non-nearshore coastwide	OR nearshore	CA nearshore coastwide
LEFG 1 (SQ)	300 lbs. / 2 months, closed Period 2	1.0 (0.8 + 0.2)	0.8	0.5 (0.1 + 0.4)
OA 1 (SQ)	300 lbs. / 2 months, closed Period 2	9.3 (4.5 + 4.8)	0.3	4.1 (0.1 + 0.4)
Total for Option 1		***10.3***	***1.1***	***4.6 (0.2 + 4.4)***
LEFG 2	3,500 lbs. / 2 months	5.3 (2.3 + 3)	3.9	5.0 (1.8 + 3.2)
OA 2	1,500 lbs. / 2 months	32.5 (4.5 + 28)	0.3	28.0 (0.1 + 27.9)
Total for Option 2		***37.8***	***4.2***	***33.0 (1.9 + 31.1)***
Canary rockfish HG allocation Option 1		**40.1**	**23.1**	**63.4**
Canary rockfish HG allocation Option 2		**46.5**	**26.7**	**73.3**

Limited Entry and Open Access - Bocaccio South of 40°10' N. Lat.

In 1999, bocaccio south of 40°10' N lat. was declared overfished, and major trip limit reductions as well as seasonal closures began in 2000 to reduce take of the stock. In 2017, the stock was declared rebuilt, so LEFG trip limits were increased to more fully attain the higher harvest specifications and OA trip limits were increased to reduce discards. During the 2019-2020 biennium, the ACLs for bocaccio increased significantly compared to the 2017-2018 biennium, from 790 mt in 2017 to 2,011 mt in 2020. These higher ACLs allowed the Council to increase non-trawl fishery opportunities with greater LE trip limits and recreational bag limits. Although the 2021-2022 ACLs are less than in 2019-2020, the stock remains healthy and the ACLs continue to provide greater opportunity to the commercial non-trawl fishery.

Table 2-64 shows the proposed trip limits and the projected mortality compared to the 2021 non-trawl allocation. The proposed trip limits include increases for both LE and OA sectors and remove the period 2 (Mar-Apr) closure, which could increase flexibility and stability for the fixed gear fleet and reduce management complexity. The projected mortality for bocaccio south of 40°10' N lat. is below the commercial share and the non-trawl allocation for all three options. Projected landings would increase from status quo under Option 2 by 85.4 mt and ex-vessel revenue by $397,321 and under Option 3, landings increase by 227.7 mt and ex-vessel by $ 1,059,176.

Table 2-64. No Action. Status quo and proposed trip limits for bocaccio south of 40°10' N. lat. with the projected mortality compared to the 2021 non-trawl allocation.

Option	Trip limit	Projected mortality (mt)	Commercial share (mt)	Non-trawl projected mortality (mt) *	Non-trawl share (mt)
LEFG 1 (SQ)	1,500 lbs./2 months, closed Period 2	11.0	315.7	732.0	1,021.80
OA 1 (SQ)	500 lbs./ 2 months, closed Period 2	4.9			
Total for Option 1		***15.8***			
LEFG 2	6,000 lbs./ 2 months	56.8		817.4	
OA 2	4,000 lbs./ 2 months	44.4			
Total for Option 2		***101.2***			
LEFG 2	14,000 lbs./ 2 months	*132.4*		*959.7*	
OA 2	10,000 lbs./ 2 months	*111.1*			
Total for Option 3		***243.5***			

* Includes a CA recreational maximum impact of 716.2 mt based on No Action Sub-Option 3.

Limited Entry and Open Access - Lingcod South of 40°10' N. Lat.

Under the No Action alternative for lingcod south of 40° 10' N. lat. there is a proposal to remove the Period 2 (Mar-Apr) closure along with three sector allocation proportion options: Option 1 (status quo) - 45 percent trawl / 55 percent non-trawl, Option 2 - 43 percent trawl / 57 percent non-trawl, and Option 3 - 25 percent trawl / 75 percent non-trawl. See Chapter 2.2.1 and Chapter 2.3 for more detail on these proposed allocation changes. The 2021 non-trawl allocations under each option is provided in Table 2-65.

In 1999, the coastwide lingcod stock was declared overfished and seasonal closures began in 2000 for lingcod south of 40°10' N. lat. to help reduce the harvesting of the overfished stock. In 2005, the coastwide stock was declared rebuilt. However, the 2017 stock assessment suggested a less optimistic outlook for the stock south of 42° N lat. resulting in reduced harvest limits for 2019. A catch-only update of the 2017 lingcod stock assessment in 2019 resulted in slight increase to the 2021-22 harvest specifications compared to the results of the stock assessment. The increase translates into approximately 34 mt more in the non-trawl sector for 2021 and approximately 73 mt in 2021 compared to 2019, under status quo allocation proportions, allowing for the removal of the period 2 (Mar-Apr) closure. Proposed trip limits and projected mortality for lingcod south of 40°10 N. lat. compared to the 2021 sector allocation Options are in Table 2-65. The projected mortality for lingcod south of 40°10' N. lat. fall within the non-trawl allocation for all three allocation options. Non-nearshore landings are projected to increase landings by 5.1 mt and ex-vessel revenue by $35,783 and overall (non-nearshore and nearshore) landings are projected to increase landings by 10 mt and ex-vessel revenue by $61,862.

Table 2-65. No Action. Status quo and proposed trip limits for lingcod south of 40°10' N. lat. with the projected mortality compared to the 2021 non-trawl allocation.

Option	Trip limit	Non-nearshore (mt)	Nearshore (mt)	Total projected Non-trawl mortality (mt)*	Non-trawl alloc. Option 1 (A-21) (mt)	Non-trawl alloc. Option 2 (mt)	Non-trawl alloc. Option 3 (mt)
LEFG 1 (SQ)	1,200 lbs. / 2 months, closed period 2	3.0	3.9	480.3	599	620.7	816.8
OA 1 (SQ)	500 lbs. / month, closed period 2	29.9	24.0				
Total for Option 1 (SQ)		***32.9***	***27.9***				
LEFG 2	1,200 lbs. / 2 months	3.4	4.4	489.5			
OA 2	500 lbs. / month	34.6	28.5				
Total for Option 2		***38***	***32***				

* Includes a CA recreational maximum impact of 419.5 mt.

2.5.3 Impact (Groundfish Mortality) – Non-Nearshore North of 36° N. lat.

The non-nearshore model projects mortality of overfished and non-overfished species for the LEFG and the OA sectors north of 36° N. lat. and seaward of the non-trawl RCA, based on the northern sablefish ACLs (see Table 2-1). The sablefish north stock is the primary target and provides the main source of revenue in both sectors. The bycatch projections are based on the assumption that the LE and OA allocations for sablefish are completely harvested. The projected species mortality, as a result of harvesting the sablefish allocations, was evaluated using 2002-2018 WCGOP data in the non-nearshore model under both apportionment Methods, long-term average (Method 1;Table 2-66 and Table 2-67) and rolling 5-year average (Method 2 Table 2-68 and Table 2-69). Additionally, the non-nearshore sector is projected to be within their yelloweye rockfish ACTs of 1.6 mt in 2021-2022 under No Action (Table 2-70).

Table 2-66. No Action. Projected non-nearshore groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2021 compared to the non-trawl allocation (excluding proposed routine adjustments). Projections are based on a sablefish default harvest control rule of P* of 0.4 and a long-term average ACL apportionment Method (Method 1).

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. (mt) [a/]
Arrowtooth flounder	Coastwide	51.91	8.73	60.63	391.9
Big skate	Coastwide	7.88	1.34	9.23	71.0
Black rockfish	California	0.02	0.00	0.02	339.7
Bocaccio	S. of 40° 10' N. lat.	0.28	0.08	0.36	1,036.4
Canary rockfish [b/]	Coastwide	1.22	0.21	1.42	351.6
Chilipepper rockfish	S. of 40° 10' N. lat.	0.38	0.11	0.49	565.1
Darkblotched rockfish	Coastwide	5.24	0.98	6.22	42.4
Dover sole	Coastwide	5.53	1.16	6.68	2420.1
English sole	Coastwide	0.03	0.01	0.04	446.2
Lingcod	N. of 40° 10' N. lat.	13.83	1.93	15.76	2799.8
Lingcod	S. of 40° 10' N. lat.	1.71	1.74	3.44	599
Longnose skate	Coastwide	64.15	11.71	75.87	157.2
Longspine thornyhead	N. of 34° 27' N. lat.	1.75	0.43	2.18	129
Mixed thornyheads		0.86	0.23	1.08	--
Pacific cod	Coastwide	2.19	0.37	2.56	54.7
Pacific hake	Coastwide	0.78	0.14	0.92	0.0
Pacific ocean perch	N. of 40° 10' N. lat.	0.65	0.11	0.76	191.5
Petrale sole	Coastwide	1.23	0.22	1.45	186.4
Shortbelly rockfish	Coastwide	0.00	0.00	0.01	0.0
Shortspine thornyhead	N. of 34° 27' N. lat.	28.71	6.19	34.90	67.5
Spiny dogfish	Coastwide	121.82	20.93	142.75	--
Splitnose rockfish	S. of 40° 10' N. lat.	0.05	0.02	0.07	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.20	0.03	0.24	1,302.9
Yellowtail rockfish	N. of 40° 10' N. lat.	0.95	0.16	1.11	597.9
Black/Blue/Deacon rockfish/	Oregon	0.01	0.00	0.01	559.3
Minor nearshore rockfish	N. of 40° 10' N. lat.	0.12	0.02	0.14	73.9
Minor nearshore rockfish	S. of 40° 10' N. lat.	0.00	0.00	0.00	1,005.5
Minor shelf rockfish	N. of 40° 10' N. lat.	5.18	0.87	6.05	571.4
Minor shelf rockfish	S. of 40° 10' N. lat.	0.10	0.03	0.13	1163.6
Minor slope rockfish	N. of 40° 10' N. lat.	93.73	15.61	109.34	290.3
Minor slope rockfish	S. of 40° 10' N. lat.	19.50	6.87	26.37	247.9
Cabezon/Kelp greenling c/	Oregon	0.01	0.00	0.01	189.7
Other flatfish	Coastwide	0.26	0.04	0.31	458.1
Other groundfish		0.00	0.00	0.00	--
Other rockfish		0.11	0.03	0.14	--
Ecosystem component species		71.99	18.40	90.38	--

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

b/ The non-nearshore share for canary rockfish in 2021 is 40.1 mt.

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

Table 2-67. No Action. Projected groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2022 compared to the non-trawl allocation. Projections are based on a sablefish default harvest control rule of P* of 0.4 and a long-term average ACL apportionment Method (Method 1).

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. (mt) [a/]
Arrowtooth flounder	Coastwide	49.38	8.72	58.10	318.1
Big skate	Coastwide	7.50	1.34	8.84	66.6
Black rockfish	California	0.01	0.00	0.02	339.7
Bocaccio	S. of 40° 10' N. lat.	0.26	0.07	0.34	1,021.8
Canary rockfish [b/]	Coastwide	1.16	0.21	1.36	344.0
Chilipepper rockfish	S. of 40° 10' N. lat.	0.36	0.10	0.46	542.7
Darkblotched rockfish	Coastwide	4.98	0.98	5.96	39.9
Dover sole	Coastwide	5.26	1.14	6.40	2,420.1
English sole	Coastwide	0.03	0.01	0.04	442.5
Lingcod	N. of 40° 10' N. lat.	13.15	1.93	15.09	2,573.0
Lingcod	S. of 40° 10' N. lat.	1.62	1.72	3.34	638.3
Longnose skate	Coastwide	61.03	11.61	72.64	151.0
Longspine thornyhead	N. of 34° 27' N. lat.	1.67	0.41	2.08	119.9
Mixed thornyheads		0.82	0.21	1.03	--
Pacific cod	Coastwide	2.08	0.37	2.46	54.7
Pacific hake	Coastwide	0.74	0.14	0.88	0.0
Pacific ocean perch	N. of 40° 10' N. lat.	0.62	0.11	0.72	184.3
Petrale sole	Coastwide	1.17	0.22	1.39	162.5
Shortbelly rockfish	Coastwide	0.00	0.00	0.00	0.0
Shortspine thornyhead	N. of 34° 27' N. lat.	27.31	6.03	33.34	67.5
Spiny dogfish	Coastwide	115.89	20.90	136.80	--
Splitnose rockfish	S. of 40° 10' N. lat.	0.04	0.02	0.06	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.19	0.03	0.23	1,302.9
Yellowtail rockfish	N. of 40° 10' N. lat.	0.90	0.16	1.06	596.6
Black/Blue/Deacon rockfish[c/]	Oregon	0.01	0.00	0.01	559.3
Minor nearshore rockfish	N. of 40° 10' N. lat.	0.12	0.02	0.14	73.9
Minor nearshore rockfish	S. of 40° 10' N. lat.	0.00	0.00	0.00	1,005.5
Minor shelf rockfish	N. of 40° 10' N. lat.	4.93	0.87	5.80	547.1
Minor shelf rockfish	S. of 40° 10' N. lat.	0.09	0.03	0.12	1,154.7
Minor slope rockfish	N. of 40° 10' N. lat.	89.16	15.61	104.77	285.2
Minor slope rockfish	S. of 40° 10' N. lat.	18.55	6.61	25.16	246.5
Cabezon/Kelp greenling	Oregon	0.01	0.00	0.01	189.7
Other flatfish	Coastwide	0.25	0.04	0.30	461.7
Other groundfish		0.00	0.00	0.00	--
Other rockfish		0.10	0.03	0.13	--

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. (mt) [a/]
Ecosystem component species		68.48	17.64	86.12	--

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

b/ The non-nearshore share for canary rockfish in 2022 is 39.1 mt.

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

Table 2-68. No Action. Projected non-nearshore groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2021 compared to the non-trawl allocation (excluding proposed routine adjustments). Projections are based on a sablefish default harvest control rule of P* of 0.45 and a long-term average ACL apportionment method (Method 2).

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. (mt) [a/]
Arrowtooth flounder	Coastwide	55.32	9.30	64.62	391.9
Big skate	Coastwide	8.40	1.43	9.83	71.0
Black rockfish	California	0.02	0.00	0.02	346.7
Bocaccio	S. of 40° 10' N. lat.	0.30	0.08	0.38	1,036.4
Canary rockfish [b/]	Coastwide	1.30	0.22	1.52	352.4
Chilipepper rockfish	S. of 40° 10' N. lat.	0.41	0.11	0.52	567.4
Darkblotched rockfish	Coastwide	5.58	1.05	6.63	42.4
Dover sole	Coastwide	5.89	1.23	7.12	2,420.1
English sole	Coastwide	0.03	0.01	0.04	446.2
Lingcod	N. of 40° 10' N. lat.	14.73	2.06	16.79	2,799.8
Lingcod	S. of 40° 10' N. lat.	1.82	1.85	3.67	599.0
Longnose skate	Coastwide	68.37	12.48	80.85	157.2
Longspine thornyhead	N. of 34° 27' N. lat.	1.87	0.45	2.32	129.0
Mixed thornyheads		0.91	0.24	1.15	--
Pacific cod	Coastwide	2.33	0.40	2.73	54.7
Pacific hake	Coastwide	0.83	0.15	0.98	0.0
Pacific ocean perch	N. of 40° 10' N. lat.	0.69	0.12	0.80	191.5
Petrale sole	Coastwide	1.31	0.23	1.55	129.4
Shortbelly rockfish	Coastwide	0.00	0.00	0.01	0.0
Shortspine thornyhead	N. of 34° 27' N. lat.	30.59	6.59	37.19	67.5
Spiny dogfish	Coastwide	129.82	22.31	152.13	--
Splitnose rockfish	S. of 40° 10' N. lat.	0.05	0.02	0.07	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.22	0.04	0.25	1,302.9
Yellowtail rockfish	N. of 40° 10' N. lat.	1.01	0.17	1.18	596.6
Black/Blue/Deacon rockfish [c/]	Oregon	0.01	0.00	0.01	567.3
Minor nearshore rockfish	N. of 40° 10' N. lat.	0.13	0.02	0.15	75.9
Minor nearshore rockfish	S. of 40° 10' N. lat.	0.00	0.00	0.00	1,011.5
Minor shelf rockfish	N. of 40° 10' N. lat.	5.52	0.93	6.45	571.4
Minor shelf rockfish	S. of 40° 10' N. lat.	0.10	0.03	0.14	1,163.5

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. (mt) [a/]
Minor slope rockfish	N. of 40° 10' N. lat.	99.88	16.64	116.52	290.3
Minor slope rockfish	S. of 40° 10' N. lat.	20.78	7.32	28.10	247.9
Cabezon/Kelp greenling	Oregon	0.01	0.00	0.01	197.7
Other flatfish	Coastwide	0.28	0.05	0.33	458.1
Other groundfish		0.00	0.00	0.00	--
Other rockfish		0.12	0.03	0.15	--
Ecosystem component species		76.71	19.61	96.32	--

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

b/ The non-nearshore share for canary rockfish in 2021 is 40.1 mt.

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

Table 2-69. No Action. Projected groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2022 compared to the non-trawl allocation. Projections are based on a sablefish default harvest control rule of P* of 0.45 and a long-term average ACL apportionment method (Method 2).

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. [a/] (mt)
Arrowtooth flounder	Coastwide	52.63	9.30	61.92	318.1
Big skate	Coastwide	7.99	1.43	9.42	66.6
Black rockfish	California	0.02	0.00	0.02	339.7
Bocaccio	S. of 40° 10' N. lat.	0.28	0.08	0.36	1,021.8
Canary rockfish [b/]	Coastwide	1.23	0.22	1.45	344.0
Chilipepper rockfish	S. of 40° 10' N. lat.	0.39	0.11	0.50	542.7
Darkblotched rockfish	Coastwide	5.31	1.04	6.35	39.9
Dover sole	Coastwide	5.60	1.22	6.82	2,420.1
English sole	Coastwide	0.03	0.01	0.04	442.5
Lingcod	N. of 40° 10' N. lat.	14.02	2.06	16.08	2,573.0
Lingcod	S. of 40° 10' N. lat.	1.73	1.83	3.56	638.3
Longnose skate	Coastwide	65.04	12.38	77.42	151.0
Longspine thornyhead	N. of 34° 27' N. lat.	1.78	0.44	2.21	119.9
Mixed thornyheads		0.87	0.23	1.10	--
Pacific cod	Coastwide	2.22	0.40	2.62	54.7
Pacific hake	Coastwide	0.79	0.15	0.94	0.0
Pacific ocean perch	N. of 40° 10' N. lat.	0.66	0.12	0.77	184.3
Petrale sole	Coastwide	1.25	0.23	1.48	162.5
Shortbelly rockfish	Coastwide	0.00	0.00	0.01	0.0
Shortspine thornyhead	N. of 34° 27' N. lat.	29.11	6.42	35.53	67.5
Spiny dogfish	Coastwide	123.51	22.28	145.78	--
Splitnose rockfish	S. of 40° 10' N. lat.	0.05	0.02	0.07	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.20	0.04	0.24	1,302.9
Yellowtail rockfish	N. of 40° 10' N. lat.	0.96	0.17	1.13	596.6

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. [a/] (mt)
Black/Blue/Deacon rockfish[c/]	Oregon	0.01	0.00	0.01	559.3
Minor nearshore rockfish	N. of 40° 10' N. lat.	0.13	0.02	0.15	73.9
Minor nearshore rockfish	S. of 40° 10' N. lat.	0.00	0.00	0.00	1,005.5
Minor shelf rockfish	N. of 40° 10' N. lat.	5.25	0.93	6.18	547.1
Minor shelf rockfish	S. of 40° 10' N. lat.	0.10	0.03	0.13	1,154.7
Minor slope rockfish	N. of 40° 10' N. lat.	95.02	16.64	111.66	285.2
Minor slope rockfish	S. of 40° 10' N. lat.	19.77	7.05	26.82	246.5
Cabezon/Kelp greenling	Oregon	0.01	0.00	0.01	189.7
Other flatfish	Coastwide	0.27	0.05	0.31	461.7
Other groundfish		0.00	0.00	0.00	--
Other rockfish		0.11	0.03	0.14	--
Ecosystem component species		72.98	18.80	91.78	--

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

b/ The non-nearshore share for canary rockfish in 2022 is 39.1 mt.

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

Table 2-70. No Action. Non-nearshore yelloweye rockfish projected mortality, harvest guideline, and annual catch target in 2021-2022.

Year	Projected mortality estimate (mt)	HG (mt)	ACT (mt)	Non-Trawl Allocation 2021 (mt)
2021	1.3	2.0	1.6	37.9
2022	1.3	2.1	1.6	38.8

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

Due to a lack of a projection model, mortality is expected to be the same as shown in Table 1-21.

2.5.5 Nearshore Trip Limit Analysis

The following trip limit adjustments are proposed for the nearshore fishery under No Action: increases for lingcod north 42° N. lat. and the removal of the period 2 (Mar-Apr) closure south of 40°10' N. lat. for nearshore rockfish (shallow and deeper), lingcod, and California scorpionfish. In the event the projected yelloweye rockfish mortality is expected to exceed the nearshore share or non-trawl allocation, routine adjustments of the shoreward non-trawl RCA or reduced trip limits for nearshore species could occur. Other proposed trip limit changes will have little to no impact on the nearshore fishery, as these species are not encountered often in the nearshore. These include the following: increases to shortspine thornyhead, darkblotched and slope rockfish, yellowtail rockfish, canary rockfish, POP, and shelf rockfishes. The background for these trip limit increases are described in greater detail in Chapter 2.5.2 since the same trip limits pertain to both the nearshore and non-nearshore.

Limited Entry and Open Access - Lingcod North of 40°10′ N. Latitude

As described in the non-nearshore section (Chapter 2.5.2), there are proposals to increase the LEFG and OA trip limits for lingcod to the north of 42° and for the area between 42° - 40°10′ N. lat. Lingcod are managed with separate harvest specifications and allocations to the north and south of 40°10' N. lat. The trip limits north of 42° N. lat. only affect the Oregon nearshore fishery. The status quo Option 1 trip limits would be 2,000 lbs. bimonthly for LEFG and 900 lbs. monthly for OA (Table 2-65). The higher Option 2 trip limits would be 4,000 lbs. bimonthly for LEFG and 2,000 lbs. bimonthly for OA. Option 2 is expected to increase Oregon nearshore landings by 20.5 mt and is projected to increase yelloweye rockfish by 0.1 mt from 1.5 mt (Table 2-74) to 1.6 mt, which remains well within the Oregon share of the ACT. Total lingcod mortality for the non-trawl fisheries is projected to be less than 600 mt for both Options when also accounting for recreational impacts, which is well within the 2,799.8 mt non-trawl allocation for 2021.

Limited Entry and Open Access - Lingcod South of 40°10′ N. Lat.

Also described in the non-nearshore section (Chapter 2.5.2), there is a proposal to remove the period 2 (Mar-Apr) closure for the LEFG and OA sectors for lingcod to the south of 40°10′ N. latitude. Table 2-65 provides the status quo (Option 1) and proposed (Option 2) trip limits and projected mortality compared to the non-trawl allocation. Option 1 would be 1,200 lbs. bimonthly, closed period 2, for LEFG and 500lbs. monthly, closed period 2, for OA. Option 2 proposed 1,200 lbs. bimonthly for LEFG and 500lbs. monthly for OA. Option 2 is expected to increase California nearshore landings by 3.8 mt and ex-vessel revenue by $21,388 and increase total (non-nearshore and nearshore) landings by 10 mt and ex-vessel revenue by $61,862. Yelloweye rockfish impacts are projected to increase by 0.1 mt from 0.5 mt (Table 2-74) to 0.6 mt, which remains within the ACT and HG. Total mortality for the non-trawl fisheries is projected to be less than 32 mt for both Options, which is well within the 599 mt status quo (A- 21) non-trawl allocation for 2021.

Limited Entry and Open access – Shallow and Deeper Nearshore Rockfish South of 40°10′ N. Latitude

Seasonal closures south of 40°10’ N. lat. were first implemented in the groundfish fishery in 2000 to help reduce the harvest of overfished species. Between 2000 and 2004, there were various seasonal closures throughout the year in the area between 40°10’ and 34°27’ N. lat. and south of 34°27’ N. lat. Since 2005, the nearshore fishery has had period 2 (Mar-Apr) closure. Similarly, to the south of 40°10’ N. lat. rockfish and lingcod trip limit proposal in the non-nearshore section, there is a proposal to remove the period 2 closure for the Shallow and Deeper Nearshore rockfish trip limits. The modifications to the trip limits could provide flexibly and stability for the fixed gear fleet by creating a year-round fishery as well as reduce management complexity.

Table 2-71 shows the proposed trip limits and the projected mortality compared to the 2021 non-trawl allocation for nearshore rockfish south of 40°10’ N. lat. The proposed trip limits (Option 2) removes the period 2 closure. While the nearshore fishery is considered a federal OA fishery, it is a state restricted access fishery, and therefore the table breaks down the projected mortality for shallow and deeper trip limits opposed to LE and OA. The projected mortality for shallow and deeper nearshore rockfish fall within the nearshore rockfish south of 40°10’ N. lat. non-trawl allocation. The adjustment to the shallow nearshore trip limit is projected to increase landings by 8.8 mt and ex-vessel revenue ranging from $77,829 to $144,345 depending on the live-fish market. The adjustment to the shallow nearshore trip limit is projected to increase landings by 54 mt and ex-vessel revenue ranging from $475,000to $880,958 depending on the

live-fish market. The adjustment to the deeper nearshore trip limit is projected to increase landings by 54 mt and ex-vessel revenue ranging from $219,245 to $1,054,568 depending on the live-fish market.

Table 2-71. No Action. Status quo and proposed trip limits for nearshore rockfish south of 40°10' N. lat. with shallow and deeper nearshore projected mortalities compared to the 2021 non-trawl allocation.

Option	Trip limit	Projected mortality (mt)	Non-trawl projected mortality (mt)*	Non-trawl alloc. (mt)
Shallow 1 (SQ)	1,200 lbs. / 2 months, closed period 2	57.6	664.0	1011.6
Deeper 1 (SQ)	1,200 lbs. / 2 months, closed period 2	58.1		
Total nearshore Option 1 (SQ)		***115.7***		
Nearshore 2	2,000 lbs/ 2 months	66.5	797.1	
Deeper 2	2,000 lbs/ 2 months	62.8		
Total nearshore Option 2		***212.8***		

*Include a CA recreational mortality projection of 584.3 mt.

Limited Entry and Open Access – California Scorpionfish South of 40°10′ N. Latitude

Similar to nearshore rockfish and lingcod, the seasonal closures for California scorpionfish began in 2000. The seasonal closures were intended to keep harvesting within the recalculated optimal yield (OY) under the newly implemented Marine Life Management Act (MLMA) and Nearshore Fishery Management Plan (FMP). Since 2005, the season closure has been period 2 (Mar-Apr). In 2017, the stock was assessed, and the results indicated the stock was healthy, in an upward trajectory, and well above the management target. The positive outcome of the assessment led to significant increases in the harvest specifications which allowed for year-round opportunity in the recreational fishery for the 2019- 2020 biennium.

During the March 2019 meeting, the Council received an inseason action request from a southern California Nearshore Fishery participant to remove the period 2 closure for California scorpionfish. At that time, it was determined the request did not meet the requirements of the Administrative Procedures Act to waive notice and comment through inseason action but it could be evaluated as part of the 2021-2022 biennial cycle.

Table 2-72 provides the proposed trip limit and projected mortality compared to the 2021 non-trawl allocation for California scorpionfish. The proposed trip limit (Option 2) removes the period 2 closure and increase the bimonthly limit from 1,500 lbs. to 3,500 lbs. As noted above, the nearshore fishery is considered a federal OA fishery yet a state restricted access fishery, therefore the table only provides projected mortality for Option 1 (status quo) and Option 2 trip limits opposed to LE and OA. Projected mortality from removing the period 2 closure and increasing the trip limit falls within non-trawl allocation. The adjustment is projected to increase landings by 1.9 mt and ex-vessel revenue by $23,224.

Table 2-72. No Action. Status quo and proposed trip limits for California scorpionfish and projected mortality compared to the 2021 non-trawl allocation.

Option	Trip limit	Projected mortality (mt)	Non-trawl projected mortality (mt) *	Non-trawl alloc.
Option 1 (status quo)	1,500 lbs. / 2 months, closed Period 2	1.23	158.3	287.10
Option 2	3,500 lbs. / 2 months	3.30	160.4	

*Include a CA recreational mortality projection of 157.1 mt.

2.5.6 Impact (Groundfish Mortality) - Nearshore – No Action DHCR

Projections in Table 2-73 are based on full attainment of the state landings targets, except for lingcod and canary rockfish. In Oregon, nearshore landing targets are the Oregon state-specified commercial HGs minus nearshore discard mortality and other commercial groundfish fishery removals (i.e., IFQ, at-sea, non-nearshore) that are not taken off-the-top ACLs and thus therefore be deducted prior to setting the landing targets (else could exceed ACL). In California, landings targets are based on the projected mortality from 2021-2022 nearshore rockfish trip limit adjustments[7] rather than on average landings (Table 2-65, Table 2-73).

In general, the projected landings are relatively similar for the Baseline and No Action Alternatives since the harvest specifications, allocations, and management measures remain relatively similar. These are some differences in projected landings, total mortality, and ex-vessel revenue that are mainly attributed to differences in harvest specifications from 2019 to 2021-22 in addition to the adoption of the new time-varying sigmas and the multitude of 2019 catch-only projections. The new time-varying sigmas resulted in greater OFL to ABC deductions for all groundfish stocks and stock complexes, but these were partially offset by increases to the OFLs and ABCs associated with the catch-only projections.

With the proposal to removal of the March-April (Period 2) closure south of 40°10’ N. lat., landings for Shallow Nearshore rockfish, Deeper Nearshore rockfish, canary rockfish, bocaccio, lingcod, and California scorpionfish are projected to increase as this Option will provide year-round fishing opportunities for the Nearshore Fishery south of 40°10’ N. lat.

Oregon lingcod landings are expected to be between 66 mt and 86 mt, depending on which trip limit is adopted in 2021-22 (see Chapter 2.5.2.5 sections on lingcod north of 40°10’ N. lat.). Oregon canary rockfish landings are projected to be 4.8 mt for both trip limit Options described above. No other federal trip limit proposals are projected to alter Oregon nearshore attainments of which state LE permits and state trip limits are used to manage the other stocks.

