Appendix A

Integrated Alternatives Analysis

Pacific Coast Groundfish Fishery 2019–20 Harvest Specifications, Yelloweye Rebuilding Plan Revisions, and Management Measures

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A.1 Introduction

In 2015, NMFS published the Harvest Specifications and Management Measures for 2015-2016 and Biennial Periods Thereafter Final Environmental Impact Statement (EIS) (PFMC and NMFS 2015, hereafter, "the 2015 EIS"). This EIS analyzed the impacts of both the proposed action of implementing harvest specifications and management measures for the 2015–16 biennial period and the long-term impacts of the harvest policy framework used to set biennial harvest specifications and the range of management measures necessary to control catch consistent with harvest specifications.

Amendment 24 to the Pacific Coast Groundfish Fishery Management Plan (PCGFMP) articulates a decision framework around "default harvest specifications" intended to streamline decision making for future biennial periods. PCGFMP section 5.1 describes how biennial harvest specifications are set and defines default harvest specifications as the application of the best scientific information available to the harvest control rule (HCR) from the previous biennial period. The default represents the continuation of the existing policy. Unless the Council takes deliberate action to adopt a new HCR, the existing rule "rolls over" as the basis for harvest specifications in the subsequent biennial period. This decision making framework is intended to complement the tiering concept; the impacts of a range of policies (HCRs) were analyzed in the 2015 EIS (adopted 2015–16 harvest control rules represent defaults for future biennial periods). NEPA documents for subsequent biennial periods evaluate changes from default harvest policies and environmental impacts outside the range of impacts evaluated in the 2015 EIS. 2019–20 is the second biennial period since preparation of the 2015 EIS and this EA also takes into account the actions and related impact analyses in the EA prepared for the 2017–18 biennial period (NMFS 2016, hereafter, "the 2016 EA").

The Council of Environmental Quality's (CEQ) *Forty Most Asked Questions Concerning CEQ's NEPA Regulations* (46 FR 18026, March 23, 1981) explains that a no-action alternative may involve an ongoing program for which regulations will continue, and that "In these cases 'no action' is 'no change' from current management direction or level of management intensity." Ongoing fishery management includes three broad management categories that account for a dynamic fishery environment. These broad categories do not constitute a change in the level of management intensity:

(1) Routine management measures, defined in Section 1.2.2. These are adjusted according to harvest specifications to regulate sector catch so that annual catch limits (ACLs) may be met but not exceeded. Routine management measures include the allocation of harvest opportunity between commercial and recreational groundfish fisheries, among commercial fishery sectors, and, for the purpose of managing recreational fisheries, among the three West Coast states. Routine management measures (e.g., trip limits, area closures, and bag limits), reflect no change in the level of management intensity as the Council and NMFS routinely adjust them throughout a fishing season. The adjustment of these measures are necessary under all alternatives, including the Baseline and No-Action Alternatives. As a result, the baseline and no action alternatives described below include options for different routine management measures that are within the scope of what has been analyzed previously in the 2015 EIS. As routine management measures are designed to help achieve but not exceed ACLs, including these options allows a comparison between management measures possible under each alternative.

(2) Updates to harvest specifications or management measures that are derived from a fishery management action made outside of this biennial process. For example, Amendment 21-3 was implemented in 2018 and changed the way darkblotched rockfish and POP are managed.

(3) Off the top deductions or adjustments for tribal, experimental fishing permit (EFP), research, and incidental open access needs based on requests that the Council approves.

This appendix analyzes the baseline and three integrated alternatives. Integrated alternatives incorporate proposed harvest specifications and ongoing fishery management into discrete management programs to facilitate evaluation of environmental impacts.

- **Baseline scenario**: The baseline reflects the ongoing management of the fishery. It describes the regulations, management measures, and expected groundfish mortality in 2017. The harvest specifications and management measures are in effect until superseded, however, the baseline 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. The Council does not consider the baseline as an alternative for implementation because it would not reflect the best scientific information available because it does not take into account new and updated stock assessments completed after last biennium.

- **Default Harvest Specifications (No Action)**: Default harvest specifications (Table 2-1) are implemented for all stocks and stock complexes.