Projected landings for shelf stocks other than canary rockfish are not shown since non-trawl landings and removals are minor in relation to non-trawl allocations. Although increased nearshore allocations of yelloweye rockfish could prompt more targeting of shelf stocks, impacts are expected to remain similar to

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

the past low levels since no trip limit changes are being proposed. Access to shelf stocks is greatly hindered by the non-trawl RCA, which causes few, if any, to catch the current trip limits of canary rockfish or other shelf stocks. Since the non-trawl RCA is expected to remain until at least yelloweye rockfish rebuild, there has been focus to increase commercial non-trawl attainments of shelf stocks via EFPs designed to selectively target healthy mid-water stocks (e.g., widow, yellowtail, canary, chilipepper, and bocaccio rockfish) with minimal impacts to benthic yelloweye rockfish. However, there are proposals to make minor (10 fm) adjustments to the shoreward non-trawl RCA boundary south of 40° 10' N. lat. that are described in Chapter 0.

Projected total mortality of yelloweye rockfish, the last remaining overfished rockfish species impacted by the nearshore fisheries, are shown in Table 2-74**.** The nearshore fisheries are projected to be well within their No Action shares of the yelloweye rockfish ACT: Oregon is projected to take 1.5 mt of their 2.3-2.4 mt shares for 2021-2022 and California is projected to take 0.5-0.6 mt of their 0.9 mt shares for 2021-2022.

The yelloweye rockfish residuals under No Action could provide considerable extra opportunity for the nearshore fisheries. These increases could be achieved via routine management as part of the 2021-2022 biennial harvest specifications and management measures (e.g., lingcod trip limit increase proposal described under the non-nearshore section) or via future inseason actions. Another Option would be to reduce the scope of the non-trawl RCA, which is tentatively slated for June 2020 on the Council's year-at-a-glance. Finally, the projected total mortality of cowcod is only 1.3 mt in both 2021-22 (Table 2-75).

Table 2-73. No Action. 2021-2022 projected nearshore landings for the No Action Alternative. State-specific nearshore HGs or state-specific nearshore shares are shown in parentheses for 2019.

Stock	Area	Total (mt)	By Area for 2021-2022			
			OR (mt)	CA (mt)	40°10'-42° N. lat. (mt)	S. of 40°10' N. lat. (mt)
Black/blue/deacon rockfish	OR	120.5	120.5	--	--	--
--Black rockfish		113	113	--	--	--
--Blue/deacon rockfish		7.5	7.5	--	--	--
Black rockfish	CA	100	--	100	95	5
Bocaccio	S. 40°10' N. lat.	1.0 (4.9)	--	1.0 (4.9)	--	--
Cabezon/Kelp greenling	OR	44.5	44.5	--	--	--
--Cabezon		34.9	34.9	--	--	--
--Kelp greenling		9.6	9.6	--	--	--
Cabezon	CA	65	N/A	65	3.5	62
Canary Rockfish	OR & CA	37.8 (97)	4.8 (27)	33 (69)	1.9	31.1
Kelp greenling	CA	9.3	N/A	9.3	0.3	9
Lingcod	N. 40°10' N. lat.	73	66	7	7	--
Lingcod	S. 40°10' N. lat.	38	N/A	38	--	38
California scorpionfish	S. 40°10' N. lat.	3.3	--	3.3	--	3.3
Nearshore Rockfish N. a/	N. 40°10' N. lat.	19.6	11	8.6	8.6	--
Nearshore Rockfish S. a/	S. 40°10' N. lat.	129.3	--	129.3	--	129.3
--Shallow Nearshore Rockfish b/		66.5	--	66.5	--	66.5
--Deeper Nearshore Rockfish c/d/		62.8	--	62.8	--	62.8

a/ Nearshore Rockfish totals consists of 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. lat. (OR blue and deacon rockfish are in a complex with Oregon black 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. latitude. These species are part of the Nearshore Rockfish complex south of 40°10' N. lat. However, for trip limits, black rockfish is included in Deeper Nearshore Rockfish.

Table 2-74. No Action. Nearshore shares, state shares, and projections under No Action for the 2021-2022 nearshore ACT of yelloweye rockfish. There are no other overfished stocks impacted by the nearshore fisheries.

Stock	Nearshore Total			Oregon			California				
	'21-'22 ACT		Proj.	'21-'22 Share		Proj.	'21-'22 Share		Total Proj.	40°10' – 42° Proj.	S. 40°10' Proj.
YELLOWEYE ROCKFISH	4.6	4.7	2.2	3.3	3.4	1.5	1.2	1.3	0.7	0.5	0.2

a/ ACT is shared 73% to Oregon and 27% to California; the HG is 5.9 mt and 6.0 mt and shared the same.

Table 2-75. No Action. Cowcod south of 40°10' ACLs for 2021-2022 and the baseline 2019 ACL and non-trawl allocations for reference.

Year	No Action ACL	Projected mortality estimate (mt)	Non-trawl allocation (64%)
2021	98	1.0	55.8
2022	96	1.0	54.5

2.5.7 Additional Management Measures

Non-Trawl RCA Adjustments in California

There are two management measures to implement minor adjustments to shoreward boundary of the commercial non-trawl Rockfish Conservation Area (RCA) in California: Updates to Rockfish Conservation Coordinates in California (Chapters 5.1) and Minor Adjustments to the Commercial Non-Trawl Rockfish Conservation Area's off California, south of 40° 10' N. lat. (Chapter 5.3).

Typically, adjustments to RCAs are designated as a routine management measure in the groundfish FMP; however, the non-trawl RCA has been in place for over a decade, and thus this management measure requires additional analysis. As new and better data become available, the configuration of the RCA has been adjusted to allow fishing opportunity given that the constraints of rebuilding stocks have been reduced.

The measure to update RCA coordinates off CA pertains to the public comment received in April 2019 to better align the 40 fathom RCA boundary line to the corresponding isobath. The measure proposes two additional waypoints to the 40 fathom RCA line, thereby increasing the allowable fishing area shoreward of the RCA line by 6.3 square miles. These RCA boundary line changes may change the harvest patterns of the fishing community. However, any changes to the harvest patterns of the fishing community are expected to be very minor due to the fact that only small changes are being proposed for the boundary lines.

The management measure for minor adjustments south of 40°10' N. lat. stems from the CDFW proposal presented in November 2019. This measure would require the use of two management lines already found in CFR 660.310: 37° 11' N. lat. and 38° 57.50' N. lat. This action would modify the shoreward boundary from 40 fathoms to 50 fathoms between 38° 57.5' N. lat. and 34° 27' N. lat. and the shoreward boundary

from 75 fathoms to 100 fathoms between 34°27' N. lat. and California/Mexico border and would only apply to non-trawl commercial fisheries. The shoreward boundary modification would provide more opportunity to target healthy stocks of shelf species, such as widow, canary, yellowtail, chilipepper, and bocaccio rockfishes by allowing access to depths in which they are most prevalent. The targeting of such stocks will increase catch, but because non-trawl fisheries are currently managed with cumulative trip limits, any increases in catch are expected to remain within allowable harvest limits. The non-trawl RCA adjustment could also provide opportunity to participants of non-groundfish fisheries seeking relief from truncated seasons or early closures in their primary fisheries.

Although it is anticipated that these minor adjustments to the shoreward boundary of the RCA will increase attainment of shelf rockfish species, the non-nearshore and California nearshore sectors are projected to be within their yelloweye rockfish ACTs of 1.6 mt and 1.2/1.3 mt respectively in 2021-2022. However, there are also higher yelloweye rockfish HGs that could be accessed if needed without causing risk to the ACL (Table 1-24, Table 1-21).

2.6 Tribal Fisheries

The ACLs for the tribal fisheries are identical to the Baseline for all fisheries with the exception of petrale sole, yelloweye rockfish, cabezon and longnose skate. Petrale sole and longnose skate are both highly utilized species within the treaty bottom trawl fishery. At the November 2019 Council meeting, the Quinault Indian Nation notified the council that they would begin bottom trawling in 2020. In order to accommodate new participants into the fishery, the tribes have requested an increase within the set-aside for petrale sole from 290 mt to 350 mt and longnose skate from 130 mt to 220 mt. The requested Treaty harvest guidelines and set-asides are shown in Table 2-76. The Tribes do not currently have a set-aside for cabezon but encounter this species within nearshore hook and line fisheries and are therefore requesting a set-aside of Washington cabezon of 2 mt. Finally, the Tribes have requested an increase in the treaty set-aside of yelloweye rockfish from 2.3 mt to 5.0 mt.

Table 2-76. No Action. Requested Treaty harvest guidelines and set-asides for 2021-2022.

Species	Requested Treaty harvest guidelines and set-asides (mt)
Arrowtooth flounder	2,041
Black rockfish (WA) a/	18.14
Cabezon (WA)	2
Canary rockfish	50
Dover sole	1,497
English sole	200
Lingcod	250
Longnose skate	220

Species	Requested Treaty harvest guidelines and set-asides (mt)
Longspine thornyheads	30
Other flatfish	60
Pacific cod	500
Pacific whiting	17.5% of TAC
Petrale sole	350
Sablefish north of 36° N. lat.	See Table 2-77
Shortspine thornyheads	50
Spiny dogfish	275
Widow rockfish	200
Yellowtail rockfish	1,000
Yelloweye rockfish	5

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 North of 40°10' N. lat.

The following tables detail the Tribal sablefish apportionments under the two methods being considered by the Council. These methods are described in detail in Section 2.2.

Table 2-77. Potential Tribal allocations of sablefish under No Action based on apportionment Methods 1 and 2.

Year	No Action	
	Method 1	Method 2
2021	604	644
2022	575	612

2.7 Washington Recreational- No Action DHCR

2.7.1 Washington Recreational Management Measures

Under the No Action Alternative, which uses the ACLs based off the DHCR for 2021 and 2022 and includes a 48 and 49 mt ACL for yelloweye rockfish, the Washington recreational yelloweye rockfish HGs would be 9.7 and 9.9 mt and the Washington recreational yelloweye fishery would be managed to ACTs of 7.5 and 7.8 mt for 2021 and 2022, respectively (Table 2-78).

Washington recreational and all non-trawl fisheries are expected to be within both allocation options for canary rockfish (Table 2-78), petrale sole, and widow rockfish. Background on these allocation options are described Chapters 2.2.1 and 2.3.2.2 above. Projected total non-trawl impacts are provided Chapter 2.5 above and including the other recreational fisheries and LEFG OA. These same findings for the canary rockfish, widow rockfish, and petrale sole allocation options apply to No Action, Alternative 1, and Alternative 2.

The management approach taken for the Washington recreational fishery in the 2019-2020 biennium was purposefully precautionary because it was difficult to project how encounters with yelloweye rockfish would change given that there have been restrictions to reduce the chance of encounters with yelloweye rockfish for close to fifteen years. Management measures for 2021-2022 are proposed to keep catch within current harvest limits and continue to build on reducing depth and area closures initiated in 2019 and 2020 with the benefit of having one year of recreational catch data under less restrictive management measures to inform projected yelloweye mortality under the No Action Alternative.

In addition to providing access to healthy groundfish resources that occur in deep or mid-water areas, the relaxation of depth restrictions takes some fishing pressure off black rockfish and other nearshore species like nearshore rockfish and cabezon. Under a rebuilt canary rockfish stock, regulations have progressively allowed the retention of canary rockfish beginning in 2017 for the first time since the early 2000's. At the time, it was unclear how angler behavior would affect canary rockfish mortality after many years of being a prohibited species. Based on canary rockfish catch in 2017, canary rockfish sub-limit were completely removed in all Marine Areas in 2019 (Baseline).

Table 2-78. No Action – Washington Recreational. HGs for the Washington recreational fisheries under the No Action Alternative.

Species	HG (mt)	
	2021	2022
Canary Rockfish (Option 1 SQ)	43.3	42.3
Canary Rockfish (Option 2)	50.0	50.0
YELLOWEYE ROCKFISH	9.7 (ACT = 7.5)	9.9 (ACT = 7.8)
Black Rockfish	274.9	272.9
Nearshore Rockfish North of 40°10′ N. lat.	18.4	17.7
WA Cabezon/Kelp Greenling	18.0	15.0

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 2-80). Under No Action, the groundfish and lingcod season would be March 13 through October 16 in 2021 and, March 12 through October 15 in 2022.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye rockfish within specified ACTs. Restrictions that limit the depth where groundfish fisheries are allowed are more severe in the area north of the Queets River (Marine Areas 3 and 4) where yelloweye abundance is higher and therefore caught incidentally at a higher rate (Table 2-79). Depth restrictions are fewer in the south coast where incidental catch of yelloweye rockfish becomes progressively less. Washington coastal management areas are shown in Figure 1-1. Under the No Action Alternative, the Council can consider moderate changes to depth restrictions in Marine Areas 2, 3 and 4, and expand allowances to retain groundfish on halibut trips in Marine Areas 1, 3 and 4, as described below.

Table 2-79. No Action - Washington recreational yelloweye catch (mt) by management area in 2019.

Marine Area	Yelloweye rockfish mortality (mt)	Proportion by area
3 & 4 (N. Coast)	2.63	70%
2 (S. Coast)	0.86	23%
1 (Col. River)	0.25	7%
Total	3.74	100%

Table 2-80. 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 June 1 -Aug 31 a/ b/				BF Open		BF Closed	
2 (S. Coast)	BF Closed		BF Open c/d/			BF Open d/					BF Closed	
1 (Col. River)	BF Closed		BF Open e/ f/								BF Closed	

a/ Retention of lingcod, Pacific cod and sablefish 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 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 groundfish allowed during the all-depth Pacific halibut fishery. Lingcod retention is only allowed north of the WA-OR border with halibut on board.
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 line approximating 20 fathoms from June 1 through July 31, except bocaccio rockfish, silvergray rockfish, canary rockfish, widow rockfish, yellowtail rockfish, lingcod, Pacific cod and sablefish can be retained seaward of 20 fathoms on

days that Pacific halibut fishing is open. Pacific halibut was open 10 days in this management area in 2019 and given the adoption of a consistent halibut quota through 2022, the recreational halibut season length is expected to be similar in 2021 and 2022. Under the No Action Alternative, the 20 fathom depth restriction would be in place approximately one month less than in 2019, under the Baseline and yellowtail and widow rockfish can be retained seaward of the 20 fathom depth restriction in July. Under No Action, retention of yellowtail and widow rockfish seaward of 20 fathoms would not be dependent on days open to salmon fishing as it was in 2019 (Baseline). In 2019, salmon was open for a total of 101 days in Marine Area 4, with limited opportunity available after July 14, when chinook retention closed after only 23 days. These changes would expand the opportunity to fish for groundfish seaward of 20 fathoms for an additional month compared to Baseline and would allow yellowtail rockfish and widow rockfish seaward of 20 fathoms during the entire month of July. Increasing access to areas that have been closed or had limited access (e.g., YRCAs and depth restrictions) are being considered incrementally to avoid exceeding yelloweye rockfish ACTs and HGs. Fishing for, retention, or possession of groundfish and Pacific halibut will continue to be prohibited in the C-shaped YRCA (Figure 1-2) until more data becomes available to inform projected impacts.

South Coast (Marine Area 2)

Under the No Action Alternative, the groundfish fishery would be open at all depths, except for lingcod. Retention of lingcod would be prohibited seaward of 30 fathoms from May 1 through May 31, except 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 would be in place 49 fewer days compared to the Baseline Alternative when it was in place from March 9 through May 31.

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 1-2) and from June 1 through 15 and September 1 through 30. Under No Action, this lingcod restriction would be in place two weeks less compared to the Baseline by opening the restricted area for the entire month of September compared to Baseline where it was only open the first two weeks of September.

Under the No Action Alternative, the South Coast YRCA and Westport Offshore YRCA would be open to recreational fishing for groundfish and Pacific halibut. These areas were closed to fishing for, retention or possession of groundfish or Pacific halibut under the Baseline (Figure 1-2).

Columbia River (Marine Area 1)

Under the No Action Alternative, the groundfish fishery is open in all depths, except for lingcod. Lingcod would be allowed to be retained north of the Washington-Oregon border on days open to the all depth Pacific halibut season. Lingcod retention in the deep-water area (seaward of a line extending from 46°38.17 N. lat., 124°21.00' W. lon. to 46°33.00' N. lat., 124°21.00' W. lon.) would be allowed from June 1 through June 15, and September 1 through September 30 (Figure 1-2). Retention of groundfish would be allowed with halibut onboard when the Pacific halibut fishery is open.

Area Restrictions

Under the No Action Alternative, fishing for, retention, or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries will be prohibited in the C-shaped YRCA (Figure 1-2 a).

Under the No Action Alternative, the South Coast and Westport Offshore YRCA would be open to recreational groundfish and Pacific halibut fishing year-round (Figure 1-2 b).

Groundfish Bag Limits

Under the No Action Alternative, the aggregate daily groundfish limit would be 9 fish per day which can include up to, 7 rockfish, 2 lingcod and one cabezon. Further, anglers would be allowed to retain five flatfish in addition to the 9 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 13 through October 16 in 2021 and March 12 through October 15 in 2022.

Pacific Halibut Seasons

It is expected that the Pacific halibut seasons in 2021-2022 will be similar to the halibut seasons in 2019-2020. The IPHC adopted a consistent quota for Area 2A (Washington, Oregon, and California) for 2019 through 2022 barring significant conservation concerns. This consistent quota should allow for seasons that are similar during the 2019-2022 time period. Under No Action, groundfish retention would be allowed for select rockfish species, in addition to other groundfish already allowed under Baseline in the North Coast area (Marine Areas 3 and 4) and some groundfish retention would be allowed during the Pacific halibut fishery in the Columbia River area (Marine Area 1). Under No Action, groundfish retention in the halibut fishery in the North Coast area is proposed to include bocaccio, silvergray, yellowtail, widow, and canary rockfish in addition to Pacific cod, sablefish and lingcod which are already allowed under Baseline. Under No Action, groundfish retention on halibut days in the Columbia River area is proposed to include all groundfish rather than just Pacific cod, sablefish, flatfish and lingcod as is currently allowed under Baseline.

Inseason Management Response

Projected mortality for Washington's recreational fishery is based upon the previous season's harvest estimated by the Ocean Sampling Program (OSP) and incorporated into the Recreational Fishery Information Network (RecFIN).

The precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather, and any other unforeseen factors. For example, recreational bottomfish catch can increase if halibut or salmon seasons are short and recreational anglers shift effort to bottomfish. As described above, halibut seasons are expected to be less variable in the near-term given the consistent halibut quota that is expected to be in place through 2022. Salmon seasons have been reduced in recent years and may increase effort on recreational bottomfish. Most importantly, Washington's OSP can produce estimates of groundfish catch with a one-month lag time and 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.

2.7.2 Impact (Groundfish Mortality)

Projected mortality for overfished and non-overfished species under the No Action Alternative are summarized in Table 2-81. Under the No Action Alternative, the Washington yelloweye HG is 9.7 and 9.9 mt for 2021 and 2022 respectively, and the ACTs are 7.5 mt and 7.8 mt. With higher yelloweye rockfish HGs available to the recreational fishery as a result of yelloweye rockfish rebuilding, less restrictive management measures that reduce the time period where depth restrictions are in place and provide more access to species such as lingcod and mid-water rockfish for recreational anglers were implemented for 2019 and 2020.

Table 2-81. No Action – Projected Mortality (in mt) for the Washington Recreational fishery under No Action.

Stock	2021-2022 Projected Mortality (mt)
Canary Rockfish	21.98
YELLOWEYE ROCKFISH	5.72
Black Rockfish	234.5
Bocaccio	3.56
Lingcod	170.11
Nearshore Rockfish	10.05
Blue Rockfish	*1.24*
Quillback Rockfish	*3.16*
Copper Rockfish	*3.09*
China Rockfish	*2.56*
Brown Rockfish	--
Grass Rockfish	--
Yellowtail Rockfish	48.58
Vermilion Rockfish	2.69
Washington Cabezon/Kelp Greenling	10.64
Cabezon	*9.01*
Kelp Greenling	*1.63*

North Coast (Marine Areas 3 and 4)

Yelloweye rockfish catch per angler from May 2019, the most recent period when groundfish retention was allowed seaward of 20 fathoms, was used to estimate projected impacts under depth restrictions considered under the No Action Alternative for Marine Areas 3 and 4. Under the No Action Alternative, the 20 fathom depth restriction would be implemented in June, but would only be in place through the end of July which provides an additional 38 days of all depth fishing in 2021 and 2022 compared to Baseline. Final yelloweye estimates from 2019 were used to estimate projected impacts in months where the depth restrictions are unchanged.

It was also assumed that angler effort would increase from 2019 if depth restrictions were removed so the 2019 effort estimate was increased by 35 percent for months where the 20-fathom depth restriction was removed. Angler effort in recent years was used to estimate the potential increase in effort that could be focused on recreational groundfish fisheries under less restrictive management measures. The 35 percent increase in projected angler trips was based on the general increase in angler effort per month seen from 2015 to 2016 as anglers shifted their effort to groundfish opportunities as a result of limited salmon fishing opportunities.

Under No Action, bocaccio rockfish, silvergray rockfish, yellowtail rockfish, widow rockfish, and canary rockfish retention would be allowed seaward of 20 fathoms on days open to the recreational Pacific halibut fishery in Marine Areas 3 and 4. This action will provide recreational anglers with access to underutilized and recreationally popular deep-water rockfish species such as canary rockfish and allow anglers to achieve more of their groundfish daily limit while fishing in deep-water, while potentially relieving some pressure from nearshore species. For example, under the Baseline, canary rockfish mortality was 13.47 mt out of the 47.2 mt Washington HG. The HG is similar under No Action at 43.2 and 42.2 mt in 2021 and 2022 respectively but additional opportunities to retain canary rockfish increase projected impacts to 22 mt in 2021 and 2022.

Under the No Action Alternative, yellowtail rockfish and widow rockfish retention would be allowed seaward of 20 fathoms in July but the link to salmon days would be removed, providing access to these mid-water rockfish species every day during July and August, when combined with the removal of the 20-fathom depth restriction beginning August 1. The rationale for allowing yellowtail rockfish and widow rockfish retention on salmon days under Baseline was to acknowledge that these two mid-water species are often encountered while anglers troll for salmon. However, the salmon season was so restricted in 2019 that there was very little opportunity for recreational anglers to retain yellowtail rockfish and widow rockfish. Removing the provision that only allows anglers to retain yellowtail rockfish and widow rockfish seaward of 20 fathoms only on salmon days is open provides additional opportunity to access healthy mid-water rockfish species without being constrained if salmon seasons are short. Given that anglers would not need to be targeting salmon in order to retain yellowtail and widow rockfish seaward of 20 fathoms, a precautionary approach to estimating projected impacts to yelloweye rockfish was used by assuming complete removal of the 20-fathom line for both July and August. As such, the yelloweye rockfish per angler from halibut trips in May 2019 (when no 20-fathom depth restriction was in place) was used to project yelloweye rockfish impacts as this data reflects a current expectation of yelloweye encounters when no depth restriction is in place.

South Coast (Marine Area 2)

Under the No Action Alternative, the 30 fathom depth restriction in Marine Area 2 would be in place for 31 days, beginning May 1 through May 31, which is two months less than under the Baseline. Yelloweye per angler from 2017 from the south coast management area was applied to an estimated increase in angler trips of 35 percent for the months where the 30 fathom depth restriction would be removed (March and April). Yelloweye rockfish catch per angler from 2017 was used because it was the highest encounter rate including as far back as 2005, when yelloweye rockfish retention was allowed (Table 2-82).

Table 2-82. No Action – Yelloweye rockfish per angler on bottomfish trips in the south coast management area (Marine Area 2) 2005 - 2019.

Year	Angler trips (bottomfish)	Yelloweye rockfish (ret. + rel.)	Yelloweye rockfish per angler
2004	12,535	80	0.01
2005	14,057	60	0.00
2006	17,052	89	0.01
2007	15,440	76	0.00
2008	14,638	44	0.00
2009	12,519	61	0.00
2010	11,271	57	0.01
2011	13,764	55	0.00
2012	15,349	111	0.01
2013	14,485	180	0.01
2014	13,589	165	0.01
2015	17,188	240	0.01
2016	21,506	286	0.01
2017	18,308	495	0.03
2018	21,046	456	0.02
2019	18,545	439	0.02

Using the high yelloweye per angler encounters from 2017, even though yelloweye rockfish retention was prohibited, may better reflect current yelloweye abundance compared to past years given its progress toward rebuilding. Final yelloweye estimates from 2019 were used to estimate projected impacts in months where depth restrictions remained unchanged.

Angler effort is expected to increase compared to Baseline as a result of more fishing opportunity under less restrictive management measures and in anticipation of continued poor recreational salmon opportunities which has shown to shift more recreational effort to groundfish fisheries. Angler effort in recent years was used to estimate the potential increase in effort that could be focused on recreational groundfish fisheries under less restrictive management measures. For example, as a result of limited salmon fishing opportunities, angler effort has shifted to groundfish in recent years. This effort shift was apparent when an increase in angler effort of approximately 35 percent per month was seen from 2015 to 2016. Projected angler effort for 2021 and 2022 was estimated by assuming a similar 35 percent increase in angler effort continues in months where less prohibitive depth restrictions are in place. Angler effort from 2019 is

used to project effort in months where depth restrictions remain unchanged. There was an exception to the 35 percent increase in angler effort in Marine Area 2 during the month of July when there was some salmon fishing opportunity.

Also following on management measures adopted for 2019 and 2020, the deep-water lingcod closure in Marine Area 2 would be open two additional weeks in September under the No Action alternative compared to the previous biennium. Under the No Action alternative, in addition to the two-week opening in June, the entire month of September would be open to lingcod fishing in the deep-water area. Projected impacts for yelloweye rockfish and angler effort assumes that catch and effort double in response to the doubling of the number of days anglers have access to deep-water fishing areas.

Under the No Action Alternative, the Westport Offshore YRCA and the South Coast YRCA would be open to recreational fishing for groundfish and halibut year-round. The South Coast YRCA, which is three by one nautical miles in size, was implemented during the 2007-2008 biennial harvest specification and management cycle (Final Environmental Impact Statement for 2007-2008 Groundfish Harvest Specifications and Management Measures) in response to higher yelloweye rockfish and canary rockfish encounters during 2006. WDFW added another small closure (two by one nautical mile) in the same general area in 2009 (Final Environmental Impact Statement for 2009-2010 Groundfish Harvest Specifications and Management Measures), referred to as the Westport Offshore YRCA. Both areas have remained closed to recreational groundfish and halibut fishing since their implementation in order to reduce encounters with yelloweye rockfish and canary rockfish. Commercial fishing is not prohibited in these areas.

At the time, WDFW worked with stakeholders to identify the specific boundaries for both of these areas. While there was no quantitative data to analyze and project a reduction in yelloweye rockfish and canary rockfish mortality resulting from these closures, anecdotal information from recreational charter anglers from the south coast management area suggested that there was enough fishing effort on a significant concentration of the rebuilding species in these areas that a closure would be a meaningful measure to help keep recreational catch below the HGs.

With canary rockfish rebuilt and higher recreational HGs for yelloweye rockfish in 2021-2022, the additional restrictions of these small closed areas are no longer necessary. Reopening both of these YRCAs can provide anglers with access to healthy lingcod and canary rockfish stocks. WDFW still does not collect spatial data at the level of detail needed to estimate increased yelloweye rockfish and canary rockfish encounters that might be expected as a result of opening these YRCAs and there will likely be additional mortality as a result of open these areas.

However, given that recreational catch of yelloweye rockfish under the No Action alternative is projected to be 5.72 mt, which is 1.78 mt and 2.08 mt lower than the 7.5 mt and 7.8 mt ACT in 2021 and 2022 respectively, and an even larger buffer between projected catch and the HG which is 3.98 mt in 2021 and 4.18 mt in 2022, there is sufficient room to consider opening these areas.

Given that these closed areas are a routine management tool similar to seasons and bag limit adjustments (Federal regulations at 50 CFR 660.60 (c) (3)), reinstating the closed area can be implemented rapidly through state emergency regulation followed by inseason action if necessary to keep catch within Washington's HGs or ACTs in 2021 and 2022.

Columbia River (Marine Area 1)

Under the No Action Alternative, groundfish retention would be allowed during all-depth halibut trips except that lingcod retention would only be permitted north of the Washington – Oregon border. Currently, groundfish retention on Pacific halibut trips is limited to Pacific cod, sablefish, flatfish (other than Pacific halibut), and lingcod north of the Washington-Oregon border. The groundfish species allowed to be retained on halibut trips was limited in order to reduce encounters with yelloweye rockfish which is higher when anglers are targeting halibut in deep water. To estimate projected mortality for yelloweye rockfish as a result of allowing groundfish retention on halibut trips, yelloweye rockfish per angler on groundfish trips in May and June was applied proportionally to encounters of yelloweye rockfish per angler on halibut trips in May and June. This approach considers current angler behavior on groundfish trips and assumes that anglers on halibut trips will encounter yelloweye rockfish similarly if allowed to target groundfish on halibut trips. While this change will likely increase catch of other groundfish species, the focus was on increased impacts for yelloweye rockfish to ensure that this measure does not risk yelloweye rockfish catch exceeding the ACT or HG. To evaluate the potential increased retention of other species, we looked at groundfish discards on Columbia River halibut trips from 2014-2019 (Figure 2-2). The predominant species discarded on halibut trips are flatfish and sharks and skates, followed by yelloweye rockfish, canary rockfish, black rockfish and yellowtail rockfish.

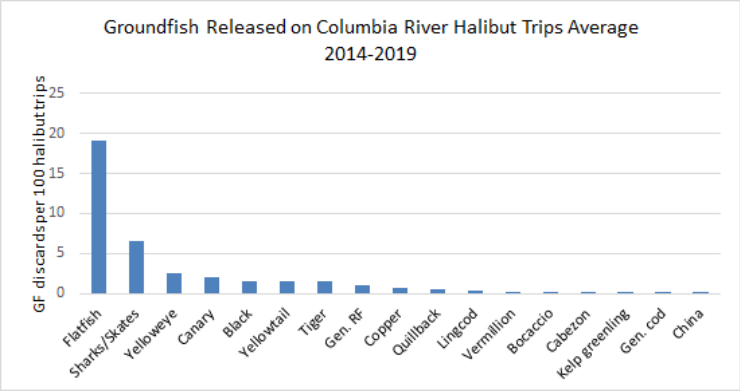

Figure 2-2. Average number of groundfish released on Columbia River Pacific halibut trips, 2014-2019.

The Columbia River area is co-managed with ODFW and this measure was analyzed to align WDFW regulations with ODFW's proposal to consider allowing longleader gear and limited groundfish retention during the Pacific halibut fishery. While the analysis considered the retention of all groundfish on halibut trips, the specific groundfish species to be retained could be restricted to just those species allowed under ODFW's longleader gear (yellowtail rockfish, widow rockfish, canary rockfish, redstriped rockfish, greenstriped rockfish, slivergray rockfish, chilipepper, boccaccio, and blue/deacon rockfish) to minimize increased mortality of black rockfish and other nearshore species such as copper rockfish and quillback rockfish where increased mortality could risk exceeding HGs for those species.

Under the No Action Alternative, the deep-water lingcod closure would be removed from June 1 through June 15 and September 1 through September 30 aligning the opening of the deep-water lingcod area in Marine Area 1 with the opening of the deep-water lingcod area in Marine Area 2. Similar to the approach used to consider reducing restrictions on the deep-water lingcod closure in Marine Area 2, access to the deep-water areas in Marine Area 1 would be considered in a precautionary fashion, allowing for relatively short openings in the spring and fall to better understand potential impacts to yelloweye rockfish as a way

to consider removal of long standing depth restrictions under higher yelloweye rockfish ACLs. The analysis used to estimate projected yelloweye rockfish impacts in Marine Area 2 was replicated for Marine Area 1. The analysis used the 2019 yelloweye rockfish encounters per angler and applied it to an assumed 35 percent increase in angler trips for the time period where the depth restriction is not in place. In 2019, there were 2,746 recreational angler trips (charter and private) targeting bottomfish, that number is expected to increase to 2,956 angler trips (charter and private) targeting bottomfish in 2021 and 2022.

All Marine Areas (1 – 4)

Under the No Action Alternative, anglers would be allowed to retain five flatfish species (not including Pacific halibut) in addition to the 9 fish daily aggregate limit.

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

2.8 Oregon Recreational- No Action DHCR

2.8.1 Oregon Recreational 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 2-83. 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 in Section 1.3.3. The black/blue/deacon rockfish OR complex ACL, and associated presumed state-specified HG for the recreational fishery decreases from 474.8 mt in 2019 to 438.2 and 431.4 mt in 2021 and 2022, respectively (Table 1-33 and Table 2-83). For yelloweye rockfish, the Federal HG remains similar to 2019, with the use of an ACT, or increases to 8.8 and 9.0 mt in 2021-2022, respectively. This will cause black/blue/deacon rockfish OR 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 nearshore rockfish complex and black rockfish would be state-specified HGs and not established in Federal regulations (Table 2-83). In the event inseason action is needed to keep mortality within the values in Table 2-83, the state of Oregon would take action through state regulation (OAR 635-039-0090 (2)). Inseason updates would be provided 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.

Table 2-83. No Action. Oregon recreational Federal harvest guidelines (HG), or state quotas under the No Action Alternative (mt).

Stock	2021 HG [a/]	2022 HG [a/]
Black/Blue/Deacon Rockfish Complex OR a/	438.2	431.4
Canary rockfish b/ (Option 1/ Option 2)	65/75	63.4/75
Cabezon/Greenling Complex OR c/	55.2	53.0
Nearshore Rockfish North of 40°10' N Lat d/	11.3	10.8
YELLOWEYE ROCKFISH (ACT/HG)	6.9/8.8	7.1/9.0

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 2019 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 2019 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 2019 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 offshore year-round. In 2019, it was open year round except from May 1 to September 6 and in 2020 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 stable or higher yelloweye rockfish HG, the season structure and bag limit presented in Figure 2-3 for 2021-2022 are designed to balance impacts to black and nearshore rockfish species while staying within their respective HGs, along with the yelloweye rockfish HG. Projected mortality of yelloweye rockfish in 2021 and 2020 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, bag and size limits under the Baseline would remain the same.

Pacific Halibut Seasons

Same as the Baseline.

Additional Considerations

As under the Baseline, the midwater rockfish longleader gear would be available outside of the 40 fathom regulatory line year round. Estimated mortality from longleader gear trips are included in the total mortality estimates below.

Inseason Management Response

The same inseason response as described under the Baseline.

2.8.2 Impact (Groundfish Mortality)

The annual projected mortality presented in Table 2-84 is anticipated, given the season structure and bag limits detailed above, with the exception of canary rockfish. The projected impacts for canary rockfish 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 2019 has the estimated impacts to canary rockfish at 37.0 mt, which is approximately 10 mt under what was projected for 2019 (47.1 mt). The current projected year-end impacts are 38.4 mt. Even with 2017-2019 data, the model still does not have enough retention data to provide a certain estimate for canary rockfish. Similarly, for yelloweye rockfish, times and areas will be open that have not been open since 2004. Therefore, there is uncertainty in what impacts might be, which is the reason the State of Oregon has given for being more precautionary in state regulations on reopening

months to all-depth. Black/blue/deacon rockfish complex and nearshore rockfish north complex impacts will be the most constraining in terms of setting the season structure under No Action.

At the March 2016 meeting, the Council approved an alternative that would allow midwater long-leader 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°18' N. lat.) from April-September to target abundant and healthy midwater species (yellowtail and widow rockfish) while avoiding or minimizing interactions with overfished rockfish species. Table 2-84 includes estimates of projected mortality from all bottomfish trips, including the longleader trips.

Table 2-84. 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	61.7
YELLOWEYE ROCKFISH	5.9
Black/Blue/Deacon Rockfish OR	354.0
Cabezon/Greenlings a/	32.9
Nearshore Rockfish North of 40° 10' N. lat.	20.3
Yellowtail rockfish	60.5
Widow rockfish	13.2

a/ Includes kelp and other greenlings

2.8.3 Additional Management Measure

One additional management measure was analyzed for the Oregon recreational fisheries: allowing longleader gear fishing and all-depth halibut on the same trip.

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. Currently, the combination of those two trip types is prohibited in both the sport bottomfish and sport Pacific halibut regulations.

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[8] (660.351, 660.360(c)(2)(1)(B), and 660.360(c)(2)(iii)(B)). The new regulation allowed the use of the gear (description below) outside of the 40-fathom regulatory line April through September. The gear is legal gear in areas and times open to sport bottomfish in Oregon. It also prohibited to combine a longleader gear trip with a "regular" bottomfish trip and Pacific halibut trips. Retention was also limited to 10 species of midwater rockfish in state regulation;

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

and retention of lingcod was specifically prohibited. All of these regulations were put into place to limit interactions with yelloweye rockfish.

Long Leader 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 2017). The term "longleader" denotes the unusual lengths of line (< 30 feet) between the lowest hook and the weight (Figure 2-4) deployed on rod and reel sportfishing gear.

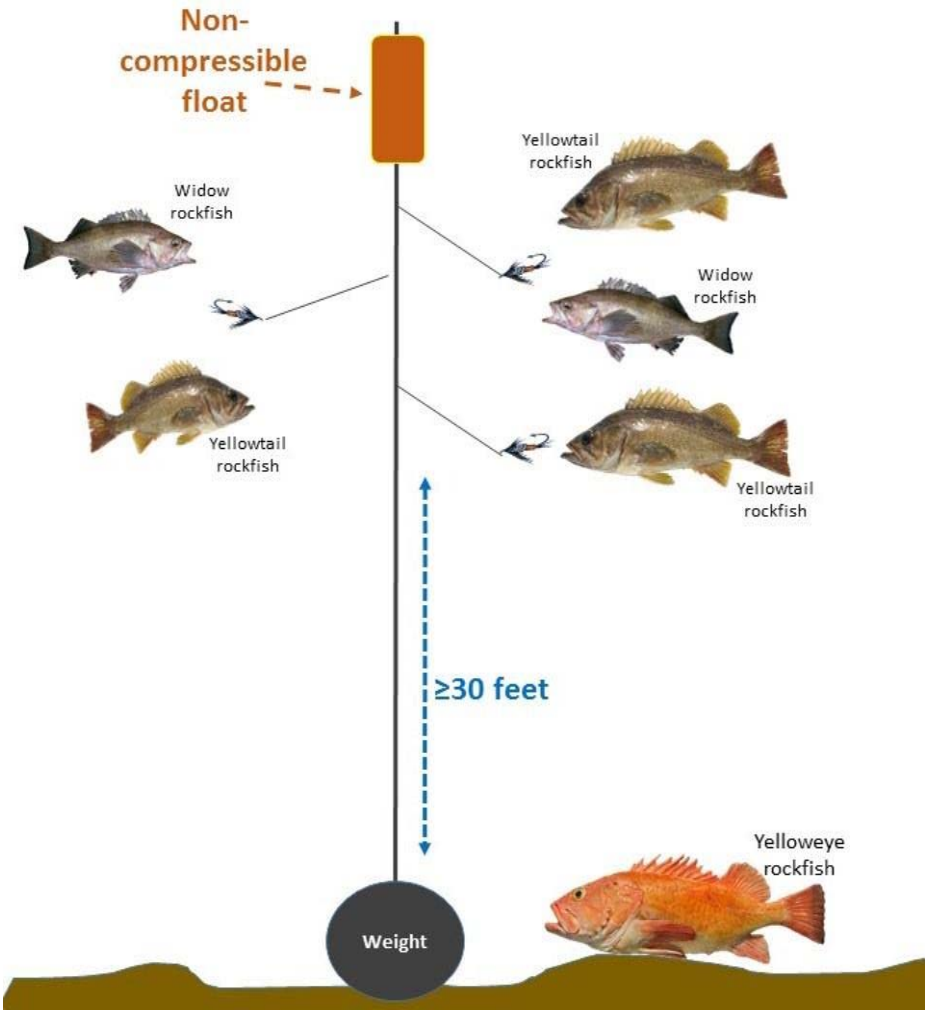

Figure 2-4. Schematic (not to scale) of the longleader sportfishing gear. (courtesy of ODFW)

Effort

Allowing longleader gear fishing and all-depth Pacific halibut fishing 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 will also fish with longleader gear. Based on angler input at a series of public meetings hosted by ODFW in the fall of 2019 and public comment to the September 2019 Council meeting (Agenda Item G.1.b., Public Comments), this would primarily happen if Pacific halibut fishing was very good, they had filled their halibut bags quickly, and wanted to try something else while offshore, or Pacific halibut fishing was really slow and anglers switch to longleader gear fishing to try to get something out of their trip offshore (Agenda Item G.1.a, ODFW Report 1, September 2019 and Agenda Item F.1.a., ODFW Report 1, November 2019). During development of the longleader action, the analysis estimated up to 16,465 potential longleader and all-depth Pacific halibut trips would occur annually (NMFS 2017; Table 2-85). 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 (NMFS 2017; Table 2-85) and the 10-year average number of all-depth Pacific halibut trips (14,487) is a little less than 2,000 angler trips. It is also within the range of all-depth Pacific halibut trips that have been seen over the last 10 years (12,451 to 16,963) 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 2-85. 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*	90,701	2,141	12,992	105,834
10-yr AVG.	88,966	3,714	14,487	104,195

* 2019 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. In 2018, yellowtail, widow, and canary rockfish accounted for 99 percent of the fish landed, and 97 percent in 2019 (Table 2-86). Yelloweye rockfish accounted for less than one percent of total fish encountered each year (0.08 percent in 2018 and 0.4 percent in 2019). 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 rockfish allocation and well within the non-trawl allocation of yellowtail and widow rockfish for both allocation options being considered for 2021-22 (Table 2-15). Total non-trawl projected attainments are projected to also be within both proposed petrale sole allocation options (Table 2-15).

Table 2-86. Total number of fish landed and released by species on longleader trips in 2018 and 2019 off of Oregon.

Species	2018		2019	
	Landed	Released	Landed	Released
Yellowtail rockfish	23,699	170	12,091	305
Widow rockfish	6,871	35	3,436	-
Canary rockfish	6,269	34	4,248	9
Sablefish	66	15	-	5
Albacore tuna	63	-	146	-
Silvergray rockfish	62	-	19	-
Pacific mackerel	57	64	26	-
Redstripe rockfish	35	243	33	4
Rockfish Unid	29	11	-	58
Greenstriped rockfish	25	63	23	40
Chillipepper	10	-	32	26
Deacon rockfish	9	75	284	19
Jack mackerel	8	13	50	
Black rockfish	4	24	21	11
Blue shark	2	3	6	
Blue rockfish	-	56	-	-
Yelloweye rockfish	-	32	8	85
Lingcod	-	42	14	56
Quillback rockfish	-	-	3	
Bocaccio	-	4	2	5
Vermilion rockfish	-	4	-	-
Copper rockfish	-	2	-	-
Chinook salmon	-	2	-	-
Coho salmon	-	11	-	14

Yelloweye Rockfish

Over the two years that the longleader gear fishery has been allowed, the average encounter rate of yelloweye rockfish has been less than 0.02 fish per angler trip (Figure 2-5); this means that on average, there would be one yelloweye rockfish encountered every 59 trips. In comparison, the encounter rate of yelloweye rockfish on all-depth Pacific halibut trips averaged 0.04 fish per angler trip in 2018 and 2019

which equates to about one yelloweye rockfish encountered for every 25 all-depth halibut trips. The analysis for the longleader gear action (NMFS 2017) 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 1,978 trips. Applying the higher of the two above yelloweye rockfish encounter rates (to be precautionary) to the additional potential number of angler trips equals 80 potential yelloweye rockfish encounters. Assuming all are released dead, to be precautionary, and applying a 3.0 kg average weight results in approximately 0.2 mt of potential additional 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 longleader gear and 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 (9.0 mt).

Chinook and Coho Salmon

Coho salmon encounter rate was 0.003 fish per trip, or one fish for every 297 angler trips on longleader gear trips (Figure 2-5). 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 only two fish encountered in two separate years for a total of four fish, for both the longleader gear and all-depth Pacific halibut fisheries. That is an encounter rate of 0.0003 fish per trip, or one Chinook salmon encountered for every 3,714 longleader trips on longleader trips (Figure 5). 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 2-85) higher than the 10-year average halibut trips (14,487), potential additional Chinook salmon encounters would be approximately 0.6 fish per year and coho salmon encounters would be approximately 6 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 ORBS 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.

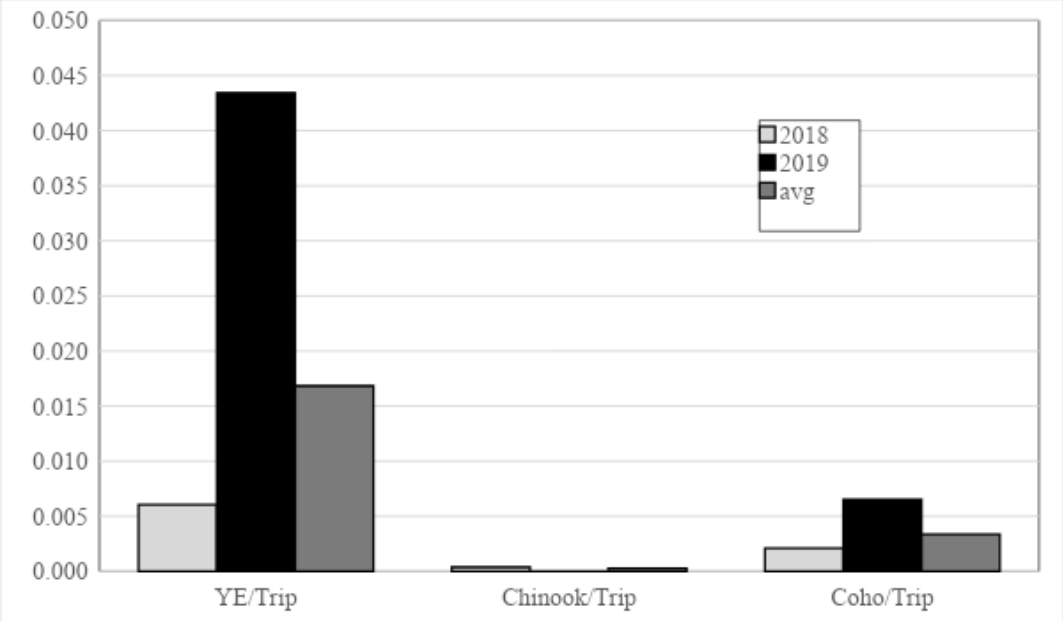

Figure 2-5. Catch rate of yelloweye rockfish, Chinook salmon and coho salmon on Oregon longleader gear trips in 2018 and 2019.

2.9 California Recreational- No Action DHCR

2.9.1 California Recreational – Management Measures

As a result of the most recent cowcod assessment (2019), the stock has been rebuilt and resulted in substantially higher harvest specifications than in previous biennial cycles; however due to modeling uncertainties in the assessment, accountability measures (ACTs) are proposed to prevent any risk of exceeding the harvest limit in addition to continuing to prohibit retention in non-trawl fishery sectors. As a result, the harvest specification for 2021-2022 is 97.9 and 96.1 mt respectively with a proposed fishery ACT ranging from 40-60 mt (which is a precautionary reduction from the Fishery HG); followed by a 2021 non-trawl allocation range of 25.6-38.4 mt, and a 2021 CA recreational ACT range of 12.8-19.2 mt (see Figure 2-6). The ACT range of 12.8-19.2 is intended to be an accountability measure for the CA recreational sector that will be managed using inseason catch tracking. If during the fishing season, the CA recreational cowcod ACT is projected to be reached, modifying depth based management measures (i.e. restricting to shallower depths) would be used to reduce impacts.

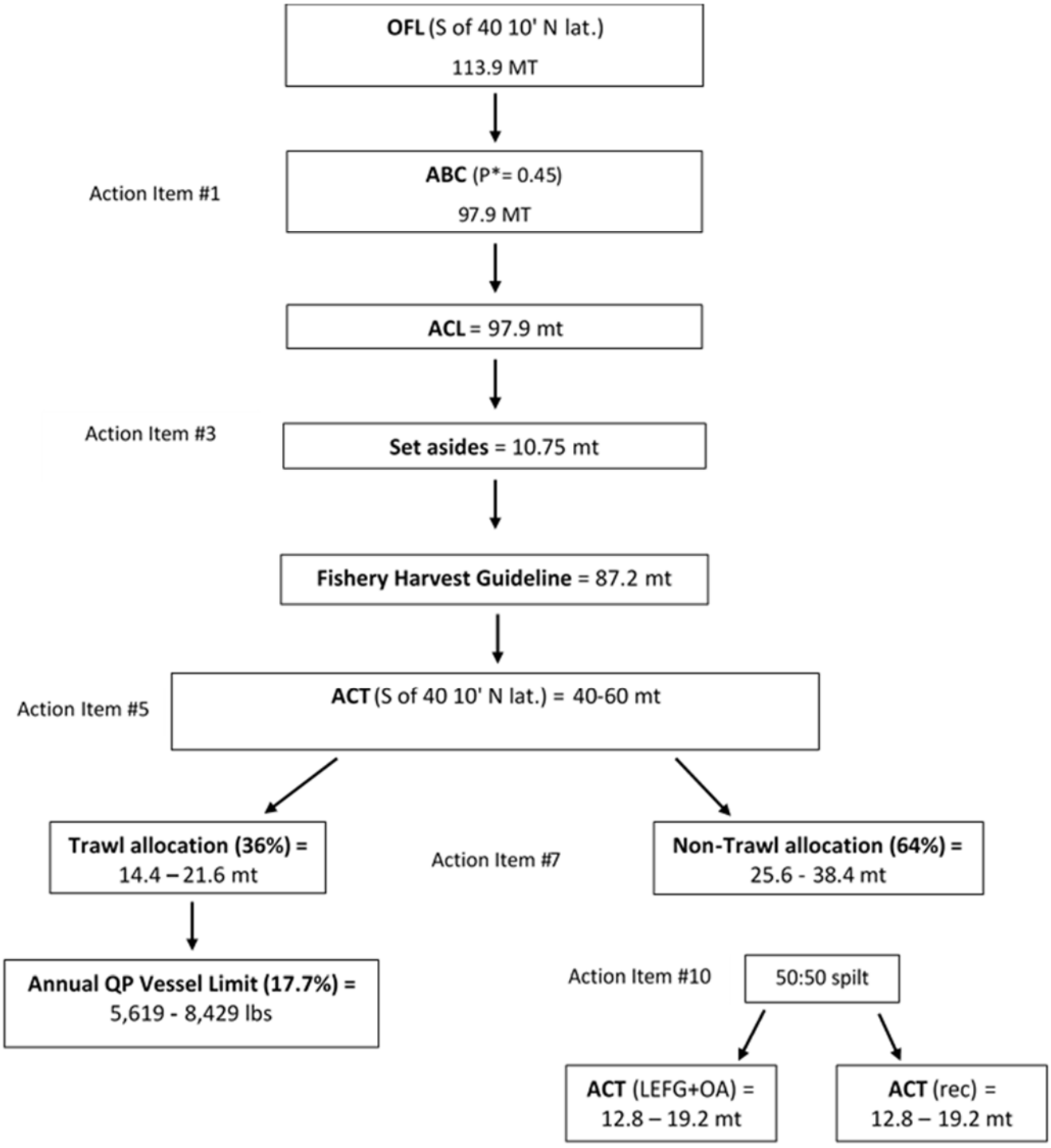

Figure 2-6. No Action: 2021 specifications at (P* = 0.45 and ACL = ABC). Off the top set aside of 10.3 mt 2021. Allocation numbers are reported from Table 5 in November 2019 Agenda Item H6.1 GMT Report #2

The yelloweye rockfish HG for the CA recreational fishery is 11.4 mt for 2021 and 11.7 mt for 2022. Precautionary measures are suggested for yelloweye rockfish to ensure fishery sectors do not exceed the ACL. The Council recommended more conservative ACT limits be used for the recreational sectors; the CA recreational sector will utilize season and depth limit management measures to keep catch within 8.9 and 9.2 mt ACTs for 2021-2022 respectively.

As a result of the most recent cabezon stock assessment (2019), the sub-stocks in Northern and Southern California have surpassed the management targets for estimated depletion. The resulting ACL of the combined stocks (as they are managed as one) is 208.7 mt and 195 mt for 2021-2022, respectively.

Based on the two canary rockfish allocation proposals that pertain to the California recreational fisheries (see Chapter 2.2.1), Option 1 HGs are 116.7 mt in 2021 and 113.8 mt in 2022. Option 2 was designed to provide the non-trawl sectors the same fixed amounts they were provided in 2017-18 and would be 135 mt in both 2021-22 (Table 2-87).

Three allocation Options for the trawl/non-trawl lingcod south of 40°10' N. lat. are described in Chapter 2.2.1 above. There is no specific CA recreational HG designated for lingcod south of 40° 10' N. lat., therefore the entire non-trawl allocation amount is shared between the recreational and commercial non-trawl fisheries Table 2-15. The intent of this proposal is to provide more stability to the non-trawl sector given the recreational fishery was constrained to a 1 fish bag limit for a portion of the 2019 season. No additional changes to the current bag limit are proposed under these Options as shifting more allocation to the non-trawl sector is only intended to maintain the status quo 2 fish lingcod bag limit.

A stock assessment for black-and-yellow/gopher rockfish (2019) determined the stock was at healthy depletion levels. The black-and-yellow/gopher rockfish stock is managed as part of the minor nearshore rockfish complex both north and south of 40°10' N. lat. No significant changes in the harvest specification contribution to the Minor Nearshore Rockfish Complexes are expected as a result of the stock assessment outcome.

Table 2-87. No Action – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2021 and 2022.

Stock	Non-Trawl Allocation	California Recreational HG
Bocaccio	1036.4/1021.8	716.2/706.1
Canary rockfish a/	352.2/343.9	[O1] 116.7/113.8, [O2]135
Cowcod	55.8/54.5b/	
Darkblotched	42.4/39.9	
Nearshore rockfish North of 40°10´ N lat.	78.6/73.9	
POP	191.5/184.3	
Petrale sole	186.4/163.6	
Yelloweye Rockfish	37.9/38.8	11.4/11.7 (ACT = 8.9/9.2)

a/Brackets represent Option 1 [O1], and Option 2 [O2]

b/ For ACT limits see Table 2-35

Groundfish Seasons and Area Restrictions

Season Structure
Same as described under Baseline (See Chapter 1.10.1).

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 <20fm						All Depth	
San Francisco	Closed			April 1 – Dec 31 <40fm								
Central	Closed			April 1 – Dec 31 <50fm								
Southern	Closed		Mar 1 – Dec 31 <75 fm									

Figure 2-7. No Action California recreational groundfish season structure and RCA boundaries

Area Restrictions

RCAs, CCAs, YRCAs are the same as described under the Baseline (See Figure 1-5 and Figure 1-6).

Groundfish Bag Limits Gear Limits and Size Limits

Bag limits, size limits and gear restrictions are the same as described under the Baseline. All limits reflect inseason management action which became effective June 1, 2019.

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

Same as described under the Baseline and reflects inseason management action which became effective June 1, 2019.

California Scorpionfish Seasons, Bag Limits, and Size Limits

Same as described under the Baseline.

Pacific Halibut Seasons

Same as described under the Baseline.

Inseason Management Response

Same inseason response as described under the Baseline.

2.9.2 Impact (Groundfish Mortality)

The California recreational groundfish season structure and projected mortality under No Action were based on CDFW's RecFISH model. Model projections were calculated for the five recreational groundfish management areas using updated RecFIN estimates from 2017 through October 2019. Further description of the RecFISH model is provided in the 2019 SAFE document. Projected mortality under the management measures suggested for No Action in 2021-2022 is provided in **Table 2-88**. and shows that catch would be similar to Baseline mortality for all species.

Table 2-88. No Action Projected mortality in the California recreational fishery in 2021-2022.

Stock	Projected Recreational Mortality 2021/22	California Recreational HG 2021/22	Non-Trawl Allocation 2021/22 a/
Bocaccio	152.9	716.2/706.1	1036.4/1021.8
Canary Rockfish	69.8	[O1] 116.9/114.2 [O2]135	352.2/343.9
Cowcod	2.7	-	55.8/54.5
Yelloweye Rockfish	6.0	11.4/11.7	37.9/38.8
Black Rockfish	112.6	-	346.7/339.7
Cabezon	23.7	-	208.7/193.7
California Scorpionfish	157.0	-	287.1/271.1
Greenlings b/	5.1	-	b/
Lingcod N. of 40°10' N. lat. c/	48.9	-	2799.8/2573.8
Lingcod S. of 40°10' N. lat.	357.9		[O1] 599/637.5 [O2] 620.1/660.6 [O3] 816.8/869.2
Widow Rockfish	20.6	-	1302.9/1218.6
Nearshore Rockfish N. of 40°10' N. lat. d/	20.0	-	78.6/73.9
Nearshore Rockfish S. of 40°10' N. lat.	535.4	-	1011.6/1005.6
Petrale sole	6.1	-	186.4/163.6
Starry flounder	3.5	-	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 latitude and 40°10' N latitude, while the non-trawl allocation is applicable for the entire area North of 40°10' N latitude.

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

2.9.3 Additional Management Measures

There are two new management measures related to RCA depth boundary changes See New Management Measure Questionnaires for RCA depth boundary changes as proposed by CDFW (Chapter 5.1). They are summarized below:

Updates to the Non-trawl Rockfish Conservation Area Coordinates

The 40 fathom (fm) depth contour for the non-trawl RCA is proposed to be modified offshore of San Mateo County in central California. The modification of the coordinates is intended to better align with corresponding isobaths. This revision would allow better access to target species by more accurately defining the boundary of closed area and would increase the available fishing area by 6.3 miles^2. (Chapter 5.1)

Minor Adjustments to the Recreational Rockfish Conservation Areas off California, South of 40°10' N. lat.

This proposal would adjust the seaward RCA boundary to the California recreational fishery Mendocino management area (MA): The RCA boundary would be set at 30 fm for May 1 through October 31.; Southern MA: The RCA boundary would be set at100 fm; San Francisco MA. The RCA boundary would be set at 50 fm. (Chapters 5.2 and 5.3).

Corrections to the 100 Fathom Rockfish Conservation Area Boundary Line South of 34°27' N. lat.

The proposal is to modify the 100 fm RCA depth curve south of 34°27' N. lat. to better described the isobath curve in regulation. The proposal, (described above) by CDFW to extend the current shoreward 75 fm line out to 100 fm Southern Management Area (south of 34° 27' N. latitude) revealed crossover with the 75 fm depth curve. As such, if the existing 100 fm boundary line listed in regulation were used, this would create new closed areas in locations that are currently open to fishing activity utilizing the 75 fm line. In response, CDFW proposes additional waypoints and corrections to existing waypoints as described, in detail, in Agenda Item H.4.a Supplemental CDFW Report 1, March 2020. Additionally, CDFW proposes to waypoints to approximate the 100 fm curve around the northern Channel Islands as they do not currently exist in regulation.

3. Alternative 1

Under Alternative 1, the default harvest specifications, as described under No Action (Section 2), would be implemented for all stocks except:

- Cowcod: The HCR is specified at an ACL = ABC (P* =0.40) resulting in ACLs of 87 mt and 85 mt for 2021-2022, respectively. These ACLs are 11 mt lower, for both years, than under No Action
- Oregon Blue/Deacon/Black Rockfish: The Oregon black rockfish HCR is specified at an ACL= 2020 ABC (P* = 0.45) resulting in a 512 mt ACL for both 2021-2022. The HCR for the blue/deacon rockfish component would remain the same as No Action. Overall, this alternative would increase ACLs in 2021-2022 by 33 mt and 38 mt, respectively than under No Action
- Petrale sole: The HCR is specified at an ACL = ABC (P* =0.40) resulting in ACLs of 3,843 mt for 2021 and 3,045 mt for 2022
- Sablefish north of 36° N. lat. and Sablefish south of 36° N. lat.: HCR specified at ACL = ABC (P* = 0.45). The ACLs for these stocks are being considered under two apportionment methods. Table 1 20 shows the ACLs based on these apportionment options as described in Agenda Item H.6.a, GMT Report 1, November 2019 (Table 3-1).
    - Method 1: Long term apportionment method
    - Method 2: Use of a 5-year average
- Shortbelly Rockfish: The HCR would remain at P* of 0.40 but the ACL would be set as a constant 3,000 mt for 2021-2022, an increase of 2,500 mt over the No Action Alternative

Table 3-1. Comparison of No Action and Alternative 1 2021 and 2022 sablefish ACLs north and south of 36° N. lat. based on proposed the two apportionment methods.