- **Action Alternative 1**: Default harvest specifications (Table 2-1) would be implemented for all stocks except for the four stocks: yelloweye rockfish, California scorpionfish, lingcod N. of 40°10’ N lat. and Lingcod S. of 40°10’ N lat. These stocks would have the following new harvest control rules reflecting the new information on stock status from stock assessments.
    - California Scorpionfish: The ACL is set equal to the ABC using a P* value of 0.45, and the 2019-20 ACLs would be approximately 160 mt higher than under the No Action and 2017 ACL of 150 mt.
    - Lingcod north and south of 40°10´ N lat.: The No Action DHCR would apply except that the P* value is increased from 0.4 to 0.45 reflecting greater confidence in the current stock assessment. For the northern stock in 2019, the ACL would increase from 4,859 mt under No Action to 4,871 mt under Alternative 1. For 2020, it would increase from 4,533 mt to 4,541 mt. For the southern stock, the 2019 ACL would increase from 996 mt to 1,039 mt, and the 2020 ACL would increase from 839 mt to 869 mt.
    - Yelloweye rockfish: The spawning potential ratio (SPR) scaled exploitation rate is changed to 70 percent from the current rate of 76 percent. This increases the 2019 and 2020 ACLs by approximately 10 mt and adds one year to the median time to rebuild, compared to No Action.

- **Action Alternative 2**: Default harvest specifications would be implemented for all stocks except for the four stocks listed below. At its June 2018 meeting, the Council chose the Alternative 2 harvest specifications for yelloweye rockfish, California scorpionfish, and lingcod north and south of 40°10’ N lat.
    - California Scorpionfish: The ACL is set equal to the ABC using a P* value of 0.45, and the 2019-20 ACLs would be approximately 160 mt higher than under the No Action and 2017 ACL of 150 mt.
    - Lingcod north and south of 40°10´ N lat.: The No Action DHCR would apply except that the P* value is increased from 0.4 to 0.45 reflecting greater confidence in the current stock assessment. For the northern stock in 2019, the ACL would increase from 4,859 mt under No Action to 4,871 mt under Alternative 1. For 2020, it would increase from 4,533 mt to 4,541 mt. For the southern stock, the 2019 ACL would increase from 996 mt to 1,039 mt, and the 2020 ACL would increase from 839 mt to 869 mt.

- Yelloweye rockfish ACL is derived using a P* of 0.45 and an SPR of 65 percent with a median time to rebuild of 2029. This increases the 2019 ACL by 18 mt and the 2020 ACL by 19 mt compared to ACLs under No Action.

- New management measures, described in Section 2.2.2 and analyzed in Appendix C, are not routine and may only be added to the action alternatives. These measures are not discussed further in this appendix.

A.2 Baseline—2017 Regulations

The Baseline scenario describes the regulations, management measures, and expected groundfish mortality in 2017. It is not an alternative under consideration for implementation, but rather a description of the current conditions that can be used to better understand the proposed management measure adjustments under No Action and the Action alternatives.

A.2.1 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 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, incidental open access 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 Fishery Management Plan (FMP) 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. Routine management measures: For cowcod south of 40°10′ N lat., (hereafter defined as cowcod) the fishery HG was reduced from 8 to 4 mt for 2017 by implementing an ACT to allow for more research activities to collect data necessary for future stock assessments, including an expansion of the Northwest Fisheries Science Center's (NWFSC) hook-and line survey in the Southern California Bight to better estimate stock size. For California scorpionfish, fishery HG was reduced from 147.8 mt to 111 mt ACT for 2017, to address the uncertainty in the harvest specifications, given the age of the assessment (conducted in 2005).

Table A-1 and details the deductions from the ACLs (ACTs for some stocks) and Table A-2 details the allocations in 2017 under the Baseline. Table A-3 details the deductions from the sablefish ACLs. Allocations and projected mortality impacts (mt) of overfished groundfish species for 2017 can be found in Table A-4.

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 G.4.a, Revised Supplemental Tribal Report 2, June 2016 and Agenda Item G.4.a, Supplemental Tribal Report, June 2016).

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 off-the-top deductions are equal to the maximum historical scientific research catch from 2005 to 2014, except for yelloweye rockfish which was based on needs projected for 2017. If data are available to determine that a deduction for research has been exceeded during the fishing year, it would be evaluated by the Council and NMFS. Adjustments could be made to prevent the harvest specifications from being exceeded.