			Method 1: Long-term Apportionment		Method 2: 5-year Average Apportionment	
Year	Alternative	Coastwide ABC	ACL N of 36° 73.6%	ACL S of 36° 26.4%	ACL N of 36° 78.4%	ACL S of 36° 21.6%
2021	No Action	8,208	6,041	2,167	6,435	1,765
	Alternative 1	8,375	6,470	2,321	6,892	1,890
2022	No Action	7,811	5,749	2,062	6,124	1,679
	Alternative 1	8,375	6,164	2,211	6,566	1,801

3.1 Deductions from the ACL

Under Alternative 1, the deductions from groundfish ACLs for, scientific research, non-groundfish target fisheries (i.e. IOA), recreational, and EFPs are the same as described under No Action (Section 2.1) and detailed in Table 2-9 and Table 2-10, with one exception. As detailed in Agenda Item H.8.a, Supplemental

Tribal Report 3, November 2019, deductions from groundfish ACLs for sablefish N. of 36° N. lat. increase for the tribal fisheries over No Action from 604 mt to 647 mt in 2021 and from 575 to 616 mt in 2021 and 2022 respectively (Table 3-3; assuming Method 1 ACL apportionment) as the Tribal share is a fixed percentage of the ACL. Therefore, as the ACL increases so does the Tribal share for sablefish north of 36° N. lat.

While the off-the-top deductions do not vary under Alternative 1, the resulting HGs from the alternatives harvest specifications do vary for Oregon blue/deacon/black rockfish complex, petrale sole, cowcod south of 40° 10' N. lat. and sablefish south of 36° N. lat. (Table 3-2).

Table 3-2. Alternative 1. Estimates of tribal, EFP, research, and incidental OA groundfish mortality (in mt) used to calculate the fishery HG for species with alternative ACLs in 2021-22.

Stock/Complex	Area	Year	ACL	Tribal	EFP	Research	OA	Sum	Fishery HG
Blue/Deacon/Black rockfish	Oregon	2021	603	-	0.5	0.1	1.7	2.3	600.7
		2022	600	-	0.5	0.1	1.7	2.3	597.7
Cowcod	S of 40°10' N. lat.	2021	87	-	0.65	10.0	0.2	10.85	76.2
		2022	85	-	0.65	10.0	0.2	10.85	74.2
Petrale sole	Coastwide	2021	3,843	350.0	0.1	24.1	13.3	387.5	3,455
		2022	3,455	350.0	0.1	24.1	13.3	387.5	3,067.5
Sablefish	S of 36° N. lat.	2021	2,321	-	-	2.4	25.0	27.4	2,294
		2022	2,211	-	-	2.4	25.0	27.4	2,184

Table 3-3. 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 2021 and 2022 under Method 1 apportionment.

Year	ACL (mt)	Tribal Share (mt)	Research (mt)	Rec. (mt)	EFP (mt)	Commercial HG (mt)
2021	6,041	647.0	30.7	6.0	1.1	5,785.2
2022	6,164	616.0	30.7	6.0	1.1	5,509.8

3.2 Allocating the Fishery HG

Under Alternative 1, the allocation percentages are the same as described under No Action (Section 2.1). As shown below in Table 3-4 and Table 3-5, the increased ACLs for sablefish north and south of 36° N. lat. result in larger sector allocations; whereas, the reduced ACLs for cowcod and petrale sole result in smaller sector allocations. Note that these allocations for petrale sole are based on the status quo allocation options (Table 2-15), but all allocation options shown in Table 2-15 could be applied. Additionally, the cowcod ACT options described in Table 2-12 could apply under Alternative 1 specification.

Table 3-4. Alternative 1. 2021 sector allocations under Alternative 1 for cowcod, petrale sole and sablefish south of 36° N. lat.

Year	STOCK	AREA	Allocation Type	Fishery HG or ACT	Trawl		Non-Trawl	
					%	mt	%	mt
2021	Cowcod	S of 40°10' N. lat.	Biennial	76.2	36%	27.4	64%	48.8
2022				74.2	36%	26.7	64%	47.5
2021	Petrale sole	Coastwide	Amendment 21	3,455	95%	3,282.2	5%	172.8
2022				3,503	95%	3,115	5%	163.6
2021	Sablefish	S of 36° N. lat.	Amendment 21	2,284.6	42%	959.5	58%	1325.1
2022				2,175.6	42%	913.8	58%	1261.9

Table 3-5. Alternative 1 allocations for sablefish north of 36° N. lat. under both apportionment Methods.

Apportionment Method	Year	Commercial HG	Limited Entry HG		Limited Entry Trawl		Limited Entry FG		Open Access HG	
			%	Mt	%	Mt	%	Mt	%	Mt
Method 1 (Long Term Avg.)	2021	5,785	90.6	5,241	58	3,040	42	2,201	9.4	544
	2022	5,510		4,992		2,895		2,097		518
Method 2 (5 Year Avg.)	2021	6,165		5,586		3,240		2,346		580
	2022	5,872		5,320		3,085		2,234		552

3.2.1 Rebuilding Species Allocation.

The rebuilding species, i.e. yelloweye rockfish, allocations are the same as described under No Action, as show in Table 2-19.

3.2.2 Shortbelly rockfish

Under Alternative 1 (PPA), shortbelly rockfish would be managed with a P*0.40 and a constant 3,000 mt ACL set below the ABC. This would be the same ACL as the Council adopted for 2020 when they raised the ACL from 500 mt to 3,000 mt in part to reduce fishery constraints. The projected total groundfish impacts would be the same as discussed under No Action (i.e., 40 percent of bootstrap simulations exceeded

500 mt with some as high as 1,000 mt). A main benefit to Alternative 1 is that it would provide extra cushion for the fisheries than the No Action 500 mt ACL. While the maximum total mortality projection is 1,000 mt, these projections are highly speculative since high shortbelly rockfish bycatch has only occurred in recent years (2017-2019) and the reasons causing it are uncertain. Alternative 1 could help mitigate some of the uncertainty in the event that future bycatches could be higher. A downside to Alternative 1 is that it could reduce the incentive for trawlers to voluntarily avoid shortbelly rockfish. Alternative 1 is not expected to negatively impact the shortbelly rockfish forage base since all indications are that the stock is thriving and there also an abundance of other forage stocks currently (e.g., anchovy). See No Action for more detail.

3.2.3 Harvest Guidelines

Under Alternative 1, the HGs and state quotas are the same as described under No Action (Sections 2.1).

3.3 Shorebased IFQ – Alternative 1

3.3.1 Shorebased IFQ – Management Measures

ACLs and allocations are the same as No Action, except for shortbelly rockfish, cowcod south of 40°10' N. lat, petrale sole and sablefish. Under Alternative 1, petrale sole is managed under a P* of 0.40 resulting in ~7 percent decrease from No Action allocations. For sablefish, the ABC is based on a P* of 0.45 resulting in increases for sablefish north and south of 36° N. lat. of approximately 15 percent. No additional management measures are proposed, but the same allocation and trip limit proposals described under No Action remain applicable to the Alternative 1 harvest specifications.

3.3.2 IFQ Groundfish Impacts

Table 3-6 shows the 2021-2022 allocations and projected catch under Alternative 1 (Method 1 applied to sablefish). Catch projections remain the same for all species except for petrale sole and sablefish, which as discussed above, respond to changes in allocation. With increases in sablefish allocations, sablefish north sees an increase in catch of approximately 7 percent in both years while sablefish south projects a minor increase of ~2 percent. Petrale sole catch under Alternative 1 decrease by an average of 7 percent, the same percent reduction seen in the allocation. As described under No Action, the impacts for cowcod rockfish are not shown in the table due to the range of ACTs. For preliminary analysis, see discussion of impacts below.

Table 3-6. Alternative 1- Shorebased IFQ. 2021-22 Allocations, projected catch, and attainment under Alternative 1 (Method 1 for sablefish). Baseline (2019) allocations and catch are shown for reference.

	Baseline 2019		2021 Alt 1			2022 Alt 1		
Species	Allocation	Catch	Allocation	Proj. Catch	% Attain	Allocation	Proj. Catch	% Attain
Arrowtooth flounder	12,735.10	891.34	7,446.00	870.41	11.7%	5,974.75	842.99	14.1%
Bocaccio rockfish South of 40°10' N.	800.7	323.58	663.76	268.56	40.5%	654.39	264.79	40.5%
Canary rockfish	953.6	406.99	871.2	379.68	43.6%	848.78	372.22	43.9%
Chilipepper rockfish South of 40°10' N.	1,838.30	585.93	1,695.23	540.4	31.9%	1,620.97	516.76	31.9%
Cowcod South of 40°10' N.	2.2	0.77	2.16	0.76	35.2%	2.16	0.76	35.2%
Darkblotched rockfish	658.4	355.84	763.6	401.07	52.5%	717.74	381.36	53.1%
Dover sole	45,979.20	5,947.99	45,977.66	5,947.98	12.9%	45,977.66	5,947.98	12.9%
English sole	9,375.10	213.33	8,473.18	210.79	2.5%	8,409.53	210.6	2.5%
Lingcod North of 40°10' N.	2,051.90	478.97	2,275.77	526.46	23.1%	2,090.82	487.23	23.3%
Lingcod South of 40°10' N.	462.5	82.34	490.05	87.15	17.8%	521.55	92.65	17.8%
Longspine thornyheads North of 34°27' N.	2,420.00	309.08	2,446.29	311.94	12.8%	2,273.77	293.16	12.9%
Minor shelf rockfish North of 40°10' N.	1,155.20	505.17	829.23	397.14	47.9%	792.51	384.97	48.6%
Minor shelf rockfish South of 40°10' N.	188.6	8.67	161.67	8.08	5.0%	160.45	8.06	5.0%
Minor slope rockfish North of 40°10' N.	1,248.80	239.01	937.76	229.68	24.5%	915.89	228.8	25.0%
Minor slope rockfish South of 40°10' N.	1,049.10	46.58	422.16	42.17	10.0%	419.64	42.15	10.0%
Other flatfish	5,603.70	483.49	4,087.99	462.72	11.3%	4,120.39	463.29	11.2%
Pacific cod	1,034.10	14.17	1,034.21	14.17	1.4%	1,034.21	14.17	1.4%
Pacific halibut (IBQ) North of 40°10' N.	69.58	32.9	69.58	33.36	47.9%	69.58	32.7	47.0%
Pacific ocean perch North of 40°10' N.	3,697.30	534.17	3,268.69	474.82	14.5%	2,937.49	428.96	14.6%
Pacific whiting	169,126.03	144,851.68	169,126.03	144,851.68	85.6%	169,126.03	144,851.68	85.6%
Petrale sole	2,453.00	2,446.02	3,277.72	3,267.39	99.7%	2,909.12	2,900.29	99.7%
Sablefish North of 36° N.	2,581.30	2,572.37	2,990.02	2,949.96	98.7%	2,845.30	2,816.26	99.0%
Sablefish South of 36° N.	834	76.93	963.31	81.21	8.4%	917.11	80.1	8.7%
Shortspine thornyheads North of 34°27' N.	1,506.80	569.87	1,212.12	458.79	37.9%	1,178.87	446.26	37.9%
Shortspine thornyheads South of 34°27' N.	50	0	50	0	0.0%	50	0	0.0%
Splitnose rockfish South of 40°10' N.	1,646.70	20.11	1,565.22	20.11	1.3%	1,531.02	20.11	1.3%
Starry flounder	211.6	0.48	166.8	0.48	0.3%	166.8	0.48	0.3%
Widow rockfish	9,928.80	9,331.09	12,409.70	11,435.82	92.2%	11,606.53	10,754.43	92.7%
Yelloweye rockfish	3.4	0.57	3.29	0.6	18.2%	3.37	0.57	16.9%
Yellowtail rockfish North of 40°10' N.	4,305.80	3,254.75	4,064.60	3,146.18	77.4%	3,871.88	3,059.43	79.0%

Pacific Halibut
Same as No Action

Cowcod south of 40°10' N. lat.
Under Alternative 1 (PPA), cowcod would be managed with the ACL = ABC P*0.40 and status quo trawl and non-trawl allocations (Table 3-7). The impacts would however be the same as described under No Action since the Council is also considering using a more precautionary ACT range of 40 mt to 60 mt as the basis for managing the fisheries. These ACTs apply to all alternatives and are the basis for setting the trawl and non-trawl allocations. Alternative 1 would facilitate the ability to consider the full range of ACTs because they would be lower than fishery HGs in both 2021-22.

Table 3-7. Cowcod south of 40° 10' N. lat. Allocations for 2021-22 under Alternative 1 and without an ACT.

Year	ACL	Set-aside	Fishery HG	Trawl (IFQ) allocation (36%)
2021	87	10.85	76.2	27.4
2022	85	10.85	74.2	26.7

**For reference, the Baseline ACL is 10 mt and No Action is 97.9 in 2021 and 96.1 mt in 2022*

Sablefish
Under Alternative 1 (PPA), the P* for the coastwide sablefish ABC is increased from 0.4 (No Action) to 0.45. Similar to the discussion under No Action, the Council is considering the Method by which to apportion the ACL north and south of 36° N. lat. Table 3-8 shows the 2021-22 allocations and projected catch under Alternative 1 for Methods 1 and 2 with the baseline 2019 allocations and catch provided for reference. There is a ~6-7 percent increase in allocation and projected catch under Method 2 compared to Method 1 for sablefish north. Sablefish south is projected to see an overall 10-13 percent decline in projected catch based on model outputs, but may remain at constant levels since attainments are low (~10 percent in 2019) and the primary constraints are lack of markets and processing infrastructure. As under No Action, these allocations are based on the at-sea sector having a 50 mt set aside.

If the Council wanted to implement a more precautionary set-aside for the at-sea sector (100-175 mt depending on the option), the impacts would be less significant under Method 2 compared to Method 1. However, the impacts can vary when comparing No Action Method 2 and Alternative 1 Method 1 (Table 3-10). For example, in 2021, the allocations for Alternative 1 Method 1 is only 16.56 mt higher than No Action Method 2. However, in 2022, the allocation for Alternative 1 Method 1 is 128 mt less than under No Action Method 2. Therefore, the impact of increasing the at-sea set-aside to greater than 50 mt would be similar when comparing 2021 allocations under No Action Method 2 and Alternative 1 Method 1, but would be a significant impact for 2022 under Alternative 1 Method 1 compared to No Action Method 2.

Under Alternative 1, the projected gains in ex-vessel revenue for Method 2 for the IFQ fishery north of 36° N. lat are +$516,207 in 2021 and +$491,764 in 2022 compared to Method 1 (Table 3-9). To the south, the projected decreases with Method 2 are -$22,279 in 2021 and -$27,736 in 2022 compared to Method 1. The net coastwide IFQ gains in ex-vessel revenue would be over +$450,000 per year when factoring in that gains to the north are projected to be greater than the declines to the south. As described under No Action, the projected declines to the south are however based on the IFQ model predicting that lower allocations would reduce catches; however, actual attainments may remain static and not decrease since attainments are low due to a lack of processing infrastructure.

Non-IFQ Species
Same as No Action

Table 3-8. Alternative 1 sablefish IFQ allocations and projected catches for both apportionment methods.

Species	Baseline 2019		2021				2022			
			Method 1		Method 2		Method 1		Method 2	
	Allocation	Catch	Allocation	Proj. Catch	Allocation	Proj. Catch	Allocation	Proj. Catch	Allocation	Proj. Catch
Sablefish North of 36° N.	2,581.30	2,572.37	2,990.02	2,949.96	3,189.59	3,134.33	2,845.30	2,816.26	3,035.42	2,991.90
Sablefish South of 36° N.	834	76.93	963.31	81.21	782.29	73.11	917.11	80.1	744.91	70.02

Table 3-9. Sablefish IFQ allocations, projected catches, and ex-vessel revenue to the north and south of 36° N. lat. for both ACL apportionment methods under Alternative 1 for 2021-22, as well as total coastwide projected impacts.

Method	Year	North				South				Coastwide	
		Allocation	Projected Catch	Projected IFQ $ ex-vessel revenue		Allocation	Projected Catch	Projected IFQ $ ex-vessel revenue		Projected IFQ $ ex-vessel revenue	
				Total $	$ difference with Method 2			Total $	$ difference with Method 2	Total $	$ difference with Method 2
1	2021	2,990.02	2,949.96	$8,259,422	NA	963	81.2	$223,333	NA	$8,482,755	NA
	2022	2,845.30	2,816.26	$7,885,083	NA	917	80.1	$220,283	NA	$8,105,366	NA
2	2021	3,189.59	3,134.33	$8,775,629	$516,207	782	73.1	$201,054	-$22,279	$8,976,683	$493,928
	2022	3,035.42	2,991.90	$8,376,847	$491,764	745	70	$192,546	-$27,736	$8,569,393	$464,028

To provide a comprehensive assessment of the impacts of the action alternatives with the apportionment Methods, Table 3-10 shows an overarching comparison of the harvest specifications and resulting allocations and ex-vessel revenue under all four ACL Options. All four are projected to increase IFQ ex-vessel revenue for sablefish coastwide compared to Baseline due to higher ABCs in 2021-22, but by various degrees depending on the P* and the Method used to apportion the ACLs. Alternative 1 Method 1 (PPA) is projected to result in the highest ex-vessel revenue coastwide total at $8.9 million in 2021 and 8.6 million in 2022, as it has the highest allocation to the north where attainments are high. This is +$1 million per

year higher than No Action Method 1, which is the status quo. No Action Method 2 and Alternative 1 Method 1 are projected to provide similar intermediary economic benefits of approximately +$0.5 million per year compared to No Action Method 1 and approximately -$0.5 million less per year than Alternative 1 Method 2.

Table 3-10. Comparison of IFQ sablefish allocations and projected ex-vessel revenue by area for all four ACL alternatives being considered for 2021-22.

Year	Alternative	Apport. Method	Coastwide ABC (mt)	North of 36° N. lat.			South of 36° N. lat.			Coastwide Ex-Vessel Revenue ($)
				ACL (mt)	IFQ Allocation (mt)	Ex-Vessel Revenue ($)	ACL (mt)	IFQ Allocation (mt)	Ex-Vessel Revenue ($) *	
2019	Baseline	1	7,750	5,606	2,584	7,106,585	1,990	834	211,283	7,317,868
2021	NA	1	8,208	6,041	2787	7,106,585	2,167	899	219,062	7,953,682
		2		6,435	2,973	8,216,684	1,765	723	189,105	8,405,789
	1 (PPA)	1	8,791	6,470	2,990	8,259,422	2,321	963	223,333	8,482,755
		2		6892	3,190	8,775,626	1,890	782	201,054	8,976,680
2022	NA	1	7,811	5,749	2,649	7,377,416	2,062	855	215,395	7,592,811
		2		6,124	2,826	7,836,170	1,679	694	180,884	8,017,054
	1 (PPA)	1	8,375	6,164	2,845	7,885,083	2,211	917	220,283	8,105,366
		2		6,566	3,035	8,376,847	1,801	745	192,546	8,569,393

*Based on IFQ model that projects attainments would change in response to higher or lower south of 36° IFQ allocations, but may remain static at Baseline levels since attainments are low (<10 percent), would not be constrained by any of the allocations, and held constant due to a lack of processing infrastructure.

Petrale sole

Under Alternative 1 (PPA), petrale sole would be managed with a more precautionary P* of 0.40 compared to No Action (P*=0.45). A main reason the Council selected Alternative 1 as the PPA is because the GMT recommended being more precautionary due to concerns with the 2019 update assessment (described under No Action). However, the GMT also pointed out that both Alternative 1 and Alternative 2 ("stair-step" ACLs) are both equally as precautionary and provide similar long-term total IFQ allocations and economic benefits (~$89 million in 2019-2030 total ex-vessel revenue for both); the main difference is that Alternative 1 provides more short-term benefits whereas Alternative 2 spreads those same benefits more into the long-term (Agenda Item H.6.a GMT Report 2 November 2019). Since petrale sole are above the management target, there is a temporary surplus of yield associated with "fishing the stock down" toward the management target to better meet MSY goals. Alternative 1 utilizes more of that temporary surplus in 2021-22 and Alternative 2 utilizes the same amount, but with more of it in future biennium.

As detailed under No Action, there are two allocation being considered for petrale sole in 2021-22 that apply to all the harvest specification alternatives. Option 1 uses the status quo A-21 formulas of 95 percent to trawl and 5 percent to non-trawl (Table 3-11). Option 2 makes petrale sole a two year allocation stock and would have a fixed 30 mt non-trawl allocation in both 2021-22 with the remainder allocated to trawl. The purpose of Option 2 is to provide more economic benefits for IFQ while not constraining the non-trawl sectors. Under Option 1, Alternative 1 will decrease the 2021 IFQ allocation by 258.4 mt in 2021 compared to No Action and reduce the projected ex-vessel revenue by $674,451. The decrease in 2022 is 194.8 mt and $508,432 in projected ex-vessel revenue.

Option 2 can help mitigate the reductions associated with Alternative 1 (compared to No Action). Under Alternative 1, Option 2 increases the IFQ allocations from Option 1 by 142.8 mt and 123.4 mt and projected ex-vessel revenue by $372,694 and $322,053 in 2021-22, respectively. There will be net losses for IFQ under Alternative 1 for both allocation Options due to the more precautionary ABC than of No Action, but they would be reduced if Option 2 is selected.

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Table 3-11. Petrale sole allocations under the No Action and Alternative 1 ACLs and both allocation options, plus projected gains in IFQ ex-vessel revenue associated with Option 2.

No Action								
Option	Allocations (mt)						Projected IFQ $ ex-vessel revenue	
	Year	ACL	Fishery HG	Non-trawl	Trawl	IFQ	Total $	$ gain with Option 2
1 (SQ)	2021	4,115	3,727.5	186.4	3,541.1	3,536.1	9,230,482	NA
	2022	3,660	3,272.5	163.6	3,108.9	3,103.9	8,102,286	NA
2	2021	4,115	3,727.5	30	3,687.5	3,692.5	9,638,742	408,260
	2022	3,660	3,272.5	30	3,232.5	3,237.5	8,451,030	348,744
Alternative 1 PPA (ABC= ACL P*0.40)								
Option	Allocations (mt)						Projected IFQ $ ex-vessel revenue	
	Year	ACL	Fishery HG	Non-trawl	Trawl	IFQ	Total $	$ gain with Option 2
1 (SQ)	2021	3,843	3,455.5	172.8	3,282.7	3,277.7	8,556,031	NA
	2022	3,455	3,067.5	153.4	2,914.1	2,909.1	7,593,854	NA
2	2021	3,843	3,455.5	30.0	3,425.5	3,420.5	8,928,725	372,694
	2022	3,455	3,067.5	30.0	3,037.5	3,032.5	7,915,906	322,053

**Option 1 uses the status quo trawl (95 percent) and non-trawl allocations (5 percent) whereas Option 2 fixes non-trawl at 30 mt with the remainder to trawl*

3.4 At-Sea

The at-sea sector measures and impacts are the same as described under No Action (Section 2.4). The only consideration under Alternative 1 is the higher sablefish ACL due to the increase in P* from 0.4 to 0.45. The impacts of selecting a higher set aside for the at-sea sector, which would decrease the likelihood of the at-sea sector exceeding the set aside, on the IFQ sector are discussed in detail in Chapter 3.3 above. In general, the impacts to the IFQ sector would be less under Alternative 1 compared to No Action if the Council were to increase the sablefish north set aside for the at-sea sectors. Impacts of the apportionment method and resulting effects are discussed above as well.

3.5 Limited Entry and Open Access Fixed Gear

3.5.1 Limited Entry and Open Access Fixed Gear - Alternative 1

For Alternative 1, ACLs are the same as No Action for 2021-2022 except for sablefish, cowcod south of 40° 10' N. lat., Oregon black/blue/deacon rockfish complex, shortbelly rockfish, and petrale sole (Table 3-12). The impacts are the same as No Action for all but sablefish since the projected non-nearshore mortality is minor for these stocks and is expected to be well within the non-trawl allocations for all ACL alternatives.

As noted under No Action, there is a proposal to manage cowcod south of 40°10 N. lat. under an ACT. The cowcod south of 40°10 N. lat. non-trawl allocation based on a range of ACTs is listed in Table 3-12.

Table 3-12. Alternative 1 - 2021 and 2022 ACLs (mt) and non-trawl allocations (mt) for select species.

Stock	ACL		Non-trawl Allocation	
	2021	2022	2021	2022
Cowcod S. of 40°10' N. lat.				
ACT SQ (6mt)	87	85	3.8	3.8
ACT of 40 mt			25.6	25.6
ACT of 60 mt			38.4	38.4
Oregon Black/Blue/Deacon rockfish	602.6	599.5	NA	NA
Shortbelly rockfish	3,843	3,455	N/A	N/A
Petrale sole	3,000	3,000	172.8	153.4

For sablefish, Alternative 1 uses the maximum P*0.45 to set the coastwide ABC instead of the more precautionary P*0.40 under No Action. As with No Action, the Alternative 1 ACLs depend on the method used to apportion the coastwide ABC to the north and south ACLs. Method 1 again uses the long-term bottom trawl survey biomass average distributions to the north and south. Method 2 does the same except that a rolling 5-year average is used. Under Alternative 1, higher trip limits can be considered for the DTL fisheries north of 36° N lat.. However, the same trip limits are proposed to the south despite higher allocations since lack of processing infrastructure and close areas (i.e., CCA) have been identified as the main reason for less than full attainments (described more under No Action).

3.5.2 Non-Nearshore Trip Limit Analysis

The trip limit sections (and tier limits) for the non-nearshore fishery are organized as follows:

1. sablefish using ACL apportionment Method 1;
2. sablefish using ACL apportionment Method 2;
3. overarching comparison of non-nearshore sablefish for all four ACL alternatives

There are no additional non-sablefish trip limits proposed under Alternative 1; the same ones analyzed under No Action apply to Alternative 1.

3.5.2.1 Sablefish allocations and trip and tier limits based Alternative 1 Method 1:

The sablefish allocations and tier limits for 2021-22 are shown in Table 3-13– Table 3-15. The landings targets and proposed trip limits for the LE and OA DTL fisheries DTL north of 36° N. lat. are shown in Table 3-16; the trip limits were set to fully attain the landings targets. There is uncertainty in the landings projections and the upper end of the range is above the landings targets; however, this is not expected to be a problem as the model has overestimated landings by 25-45 percent in 2019 and inseason actions can be used to reduce trip limits if landings are higher than projected.

The landings targets and trip limits for the LE DTL fishery south of 36° N. lat. (Table 3-17) continue to be set a constant 2,000 lbs. weekly as done in past cycles because other factors (e.g., lack of processing infrastructure and closed areas) have been identified by the GAP as the main hindrances to attainment. The projected attainment is less than 50 percent of the landings target.

There are two trip limit Options for OA DTL fishery south of 36° N. lat. (Table 3-17) that are described under No Action. In summary, OAS Option 1 maintains the 2019 daily (300 lbs.) and weekly limits (1,600 lbs.) but uses a year-round 4,800 lbs. bimonthly limit to be consistent with the Council's inseason action for 2020. The projected attainment for Option 1 is less than 10 percent of the landings target. OAS Option 2 uses the same weekly and bimonthly limits but removes the daily limit as means to increase profit margins (i.e., fewer trips needed) and to create incentive for more participation. The projected landings with Option 2 are expected to be less than 100 mt based on the maximum catch scenario (described under No Action and Table 2-41), which is 25 percent or less of the landings target.

Table 3-13. Alternative 1 Method 1 Limited entry sablefish FMP allocations north of 36° N. lat., based on a P* of 0.45 and a long-term average ACL apportionment Method 1.

Year	Sablefish Com. HG	LE Share	LE FG Share (mt)				Estimated Tier Limits (lbs.) a/		
			LE FG Total Catch Share	Landed Catch Share a/	Primary Season Share b/	LE FG DTL Share b/	Tier 1	Tier 2	Tier 3
2021	5,785	5,241	2,201	2,100	1,871	315	55,036	25,016	14,295
2022	5,510	4,992	2,097	2,000	1,782	300	52,416	23,826	13,615

a/ The limited entry fixed gear total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

b/ Shares do not include anticipated discard mortality.

Table 3-14. Alternative 1 Method 2 - Open access FMP allocations north of 36° N. lat. based on a P* of 0.45 and a long-term average ACL apportionment Method 1.

Year	OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt) a/
2021	544	519
2022	518	494

a/ The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 3-15. Alternative 1 Method 2 - Short-term sablefish allocations south of 36° N. lat. for the non-trawl sector, based on a P* of 0.45 and a long-term average ACL apportionment Method 1. Limited entry and open access catch shares under the no action sharing alternative (70 percent limited entry; 30 percent open access).

Year	Commercial HG (mt)	Non-Trawl Allocation (mt)	LE FG Total Catch Share (mt)	Directed OA Total Catch Share (mt)	LE FG Landed Catch Share a/ (mt)	Directed OA Landed Catch Share a/ (mt)
2021	2,294	1,330	931	399	911	390
2022	2,184	1,266	887	380	867	372

a/ The limited entry and open access fixed gear total catch shares are reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-22, 11 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 3-16. Alternative 1 Method 1. Sablefish trip limits (lbs.) north of 36° N. lat. for limited entry and open access fixed gears. Landed shares and projected attainment for 2021 are based on a P* of 0.45 and a long-term average ACL apportionment Method 1.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Attain.
LE	1,600 lb. week, not to exceed 4,800 lbs. / 2 months						315	276-337
OA	300 lbs. daily, or 1 landing per week up to 1,300 lbs., not to exceed 2,600 lbs. bimonthly						519	454-567

Table 3-17. Alternative 1 Method 1. Sablefish trip limits (lbs.) south of 36° N. lat. for limited entry and open access fixed gears. Landed shares and projected attainment for 2021 are based on a P* of 0.45 and a long-term average ACL apportionment Method 1.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Attain.
LE	2,000 lbs./week						911	336-411
OA Option 1	300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 4,800 lbs. bimonthly						399	26-39
OA Option 2	1,600 lbs. per week, not to exceed 4,800 lbs. bimonthly						399	< 100 a/

a/ *Based on maximum catch scenario of which results are provided in Table 2-41*

3.5.2.2 Sablefish allocations and trip and tier limits for Alternative 1 Method 2

Alternative 1 Method 2 is the Council's PPA and also the GAP's recommendation (Agenda Item H.6.a, Supplemental GAP Report 1, November 2019). The sablefish allocations and tier limits are shown in Table 3-18 - Table 3-20 and the DTL trip limits are shown in Table 3-21 and Table 3-22 .

As described above, while the higher end of the range of projected mortality are above the landings target for the northern DTL fisheries, this is not expected to be a problem since the DTL model overestimated 2019 landings by 25-40 percent each month and inseason actions can be taken as needed. For the southern DTL fisheries, the same trip limits are proposed as under No Action. Note that despite the higher allocations, the lack of processing infrastructure and closed areas (i.e., CCA) have been identified as the main causes of low attainments in this area.

Table 3-18. Alternative 1 Method 2- Limited entry sablefish FMP allocations north of 36° N. lat., based on a P* of 0.45 and a rolling 5-year average ACL apportionment Method 2 (PPA).

Year	Sablefish Com. HG	LE Share	LE FG Share (mt)				Estimated Tier Limits (lbs.) a/		
			LE FG Total Catch Share	Landed Catch Share a/	Primary Season Share b/	LE FG DTL Share b/	Tier 1	Tier 2	Tier 3
2021	6,165	5,586	2,346	1,902	1,994	352	58,649	26,659	15,234
2022	5,872	5,320	2,234	1,812	1,899	335	55,858	25,390	14,509

a/ The limited entry fixed gear total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

b/ Shares do not include anticipated discard mortality.

Table 3-19. Alternative 1 Method 2- Open access sablefish FMP allocations north of 36° N. lat. based on a P* of 0.45 and a rolling 5-year average ACL apportionment Method 2 (PPA).

Year	OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt) a/
2021	580	553
2022	552	527

a/ The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 3-20. Alternative 1 Method 2- Short-term sablefish allocations south of 36° N. lat. for the non-trawl sector, based on a P* of 0.45 and a rolling 5-year average ACL apportionment Method 2 (PPA). Limited entry and open access catch shares under the no act action sharing alternative (70 percent limited entry; 30 percent open access).

Year	Commercial HG (mt)	Non-Trawl Allocation (mt)	LE FG Total Catch Share (mt)	Directed OA Total Catch Share (mt)	LE FG Landed Catch Share a/ (mt)	Directed OA Landed Catch Share a/ (mt)
2021	1,863	1,080.3	756	324	740	317
2022	1,774	1,029	720	309	704	302

a/ The limited entry and open access fixed gear total catch shares are reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2018. In 2021-2022, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table 3-21. Alternative 1 Method 2- Sablefish trip limits (lbs.) north of 36° N. lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2021 based on a P* of 0.45 and a rolling 5-year average ACL apportionment Method 2 (PPA).

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sep-Oct	Nov-Dec	Landed Catch Share	Projected Attain.
LE	1,700 lb week, not to exceed 5,100 lbs. / 2 months						336	301-367
OA	300 lbs. daily, or 1 landing per week up to 1,400 lbs., not to exceed 2,800 lbs. bimonthly						553	514-553

Table 3-22. Alternative 1 Method 2Sablefish trip limits (lbs.) south of 36° N. lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2021 based on a P* of 0.45 and a rolling 5-year average ACL apportionment Method 2(PPA).

fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Attain.
LE	2,000 lbs./week						740	336-411
OA Option 1	300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 4,800 lbs. bimonthly						317	26-39
OA Option 2	1 landing per week up to 1,600 lbs., not to exceed 4,800 lbs. bimonthly						317	< 100 a/

a/ Based on maximum catch scenario of which results are provided in Table 2-41

3.5.2.3 Overarching comparison of non-nearshore sablefish for all four ACL alternatives

Given that there are a total of 26 sablefish allocation and trip limit tables in the sections above, it is difficult to compare the Baseline and 2021-22 projected mortality for the two ACL alternatives and the two apportionment options. This section therefore provides a summary to allow easier comparisons of the ABCs and ACLs (Table 3-23 and Table 3-24), primary/tier limits (Table 3-25), and DTL trip limits and projections for the north (Table 3-26) and south (Table 3-27). The overall coastwide non-nearshore (FG) sablefish projected landings and ex-vessel revenue are provided in **Table 3-28**

Regarding the coastwide ABC, Alternative 1 (P*0.45) results in an additional 583 mt and 564 mt in 2021-22, respectively, then No Action (P*0.40). In regard to ACLs, Method 2 results in more of the coastwide ABC being allocated to the northern ACL and less to the southern ACL. For No Action (ABC = P*0.40), Method 2 results in an additional 402 mt and 383 mt for 2021-22, respectively, for the north and less to the south than Method 1. For Alternative 1 (ABC = P*0.45), Method 2 results in an additional 431 mt and 410 mt for 2021-22, respectively, for the north and less to the south.

The reduction in the southern ACL could be decreased if the higher Alternative 1 ABC (P*0.45) is selected. For example, the decline to the southern ACL would be 277 mt and 261 mt in 2021-22, respectively, if Alternative 1 Method 2 (PPA) is selected instead of No Action Method 1, which is the status quo approach used in 2019. Under the PPA (Alternative 1 Method 2), the southern ACL would decline by 100 and 189 mt in 2021-22, respectively, compared to the baseline 2019 ACL.

Table 3-23. Comparison of the four sablefish ACLs north of 36° N. lat. of which the No Action and Alternative 1 affect the coastwide ABC, and Methods 1 and 2 affect how the coastwide ABC is apportioned to the northern and southern ACLs based on the trawl survey distributions.

Year	Coastwide ABC		N 36° N. lat. ACLs			
	No Action (P*0.40)	Alt 1 P*0.45	No Action Method 1 (P*0.40 x 73.6% long-term avg.)	Alt 1 Method 1 (P*0.45 x 73.6% long-term avg.	No Action Method 2 (P*0.40 x 78.4% 5-year avg.)	Alt 1 Method 2 (P*0.45 x 78.4% 5-year avg.)
2019*	7,750	---	5,606	---	---	---
2020*	7,896	---	5,723	---	---	---
2021	8,208	8,791	6,041	6,470	6,435	6,892
2022	7,811	8,375	5,749	6,164	6,124	6,566

**Values in reg. that differ from the 2019 assessment decision tables that use lower GMT projected catch*

In regard to the northern DTL fisheries (Table 3-26), the projected ex-vessel revenue for the LE and OA DTL fisheries is expected to increase by $0.1 - $0.9 million per year in 2021-22 depending on the ACL alternative compared to baseline (2019). Alternative 1 Method 2 (PPA) is projected to result in the highest additional revenue of $0.9 and $0.6 million in 2021-22, respectively, compared to baseline.

Table 3-24. Comparison of the four sablefish ACLs south of 36° N. lat. of which the No Action and Alternative 1 affect the coastwide ABC, and Methods 1 and 2 affect how the coastwide ABC is apportioned to the northern and southern ACLs based on the trawl survey distributions.

Year	Coastwide ABC		S 36° N. lat. ACLs			
	No Action (P*0.40)	Alt 1 P*0.45	No Action Method 1 (P*0.40 x 26.4% long-term avg.)	Alt 1 Method 1 (P*0.45 x 26.4% long-term avg.	No Action Method 2 (P*0.40 x 21.5% 5-year avg.)	Alt 1 Method 2 (P*0.45 x 21.5% 5-year avg.)
2019*	7,750	---	1,990	---	---	---
2020*	7,896	---	2,032	---	---	---
2021	8,208	8,791	2,167	2,321	1,765	1,890
2022	7,811	8,375	2,062	2,211	1,679	1,801

**Values in reg. that differ from the 2019 assessment decision tables that use lower GMT projected catch.*

Table 3-25. Primary/tier sablefish (north of 36° N. lat.) landings shares, tier limits, projected landings, and projected ex-vessel revenue for baseline (2019) and the four ACL alternatives for 2021-22.

Item	Year	Baseline (2019) (mt)	No Action Method 1 (P*0.40 x 73.6% long-term avg) (mt)	Alt 1 Method 1 (P*0.45 x 73.6% long-term avg) (mt)	No Action Method 2 (P*0.40 x 78.4% 5-year avg) (mt)	Alt 1 Method 2 (P*0.45 x 78.4% 5-year avg) (mt)
N 36° ACL	2019	5,606	---	---	---	---
	2021	---	6,041	6,470	6,435	6,892
	2022	---	5,749	6,164	6,124	6,566
Primary landings share (mt)	2019	1,545	---	---	---	---
	2021	---	1,666	1,785	1,775	1,902
	2022	---	1,585	1,700	1,689	1,812
Tier 1 limit (lbs.)	2019	47,637	---	---	---	---
	2021	---	51,363	55,036	54,737	58,649
	2022	---	48,863	52,416	52,074	55,858
Tier 2 limit (lbs.)	2019	21,653	---	---	---	---
	2021	---	23,347	25,016	24,880	26,659
	2022	---	22,211	23,826	23,670	25,390
Tier 3 limit (lbs.)	2019	12,373	---	---	---	---
	2021	---	13,341	14,295	14,217	15,234
	2022	---	12,692	13,615	13,526	14,509
Projected landings (mt)	2019	1,545	---	---	---	---
	2021	---	1,666	1,785	1,775	1,902
	2022	---	1,585	1,700	1,689	1,812
Projected ex-vessel revenue	2019	7,730,324	---	---	---	---
	2021	---	8,335,602	8,931,695	8,883,063	9,518,061
	2022	---	7,929,870	8,506,510	8,450,930	9,065,086

Table 3-26. Landings targets, trip limits, projected landings, and projected ex-vessel revenue for the limited entry (LEN) and open access (OAN) northern sablefish DTL fisheries for baseline (2019) and the four sablefish ACL alternative for 2021-22.

Year	Item	Baseline (2019) (mt)	No Action Method 1 (P*0.40 x 73.6% long-term avg) (mt)	Alt 1 Method 1 (P*0.45 x 73.6% long-term avg) (mt)	No Action Method 2 (P*0.40 x 78.4% 5-year avg) (mt)	Alt 1 Method 2 (P*0.45 x 78.4% 5-year avg) (mt)
2019	N 36° ACL	5,606	---	---	---	---
2021		---	6,041	6,470	6,435	6,892
2022		---	5,749	6,164	6,124	6,566
2019	LEN landings target (mt)	273	---	---	---	---
2021		---	294	315	313	336
2022		---	280	300	298	320
LEN trip limit (lbs.)		a/	No daily	No daily	No daily	No daily
			1,500 lbs. / week	1,600 lbs. / week	1,600 lbs. / week	1,700 lbs. / week
			4,500 lbs. / 2 months	4,800 lbs. / 2 months	4,800 lbs. / 2 months	5,100 lbs. / 2 months
2019	OAN landings target (mt)	449	---	---	---	---
2021		---	484	519	516	553
2022		---	461	494	491	527
OAN trip limit (lbs.)		b/	300 lbs. / day	300 lbs. / day	300 lbs. / day	300 lbs. / day
			1,200 lbs. / week	1,300 lbs. / week	1,300 lbs. / week	1,400 lbs. / day
			2,400 lbs. / 2 months	2,600 lbs. / 2 months	2,600 lbs. / 2 months	2,800 lbs. / 2 months
2019	Projected DTL landings (mt)	722	---	---	---	---
2021		---	778	834	829	889
2022		---	740	794	789	846
2019	Projected DTL $ ex-vessel revenue	3,726,726	---	---	---	---
2021		---	4,016,639	4,303,876	4,280,442	4,586,426
2022		---	3,821,131	4,098,994	4,072,212	4,368,153

a/ **LEN Periods 1-4**: 1,300 lbs. / week, not to exceed 3,900 lbs. / 2 months; **Periods** 5-6: 1,700 lbs. / week, not to exceed 5,100 lbs. / 2 months

b/ **OAN Periods 1-2**: 300 lbs. / day; or one landing per week up to 1,200 lbs., not to exceed 2,400 lbs. / 2 months; **Period 3**: 300 lbs. / day; or one landing per week up to 1,400 lbs., not to exceed 2,800 lbs. / 2 months; **Periods 4-6**: 300 lbs. / day, or one landing per week up to 1,500 lbs., not to exceed 3,000 lbs. bimonthly

In regard to the southern DTL fisheries (**Table 3-27**), the projected increase in ex-vessel revenue in 2021-22 compared to baseline in 2019 is contingent on the trip limit Option for OA. For trip limit Option 1, the projected increase in total DTL ex-vessel revenue is $0.9 million in 2021-22 for all four ACL alternatives compared to baseline. For trip limit Option 2, the projected increase is $1.4 million in ex-vessel revenue. The southern DTL fisheries are expected to be below their landings targets for all four ACL alternatives, and are not expected to be negatively impacted by apportionment Method 2 that would shift ~400 mt of the coastwide ABC from south to the north. As the SSC, GMT, and GAP noted in November 2019, sablefish ACL apportionment is a policy call best addressed by the Council and could be adjusted in future biennium if survey distributions or the needs of southern sablefish fishery change.

Table 3-27. Landings targets, trip limits, projected landings, and projected ex-vessel revenue for the limited entry (LES) and open access (OAS) southern sablefish DTL fisheries for baseline (2019) and the four sablefish ACL alternative for 2021-22.

Year	Item	Baseline (2019) (mt)	No Action Method 1 (P*0.40 x 26.4% long-term avg.) (mt)	Alt 1 Method 1 (P*0.45 x 26.4% long-term avg. (mt)	No Action Method 2 (P*0.40 x 21.5% 5-year avg.) (mt)	Alt 1 Method 2 (P*0.45 x 21.5% 5-year avg.) (mt)
2019	S 36° ACL	1,990	---	---	---	---
2021		---	2,167	2,321	1,765	1,890
2022		---	2,062	2,211	1,679	1,801
2019	LES landings target (mt)	788	---	---	---	---
2021		---	850	911	690	740
2022		---	808	867	656	704
LES trip limit (lbs.)		No daily	No daily	No daily	No daily	No daily
		2,000 lbs. / week	2,000 lbs. / week	2,000 lbs. / week	2,000 lbs. / week	2,000 lbs. / week
		No bimonthly	No bimonthly	No bimonthly	No bimonthly	No bimonthly
2019	OAN landings target (mt)	338	---	---	---	---
2021		---	364	390	296	317
2022		---	346	372	281	302
OAS trip limit Option 1 (lbs.)		a/	300 lbs. / day	300 lbs. / day	300 lbs. / day	300 lbs. / day
			1,600 lbs. / week	1,600 lbs. / week	1,600 lbs. / week	1,600 lbs. / week
			4,800 lbs. /2 weeks	4,800 lbs. / 2 months	4,800 lbs. / 2 months	4,800 lbs. / 2 months

Year	Item	Baseline (2019) (mt)	No Action Method 1 (P*0.40 x 26.4% long-term avg.) (mt)	Alt 1 Method 1 (P*0.45 x 26.4% long-term avg. (mt)	No Action Method 2 (P*0.40 x 21.5% 5-year avg.) (mt)	Alt 1 Method 2 (P*0.45 x 21.5% 5-year avg.) (mt)
OAS trip limit Option 2 (lbs.)		a/	No daily	No daily	No daily	No daily
			1,600 lbs. / week	1,600 lbs. / week	1,600 lbs. / week	1,600 lbs. / week
			4,800 lbs. / 2 months	4,800 lbs. / 2 months	4,800 lbs. / 2 months	4,800 lbs. / 2 months
2019	Projected DTL landings Option 1(mt)	273.5	---	---	---	---
2021		---	406	406	406	406
2022		---	406	406	406	406
2019	Projected DTL ex-vessel rev. Option 1(mt)	1,847,488	---	---	---	---
2021		---	2,742,523	2,742,523	2,742,523	2,742,523
2022		---	2,742,523	2,742,523	2,742,523	2,742,523
2019	Projected DTL landings Option 2 (mt)	273.5	---	---	---	---
2021		---	473.5	473.5	473.5	473.5
2022		---	473.5	473.5	473.5	473.5
2019	Projected DTL ex-vessel rev. Option 2 (mt)	1,847,488	---	---	---	---
2021		---	3,198,485	3,198,485	3,198,485	3,198,485
2022		---	3,198,485	3,198,485	3,198,485	3,198,485

a/ OAS period 1-3: 300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 3,200 lbs. bimonthly; Period 4-6: 300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 4,800 lbs. bimonthly

In regard to coastwide non-nearshore sablefish, baseline is projected to result in $13.3 million in ex-vessel revenue and multi-million-dollar increases are expected in 2021-22 under all four ACL allocations (**Table 3-28**). The highest projected increase in ex-vessel revenue is with Alternative 1 Method 2 (PPA) with +4.0 million in 2021 and +3.3 million in 2022. Alternative 1 Method 1 is projected to result in the next highest increase to ex-vessel revenue at +3.1 million in 2021 and +2.5 million in 2022. The projected increases are highest for these alternatives since they result in the highest allocations to the north where the fisheries typically take their full allocations.

The lowest projected coastwide increase in ex-vessel revenue is for No Action Method 1 at +2.2 million in 2021 and +1.6 million in 2022. (Table 3-28). This has the lowest projected gains since it uses a more conservative ABC and a higher ACL apportionment to the south where attainments are routinely low. The second lowest projected increase in ex-vessel revenue is for No Action Method 2 at +$3.1 million in 2021 and +2.4 million in 2022. This alternative uses a more conservative ABC but with a greater ACL shift to the north which produces intermediary benefits.

Table 3-28. Coastwide and regional non-nearshore sablefish projected landings and ex-vessel revenue for the 2019 baseline and four ACL alternatives for 2021-22.

Year	Item	Baseline (2019) (mt)	No Action Method 1 (P*0.40 x 26.4% long-term avg.) (mt)	Alt 1 Method 1 (P*0.45 x 26.4% long-term avg.) (mt)	No Action Method 2 (P*0.40 x 21.5% 5-year avg.) (mt)	Alt 1 Method 2 (P*0.45 x 21.5% 5-year avg.) (mt)
2019	Primary/tier N 36° projected landings (mt)	1,545	---	---	---	---
2021		---	1,666	1,785	1,775	1,902
2022		---	1,585	1,700	1,689	1,812
2019	N 36° DTL projected landings (mt)	722	---	---	---	---
2021		---	778	834	829	889
2022		---	740	794	789	846
2019	S 36° DTL projected landings (mt)	274	---	---	---	---
2021		---	474	474	474	474
2022		---	474	474	474	474
2019	Total FG landings (mt)	2,541	---	---	---	---
2021		---	2,918	3,092	3,078	3,264
2022		---	2,799	2,968	2,951	3,132
2019	Primary/tier projected ex-vessel rev. (mt)	7,730,324	---	---	---	---
2021		---	8,335,602	8,931,695	8,883,063	9,518,061
2022		---	7,929,870	8,506,510	8,450,930	9,065,086
2019	N36° DTL projected ex-vessel rev. (mt)	3,726,726	---	---	---	---
2021		---	4,016,639	4,303,876	4,280,442	4,586,426
2022		---	3,821,131	4,098,994	4,072,212	4,368,153
2019	S36° DTL projected ex-vessel rev. (mt)	1,847,488	---	---	---	---
2021		---	3,198,485	3,198,485	3,198,485	3,198,485
2022		---	3,198,485	3,198,485	3,198,485	3,198,485
2019	***Total FG Ex-vessel rev. (mt)***	***13,304,538***	---	---	---	---
2021		---	***15,550,726***	***16,434,056***	***16,361,989***	***17,302,972***
2022		---	***14,949,486***	***15,803,989***	***15,721,627***	***16,631,724***

3.5.3 Impact (Groundfish Mortality) – Non-Nearshore North of 36° N. latitude

The non-nearshore model projects mortality of rebuilding and other species for the LEFG and the OA sectors north of 36° N. lat. and seaward of the non-trawl RCA based on the northern sablefish ACL. The sablefish north stock is the primary target and provides the main source of revenue in both sectors. The bycatch projections are based on the assumption that the LE and OA allocations for sablefish are completely harvested. The projected species mortality, as a result of harvesting the sablefish allocations, was evaluated using 2002-2018 WCGOP data in the non-nearshore model under both apportionment methods, long-term average (Method 1; Table 3-29 and Table 3-30) and rolling 5-year average (Method 2; Table 3-31 and Table 3-32). Impact projections under Alternative 1 for yelloweye rockfish in the non-nearshore fishery are likely to be similar to or slightly higher than No Action (1.3 mt).

Table 3-29. 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 2021 compared to the non-trawl allocation (excluding proposed routine adjustments). Projection are based on a default HCR of P* 0.45 and a long-term average ACL apportionment (Method 1).

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	NonTrawl Alloc. [a/] (mt)
Arrowtooth flounder	Coastwide	55.62	9.35	64.97	391.9
Big skate	Coastwide	8.45	1.44	9.89	71.0
Black rockfish	California	0.02	0.00	0.02	346.7
Bocaccio	S. of 40° 10’ N. lat.	0.30	0.08	0.38	1,036.4
Canary rockfish [b/]	Coastwide	1.30	0.22	1.53	352.4
Chilipepper rockfish	S. of 40° 10’ N. lat.	0.41	0.11	0.52	567.4
Darkblotched rockfish	Coastwide	5.61	1.05	6.66	42.4
Dover sole	Coastwide	5.92	1.24	7.16	2,420.1
English sole	Coastwide	0.03	0.01	0.04	446.2
Lingcod	N. of 40° 10’ N. lat.	14.82	2.07	16.89	2,799.8
Lingcod	S. of 40° 10’ N. lat.	1.83	1.86	3.69	599.0
Longnose skate	Coastwide	68.74	12.55	81.29	157.2
Longspine thornyhead	N. of 34° 27’ N. lat.	1.88	0.46	2.33	129.0
Mixed thornyheads	--	0.92	0.24	1.16	--
Pacific cod	Coastwide	2.35	0.40	2.75	54.7
Pacific hake	Coastwide	0.84	0.15	0.98	0.0
Pacific ocean perch	N. of 40° 10’ N. lat.	0.69	0.12	0.81	191.5
Petrale sole	Coastwide	1.32	0.24	1.55	129.4
Shortbelly rockfish	Coastwide	0.00	0.00	0.01	0.0
Shortspine thornyhead	N. of 34° 27’ N. lat.	30.76	6.63	37.39	67.5
Spiny dogfish	Coastwide	130.53	22.43	152.96	--

Splitnose rockfish	S. of 40° 10' N. lat.	0.05	0.02	0.07	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.22	0.04	0.25	1,302.9
Yellowtail rockfish	N. of 40° 10' N. lat.	1.02	0.17	1.19	596.6
Minor nearshore rockfish	N. of 40° 10' N. lat.	0.01	0.00	0.01	567.3
Black/Blue/Deacon rockfish[c/]	Oregon	0.13	0.02	0.16	75.9
Minor nearshore rockfish	S. of 40° 10' N. lat.	0.00	0.00	0.00	1,011.5
Minor shelf rockfish	N. of 40° 10' N. lat.	5.55	0.94	6.49	571.4
Minor shelf rockfish	S. of 40° 10' N. lat.	0.11	0.03	0.14	1,163.5
Minor slope rockfish	N. of 40° 10' N. lat.	100.43	16.73	117.16	290.3
Minor slope rockfish	S. of 40° 10' N. lat.	20.90	7.36	28.25	247.9
Cabezon/Kelp greenling	Oregon	0.01	0.00	0.01	197.7
Other flatfish	Coastwide	0.12	0.03	0.15	458.1
Other groundfish	--	77.13	19.71	96.85	--
Other rockfish	--	538.29	105.75	644.05	--
Ecosystem component species	--	0.00	0.00	0.00	--

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

b/ The non-nearshore share for canary rockfish in 2021 is 46.5 mt.

c/ In 2019, new complexes were formed for OR black/blue/deacon rockfish

Table 3-30. Alternative 1. Projected groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2022 compared to the non-trawl allocation. Projections are based on a sablefish default harvest control rule of P* 0.45 and a long-term average ACL apportionment method (Method 1).

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. [a/] (mt)
Arrowtooth flounder	Coastwide	52.97	9.35	62.32	318.1
Big skate	Coastwide	8.04	1.44	9.49	66.6
Black rockfish	California	0.02	0.00	0.02	339.7
Bocaccio	S. of 40° 10' N. lat.	0.28	0.08	0.36	1,021.8
Canary rockfish [b/]	Coastwide	1.24	0.22	1.46	344.0
Chilipepper rockfish	S. of 40° 10' N. lat.	0.39	0.11	0.50	542.7
Darkblotched rockfish	Coastwide	5.34	1.05	6.39	39.9
Dover sole	Coastwide	5.64	1.22	6.86	2,420.1
English sole	Coastwide	0.03	0.01	0.04	442.5
Lingcod	N. of 40° 10' N. lat.	14.11	2.07	16.18	2,573.0
Lingcod	S. of 40° 10' N. lat.	1.74	1.84	3.59	638.3
Longnose skate	Coastwide	65.47	12.45	77.91	151.0
Longspine thornyhead	N. of 34° 27' N. lat.	1.79	0.44	2.23	119.9
Mixed thornyheads	--	0.88	0.23	1.11	--

Stock/Stock Complex	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Alloc. [a/] (mt)
Pacific cod	Coastwide	2.24	0.40	2.64	54.7
Pacific hake	Coastwide	0.80	0.15	0.94	0.0
Pacific ocean perch	N. of 40° 10’ N. lat.	0.66	0.12	0.78	184.3
Petrale sole	Coastwide	1.26	0.24	1.49	162.5
Shortbelly rockfish	Coastwide	0.00	0.00	0.01	0.0
Shortspine thornyhead	N. of 34° 27’ N. lat.	29.30	6.46	35.76	67.5
Spiny dogfish	Coastwide	124.32	22.40	146.72	--
Splitnose rockfish	S. of 40° 10’ N. lat.	0.05	0.02	0.07	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.21	0.04	0.24	1,302.9
Yellowtail rockfish	N. of 40° 10’ N. lat.	0.97	0.17	1.14	596.6
Minor nearshore rockfish	N. of 40° 10’ N. lat.	0.13	0.02	0.15	559.3
Black/Blue/Deacon rockfish[c/]	Oregon	0.01	0.00	0.01	73.9
Minor nearshore rockfish	S. of 40° 10’ N. lat.	0.00	0.00	0.00	1,005.5
Minor shelf rockfish	N. of 40° 10’ N. lat.	5.29	0.94	6.22	547.1
Minor shelf rockfish	S. of 40° 10’ N. lat.	0.10	0.03	0.13	1,154.7
Minor slope rockfish	N. of 40° 10’ N. lat.	95.65	16.73	112.37	285.2
Minor slope rockfish	S. of 40° 10’ N. lat.	19.90	7.09	26.99	246.5
Cabezon/Kelp greenling	Oregon	0.01	0.00	0.01	189.7
Other flatfish	Coastwide	0.27	0.05	0.32	461.7
Other groundfish	--	0.00	0.00	0.00	--
Other rockfish	--	0.11	0.03	0.14	--
Ecosystem component species	--	73.46	18.92	92.38	--

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

b/ The non-nearshore share for canary rockfish in 2021 is 46.5 mt.

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

Table 3-31.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 2021 compared to the non-trawl allocation (excluding proposed routine adjustments). Projections are based on a sablefish DHCR of P* 0.45 and a rolling average ACL apportionment method (Method 2).

Stock/Stock Complex	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Alloc. a/ (mt)
Arrowtooth flounder	Coastwide	59.27	9.96	69.23	391.9
Big skate	Coastwide	9.00	1.54	10.54	71.0
Black rockfish	California	0.02	0.00	0.02	346.7
Bocaccio	S. of 40° 10’ N. lat.	0.32	0.09	0.41	1,036.4
Canary rockfish b/	Coastwide	1.39	0.24	1.63	352.4
Chilipepper rockfish	S. of 40° 10’ N. lat.	0.44	0.12	0.56	567.4
Darkblotched rockfish	Coastwide	5.98	1.12	7.10	42.4
Dover sole	Coastwide	6.31	1.32	7.63	2,420.1
English sole	Coastwide	0.04	0.01	0.04	446.2
Lingcod	N. of 40° 10’ N. lat.	15.79	2.21	17.99	2,799.8
Lingcod	S. of 40° 10’ N. lat.	1.95	1.98	3.93	599.0
Longnose skate	Coastwide	73.25	13.37	86.63	157.2
Longspine thornyhead	N. of 34° 27’ N. lat.	2.00	0.49	2.49	129.0
Mixed thornyheads		0.98	0.26	1.24	--
Pacific cod	Coastwide	2.50	0.43	2.93	54.7
Pacific hake	Coastwide	0.89	0.16	1.05	0.0
Pacific ocean perch	N. of 40° 10’ N. lat.	0.74	0.12	0.86	191.5
Petrale sole	Coastwide	1.41	0.25	1.66	129.4
Shortbelly rockfish	Coastwide	0.01	0.00	0.01	0.0
Shortspine thornyhead	N. of 34° 27’ N. lat.	32.78	7.06	39.85	67.5
Spiny dogfish	Coastwide	139.10	23.90	163.00	--
Splitnose rockfish	S. of 40° 10’ N. lat.	0.05	0.02	0.08	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.23	0.04	0.27	1,302.9
Yellowtail rockfish	N. of 40° 10’ N. lat.	1.08	0.18	1.27	596.6
Black/Blue/Deacon rockfish c/	Oregon	0.01	0.00	0.01	567.3
Minor nearshore rockfish	N. of 40° 10’ N. lat.	0.14	0.02	0.17	75.9
Minor nearshore rockfish	S. of 40° 10’ N. lat.	0.00	0.00	0.00	1,011.5
Minor shelf rockfish	N. of 40° 10’ N. lat.	5.91	1.00	6.91	571.4
Minor shelf rockfish	S. of 40° 10’ N. lat.	0.11	0.03	0.15	1,163.5
Minor slope rockfish	N. of 40° 10’ N. lat.	107.02	17.83	124.85	290.3
Minor slope rockfish	S. of 40° 10’ N. lat.	22.27	7.84	30.11	247.9
Cabezon/Kelp greenling	Oregon	0.01	0.00	0.01	197.7
Other flatfish	Coastwide	0.30	0.05	0.35	458.1
Other groundfish	--	0.00	0.00	0.00	--
Other rockfish	--	0.12	0.03	0.16	--
Ecosystem component species	--	82.20	21.01	103.20	--

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

b/ The non-nearshore share for canary rockfish in 2021 is 46.5 mt.

c/ In 2019, new complexes were formed for OR black/blue/deacon rockfish

Table 3-32. Alternative 1. Projected groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N. lat. (in mt) for 2022 compared to the non-trawl allocation. Projections are based on a sablefish DHCR of P* 0.45 and a rolling 5-year average ACL apportionment method (Method 2).