Incidental Open Access: Deductions from ACLs are made to account for groundfish mortality in the incidental open access fisheries. The off-the-top deductions for all species, except longnose skate, were derived from the maximum historical values in the 2007 to 2014 West Coast Groundfish Observer Program (WCGOP) Groundfish Mortality reports. The deduction for longnose skate was based on data from the 2009 to 2014 West Coast Groundfish Observer Program (WCGOP) Groundfish Mortality reports, the years in which longnose skate were reported separately from the Other Fish category.

Exempted Fishing Permits: Deductions from the ACL to accommodate the EFPs under the baseline were those requested by the applicants (see Table A-1) for 2017.

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 2014 (Table A-3).

Buffer for Unforeseen Catch Events: In 2017, the Council also established buffers from the canary rockfish, darkblotched rockfish, and Pacific ocean perch (POP) ACLs to account for unforeseen catch events in any sector. Buffers were designed to respond to unforeseen catch events that compromise a sector's ability to access target species (e.g., catch is projected to attain a quota prior to target species attainment or catch event results attainment of a quota causing fishery closure). Under such circumstances, the Council could make a recommendation to NMFS to release the buffer thereby increasing the sector allocation and providing greater access to target species. When determining whether to release the buffer, the Council would consider the allocation framework criteria outlined in the FMP and the objectives to maintain or extend fishing and marketing opportunities, while taking into account the best available fishery information on sector needs. The Council could recommend full reapportionment, partial reappointment, or no reapportionment, based on the allocation framework criteria and objectives outlined in the FMP and managing the risk of exceeding an ACL. In the event the buffer is not reallocated inseason, it would increase the likelihood that catch will be within the ACL. The buffer approach is similar to the existing process that is used when research, EFP, or incidental open access mortality is lower than the pre-season projections and a sector has realized a need to access the residual yield (as described above).

Inseason Adjustments Reflected in the Off the Top Deductions
Table A-1 and Table A-2 reflect tribal re-apportionment of Pacific whiting and inseason adjustments to the off the top deductions to the ACL recommended in 2017 (i.e., the amounts have been revised since the 2017–18 Analytical Document and pre-season regulations). A summary of the changes are as follows

- Reallocate a total of 7 mt of POP from the incidental open access off-the-top deduction as follows: 3.5 mt to the mothership sector and 3.5 mt to the catcher/processor (see April 2017 Council Meeting Record and April 2017 Briefing Book materials).
- At the June 2017 meeting, the Council recommended and NMFS approved reallocating the 25 mt POP and 50 mt darkblotched rockfish buffers for unforeseen catch events. The buffers were equally allocated to the mothership and catcher/processor sectors (see the June 2017 Council Decision Summary and June 2017 Briefing Book materials).
- At the June 2017 Council meeting, the at-sea sectors also noted the possibility of voluntary agreements to transfer canary rockfish and widow rockfish allocations between the mothership and catcher/processor sectors. The Council encouraged NMFS to implement such allocation changes if the agreements are forwarded to the agency (see the June 2017 Council Decision Summary and June 2017 Briefing Book materials).
- NMFS re-apportioned 41,000 mt of the 77,251 mt Pacific whiting tribal allocation to the non-treaty sectors in the same proportion as each sector's allotted portion of the fishery harvest guideline (NMFS Public Notice NMFS-SEA-17-16).

A.2.2 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 Amendment 21 to the groundfish FMP or decided during the 2017–18 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.

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 A-2. A summary of the basis for the two-year allocations can be found in the 2017–18 Analytical Document (Sections 4.1.1.2 and Section 4.1.4.2).

Table A-1. Baseline. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality in metric tons, used to calculate the fishery HG in 2017.

Stock/Complex	Area	ACL	Tribal	EFP	Research	OA	Buffer	Fishery HG
Arrowtooth flounder	Coastwide	13,804	2,041.0		16.4	40.8		11,706
Big skate	Coastwide	494	15.0		4.0	38.4		437
Black (WA)	Washington	305	18.0		-	-		287
Black (OR)	Oregon	527			-	0.6		526
Black (CA)	California	334		1.0				333
BOCACCIO	S of 40°10' N. lat.	790		10.0	4.6	0.8		775
Cabezon (OR)	46°16' to 42° N. lat.	47			-			47
Cabezon (CA)	S of 42° N. lat.	150			-	0.3		150
California scorpionfish	S of 34°27' N. lat.	150			0.2	2.0		148
Canary rockfish	Coastwide	1,714	50.0	1.0	7.2	1.2	188.0	1,467
Chilipepper	S of 40°10' N. lat.	2,607		30.0	10.9	5.0		2,561
COWCOD	S of 40°10' N. lat.	10		0.015	2.0	0.0		8
DARKBLOTCHED ROCKFISH	Coastwide	641	0.2	0.1	2.5	24.5	-	564
Dover sole	Coastwide	50,000	1,497.0		41.9	54.8		48,406
English sole	Coastwide	9,964	200.0		5.8	7.0		9,751
Lingcod	N of 40'10° N. lat.	3,333	250.0	0.5	11.7	16.0		3,055
Lingcod	S of 40'10° N. lat.	1,251		1.0	1.1	6.9		1,242
Longnose skate	Coastwide	2,000	130.0		13.2	3.8		1,853
Longspine thornyhead	N of 34°27' N. lat.	2,894	30.0		13.5	3.3		2,847
Longspine thornyhead	S of 34°27' N. lat.	914			1.4	1.8		911
Nearshore rockfish north	N of 40°10' N. lat.	105	1.5		-	0.3		103
Nearshore rockfish south	S of 40°10' N. lat.	1,163			2.7	1.4		1,159
Shelf rockfish north	N of 40°10' N. lat.	2,049	30.0	3.0	24.8	26.0		1,965
Shelf rockfish south	S of 40°10' N. lat.	1,623		30.0	8.6	8.6		1,576
Slope rockfish north	N of 40°10' N. lat.	1,755	36.0	1.0	9.5	18.6		1,690
Slope rockfish south	S of 40°10' N. lat.	707		1.0	2.0	17.2		687
Other Fish	Coastwide	474						474
Other flatfish	Coastwide	8,510	60.0		19.0	125.0		8,306
Pacific cod	Coastwide	1,600	500.0		7.0	2.0		1,091
Pacific whiting	Coastwide	441,433	36,251.00			1,500.00		403,682
Petrale Sole	Coastwide	3,136	220.0		17.7	3.2		2,895
POP	N of 40°10' N. lat.	281	9.2		5.2	3.0	-	232
Sablefish	N of 36° N. lat.	5,252		See Table A-3				
Sablefish	S of 36° N. lat.	1,864			3.0	2.0		1,859
Shortbelly	Coastwide	500			2.0	8.9		489
Shortspine thornyhead	N of 34°27' N. lat.	1,713	50.0		7.2	1.8		1,654
Shortspine thornyhead	S of 34°27' N. lat.	906			1.0	41.3		864
Spiny Dogfish	Coastwide	2,094	275.0	1.0	12.5	49.5		1,756
Splitnose	S of 40°10' N. lat.	1,760		1.5	9.0	0.2		1,749
Starry flounder	Coastwide	1,282	2.0			8.3		1,272
Widow	Coastwide	13,508	200.0	9.0	8.2	0.5		13,290
YELLOWEYE ROCKFISH	Coastwide	20	2.3	0.03	2.70	0.4		15
Yellowtail	N of 40°10' N. lat.	6,196	1,000.0	10.0	16.6	3.4		5,166

Table A-2. Baseline. Stock-specific fishery HGs or ACTs and allocations for 2017 (in mt).