Stock/Stock Complex	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Alloc. [a/] (mt)
Arrowtooth flounder	Coastwide	56.45	9.96	66.41	318.1
Big skate	Coastwide	8.57	1.53	10.11	66.6
Black rockfish	California	0.02	0.00		339.7
Bocaccio	S. of 40° 10' N. lat.	0.30	0.08	0.39	1,021.8
Canary rockfish [b/]	Coastwide	1.32	0.24	1.56	344.0
Chilipepper rockfish	S. of 40° 10' N. lat.	0.42	0.11	0.53	542.7
Darkblotched rockfish	Coastwide	5.69	1.12	6.81	39.9
Dover sole	Coastwide	6.01	1.30	7.31	2,420.1
English sole	Coastwide	0.03	0.01	0.04	442.5
Lingcod	N. of 40° 10' N. lat.	15.04	2.21	17.24	2,573.0
Lingcod	S. of 40° 10' N. lat.	1.86	1.97	3.82	638.3
Longnose skate	Coastwide	69.77	13.26	83.03	151.0
Longspine thornyhead	N. of 34° 27' N. lat.	1.90	0.47	2.37	119.9
Mixed thornyheads		0.93	0.25	1.18	--
Pacific cod	Coastwide	2.38	0.43	2.81	54.7
Pacific hake	Coastwide	0.85	0.16	1.01	0.0
Pacific ocean perch	N. of 40° 10' N. lat.	0.70	0.12	0.83	184.3
Petrale sole	Coastwide	1.34	0.25	1.59	162.5
Shortbelly rockfish	Coastwide	0.00	0.00	0.01	0.0
Shortspine thornyhead	N. of 34° 27' N. lat.	31.22	6.88	38.11	67.5
Spiny dogfish	Coastwide	132.48	23.87	156.35	--
Splitnose rockfish	S. of 40° 10' N. lat.	0.05	0.02	0.07	82.4
Starry flounder	Coastwide	0.01	0.00	0.01	171.8
Widow rockfish	Coastwide	0.22	0.04	0.26	1,302.9
Yellowtail rockfish	N. of 40° 10' N. lat.	1.03	0.18	1.21	596.6
Minor nearshore rockfish	N. of 40° 10' N. lat.	0.13	0.02	0.16	559.3
Black/Blue/Deacon rockfish [c/]	Oregon	0.01	0.00	0.01	73.9
Minor nearshore rockfish	S. of 40° 10' N. lat.	0.00	0.00	0.00	1,005.5
Minor shelf rockfish	N. of 40° 10' N. lat.	5.63	1.00	6.63	547.1
Minor shelf rockfish	S. of 40° 10' N. lat.	0.11	0.03	0.14	1,154.7
Minor slope rockfish	N. of 40° 10' N. lat.	101.93	17.83	119.75	285.2
Minor slope rockfish	S. of 40° 10' N. lat.	21.21	7.56	28.76	246.5
Cabezon/Kelp greenling	Oregon	0.01	0.00	0.01	189.7
Other flatfish	Coastwide	0.29	0.05	0.34	461.7
Other groundfish	--	0.00	0.00	0.00	--
Other rockfish	--	0.12	0.03	0.15	--
Ecosystem component species	--	78.29	20.16	98.45	--

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

b/ The non-nearshore share for canary rockfish in 2021 is 46.5 mt.

c/ In 2019, new complexes were formed for OR black/blue/deacon rockfish.

3.5.4 Impact (Groundfish Mortality) – Non-Nearshore South of 36° N. latitude

Impacts the same as under No Action.

3.5.5 Impact (Groundfish Mortality) - Nearshore – Alternative 1

Projected landings, routine management measures, and projected mortality would be the same as No Action since the Alternative 1 harvest specifications are for stocks that are rarely encountered by the nearshore fisheries (i.e., shortbellly rockfish, sablefish, cowcod south of 40°10' N. lat., shortbelly rockfish, and petrale sole).

The one exception is that Alternative 1 for Oregon black rockfish (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 landings target for the nearshore fishery from 113.0 mt and 112.2 mt in 2021-22, respectively, to 120.8 mt in both years of 2021-22. Alternative 1 for Oregon black rockfish would be expected to increase landings by 7.8 mt and ex-vessel revenue by $36,000 in 2021, and 8.6 mt in landings and $40,000 in ex-vessel revenue in 2022 (compared to No Action using a P*0.45). Alternative 1 for Oregon black rockfish is projected to increase the Oregon nearshore mortality of yelloweye rockfish by 0.1 mt to 1.6 mt compared to 1.5 mt under No Action (Table 2-74). An additional 0.1 mt of yelloweye rockfish would be projected for the Oregon nearshore fishery if the higher Option 2 LEFG and OA lingcod trip limits are adopted to the north of 42° N. lat. (as discussed under No Action). The maximum projected yelloweye rockfish for the Oregon nearshore fishery would be 1.7 in 2021-22 if both changes occur, which would be ~50 percent of the Oregon shares of the 2021-22 ACTs.

3.5.6 Additional Management Measures

There are no additional new management measures proposed under Alternative 1. Any mortality associated with the new management measures summarized in Chapter 2.5.7 for No Action would be the same under Alternative 1.

3.6 Tribal Fisheries

Tribal fisheries would operate under the HGs and allocations displayed in Table 2-76 and Table 2-77. Tribal fisheries would be managed using the same measures described under No Action. As described under No Action, the Tribal sablefish allocation is a set percentage of the ACL. Table 3-33 shows the allocations under Alternative 1 and both apportionment methods.

Table 3-33. Potential Tribal allocations of sablefish under Alternative 1 based on apportionment Methods 1 and 2.

Year	Alternative 1	
	Method 1	Method 2
2021	647	689
2022	616	657

3.7 Washington Recreational

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 (Table 2-80).

3.8 Oregon Recreational

3.8.1 Oregon Recreational – Alternative 1

Alternative 1 analyzes the default HCR ACLs, except cowcod, , black/blue/deacon rockfish OR complex, petrale sole and shortbelly rockfish. The management measures for the Oregon recreational fisheries are responsive to the black/blue/deacon rockfish OR complex ACLs (based on the case-by-case use of a constant ACL contribution for the black rockfish; Table 3-34). 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 black/blue/deacon rockfish OR complex ACL and associated Oregon recreational HG of 462.8 mt and 460.3 mt (Table 3-34) for 2019-2020, respectively, is higher than under No Action (Table 2-83, 457.1 and 450.6 mt) and the same as what is currently in regulation for 2019 (Table 3-34). . Even with the black rockfish increases compared to No Action, black rockfish will be the primary species driving management measures adjustments in the Oregon recreational fishery.

Table 3-34. Alternative 1. Oregon recreational Federal harvest guidelines (HG) or state quotas under Alternative 1 (mt).

Stock	2021 HG [a/]	2022 HG [a/]
Black/Blue/Deacon Rockfish Complex OR a/	462.8	460.3
Canary rockfish b/ (Option 1/Option 2)	65/75	63.4/75
Cabezon/Greenling Complex OR c/	55.2	53
Nearshore Rockfish North of 40°10' N. Lat.	10.8	10.5
YELLOWEYE ROCKFISH (HG/ACT)	6.9/8.8	7.1/9.0

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 2019 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 2019 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 3-1). 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 and nearshore rockfish north complex species 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/ACTs, 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 3-1.Oregon recreational groundfish season structure and bag limits under Alternative 1.

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, therefore keeping it closed should help to ensure that the 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 under the No Action Alternative.

Additional Considerations

Under Alternative 1, the black/blue/deacon rockfish OR complex HGs will be the same as the baseline and higher than under No Action. Retention of yelloweye rockfish would remain prohibited, additional bycatch mortality impacts would be needed for no depth restrictions, which could take some pressure off of more

nearshore stocks such as black rockfish. 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 midwater recreational fishery targeting yellowtail 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.

3.8.2 Impact (Groundfish Mortality)

The annual projected mortality presented in Table 3-35 is anticipated, given the season structure and bag limits detailed above. The model uncertainties are the same as described under No Action, except for yelloweye rockfish. The recreational groundfish fishery has not been open at all-depth year round since 2003. Therefore, there is some uncertainty in the projected estimates for the high effort and impact months of June, July, and August, particularly for yelloweye rockfish. Yelloweye rockfish impacts would increase due to the increased encounter rate and higher discard mortality rate at deeper depth, even with no retention allowed.

With the fishery being open to all depth year round, the projected impacts to black rockfish decrease from what is projected under No Action. As anglers are allowed to fish deeper depths they encounter and catch fewer black rockfish. The projected impacts to lingcod, and yellowtail and widow rockfish increase compared to No Action. However, the impacts should be well within the non-trawl sector allocations.

If it is necessary to close the recreational groundfish fishery inseason due to attainment of a particular species, the offshore longleader gear would be available as an alternative opportunity. The projected impacts would be within what is estimated in Table 3-35, 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.

Table 3-35. Alternative 1, Projected Mortality (mt) of species with Oregon recreational specific allocations

Stock	Projected Mortality (mt)
Canary rockfish	61.7
YELLOWEYE ROCKFISH	4.9
Black/Blue/Deacon Rockfish OR	376.7
Cabezon/Greenlings a/	32.9
Nearshore Rockfish North of 40° 10' N. lat.	27.0
Yellowtail Rockfish	60.5
Widow Rockfish	13.2

a/ Includes kelp and other greenlings

3.9 California Recreational

3.9.1 California Recreational- Management Measures

Under Alternative 1, Table 3-36 shows the CA recreational allocations. The cowcod harvest specification would be 87/85 mt for 2021-2022, respectively. In response to the uncertainty in the assessment, a more conservative reduction to the Fishery HG is proposed by evaluating a lower Fishery ACT range between 40-60 mt for both years. The range of 40-60 mt is then further divided into the trawl/non-trawl allocation shares (36 percent trawl, 64 percent non trawl) followed by a proposal to split the within non-trawl fishery at 50:50 between recreational and commercial. This results in a range of possible ACT values of 12.8-19.2 mt for the CA recreational fishery (Figure 3-2).

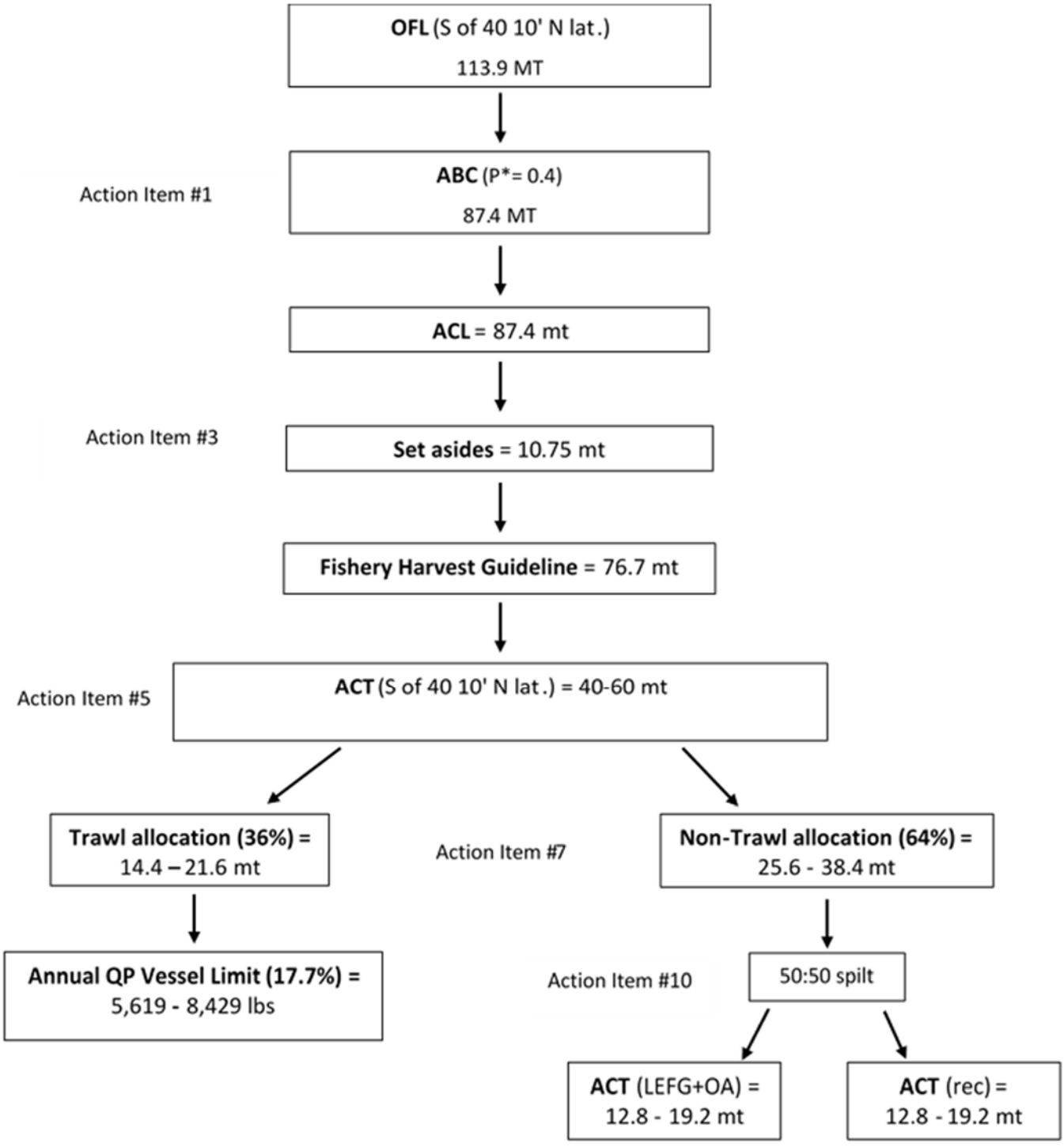

Figure 3-2. Alternative 1: 2021 specifications at (P* = 0.4 and ACL = ABC). Off the top set aside of 10.3 mt. Allocation numbers are reported from Table 5 in November 2019 Action Item H6.1 GMT Report #2.

Table 3-36. Alternative 1 – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2021 and 2022.

Stock	Non-Trawl Allocation (mt)	California Recreational HG (mt)
Bocaccio	1036.4/1021.8	716.2/706.1
Canary rockfish	406.5	[O1]116.7/113.8 [O2]135
Cowcod	25.6-38.4	12.8-19.2
Darkblotched	42.4/39.9	
Nearshore rockfish North of 40°10′ N lat.	78.6/73.9	
POP	191.5/184.3	
Petrale sole	186.4/163.6	
Yelloweye Rockfish	37.9/38.8	11.4/11.7

Sub Options within Alternative 1 Overview

Option 1: Implements new sub-bag limits for select species within the RGC complex as described below. All other sections are the same as described under No Action.

Option 2: Implements the new sub-bag limits from Option 1 and also modifies RCA depth boundaries in three management areas (refer to Chapter 5.1 and 5.3). All other sections are the same as described under No Action.

Option 3: Implements the new sub-bag limits from Option 1 and eliminates season and RCA depth boundary restrictions in the five management areas statewide, which results in an all-depth fishery open year-round (does not apply to the CCAs). All other management measures are the same as described under No Action.

Groundfish Seasons and Area Restrictions

Season Structure

Option 1:

The season dates are the same as described under No Action.

Option 2:

The season dates are the same as described under No Action.

Option 3:

The season would be open January 1 – December 31 in all five management areas (i.e. statewide).

Area Restrictions

Option 1:

The recreational RCAs, CCAs, and YRCAs are the same as described under No Action.

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 <20fm						All Depth	
San Francisco	Closed			April 1 – Dec 31 <40fm								
Central	Closed			April 1 – Dec 31 <50fm								
Southern	Closed		Mar 1 – Dec 31 <75 fm									

Figure 3-3. Alternative 1, Option 1: California recreational groundfish season structure and RCA boundaries

Option 2:

The recreational RCAs are proposed to be modified in three management areas. The Mendocino Management Area depth restriction would be extended from 20 fm to 30 fm, the San Francisco Management Area depth restriction would be extended from 40 fm to 50 fm, and the Southern Management Area depth restriction would be extended from 75 fm to 100 fm. All other area restrictions (remaining RCAs, CCAs, YRCAs) are the same as described under No Action.

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									

Figure 3-4. Alternative 1, Option 2: California recreational groundfish season structure RCA depth boundary modifications to the Mendocino, San Francisco, and Southern Management Areas

Option 3: The RCAs are removed in all five management areas, allowing access at all-depths. All other area restrictions (CCAs, YRCAs) are the same as described under No Action .

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											

Figure 3-5. Alternative 1, Option 3: California recreational groundfish season structure open year-round and statewide, RCA depth boundaries removed for all five management areas.

Groundfish Bag Limits Gear Limits and Size Limits

Under Options 1, 2 and 3, the same species-specific sub-bag limits within the 10 fish RGC limit are evaluated. These sub-bag limits are as follows:

- Cabezon: removal of the sub-bag limit - allow up to 10 fish.
- Black rockfish: removal of the sub-bag limit - up to 10 fish.
- Canary rockfish: removal of the sub-bag limit - up to 10 fish.
- Vermilion rockfish: implementing a new sub-bag limit - as few as 2 fish

The 2019 stock assessment of cabezon noted that both California sub-stocks have hit their rebuilding goals. Increasing the sub-bag limit for cabezon from three to ten fish allows recreational anglers additional opportunities to benefit from a healthy stock.

Retention of canary rockfish by recreational anglers in California was first allowed in the 2017-2018 cycle. Following a precautionary approach, the initial sub-bag limit of one fish was set for 2017, which was then increased to a two fish sub-bag limit for the 2018 season through an inseason action. Continued low attainment (reason unknown) of the 2018 California recreational HG (March 2019 G5a Supplemental CDFW Report 1) allowed an additional inseason action effective June 1, 2019 which increased the sub-bag limit to three fish. The increased limit resulted in approximately 10 mt more catch than in 2018. Fishery mortality in 2019 under the 3-fish sub-bag limit continued to be significantly below the CA recreational HG, which prompted the sub-bag limit proposal to increase up to 10 fish for 2021-2022.

For black rockfish, the recreational fishery has steadily declined in performance since 2017 the cause of which is unknown. For the 2019 fishing year, an inseason management action was taken to increase the black rockfish sub-bag limit from 3 fish to 4 fish, effective June 1, 2019 which resulted in 109.3 mt caught in 2019 (and increase of approximately 14 mt compared to 2018) out of the 329 mt non-trawl allocation (informally shared between recreational and commercial sectors). Despite the increased catch attainment, the total harvest is still well below the non-trawl allocation which prompted the consideration to increase the sub-bag limit, including potential removal with allowance of up to 10 fish for 2021-2022. This change would provide additional fishing opportunities and may shift pressure away from yelloweye rockfish (Agenda Item G5a Supplemental CDFW Report 1, March 2019).

Vermilion rockfish is managed as part of the minor shelf rockfish complex south of 40° 10' N. Lat. Catch of vermilion rockfish in California's recreational fishery has recently been increasing such that the stock's OFL contribution to the complex has been exceeded from 2015-2019, however the overall complex ACL limit has not been exceeded. Review of recent attainments prompted the proposal for additional management measures to be considered to slow catch until such time that vermilion rockfish can be fully assessed. In consideration of the proposed depth boundaries changes that could result in continued vermilion interactions, a new sub-bag limit of as few as 2 vermilion within the 10 fish RCG limit is being proposed. There is currently no inseason tracking mechanism for vermilion rockfish and therefore post-season review of catch estimates will be conducted to inform future sub-bag limit changes.

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 No Action.

Inseason Management Response

Same as described under No Action.

3.9.2 Impact (Groundfish Mortality)

Option 1

The projected mortality for all species is similar to the No Action alternative, except for the select species for which sub-bag limit increases are being considered (**Table 3-37**) which are: canary rockfish, black rockfish, and cabezon. The increased mortality for those species is projected to remain below the non-trawl allocation or California recreational HG as appropriate.

Table 3-37. Alternative 1, Option 1: Projected mortality in the California recreational fishery in 2021-2022. Parenthetical and bracketed items show projected mortality under different bag limits for cabezon and canary and black rockfish. Option =[O]

Stock	Projected Recreational Mortality 2021/22	California Recreational HG 2021/22	Non-Trawl Allocation 2021/22[a]
Bocaccio	152.9	716.2/706.1	1036.4/1021.8
Canary Rockfish (5)[10]	69.8 (85.0) [102.9]	[O1]116.7/113.8 [O2]135	406.5
Cowcod	2.7	12.8-19.2	25.6-38.4
Yelloweye Rockfish	6.0	11.4/11.7	37.9/38.8
Black Rockfish (5)[10]	112.6 (162.2) [197.7]	-	346.7/339.7
Cabezon (10)	23.7 (25.8)	-	208.7/193.7
California Scorpionfish	157	-	287.1/271.1
Greenlings b/	5.1	-	b/
Lingcod N. of 40°10' N. lat. c/	48.9	-	2799.8/2573.8
Lingcod S. of 40°10' N. lat.	357.9	-	[O1] 599/637.5 [O2] 620.1/660.6 [O3] 816.8/869.2
Widow Rockfish	20.6	-	1302.9/1218.6
Nearshore Rockfish N. of 40°10' N. lat. d/	20.0	-	78.6/73.9

Stock	Projected Recreational Mortality 2021/22	California Recreational HG 2021/22	Non-Trawl Allocation 2021/22[a]
Nearshore Rockfish S. of 40°10' N. lat.	535.4	-	1011.6/1005.6
Petrale sole	6.1	-	186.4/163.6
Starry flounder	3.5	-	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 latitude and 40°10' N latitude, while the non-trawl allocation is applicable for the entire area North of 40°10' N latitude.

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

Option 2

The RCA depth restrictions being considered in Option 2 leads to modest changes in projected mortality compared to Option 1 (**Table 3-38**). Bocaccio, canary rockfish, cowcod, yelloweye rockfish, black rockfish, widow rockfish, lingcod south of 40°10' N. lat., and nearshore rockfish south of 40°10' N. lat. are all projected to have mortality slightly higher than Option 1. The additional depth in the Southern Management Area is expected to increase cowcod mortality but total mortality is still projected to be below the Fishery HG under this alternative. The projected increase in yelloweye rockfish mortality of 8.5 mt remains under the more conservative fishery ACT of 8.9/9.2 mt and well under the fishery HG of 11.4/11.7 mt.

Table 3-38. Alternative 1, Option 2: Projected mortality in the California recreational fishery in 2021-2022. Parenthetical and bracketed items show projected mortality under different bag limits for cabezon and canary and black rockfish. Option =[O]

Stock	Projected Recreational Mortality	California Recreational HG 2020/21	Non-Trawl Allocation 2021/22[a]
Bocaccio	179.9	716.2/706.1	1036.4/1021.8
Canary Rockfish (5)[10]	83.8 (104.1) [117.4]	[O1] 116.7/113.8 [O2] 135	406.5
Cowcod	4.1	12.8-19.2	25.6-38.4
Yelloweye Rockfish	8.5	11.4/11.7	37.9/38.8
Black Rockfish (5)[10]	114.9 (162.8) [197.8]	-	346.7/339.7
Cabezon (10)	23.5 (25.6)	-	208.7/193.7
California Scorpionfish	157.1	-	287.1/271.1
Greenlings b/	5.1	-	b/
Lingcod N. of 40°10' N. lat. c/	48.9	-	2799.8/2573.8
Lingcod S. of 40°10' N. lat.	419.5	-	[O1] 599/637.5

Stock	Projected Recreational Mortality	California Recreational HG 2020/21	Non-Trawl Allocation 2021/22[a]
			[O2] 620.1/660.6 [O3] 816.8/869.2
Widow Rockfish	30.2	-	1302.9/1218.6
Nearshore Rockfish N. of 40°10' N. lat. d/	20.0	-	78.6/73.9
Nearshore Rockfish S. of 40°10' N. lat.	548.3	-	1011.6/1005.6
Petrale sole	6.1	-	186.4/163.6
Starry flounder	3.5	-	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 latitude and 40°10' N latitude, while the non-trawl allocation is applicable for the entire area North of 40°10' N latitude.

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

Option 3

The projected mortality under Option 3 shows further increases for most species (**Table 3-39**). Projected catch of yelloweye would exceed both the ACT and Fishery HG. Canary rockfish catch would exceed the HG for all sub-bag limit options modeled. Catch of black rockfish would exceed the non-trawl allocation under a 5 or 10 fish sub-bag limit.

Table 3-39. Alternative 1, Option 3: Projected mortality in the California recreational fishery in 2021-2022. Parenthetical and bracketed items show projected mortality under different bag limits for cabezon and canary and black rockfish. Option =[O]

Stock	Projected Recreational Mortality	California Recreational HG 2020/21	Non-Trawl Allocation 2021/22[a]
Bocaccio	464.1	716.2/706.1	1036.4/1021.8
Canary Rockfish (5)[10]	156.0 (191.3) [193.6]	[O1] 116.7/113.8 [O2] 135	406.5
Cowcod	7.7	12.8-19.2	25.6-38.4
Yelloweye Rockfish	23.0	11.4/11.7	37.9/38.8
Black Rockfish (5)[10]	122.7 (195.0) [257.0]		346.7/339.7
Cabezon (10)	25.3 (27.5)		208.7/193.7
California Scorpionfish	157.1		287.1/271.1

Stock	Projected Recreational Mortality	California Recreational HG 2020/21	Non-Trawl Allocation 2021/22[a]
Greenlings b/	5.7		b/
Lingcod N. of 40°10' N. lat. c/	63.3		2799.8/2573.8
Lingcod S. of 40°10' N. lat.	573.2		[O1] 599/637.5 [O2] 620.1/660.6 [O3] 816.8/869.2
Widow Rockfish	144.1		1302.9/1218.6
Nearshore Rockfish N. of 40°10' N. lat. d/	30.0		78.6/73.9
Nearshore Rockfish S. of 40°10' N. lat.	731.3		1011.6/1005.6
Petrale sole	6.1		186.4/163.6
Starry flounder	3.5		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 latitude and 40°10' N latitude, while the non-trawl allocation is applicable for the entire area North of 40°10' N latitude.

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

4. Alternative 2

Alternative 2 has the same harvest specifications as Alternative 1 (Section 3) with the following exceptions.

- Cowcod: The Harvest Control Rule would be ACL=ABC (P*0.30), resulting in an ACL of 69 mt for 2021 and an ACL of 66 mt for 2022.
- Petrale sole: Under this scenario, petrale sole ACL would remain a constant 3,660 mt for the 2021-2022 biennium, as described in Agenda Item H.6.a, GMT Report 2, November 2019.
- Shortbelly rockfish: The species would be designated an ecosystem component species (ECS).

4.1 Deductions from the ACL

Under Alternative 2, the deductions from groundfish ACLs for the treaty Indian tribal fisheries, scientific research, non-groundfish target fisheries (incidental open access fisheries), recreational (sablefish north of 36° N. lat. only), and EFPs are the same as described under Alternative 1 (Section 3.2). For cowcod and petrale sole, shows the resulting HGs based on the Alternative 2 ACLs.

Table 4-1. Alternative 2. Fishery HGs for cowcod rockfish south of 40° 10' N. lat. and petrale sole under Alternative 2 ACLs.

Stock	Area	Year	ACL	Tribal	EFP	Research	OA	Sum	Fishery HG
Cowcod	S of 40°10' N. lat.	2021	69	-	0.85	10.0	0.2	10.85	58.2
		2022	66	-	0.85	10.0	0.2	10.85	55.2
Petrale Sole	Coastwide	2021	3,600	350.0	0.1	24.1	13.3	387.5	3,212.5
		2022	3,600	350.0	0.1	24.1	13.3	387.5	3,212.5

4.2 Allocating the Fishery HG

Under Alternative 2, the allocation percentages are the same as described under Alternative 1 (Section 3.1). However, the ACLs for cowcod and petrale sole are different from No Action and Alternative 1. These different ACLs therefore result in different HGs and are shown below in Table 4-2 and summarize the stock specific HGs for these species in 2021 and 2022. Note that these allocations for petrale sole are based on the status quo allocation options (Table 2-15), but all allocation options shown in Table 2-15 could be applied. However, the full range of cowcod ACT options described in Table 2-12 would not be available as the fishery HG ranges from 48.7-51.6 mt.

Table 4-2. Alternative 2 2021. Stock-specific fishery HGs or ACTs and allocations for 2021 (in mt).

Species	Area	Allocation Type	Fishery HG	Trawl		Non-Trawl	
				%	mt	%	mt
Cowcod	S of 40°10' N. lat.	Biennial	58.2	36%	21.0	64%	37.2
			55.2	36%	19.9	64%	35.3
Petrale Sole	Coastwide	Biennial	3,212.5	-	3,207	-	30
			3,212.5	-	3,207.5	-	30

4.2.1 Rebuilding Species Allocation.

The rebuilding species, i.e. yelloweye rockfish, allocations are the same as described under No Action, see Table 2-19.

4.2.2 Shortbelly rockfish

Alternative 2 was proposed by the Council, and would identify shortbelly rockfish an EC species. EC species (see 50 CFR §§600.305(c)(13) and 600.310(d)(1)) are stocks that a Council or the Secretary of Commerce has determined do not require conservation and management, but desire to list in a FMP in order to achieve ecosystem management objectives. The 2016 revisions to the National Standards clarify factors to consider when determining which stocks are in need of conservation and management, and therefore cannot be designated as EC species. These factors include:

- The stock is an important component of the marine environment.
- The stock is caught by the fishery.
- Whether an FMP can improve or maintain the condition of the stock.
- The stock is a target of a fishery.
- The stock is important to commercial, recreational, or subsistence users.
- The fishery is important to the Nation or to the regional economy.
- The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.
- The economic condition of a fishery and whether an FMP can produce more efficient utilization.
- The needs of a developing fishery, and whether an FMP can foster orderly growth.
- The extent to which the fishery is already adequately managed by states, by state/Federal programs, or by Federal regulations pursuant to other FMPs or international commissions, or by industry self-regulation, consistent with the requirements of the Magnuson-Stevens Act and other applicable law

The National Standards also define non-target species and non-target stocks ((§ 600.305(d)(12)) as fish caught incidentally during the pursuit of target stocks in a fishery. Non-target stocks may require conservation and management as determined using factors listed above, and if so, must be included in the

FMP, and be identified at the stock or stock complex level. If non-target species are not in need of conservation and management, they may be identified in an FMP as an EC species.

The Council had previously considered shortbelly rockfish for an EC species designation under FMP Amendment 23 following the 2009 Revisions to National Standard 1. Rather than classify shortbelly rockfish as an EC species, the Council chose to recommend a very conservative ACL of 50 mt, which was below historical catch levels, for the 2011-2012 and the 2013-2014 management cycles. The ACL was increased to 500 mt beginning in 2015 to prevent unavoidable bycatch from prematurely shutting down emerging midwater trawl fisheries targeting yellowtail and widow rockfishes. The ACL was raised to 3,000 mt in 2020 in part to not constrain mid-water trawl fisheries since the 2018-2019 ACLs had been exceeded. The Council is also considering raising the 2021-22 ACL to 3,000 mt for that same reason (Alternative 1).

Although the intent of an EC designation would be to prevent the development of a directed fishery, industry testified during public comment at the September meeting that the risk is unfounded as shortbelly rockfish has little or no value as fillets, bait, or fishmeal. Public testimony and Council discussion suggest that a fishmeal market would be unlikely to develop as the revenue would be less than operating costs. Maintaining an ACL (No Action or Alternative 1) that would allow for some incidental take while limiting directed fishing could be more consistent with the Council's specified goals in regard to the management of shortbelly rockfish.

4.2.3 Harvest Guidelines

Under Alternative 2, the 2021-2022 HGs are the same as described under Alternative 1.

4.3 Shorebased IFQ- Alternative 2

4.3.1 Shorebased IFQ – Management Measures

ACLs and allocations are the same as Alternative 1, except for shortbelly rockfish, cowcod south of 40°10' N. lat., and petrale sole (detailed overviews provided below). Under Alternative 2, petrale sole would maintain a constant 3,600 mt ACL in 2021-22. For 2021, this would be a ~14 percent decrease from No Action and a ~7 percent decrease from Alternative 1. For 2022 however, it would be only a ~2 percent decrease from No Action and would be a ~5 percent increase from Alternative 1. No additional management measures are proposed.

4.3.2 IFQ Groundfish Impacts

Table 4-3 shows the 2021-2022 allocations and projected catch under Alternative 2 (Alternative 1- Method 1 applied to sablefish). Petrale sole catch under Alternative 2 saw the approximate same responses in the projected catch as the changes in the allocations compared to Alternative 1 and No Action. Note that cowcod projections are not provided again and will be provided in June after an ACT PPA is selected.

Table 4-3: Alternative 2- Shorebased IFQ. 2021-22 Allocations, projected catch and attainment under Alternative 2 (method 1 for sablefish). Baseline (2019) allocations and catch are shown for reference.

Species	Baseline 2019		2021 Alt 2			2022 Alt 2		
	Allocation	**Catch**	**Allocation**	**Proj. Catch**	**% Attain**	**Allocation**	**Proj. Catch**	**% Attain**
Arrowtooth flounder	12,735.10	891.34	7,446.00	870.41	11.7%	5,974.75	842.99	14.1%
Bocaccio rockfish South of 40°10' N.	800.7	323.58	663.76	268.56	40.5%	654.39	264.79	40.5%
Canary rockfish	953.6	406.99	871.2	379.68	43.6%	848.78	372.22	43.9%
Chilipepper rockfish South of 40°10' N.	1,838.30	585.93	1,695.23	540.4	31.9%	1,620.97	516.76	31.9%
Cowcod South of 40°10' N.	2.2	0.77						
Darkblotched rockfish	658.4	355.84	763.6	401.07	52.5%	717.74	381.36	53.1%
Dover sole	45,979.20	5,947.99	45,977.66	5,947.98	12.9%	45,977.66	5,947.98	12.9%
English sole	9,375.10	213.33	8,473.18	210.79	2.5%	8,409.53	210.6	2.5%
Lingcod North of 40°10' N.	2,051.90	478.97	2,275.77	526.46	23.1%	2,090.82	487.23	23.3%
Lingcod South of 40°10' N.	462.5	82.34	490.05	87.15	17.8%	521.55	92.65	17.8%
Longspine thornyheads North of 34°27' N.	2,420.00	309.08	2,446.29	311.94	12.8%	2,273.77	293.16	12.9%
Minor shelf rockfish North of 40°10' N.	1,155.20	505.17	829.23	397.14	47.9%	792.51	384.97	48.6%
Minor shelf rockfish South of 40°10' N.	188.6	8.67	161.67	8.08	5.0%	160.45	8.06	5.0%
Minor slope rockfish North of 40°10' N.	1,248.80	239.01	937.76	229.68	24.5%	915.89	228.8	25.0%
Minor slope rockfish South of 40°10' N.	1,049.10	46.58	422.16	42.17	10.0%	419.64	42.15	10.0%
Other flatfish	5,603.70	483.49	4,087.99	462.72	11.3%	4,120.39	463.29	11.2%
Pacific cod	1,034.10	14.17	1,034.21	14.17	1.4%	1,034.21	14.17	1.4%
Pacific halibut (IBQ) North of 40°10' N.	69.58	32.9	69.58	33.36	47.9%	69.58	32.7	47.0%
Pacific ocean perch North of 40°10' N.	3,697.30	534.17	3,268.69	474.82	14.5%	2,937.49	428.96	14.6%
Pacific whiting	169,126.03	144,851.68	169,126.03	144,851.68	85.6%	169,126.03	144,851.68	85.6%

Petrale sole	2,453.00	2,446.02	3,046.87	3,037.48	99.7%	3,046.87	3,037.48	99.7%
Sablefish North of 36° N.	2,581.30	2,572.37	2,990.02	2,949.96	98.7%	2,845.30	2,816.26	99.0%
Sablefish South of 36° N.	834	76.93	963.31	81.21	8.4%	917.11	80.1	8.7%
Shortspine thornyheads North of 34°27' N.	1,506.80	569.87	1,212.12	458.79	37.9%	1,178.87	446.26	37.9%
Shortspine thornyheads South of 34°27' N.	50	0	50	0	0.0%	50	0	0.0%
Splitnose rockfish South of 40°10' N.	1,646.70	20.11	1,565.22	20.11	1.3%	1,531.02	20.11	1.3%
Starry flounder	211.6	0.48	166.8	0.48	0.3%	166.8	0.48	0.3%
Widow rockfish	9,928.80	9,331.09	12,409.70	11,435.82	92.2%	11,606.53	10,754.43	92.7%
Yelloweye rockfish	3.4	0.57	3.29	0.59	17.9%	3.37	0.58	17.2%
Yellowtail rockfish North of 40°10' N.	4,305.80	3,254.75	4,064.60	3,146.18	77.4%	3,871.88	3,059.43	79.0%

Cowcod south of 40°10' N. lat

Under Alternative 2, cowcod would be managed with the ACL = ABC, a P*=0.30 and status quo trawl and non-trawl allocations (Table 4-4). The impacts would however be the same as described under No Action since the Council is also considering using a more precautionary ACT range of 40 mt to 60 mt as the basis for managing the fisheries. These ACTs apply to all alternatives and are the basis for setting the trawl and non-trawl allocations. However, given the current set-asides forwarded by the Council, the 60 mt ACT could not be considered for Alternative 2 because it would be above the fishery HG.

Table 4-4. Cowcod south of 40° 10' N. lat. allocations for 2021-22 under Alternative 2 and without an ACT.

Year	ACL	Set-aside	Fishery HG	Trawl (IFQ) allocation (36%)
2021	69	10.85	58.2	21.0
2022	66	10.85	55.2	19.9

**For reference, the Baseline ACL is 10 mt, the No Action ACLs are 98 mt in 2021 and 96 mt in 2022, and the Alternative 1 ACLs are 87 mt in 2021 and 85 mt in 2022.*

Petrale sole

Under Alternative 2, petrale sole would be managed with a more precautionary approach than No Action and with similar long-term precaution as Alternative 1; the main difference is that Alternative 1 provides greater short-term benefits whereas Alternative 2 provides the same benefits but more evenly distributed throughout future biennium (as detailed under Alternative 1). While both Alternative 1 and 2 meet the Council's main goal of being more precautionary than No Action, they selected Alternative 1 as the PPA based on input from the GAP that they would prefer more of the benefits in the short-term (mainly the 2021-22 biennium). Alternative 1 and 2 both provide similar long-term IFQ allocations and economic benefits, but Alternative 1 utilizes more the temporary surplus of yield associated with the stock being above the management target in 2021-22 whereas Alternative 2 uses a "stair step" approach where constant ACLs are used each biennium that decrease over time. Greater detail of the comparisons of these alternative approaches are detailed in Agenda Item H.6.a GMT Report 2 November 2019.

Alternative 2 provides the lowest IFQ allocations and projected ex-vessel revenue amongst the three Alternatives being considered in 2021-22 (

Table 4-5). Under allocation Option 1, the total IFQ allocations for Alternative 2 in 2021-22 are 93 mt lower Alternative 1 and 546 mt lower than No Action. However, that is once again because Alternative 2 spreads more the long-term benefits into future biennium whereas Alternative 1 utilizes more of it in this cycle; the long-term 2019-2030 projected total ex-vessel revenue is ~$89 million for both Alternatives 1 and 2 (Agenda Item H.6.a GMT Report 2 November 2019). As under No Action and Alternative 1, allocation Option 2 provides greater IFQ allocations and economic benefits (+130.6 mt and +$340,978 in ex-vessel) in both 2021 and 2022 compared to Option 1.

Table 4-5. Petrale sole allocations under all three ACL alternatives and both allocation options, plus projected gains in IFQ ex-vessel revenue associated with Option 2.

No Action (ABC= ACL P*0.45)								
Option	Allocations (mt)						Projected IFQ $ ex-vessel revenue	
	Year	ACL	Fishery HG	Trawl	Non-trawl	IFQ	Total $	$ gain with Option 2
1 (SQ)	2021	4,115	3,727.5	3,541.1	186.4	3,536.1	9,230,482	NA
	2022	3,660	3,272.5	3,108.9	163.6	3,103.9	8,102,286	NA
2	2021	4,115	3,727.5	3,687.5	30	3,692.5	9,638,742	408,260
	2022	3,660	3,272.5	3,232.5	30	3,237.5	8,451,030	348,744
Alternative 1 PPA (ABC= ACL P*0.40)								
Option	Allocations (mt)						Projected IFQ $ ex-vessel revenue	
	Year	ACL	Fishery HG	Trawl	Non-trawl	IFQ	Total $	$ gain with Option 2
1 (SQ)	2021	3,843	3,455.5	3,282.7	172.8	3,277.7	8,556,031	NA
	2022	3,455	3,067.5	2,914.1	153.4	2,909.1	7,593,854	NA
2	2021	3,843	3,455.5	3,425.5	30.0	3,420.5	8,928,725	372,694
	2022	3,455	3,067.5	3,037.5	30.0	3,032.5	7,915,906	322,053
Alternative 2 ("stair step" ACLs that are constant each biennium and decline in future biennium)								
Option	Allocations (mt)						Projected IFQ $ ex-vessel revenue	
	Year	ACL	Fishery HG	Trawl	Non-trawl	IFQ	Total $	$ gain with Option 2
1 (SQ)	2021	3,600	3,212.5	3,051.9	160.6	3,046.9	7,953,430	NA
	2022	3,600	3,212.5	3,051.9	160.6	3,046.9	7,953,430	NA
2	2021	3,600	3,212.5	3,207.5	30.0	3,177.5	8,294,408	340,978
	2022	3,600	3,212.5	3,182.5	30.0	3,177.5	8,294,408	340,978

Non-IFQ Species

Same as No Action.

4.4 At-Sea

The at-sea sector measures and impacts are the same as described under Alternative 1 (Chapter 3.4).

4.5 Limited Entry and Open Access Fixed Gear- Alternative 2

4.5.1 Limited Entry and Open Access Fixed Gear – Management Measures

For Alternative 2, ACLs are the same as Alternative for 2021-2022 except for cowcod south of 40° 10' N. lat. and petrale sole. Cowcod south of 40°10' N. lat. will be managed under an ACT under Alternative 2, just as under Alternative 1. The cowcod south of 40°10' N. lat. non-trawl allocation under no ACT is provided in Table 4-6. Again, the full range of ACTs is not available under Alternative 2 as described above. Petrale sole will be managed under a constant 3,600 mt ACL, which equates to a 160.6 mt non-trawl allocation for both years 2021 and 2022.

Table 4-6. Cowcod south of 40° 10' N. lat. allocations for 2021-22 under Alternative 2 and without an ACT.

Year	ACL	Set-aside	Fishery HG	Non-Trawl allocation (64 %)
2021	69	10.85	58.2	37.2
2022	66	10.85	55.2	35.3

**For reference, the Baseline ACL is 10 mt, the No Action ACLs are 98 mt in 2021 and 96 mt in 2022, and the Alternative 1 ACLs are 87 mt in 2021 and 85 mt in 2022.*

4.5.2 Trip Limit Analysis

Trip limit mortality for Alternative 2 are the same as under No Action for sablefish and non-sablefish proposed trip limits or Alternative 1 for sablefish proposed trip limits.

4.5.3 Impact (Groundfish Mortality) – Non-Nearshore North of 36° N. latitude

All remaining mortality the same as Alternative 1.

4.5.4 Impact (Groundfish Mortality) – Non-Nearshore South of 36° N. latitude

Mortality the same as under Alternative 1.

4.5.5 Trip Limit Analysis- Nearshore

The trip limits under Alternative 2 would be the same as Alternative 1.

4.5.6 Impact (Groundfish Mortality) - Nearshore

Projected landings, routine management measures, and projected mortality of stocks with nearshore specific limits would be the same as Alternative 1, which is also the same as No Action.

4.5.7 New Management Measures

New Management Measure mortality for Alternative 2 are the same as under No Action.

4.6 Tribal Fisheries

Tribal fisheries would operate under the HGs and allocations displayed in Table 2-76 and Table 3-33. Tribal fisheries would be managed using the same measures described under No Action.

4.7 Washington Recreational

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 (Table 2-80).

4.8 Oregon Recreational

The Alternative 2 ACLs and associated Oregon recreational values are the same as Alternative 1 (Table 3-34), as the only species with changes are petrale sole and shortbelly rockfish, neither of which changes anything for the Oregon recreational fishery.

4.9 California Recreational

The Alternative 2 harvest specification and associated California recreational projected impact values are the same as Alternative 1 with the exception of cowcod. Under this alternative, cowcod harvest specifications are 69.2 and 67.3 mt for 2021-2022 respectively (**Table 4-7**). Cowcod retention would continue to be prohibited, the projected impacts are still below the proposed fishery ACT.

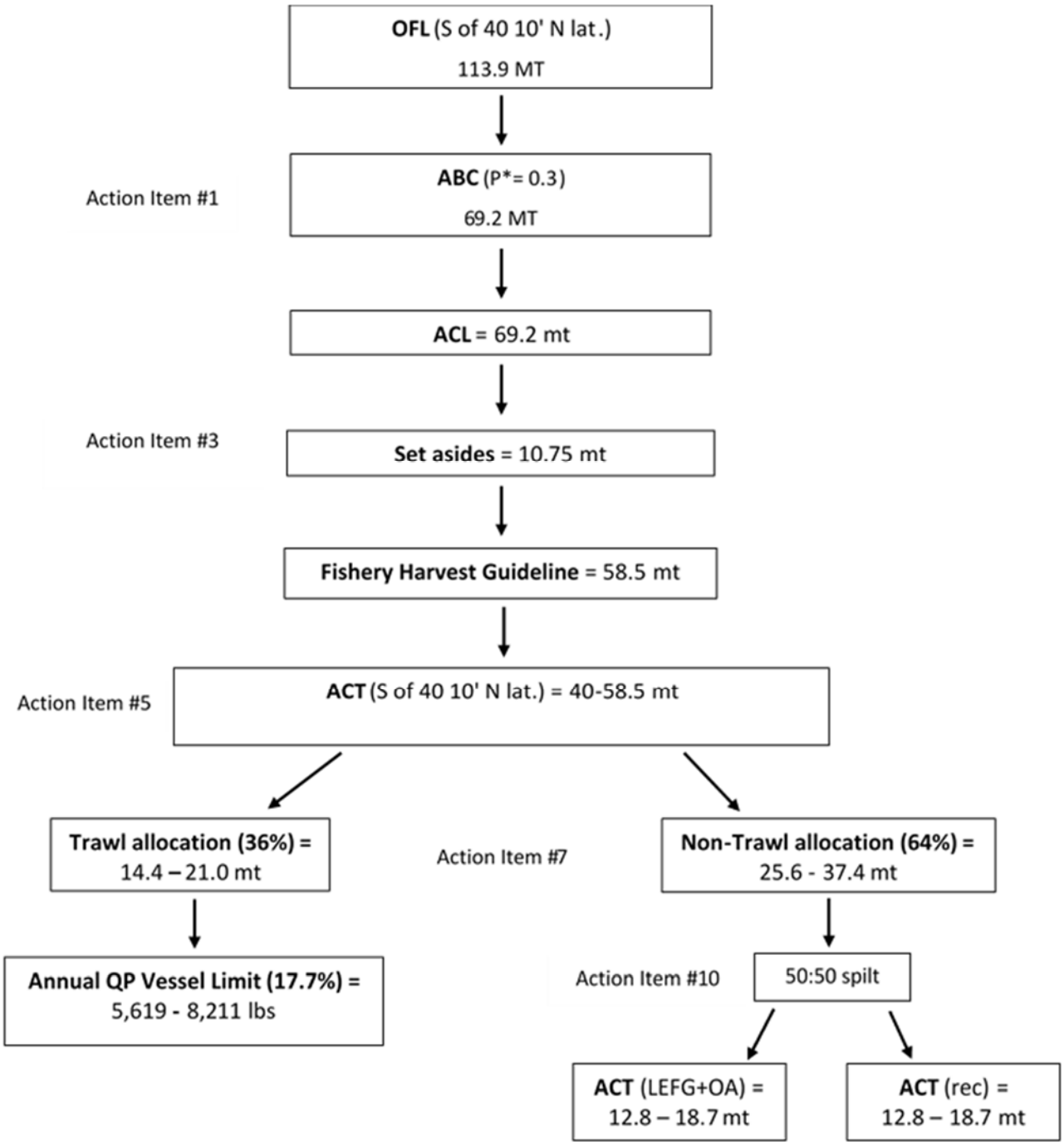

Figure 4-1. Alternative 2 – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2021 and 2022.

Table 4-7. Alternative 2 – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2021 and 2022. Option = [O]

Stock	Non-Trawl Allocation (mt)	California Recreational HG (mt)
Bocaccio	1036.4/1021.8	716.2/706.1
Canary rockfish	406.5	[O1 116.7/113.8 [O2] 135
Cowcod	69.2/67.3	12.8-18.8
Darkblotched	42.4/39.9	
Nearshore rockfish North of 40°10′ N lat.	78.6/73.9	
POP	191.5/184.3	
Petrale sole	186.4/163.6	
Yelloweye Rockfish	37.9/38.8	11.4/11.7

5. Additional Management Measures

The following measures are proposed as part of the 2021-2022 harvest specifications and management measures process. These measures are placed in this chapter separate from the above integrated analyses as they are not considered "routine" management measures and have not been analyzed previously.

5.1 Updates to Non-trawl Rockfish Conservation Area Coordinates in California

This management measure proposes to modify the current non-trawl RCA boundaries, which are intended to approximate the fathom isobaths, in California to better align depth contours with actual depths. The Council regularly examines the appropriateness of the coordinates defining the boundary lines used to define closed areas through the harvest specifications and management measure process. For 2021-22, the Council is considering modifying the 40-fathom depth contour offshore of San Mateo in central California. A chart delineating the proposed modifications is provided in Figure 5-1 and a proposed modified waypoint coordinate table is provided in Table 5-1.

Geographic Information System (GIS) software was used to compare non-trawl RCA line to depth contour lines generated from National Geophysical Data Center coastal relief models to ensure that RCA modifications approximated actual depths as closely as possible. California's Law Enforcement Division (LED) personnel reviewed the proposed depth contour modifications and agreed they were reasonable and enforceable.

By modifying the 40 fathom non-trawl RCA line to achieve better alignment with the corresponding isobath, it will allow better access to target species by more accurately defining closed areas while increasing the available fishing area by 6.3 mi^2. In addition, mortality generated from fishing effort will better fit the bycatch model estimates since estimates assume that mortality is derived from specific fishing areas and the depths defining those areas.

The intent of the non-trawl RCA was to protect overfished species (e.g., bocaccio, widow rockfish, and canary rockfish) by minimizing bycatch. As of 2019, only yelloweye rockfish is under a rebuilding plan and projected to rebuild by 2029. Proposed modifications aim to maintain the intent of the non-trawl RCA lines, while at the same time keeping the harvest levels of healthy target species (e.g. bocaccio, yellowtail rockfish, canary rockfish, widow rockfish) within acceptable harvest limits and providing additional opportunities for industry. These changes are not expected to result in changes in catch of target groundfish stocks compared to past catches or any of the harvest specifications approved for 2021-2022. These changes are not expected to increase the risk of overfishing and managed species are expected to remain within the annual catch limits (ACL) through the use of cumulative trip limits. Any changes to the harvest patterns of the fishing community are expected to be very minor due to the fact that only small changes are being proposed for the boundary lines. There are likely little to no impacts to nongroundfish species, ESA-listed, or marine mammals given the small area of change. Furthermore, all EFH closures will remain in effect and will not be affected by this action.

Overall, the modification to the non-trawl RCA will help meet National Standard Guidelines 1,2,5, and 9 by:

NS1:Clear and accurate boundaries may increase the likelihood that participants will more efficiently reach their individual harvest targets, and fishery sectors' harvest limits while protecting overfished species.

NS2: Adjustments to non-trawl RCA lines are necessary because discrepancies exist between the non-trawl RCA lines and the depth contours that they are based on.

NS5:Improvements to the clarity of the non-trawl RCA boundaries are consistent with National Standard 5 because improvements will reduce confusion which will increase efficiency and reduce costs.

NS9: Inherent in the non-trawl RCA system, the goals of promoting conservation and minimizing bycatch of species of concern and non-target species has been addressed. This management measure improves non-trawl RCAs by providing slight modifications to better match depth contours, thus meeting National Standard 9.

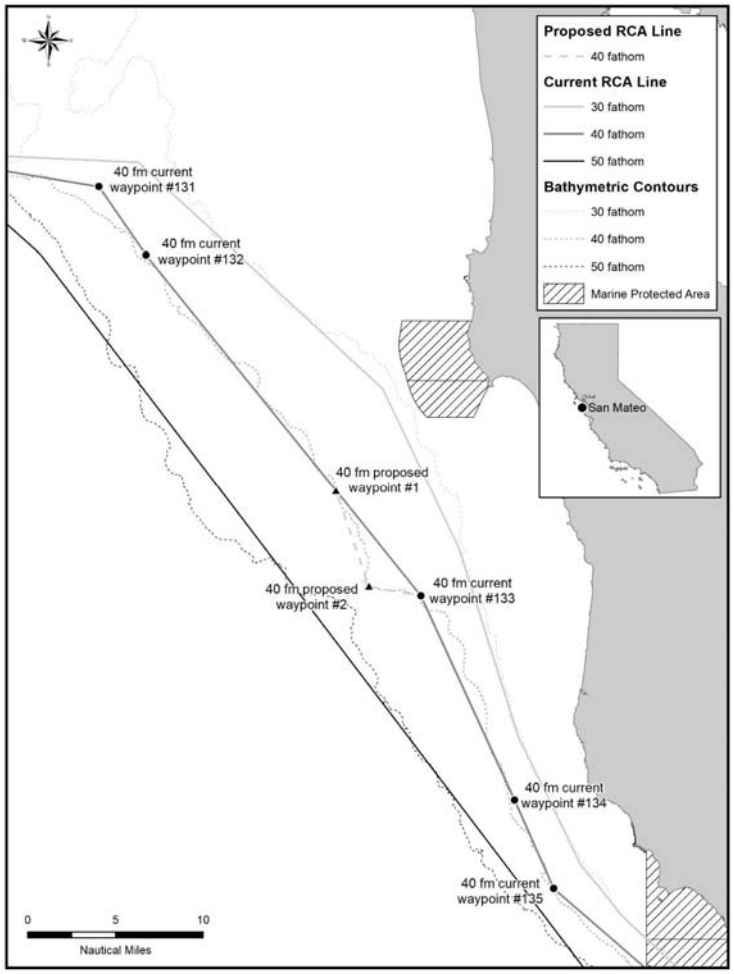

Figure 5-1 Proposed 40 fathom RCA line changes at San Mateo. This proposed change would decrease the size of the non-trawl and recreational RCA by 6.3 mi².

Table 5-1. Coordinates for proposed modifications at San Mateo to the "40 fathom (73 m) depth contour between 46°16' N. lat. and the U.S. border with Mexico" RCA line south of 40°10' N. latitude.

Waypoint Number	Action	Latitude Degree	Latitude Minute	Longitude Degree	Longitude Minute
132	No Change	37	35.67	122	49.47
New # 1	Add	37	25	122	38.66
New # 2	Add	37	20.68	122	36.79
133	No change	37	20.24	122	33.82

5.2 Minor Adjustments to the Commercial Non-Trawl Rockfish Conservation Area's off California, south of 40° 10' N. lat.

The Council routinely modifies RCAs for trawl and non-trawl fisheries during inseason actions and biennial specifications. In 2017, NMFS implemented changes to the seaward non-trawl RCA for the area between 40°10' N. latitude and 34°27' N. lat. and the shoreward non-trawl RCA for the area south of 34°27' N. lat. for the commercial non-trawl fixed gear fishery through both the harvest specifications and management measure process and through inseason action. Referencing Agenda Item H.8.a, Supplemental CDFW Report 1, November 2019, this management measure would provide minor adjustments the shoreward boundary of the non-trawl RCA, in the following priority order:

Priority 1 - Area from Point Conception (34° 27' N lat.) to the CA/Mexico border. This proposed management measure is to modify the shoreward non-trawl RCA boundary from 75 fm to 100 fm, resulting in RCA configuration of 100 fm to 150 fm. In this region, the primary purpose of the RCAs was to provide protections for bocaccio and cowcod, both have been declared rebuilt. Further, yelloweye rockfish encounters are uncommon, as this region is the southernmost extent of the species population. This management measure will increase mortality of groundfish species found in the Southern Management Region. Despite the rebuilt status of cowcod, the uncertainty in the outcome of the assessment does not allow for considering fishery retention for the 2021-2022 cycle. As retention of cowcod will remain prohibited, allowing additional depth will provide access to healthy and abundant shelf species with minimum risk to cowcod impacts. This measure is expected to increase discard mortality of cowcod; however, this increase not projected to exceed the proposed Fishery HG as proposed under the higher Cowcod ACLs and ACTs being considered for 2021-22. Yelloweye rockfish are uncommon in this area, as this management measure would modify the non-trawl RCA in the southern most extent of the species' range. This management measure is expected to have little to no impact on yelloweye rockfish. Finally, state managed trawl fisheries (California halibut, ridgeback prawn and sea cucumber) are permitted to fish shoreward of the 100 fm depth line. This management measure would allow for a slight increase in opportunity for the fixed gear sector, in depths in which bottom trawling is currently permitted.

Priority 2 – Area between 37° 11' N latitude and 34° 27' N latitude. This proposed management measure would add a management line at Pigeon Point (37° 11' N lat.; as specified in CFR 660.310) and modify the shoreward non-trawl RCA boundary between 37° 11' N. lat. and 34° 27' N lat. from 40 fm to 50 fm, resulting in an RCA configuration of 50 fm to 125 fm. In this region, the initial purpose of the RCAs was to provide protections for bocaccio, canary rockfish, yelloweye rockfish, widow rockfish and cowcod. All species have been declared rebuilt, except for yelloweye rockfish, which is rebuilding ahead of schedule. The use of this management line will allow for additional partitioning of management areas with the intent to provide increased depth access using a stepwise and precautionary approach without risking exceeding yelloweye rockfish impacts. The additional management lines provide maximum flexibility to make inseason changes as needed to mitigate yelloweye rockfish impacts or modify other trip and sub trip limits (i.e. vermilion rockfish). This measure would allow increases in opportunity to access groundfish stocks and some increase to mortality of shelf rockfish. Yelloweye rockfish are encountered in this area, however less frequently than in more northerly latitudes. This management measure may have slight impact on yelloweye rockfish, though, allowable harvest is likely to increase and with the addition of the management line at 37° 11' N latitude, regulatory modifications can be made to ensure mortality remains within allowable limits. Note, the 2018 estimated mortality from the coastwide non-nearshore fisher was 1.34 mt, the 2021 coastwide non-nearshore ACT is 2.0 mt.

Additionally, beginning in the 2019-2020 biennium the California recreation groundfish fishery was permitted to utilize this area, the mainland coast to 50 fathoms. Moreover, federal RCA regulations also apply to OA state-managed trawl fisheries operating in this area (California halibut, ridgeback prawn and sea cucumber), allowing bottom trawl activities from the mainland coast out to the shoreward 100 fathom RCA line. These changes would therefore increase equity amongst sectors.

Priority 3 - Area between 38° 57.50 N latitude and 37° 11' N lat.. This proposed management measure would add a management line at Point Arena (38° 57.50' N lat.; as specified in CFR 660.310) and modify the shoreward non-trawl RCA boundary between 38° 57.50 N. lat. and 37° 11' N. lat. from 40 fm to 50 fm, resulting in an RCA configuration of 50 fm to 125 fm. This proposed change has similar impacts as described under Priority 2. Given that the increase in allowable mortality resulting from the latest assessments for cowcod and yelloweye rockfish, increased opportunity may be afforded. While yelloweye rockfish are more common in this area than those considered under non-trawl RCA modification priority 1 or 2, the opening of this area may increase yelloweye rockfish impacts. However, allowable harvest is likely to increase and with the addition of the management line at 38° 57.50' N. lat., regulatory modifications can be made to ensure mortality remains in allowable limits. Note, the 2018 estimated mortality from the coastwide non-nearshore fisher was 1.34 mt, the 2021 coastwide non-nearshore ACT is 2.0 mt.

Furthermore, this management area is already utilized by state-managed trawl fisheries operating (California halibut, ridgeback prawn and sea cucumber) that operate under incidental OA federal RCA regulations which allow for bottom trawl activities from the mainland coast out to the shoreward 100 fathom RCA line. Increases to commercial cowcod and yelloweye rockfish impacts might be expected, and would hit against 2021-2022 annual catch targets (ACT) issued to non-trawl commercial fisheries.