Stock/Complex	Area	Fishery HG or ACT		Trawl		Non-trawl	
			Allocation Type	%	Mt	%	Mt
Arrowtooth flounder	Coastwide	11,705.9	Amendment 21	95%	11,120.6	5%	585.3
Big skate	Coastwide	436.6	Biennial	95%	414.8	5%	21.8
Black (WA)	N of 46°16'	287.0	None				
Black (OR)	46°16' to 42° N. lat.	526.4	None				
Black (CA)	S of 42° N. lat.	333.0	None				
BOCACCIO	S of 40°10' N. lat.	774.6	Biennial	39.04%	302.4	60.96%	472.2
Cabezon (OR)	46°16' to 42° N. lat.	47.0	None				
Cabezon (CA)	S of 42° N. lat.	149.7	None				
California scorpionfish	S of 34°27' N. lat.	111.0	None				
Canary rockfish	Coastwide	1,466.6	Biennial	72.281%	1,060.1	27.7160%	406.5
Chilipepper	S of 40°10' N. lat.	2,561.1	Amendment 21	75%	1,920.8	25%	640.3
COWCOD b/	S of 40°10' N. lat.	4.0	Biennial	36%	1.4	64%	2.6
DARKBLOTCHED	Coastwide	563.8	Amendment 21	95%	535.6	5%	28.2
Dover sole	Coastwide	48,406.3	Amendment 21	95%	45,986.0	5%	2,420.3
English sole	Coastwide	9,751.2	Amendment 21	95%	9,263.6	5%	487.6
Lingcod	N of 40'10° N. lat.	3,054.8	Amendment 21	45%	1,374.7	55%	1,680.2
Lingcod	S of 40'10° N. lat.	1,242.0	Amendment 21	45%	558.9	55%	683.1
Longnose skate	Coastwide	1,853.0	Biennial	90%	1,667.7	10%	185.3
Longspine thornyhead	N of 34°27' N. lat.	2,847.2	Amendment 21	95%	2,704.8	5%	142.4
Longspine thornyhead	S of 34°27' N. lat.	910.8	None				
Nearshore rockfish north	N of 40°10' N. lat.	103.2	None				
Nearshore rockfish south	S of 40°10' N. lat.	1,158.9	None				
Shelf rockfish north	N of 40°10' N. lat.	1,965.2	Biennial	60.2%	1,183.1	39.8%	782.1
Shelf rockfish south	S of 40°10' N. lat.	1,575.8	Biennial	12.2%	192.2	87.8%	1,383.6
Slope rockfish north	N of 40°10' N. lat.	1,689.9	Amendment 21	81%	1,368.8	19%	321.1
Slope rockfish south	S of 40°10' N. lat.	686.8	Amendment 21	63%	432.7	37%	254.1
Other fish	Coastwide	474.0	None				
Other flatfish	Coastwide	8,306.0	Amendment 21	90%	7,475.4	10%	830.6
Pacific cod	Coastwide	1,091.0	Amendment 21	95%	1,036.4	5%	54.5
Pacific whiting	Coastwide	403,682.0	Amendment 21	100%	403,682.0	0%	0.0
Petrale sole	Coastwide	2,895.1	Amendment 21	95%	2,750.3	5%	144.8
POP	N of 40°10' N. lat.	231.6	Amendment 21	95%	220.0	5%	11.6
Sablefish	N of 36° N. lat.		See Sablefish				
Sablefish	S of 36° N. lat.	1,859.0	Amendment 21	42%	780.8	58%	1,078.2
Shortbelly	Coastwide	489.1	None				0.0
Shortspine thornyhead	N of 34°27' N. lat.	1,654.0	Amendment 21	95%	1,571.3	5%	82.7
Shortspine thornyhead	S of 34°27' N. lat.	863.7	Amendment 21	NA	50.0	NA	813.7
Spiny Dogfish	Coastwide	1,756.0	None				
Splitnose	S of 40°10' N. lat.	1,749.3	Amendment 21	95%	1,661.8	5%	87.5
Starry flounder	Coastwide	1,271.7	Amendment 21	50%	635.9	50%	635.9
Widow	Coastwide	13,290.3	Amendment 21	91%	12,094.2	9%	1,196.1
YELLOWEYE	Coastwide	14.6	Biennial	8%	1.2	92%	13.4
Yellowtail	N of 40°10' N. lat.	5,166.1	Amendment 21	88%	4,546.1	12%	619.9

a/ The California scorpionfish fishery harvest guideline (147.8 mt) is further reduced to an ACT of 111 mt

b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 4 mt

Table A-3. 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 2017.

Stock	Year	ACL (mt)	Tribal Share (mt) a/	Research (mt)	Rec. (mt)	EFP (mt)	Commercial HG (mt)
Sablefish N. of 36° N lat.	2017	6,041	604	26	6.1	0	5,405

Table A-4. Baseline. Allocations and projected mortality impacts (mt) of overfished/rebuilding groundfish species for 2017.

	Bocaccio b/		Cowcod b/		Dkbl		POP		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	15.4	14.6	2.0	2.0	27.3	9.2	17.4	14.4	5.4	4.2
Additional Buffer					0.0		0.0			
EFPc/	10.0	10.0	0.015	0.015	0.1	0.1	0.0	0.0	0.030	0.020
Research d/	4.6	4.6	2.0	2.0	2.5	2.5	5.2	5.2	2.7	1.8
Incidental OA e/	0.8	0.0	0.0	0.0	24.5	6.4	3.0	0.0	0.4	0.1
Tribal f/					0.2	0.2	9.2	9.2	2.3	2.3
Trawl Allocations	302.4	91.7	1.4	0.4	535.6	196.8	220.0	104.9	1.1	0.2
-SB Trawl	302.4	91.7	1.4	0.4	507.6	181.8	198.3	93.8	1.1	0.2
-At-Sea Trawl g/					78.0	15.0	53.7	11.1	0.0	0.0
a) At-sea whiting MS					36.6	6.9	25.0	3.8		
b) At-sea whiting CP					41.4	8.1	28.7	7.3		
Non-Trawl Allocation	472.2	129.7	2.6	0.0	28.2	4.5	11.6	0.2	13.1	12.9
Non-Nearshore	144.3	1.7		0.0		4.5		0.2	0.8	0.7
Directed OA: Nearshore	1.8	1.0		0.0					2.1	1.2
Recreational Groundfish										
WA						--		--	3.3	3.2
OR						--		--	3.0	3.7
CA	326.1	127.0		0.9		--		--	3.9	4.2
TOTAL	790.0	236.0	6.0	2.4	591.1	210.5	249.0	119.5	19.6	17.3
2017 Harvest Specification	790	790	6.0	6.0	641	641	281	281	20	20
Difference	0.0	554.0	0.0	3.6	49.9	430.5	32.0	161.5	0.4	2.7
Percent of ACL	100%	29.9%	100%	39.9%	92%	32.8%	89%	42.5%	100%	86.5%

Key	
	= not applicable
--	= trace, less than 0.1 mt
	= Fixed Values
	= off the top deductions

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 off the top deductions and two-year allocations recommended in the 2017-2018 process, and recreational fisheries HG for YE.

b/ South of 40°10' N. lat.

c/ EFPs values represent the requested amounts from the 2017-2018 applications, which are currently specified in regulation.

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

e/ The GMT's best estimate of impacts, which are currently specified in regulation.

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

g/ At-sea projections are based on the boot strap model, 50 percent probability.

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A.2.3 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 require 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 are described in Section A.2.8.

A.2.3.1 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. In the south, blackgill rockfish is a precautionary zone stock (based on the 2011 assessment) and a 40:10 adjusted HG is established in the amount of 120 mt. The HG is subject to trawl and non-trawl allocations implemented under Amendment 21 (63 percent to trawl and 37 percent to non-trawl). The 44.5 mt blackgill rockfish share for the non-trawl sector is further allocated 60 percent to limited entry (27 mt) and 40 percent to open access fixed gears (18 mt). This apportionment reflects the historical distribution of catch between the limited entry and open access fixed gear sectors from 2005 to 2010 (Table 3 in Agenda Item E.9.b, GMT Report 2, November 2011).

A.2.3.2 Blue Rockfish South of 42° N lat.

The blue rockfish HG for the area south of 42° N lat. is the sum of three components: 1) the assessed stock´s contribution to the Nearshore Rockfish complex acceptable biological catch (ABC) (south of 40°10´ N lat.), 2) the contribution for the unassessed portion south of Point Conception, and 3) the contribution to the Nearshore Rockfish complex ABC for the area between 40°10' N lat. 42° N lat. For 2017, this results in a 305 mt HG for blue rockfish south of 42° N lat.

A.2.3.3 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 would be 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.

The 2017 nearshore rockfish HGs were calculated using the status quo proportions to allocate stocks without state-specific assessment boundaries (Table A-5). For stocks that have state-specific stock assessment boundaries, the states receive 100 percent of the ACL contribution.

Table A-5. Baseline: Nearshore Rockfish north of 40°10' N lat. HGs.

Stock	State	HG
Nearshore Rockfish North of 40°10´ N lat.	WA	16.9
	OR	46.1
	CA	40.2

Table A-6 summarizes the harvest guidelines that are implemented for stocks managed in complexes or HGs that apply across multiple sectors.