The objective of these management measures is to allow increased opportunity to catch healthy target species (e.g. bocaccio, canary rockfish, yellowtail rockfish, widow rockfish), which are underutilized and inaccessible due to the current non-trawl RCA configurations. These measures will also restore access to historical fishing grounds to fleets in California that were severely restricted due to implementation of the RCAs in the early 2000s. These management measures are likely to result in greater attainment of shelf rockfish ACLs (both the stock complex and individual species), which in turn is likely to result in economic benefits to coastal communities. These management measures would also allow slight increases to the commercial non-trawl fixed gear fleet in depths that are already accessed by the incidental OA bottom trawl fishery, resulting in more equitable fishing opportunities among each user group.

These prosed management measures are not anticipated to result in adverse impacts to any of the affected stocks' harvest specifications or result in overfishing. Catch of widow rockfish, yellowtail rockfish, and other healthy shelf rockfish species by allowing access to depths in which they are most prevalent, is expected. While vermilion rockfish mortality has exceeded its contribution to the shelf rockfish complex ACL south of 40° 10' N latitude, sub trip limits are being considered to reduce catch. As a result, no adverse impacts are anticipated for target stocks. The non-trawl fisheries are currently managed with cumulative trip limits, and any increases in catch are expected to remain within allowable harvest limits. There are little impacts to other nongroundfish or ESA listed species expected.

Table 5-2 summarizes the 2018 total mortality estimates and 2019 landings estimates for select target groundfish stocks compared to the respective non-trawl allocation. It is not feasible to specify impacts to target stocks for each individual RCA modification priority, however, given the target stocks low attainment

of the non-trawl allocation, there is minimal risk to overfishing from these management measures in aggregate.

Table 5-2. The 2018 total mortality estimates and 2019 landings estimates for the commercial non-trawl fisheries (LE and OA) for select species compared to the non-trawl allocations. Data source: 2018 WCGOP GEMM data product and PacFIN.

Stock	Management Area	2018		2019	
		Total Mortality (mt)	Non-Trawl Allocation (mt)	Landings (mt)	Non-Trawl Allocation (mt)
Bocaccio	South of 40° 10' N lat.	10.0	442.3	18.2	1,250.23
Canary rockfish[1,2,3]	Coastwide	12.5	406.5	14.2	383.3
Chilipepper rockfish	South of 40° 10' N lat.	2.8	615.3	2.8	612.8
Shelf rockfish	South of 40° 10' N lat.	68.5	1,384.40	76.9	1,357.30
Widow rockfish[1]	Coastwide	2.1	1,119.40	2.1	1,042.40

1 Data are provided coastwide and are not summarized south of 40° 10' N lat.

2 The 2018 commercial non-nearshore HG was 46.5 mt and the nearshore HG was 100 mt. The CA share of the nearshore canary rockfish HG is 73.3% and the OR share is 26.7%.

3 The 2019 commercial non-nearshore HG was 43.8 mt and the nearshore HG was 94.3 mt. The CA share of the nearshore canary rockfish HG is 73.3% and the OR share is 26.7%.

These measures are expected to increase catch opportunities in California ports south of 38° 57.50' N lat. in the management area the proposal is adopted. California's groundfish fleet is unique and comprised of many more non-trawl fixed gear fishermen compared to other states and many of these fishermen relied on shelf rockfish species such as yellowtail rockfish and widow rockfish as a staple in their fishery portfolios. Restoring access to areas where yellowtail, widow and shelf rockfishes, non-trawl fishermen will have positive social and economic effects on these ports. The scale of these positive impacts cannot yet be quantified. Additionally, it is difficult to project if the proposed non-trawl RCA modifications will provide enough economic incentive for fishermen to install a VMS to take advantage of this proposed opportunity in federal waters. This measure is not expected to negatively impact any user groups. This measure would not have any effect on allocations so it would not affect any other sector's allowable harvest levels or ability to harvest those fish.

Cumulative effects from RCA modifications 1 through 3 are similar among the priorities and are not additive, unless noted otherwise. Note that there are no cumulative impacts expected for nongroundfish or ESA listed species or EFH.

Groundfish – Trip limit adjustments are being considered for California scorpionfish, sablefish, all rockfish (except yelloweye rockfish and cowcod), lingcod and thornyheads, as well as a sub limit for vermilion rockfish, in the areas affected by these management measures.

Many of these species are not found at the depths being considered under these management measures because they are more deeply distributed (e.g. sablefish and thornyheads) or are found in more shallow depths (e.g. nearshore rockfish and California scorpionfish). Trip limit adjustments for lingcod, shelf rockfish, widow rockfish, canary rockfish, chilipepper rockfish and bocaccio may result in a cumulative additive impact with each of the proposed RCA modifications, although these impacts can be accommodated given the underutilization of these stocks. Further, trip limits are established for these species which may be modified, such that the risk of overfishing is minimal.

Social - This management measure will have minor positive social impacts by restoring a portion of historical fishing grounds in California whose fisheries were curtailed due to the implementation of the RCAs in the early 2000s.

Economic - These management measures will have positive economic impacts by restoring a portion of historical fishing grounds that were eliminated due to the implementation of the RCAs in the early 2000s. The scale of these positive impacts cannot yet be quantified due the unresolved question of whether or not this increase trip limit increase, in combination with the proposed RCA modifications will provide enough economic incentive for nearshore fishermen to install VMS so that they can take advantage of this proposed opportunity. Some increase in landings and revenue could be expected under each priority RCA modification, with the greatest beneficial economic impact resulting in the implementation of all three priority RCA modifications.

Modifying each of the priority non-trawl RCAs is consistent with the following National Standards: (1) result in more optimal yield without overfishing; (2) based on the best scientific information; and (8) take into account/benefit fishing communities. This action is consistent with National Standard 1 by providing the greatest overall benefit to the nation by allowing harvest of healthy stocks which are currently being underutilized (e.g., shelf rockfish stocks). Prior to many rockfish species being declared overfished, the non-trawl fixed gear fisheries used to support a vibrant shelf rockfish fishery, which was eliminated when the RCAs were implemented. This action is also consistent with National Standard 2 by utilizing the best available scientific information, which indicates that many stocks have rebuilt and a more optimistic outlook of the yelloweye rockfish population. Further, this management measure leaves in place a large portion of the non-trawl RCA, which would continue to provide protection to, yelloweye rockfish. This action is also consistent with conservation requirements and takes into account the importance of fishery resources to fishing communities. Many coastal communities in central and southern California are comprised with non-trawl fishermen who depend on income from fixed gear fisheries. This measure will allow access to many important shelf rockfish stocks, which will benefit local economies.

5.3 Minor Adjustments to the Recreational Rockfish Conservation Areas off California, south of 40° 10' North latitude

Considerations to RCAs in order to optimize their performance are the current stock status of yelloweye rockfish and the likelihood of encounters with yelloweye rockfish in each MA, compared to the opportunity to provide access to healthy and abundant shelf species. RCAs were originally implemented in 2003 to provide protection to overfished stocks (e.g., bocaccio, widow rockfish, and canary rockfish), which varied by geographic region. As of 2019, only yelloweye rockfish is under a rebuilding plan and is projected to rebuild by 2029. The RCAs were intended to close areas (or to restrict access) in the main portion of the overfished species' depth ranges to reduce encounters and mortality, thereby allowing the stock(s) to rebuild more quickly. While RCAs have been successful in reducing encounters with overfished species, they have also reduced access to many co-occurring healthy target stocks found in similar and deeper depths. Allowable depths in California's recreational fisheries vary by MA and are driven by the need to protect yelloweye rockfish in the more northern MAs and cowcod in the more southern Mas, which align with the geographic areas the stocks are found.

The Council routinely modifies RCAs for trawl and non-trawl fisheries during inseason actions and the biennial specifications process. For the 2017-2018 management cycle, the RCA boundaries North of Pt. Conception were allowed additional opportunity including: extending the Northern Management Area RCA from 20 fm to 30 fm from May 1 through October 31; removal of the RCA boundary from November 1 through December 31 in the Mendocino and Northern MAs (Pt. Arena (38° 57.50 N. lat.) to the Oregon border (42° N lat.)); extending the San Francisco Management Area RCA from 30 fm to 40 fm from April 1 through December 31; and extending the Central Management Area RCA from 40 fm to 50 fm from April 1 through December 31. However, inseason actions in 2017 and 2018 were taken to limit fishing depths in these management areas in the late summer through December 31 as a result of high yelloweye rockfish impacts. In the 2019-2020 management cycle, the RCA boundary for the Southern Management Area was extended from 60 fm to 75 fms and inside the Cowcod Conservation Area was extended from 20 fm to 40 fm from March 1 through December 31.

Referencing Agenda Item H.8.a, Supplemental CDFW Report 1, November 2019, these management measures would provide minor adjustment to the shoreward RCA boundary in specified Management Areas (MA) in the California recreational fishery. The following proposals are in priority order:

Priority 1 - The Mendocino Management Area for the California recreational fishery extends from Cape Mendocino (40° 10' N lat.) to Point Arena (38° 57.50' N lat.). For the 2019-2020 management cycle, the RCA boundary for this management area was 20 fathoms (fm) from May 1 through October 31, and no RCA boundary (access to all depths) from November 1 through December 31. **The proposed management measure would extend the RCA boundary from 20 fm to 30 fm; fishing would be prohibited seaward of the 30 fm depth contour from May 1 through October 31. From November 1 – December 31, this management area would continue to have no RCA and allow for all depth access.** The fishery would remain closed to boat-based anglers from January 1 through April 30. This management measure will provide access to deeper distributed nearshore stocks and some shelf species. Projected impacts to yelloweye rockfish increase with deeper access but are still under the precautionary California recreational ACT levels for 2021-2022.

The Mendocino Management Area has had the most restrictive depth constraints in California's recreational fisheries in recent years. This has largely been driven by the need to reduce yelloweye rockfish mortality. However, given the increase in the California recreational yelloweye ACT, increased opportunity may be afforded with little risk of exceeding allowable limits. It should be noted that the CDFW actively tracks recreational mortality of yelloweye rockfish inseason to ensure limits are not exceeded and has additional inseason authority to take action outside of PFMC meetings to make any necessary changes to season, depth or bag limits, and implementation YRCA if needed or as appropriate.

Since its first implementation in 2001, the 20 fm line has posed both enforcement and safety concerns. The Northern coastline of California can routinely experience turbulent tide and weather conditions putting anglers at higher risk to fish under the shallowest RCA possible. Extending the RCA boundary to 30 fm would allow safer angling conditions without jeopardizing precautionary harvest limits for yelloweye rockfish. Additionally, unlike all other RCA boundaries currently in use, the 20 fm boundary line is not defined by individual waypoint coordinates to approximate the depth contour. Instead, the 20 fm depth contour is used by anglers to define legal fishing depths. Modifying the depth constraint to prohibit fishing seaward of the 30 fm depth contour would allow for federal waypoints to be used and is a more preferred option for effective enforcement.

The proposed management measure would also provide additional access to depths that are already allowed during certain times of the year. Currently the Mendocino Management Area does not have a RCA boundary in effect from November 1 through December 31 which allows for all depth access while groundfish fishing. In addition, a 30 fm RCA in the Mendocino Management are would align the RCA depth constraints between the Mendocino Management Area and the adjacent Northern Management Area, in which fishing is also prohibited seaward of the 30 fathom depth contour, further reducing regulatory complexity for anglers that commonly fish in both areas, as well as enforcement entities. This management measure is expected to increase catch of deeper nearshore and shelf rockfish species where attainment of those species is low. Increases are expected to be similar to that of the Northern Management Area which has been at a 30 fm RCA boundary since 2017. Mortality of yelloweye rockfish could also increase with this management measure but is expected to remain under the recreational HG/ACT. Mortality of all other species is expected to be within allocation or harvest limits (refer to California Recreational Integrated Alternative Analysis mortality tables as appropriate). There are minimal to no impacts expected for nongroundfish or ESA listed species.

Priority 2 - The Southern Management Area for the California recreational fishery extends from Point Conception (34° 27' N lat.) to the California US/Mexico border. For the 2019-2020 management cycle, the RCA boundary for this management area was 75 fm from March 1 through December 31. **The proposed management measure would extend the RCA boundary from 75 fm to 100 fm; fishing would be prohibited seaward of the 100 fm depth contour from March 1 through December 31.** The fishery would remain closed to boat-based anglers from January 1 through February 28. This management measure will increase mortality of groundfish species found in the Southern Management Region.

The Southern Management Area is predominately constrained by cowcod limits (yelloweye rockfish is rarely encountered and contributes trace amounts to projected impacts compared to more northern areas). The 2019 cowcod assessment indicated the stock to be above target biomass and rebuilt. For the 2021-2022 management cycle, the proposed fishery HG is expected to significantly increase with additional harvest target reductions to "buffer" in between the ACL and fishery HGs. Despite the rebuilt status of cowcod, the uncertainty in the outcome of the stock assessment does not allow for considering fishery

retention for the 2021-2022 cycle. As retention of cowcod will remain prohibited, allowing additional depth would provide access to other healthy and abundant shelf species with minimum risk to cowcod impacts. CDFW actively monitors recreational cowcod mortality inseason, and can make changes to season, depth or bag limits as appropriate, which will help mitigate against any increases in mortality resulting from this management measure and can make changes to season, depth or bag limits as appropriate.

Catch of shelf rockfish is likely to increase with this management measure. Attainment of the shelf rockfish complex ACL south of 40° 10' N lat. has been low. Vermilion rockfish mortality has exceeded its contribution to the shelf rockfish complex ACL south of 40° 10' N lat., sub-bag limits are being considered to reduce catch which will mitigate increased mortality which may result from this proposed management measure. As a result, there is little risk of overfishing to shelf rockfish, including vermilion rockfish.

Mortality of cowcod is also likely to increase with this management measure, however, harvest specifications are expected to increase, and mortality is anticipated to remain within allowable limits. Further, retention of cowcod will remain prohibited, and no modifications to the CCAs are proposed.

Mortality of all other species is expected to be within allocation or harvest limits (refer to California Recreational Integrated Alternative Analysis mortality tables as appropriate). There are minimal to no impacts expected for nongroundfish or ESA listed species.

Priority 3 - The San Francisco Management Area for the California recreational fishery extends from Point Arena (38° 57.50' N lat.) to Point Pigeon (37° 11' N lat.). For the 2019-2020 management cycle, the RCA boundary for this management area was 40 fm from April 1 through December 31. **The proposed management measure would extend the RCA boundary from 40 fm to 50 fm; fishing would be prohibited seaward of the 50 fm depth contour from April 1 through December 31.** The fishery would remain closed to boat-based anglers from January 1 through March 31**.** This measure would allow increased opportunity to access shelf groundfish stocks and some increase to mortality of shelf rockfish would be expected.

The San Francisco Management Area has been constrained by the overfished status of cowcod and yelloweye rockfish. Given that the increase in allowable mortality resulting from the latest assessments for these stocks, increased opportunity may be afforded. Recreational mortality of cowcod and yelloweye rockfish are actively tracked inseason, as a result, increased access to underutilized shelf rockfish stocks may be afforded with little risk of exceeding allowable limits of cowcod and yelloweye rockfish. This management measure would also align the recreational depth constraints between the San Francisco and Central MAs reducing regulatory complexity.

This management measure is expected to increase catch of shelf rockfish. Attainment of the shelf rockfish complex ACL south of 40° 10' N lat. is low. Vermilion rockfish mortality has exceeded its contribution to the shelf rockfish complex ACL south of 40° 10' N lat., sub-bag limits are being considered to reduce catch which will mitigate increased mortality which may result from this proposed management measure. As a result, there is little risk of overfishing to shelf rockfish, including vermilion rockfish. Mortality of yelloweye rockfish could also increase with this management measure but is expected to remain under the recreational HG/ACT. Mortality of all other species is expected to be within allocation or harvest limits (refer to California Recreational Integrated Alternative Analysis mortality tables as appropriate). Some mortality of cowcod may be expected from this management measure, however impacts are likely to be

minimal as the San Francisco Management Area is located more northly than the species' core distribution. Additionally, cowcod harvest specifications are expected to increase, and mortality is anticipated to remain within allowable limits.

As a result, there is little risk to exceeding harvest specifications for either cowcod, or yelloweye rockfish as a result of this management measure. Mortality of all other species is expected to be within allocation or harvest limits (refer to California Recreational Integrated Alternative Analysis mortality tables as appropriate). There are minimal to no impacts expected for nongroundfish or ESA listed species.

Overall, these proposed management measures are expected to diversify the species composition of catch to include more shelf rockfish which may lead to increased quality of fishing trips. The magnitude of the change is difficult to quantify as the fishing effort models are not as responsive to RCA boundary changes as they are to changes to season length. It is not expected that any user group will see a lost catch opportunity, and the MAs with proposed RCA depth boundary changes are expected to have increased catch opportunity.

These management measures are consistent with the following National Standards: (1) result in more optimal yield without overfishing; (2) based on the best scientific information; and (8) take into account/benefit fishing communities. This action is consistent with National Standard 1 by providing the greatest overall benefit to the nation by allowing harvest of healthy stocks which are currently being underutilized (e.g., shelf rockfish complex). Prior to canary rockfish being declared overfished, the non-trawl fixed gear fisheries used to support a vibrant shelf rockfish fishery, which was eliminated when the RCAs were implemented. This action is also consistent with National Standard 2 by utilizing the best available scientific information. The latest stock assessments indicate a more optimistic status of the yelloweye rockfish population and that cowcod has rebuilt to healthy levels. Further, these management measures provided a cautious approach to increasing access to greater depths, while continuing to provide protection to yelloweye rockfish. This action is also consistent with conservation requirements and takes into account the importance of fishery resources to fishing communities.

5.4 Yellowtail Rockfish Retention within the Non-Trawl RCA in the Salmon Troll Fishery South of 40°10' N. Lat.

The request for the new management measure originated from a Salmon Advisory Subpanel (SAS) at the September 2019 meeting to add retention of groundfish within the commercial non-trawl RCA, coastwide, to be added to the Groundfish Workload and New Management Measures list (Agenda Item H.2.a, Supplemental SAS Report 2, September 2019). At that time the Groundfish Management Team (GMT) recommended to incorporate the request into the non-trawl RCA modification package as the goal of the request may be met once more of the fishing grounds on the shelf were opened up from reducing the size of the non-trawl RCA. This management measure would allow retention of yellowtail rockfish within the commercial non-trawl RCA as incidental catch in the salmon troll fishery south of 40°10 N. lat. All other regulations regarding groundfish retention and use of VMS in the commercial salmon fishery still applied as noted in 50 CFR 660 Subpart H. The proposed open access trip limit to retail yellowtail rockfish in the salmon troll[9] fishery south of 40°10' N. lat. is as follows:

> *Salmon trollers may retain and land up to 1 lb of yellowtail rockfish for every 2 lbs of salmon landed, with a cumulative limit of 200 lb/month, both within and outside of the RCA. This limit is within the open access* (insert 2021 trip limit) *shelf rockfish trip limit and not in addition to that limit. All groundfish species are subject to the open access limits, seasons, size limits and RCA restrictions listed in the table above, unless otherwise stated here.*

The proposed trip limit is similar to the 2019 OA trip limit north of 40°10'N. lat. where retention of yellowtail rockfish in the salmon troll fishery has been permitted within the commercial non-trawl RCA since 2001:

> *Salmon trollers may retain and land up to 1 lb of yellowtail rockfish for every 2 lbs of salmon landed, with a cumulative limit of 200 lb/month, both within and outside of the RCA. This limit is within the 200 lb per month combined limit for minor shelf rockfish, widow rockfish and yellowtail rockfish, and not in addition to that limit…All groundfish species are subject to the open access limits, seasons, size limits and RCA restrictions listed in the table above, unless otherwise stated here.*

This management measure affects the southern yellowtail rockfish stock, which is managed as part of shelf rockfish complex south of 40°10' N. lat. The 2021 and 2022 ACL for shelf rockfish complex south of 40°10' N. lat. is 1,438 mt and 1,428 mt, respectively. Since the landed yellowtail rockfish would be considered incidental catch in the salmon troll fishery, the projected mortality for this proposed trip limit would be included in the IOA set-aside for the shelf rockfish complex south of 40°10' N. lat. and deducted from the shelf rockfish complex south of 40°10' N. lat. ACL. This additional IOA set-aside will also further reduce the trawl and non-trawl allocations for the shelf rockfish complex south of 40°10' N latitude. The draft annual IOA set-asides for the shelf rockfish complex south of 40°10' N. lat. is 67.7 mt, for both 2021 and 2022 (Table 5-4).

Yellowtail rockfish range from the Aleutian Islands of Alaska south to La Jolla, California; however, the southern stock is predominantly found from the 40°10' N. lat. management line to the northern Channel

[9] It is important to note that in the commercial salmon troll fishery off of California coho salmon are prohibited

Islands within the southern California bight. The species can be found from the surface to approximately 300 fm, but most abundant from approximately 50 fm to 100 fm (Love et al, 2000). The non-trawl RCA between 40°10' to 34°27 N latitude is 40 fm to 125 fm; however, there are proposals to adjust the shoreward boundary line from 40 fm to 50 fm off central California (see Chapter 0. Additionally, the non-trawl RCA between 34°27' N. lat. to the California/Mexico border is 75 fm to 150 fm, and similarly, there are proposals to adjust the shoreward boundary line from 75 fm to 100 fm. Although troll caught salmon is commercially landed south of 34° 27' N. lat., as far south as Long Beach, the majority of the salmon is landed in central California ports. Therefore, this management measure would mainly affect the salmon troll and groundfish fisheries between 40°10' to 34°27 N. lat. and would have limited impact in southern California.

In 2019, there were 1,053 vessels permitted to land salmon in California, of which 570 vessels participated in the commercial salmon fishery (all gears) and 89 of vessels had 50 percent of the landings. Approximately, 920 vessels have a home port south of 40°10' N. lat., of which 527 vessels participated in the salmon troll fishery and landed south of 40°10' N. lat., and 82 of those vessels had 50 percent of the landings from the salmon troll fishery (Table 5-3).

Table 5-3. Number of vessels permitted and participating in the 2019 California commercial salmon fishery. Data source: CDFW Ocean Salmon Project, Marine Landings Data System and PacFIN.

Area	# of Permitted Vessels	# of Participating Vessels	# of vessels with 50% of landings
Statewide	1053	570	89
South of 40°10' N lat*	920	527	80

*Approximate number of vessels permitted and participating in the salmon troll fishery.

The 2021 and 2022 commercial salmon seasons and quotas will be not be determined until the April meeting of those years, well after the submission on this analysis. Therefore, the 2019 commercial salmon fishery season, which spanned across six months (May through Oct), and number of participating vessels were used as a proxy to project a *maximum landings* scenario for yellowtail rockfish south of 40°10' N. lat. in the salmon troll fishery. However, through discussions with industry members, a more likely scenario would be to assume encounters with yellowtail rockfish would occur during the months of May, June, and early July; under certain tide, current, and bait conditions; and from the most active participants (i.e. number of vessels with 50 percent of the salmon landings).

Under the *maximum landings* scenario, it was assumed that if a vessel landed 400 lbs or more of salmon per month, it also landed the full 200 lbs of yellowtail rockfish because the proposed trip limit is a 2:1 ratio with a monthly limit of 200 lbs. That is, for every 2 lbs of salmon, up to 1 lb of yellowtail may be retained and landed but no more than 200 lbs per month. Conversely, if the vessel landed less than 400 lbs of salmon per month, then the vessel landed half the amount in yellowtail rockfish (i.e. if 300 lbs of salmon were landed, then 150 lbs of yellowtail rockfish was also landed). Additionally, it was assumed that all 527 participating salmon troll vessels fished within the non-trawl RCA south of 40°10 N latitude and thus, were subject to the proposed trip limit. Under these assumptions, the *maximum landings* projection yellowtail rockfish in the salmon troll fishery south of 40°10 N latitude is 121 mt. The 2019 average price per pound for hook-and-line caught yellowtail rockfish south of 40°10' N latitude was $3.13; using the *maximum landings* projection the ex-vessel revenue could be approximately $835,000. The IOA set-aside would increase to 188.7 mt with the additional *maximum landings* projection, which would result in the allocations shown in Table 5-4.

Under the scenario discussed with industry, using 2019 data, should approximately 80 vessels of the 527 participating vessels landing south of 40°10' N. lat. encounter yellowtail rockfish for only three months and took the full 200 lbs per month, the projection would be 22 mt. Using the 2019 average price per pound of $3.13, the projected ex-vessel revenue would be $152,118. The resulting fishery HG and allocations are shown in Table 5-4.

Table 5-4. Resulting fishery HGs and allocations (mt) for shelf rockfish south of 40° 10' N. lat. under the status quo and two impact scenarios for allowing yellowtail rockfish retention in the salmon troll fishery.

Specification/ Allocation	Status Quo		Maximum Landings		Industry Scenario	
	2021	2022	2021	2022	2021	2022
ACL	1,438	1,428	1,438	1,428	1,438	1,428
IOA	67.7		188.7		89.7	
Fishery HG	1,370.3	1,360.3	1,204.2	1,194.2	1,303.2	1,293.2
Trawl	167.2	166.0	146.9	145.7	159	157.8
Non-Trawl	1,203.1	1,194.3	1,057.3	1,048.5	1,144.2	1,135.4

For a refence point, the salmon toll fishery north of 40°10' N. lat., under this same trip limit, which has been in place since 2001, landed 1.8 mt of yellowtail rockfish in 2019. The average annual landing of yellowtail rockfish by the salmon troll fishery over the last ten years was approximately 2 mt, the highest was 3.9 mt in 2015. The average price per pound in 2019 for yellowtail rockfish north of 40°10' N latitude was just under $1.00; with a 10-year average (2010-2019) of approximately $1.50. The small annual landings suggest the catch was incidental and the low price per pound suggests there is little to no incentive to target yellowtail rockfish in the salmon troll fishery.

Given the salmon troll fishery in the north lands around 2 mt of yellowtail rockfish per year under a trip limit that has been in place since 2001 and discussions with industry, it is highly unlikely that the landings would be as great as the *maximum landings* projection. However, if the price per pound of yellowtail rockfish in the south continues to fetch around $3.00, it is probable that landings of yellowtail rockfish south of 40°10' N latitude, under the same trip limit, could be higher than the average annual landings of 2 mt in the north (i.e. more incentive to turn discards into landings). That said, it is still difficult to specify a single projection for this proposed trip limit since there are many unknowns: 2021 and 2022 salmon season length and quota, number of vessels that will be permitted and participating in the salmon fishery, number of vessels with a VMS that will be trolling in the RCA, and if conditions would be optimal for encountering yellowtail rockfish while salmon trolling. Therefore, the precautionary approach may be to utilize the projection based on industry input (i.e. 22 mt) until data has come in to better inform the projection, noting that adjustments to the trip limit and off-the-top IOA deduction can be made through inseason action or the harvest specification and management measures process in the event the directed groundfish fisheries are approaching their harvest limits for the shelf rockfish complex south of 40°10' N. lat.. Under this scenario, neither the trawl nor non-trawl is expected to be constrained by the new shelf rockfish south allocations as attainments have been low. With respect to other impacts, there is little impacts to yelloweye rockfish.

as salmon trollers actively avoid rocky areas as to not destroy their gear and salmon do not co-occur with yelloweye rockfish. There is expected to be little impact to other nongroundfish or other ESA listed species, however, it is uncertain as the fishery is not observed.

As the salmon troll fishery targets chinook salmon, an ESA listed species, the effects of this measure will be in part determine on the 2021 and 2022 salmon seasons and quotas. According to the Marine Mammal Protection Act List of Fisheries for the last 5 years (2015-2019) no marine mammals have been documented in the California salmon troll fishery, thus it is likely this management measure will not adversely affect marine mammals as the fishery operation is not changing do to this measure.

This management measure is not expected to have adverse effects on groundfish stocks because the incidental take of yellowtail rockfish would be managed through cumulative trip limits designed to reduce regulatory discarding and is also restricted by the length of the salmon season and quota. Additionally, salmon vessels possessing groundfish in federal water must have a VMS. Moreover, if at any time during a fishing trip, a participant in the salmon troll fishery operates inside the RCA, the vessel may not then switch target strategies and retain groundfish other than yellowtail rockfish outside the RCA in the same trip as noted in the Federal Regulations for West Coast Salmon Fisheries Applying in the Exclusive Economic Zone (3-200) off the Coasts of Washington, Oregon, and California.

Modifications to the commercial non-trawl RCA are also being considered which may have a cumulative effect on shelf rockfish stocks, however given the low attainment of the shelf rockfish non-trawl allocation, it is unlikely that there will be a negative cumulative effect. Further, the non-trawl commercial fisheries are managed with cumulative trip limits which may be modified through routine inseason action, should mortality in the sector need to be reduced.

The combined cumulative impact of this management measure on groundfish is expected to be negligible because the incidental take of yellowtail rockfish would be managed through cumulative trip limits designed to reduce regulatory discarding and is also restricted by the length of the salmon season and quota.

These management measures are consistent with the following National Standards: (1) result in more optimal yield without overfishing; (2) based on the best scientific information; and (8) take into account/benefit fishing communities. This action is consistent with National Standard 1 by providing the greatest overall benefit to the nation by allowing harvest of healthy stocks which are currently being underutilized (e.g., shelf rockfish complex). Prior to many rockfish species being declared overfished, the non-trawl fixed gear fisheries used to support a vibrant shelf rockfish fishery, which was eliminated when the RCAs were implemented. This action is also consistent with National Standard 2 by utilizing the best available scientific information. The latest stock assessments indicate a more optimistic status of the yelloweye rockfish population. Further, these management measures provided a cautious approach to affording increased access to depth, continuing to provide protection to, yelloweye rockfish. This action is also consistent with conservation requirements and takes into account the importance of fishery resources to fishing communities.

5.5 Yellowtail Rockfish Retention within the Non-trawl RCA in the Salmon Troll Fishery North of 40°10' N. lat.

See **G.6, Attachment 3, Yellowtail Rockfish Retention: Salmon Troll N. of 40°10 N. lat., April 2020**

6. Considered, but Rejected

To be completed after the April 2020 Council meeting

7. References

NMFS (National Marine Fisheries Service). 2017. Authorization of an Oregon Recreational Fishery for Midwater Groundfish Species

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