Table A-6. Baseline: Summary of the Harvest Guidelines in 2017 in federal regulation.

Species	Description	2017 (mt)
Blackgill S. of 40°10' N lat.	HG within the Slope Rockfish complex South of 40°10´ N lat.	120.2
	HG within the Non-Trawl Allocation	44.5
Blue Rockfish S. of 42° N lat.	HG within the Nearshore Rockfish complex North and South of 40°10´ N lat.	304.6
Nearshore Rockfish 40°10' N lat. to 42° N lat.	HG within the Nearshore Rockfish complex North of 40°10´ N lat. to 42° N lat.	40.2

A.2.3.4 Nearshore Rockfish North of 40°10' N lat.

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 OFWC include kelp greenling, cabezon, black rockfish, and the rockfish species within the Federal Nearshore Rockfish complex. Decisions made by the OFWC occur after final Council action to adopt the federal harvest specifications and are implemented through state regulation only. 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. Detailed descriptions of the state nearshore fisheries can be found in the 2015 EIS (PFMC and NMFS 2015).

A.2.4 Shorebased Individual Fishing Quota (IFQ) – Baseline 2017

A.2.4.1 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 QPs are debited from IFQ vessel accounts based on any catch that is landed or discarded. However, they are given QP “survival credits” (1 – DMR) for discards of Pacific halibut on observed trips and soon for electronically monitored trips (EM).
- The 2015 and 2016 IFQ and IBQ used in the analysis of the Baseline can be found in Table A-7. South of 40°10’ N lat., Pacific halibut is managed with a set-aside. Additionally, cumulative 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. Unused QP vessel limits, also called ‘‘daily vessel limits,’’ apply to overfished species and Pacific halibut IBQ, and cap the amount of unused overfished species QPs any vessel account can have sitting available in their account on a given day, which is lower than the annual QP vessel limit.
- Adaptive Management Pounds (AMP) Pass-through: 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 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.

- Monitoring and Reporting: All trips in the shorebased IFQ fishery are monitored at sea by the WCGOP, on-board electronic monitoring, and landings are tracked by electronic fish tickets, verified by catch monitors. Together, these two programs provide robust, near-real time tracking and reporting of IFQ species and Pacific halibut IBQ.
- Gear Restrictions: IFQ species may be harvested with groundfish trawl or legal groundfish non-trawl gear. Trawl gear restrictions 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. Further, gear restrictions minimize catch of overfished species while allowing sufficient access to target species. For example, the selective flatfish trawl (SFFT) net, which is required shoreward of the trawl RCA north of 40°10' N lat., reduces rockfish bycatch while efficiently catching flatfish. Scottish seine gear is exempted from trawl RCA closures in the area between 38° N lat. and 36° N lat. and depths less than 100 fm because the gear has demonstrated low bycatch rates of overfished species. IFQ species can also be harvested with legal non-trawl gears.
    - Vessels could also choose to participate in an EFP that allowed exemptions from some of the gear restrictions, including mesh size and SFFT requirements
- RCAs: Vessels harvesting IFQ must abide by RCA closures, which are specified by gear type (Table A-10 and Table A-11). For example, vessels fishing with legal groundfish non-trawl gear must abide by the non-trawl RCA, while vessels fishing with bottom trawl gear must abide by the trawl RCA. These RCA features were designed to provide sufficient access to target species while minimizing bycatch of overfished species.
- Bycatch Reduction Areas: Bycatch on Pacific whiting trips can be mitigated by implementing bycatch reduction areas. These area restrictions apply to vessels on Pacific whiting trips using midwater gear during the primary whiting season and limit fishing to depths greater than any of the specified management lines between 75 fm and 150 fm (see regulations at 660.131(c)(4) Subpart D).
- Ocean salmon conservation zone: Automatic closure to all waters shoreward of 100 fm depth contour if NMFS projects the Pacific whiting fishery may take in excess of 11,000 Chinook salmon within a calendar year.
- Other Groundfish Conservation Areas (GCA): Several other GCAs exist and provide overfished species and habitat protection. Though limited bottom trawling occurs south of Point Conception at 34°27' N lat. in the Southern California Bight, bottom trawling and other bottom fishing activities are prohibited in two discrete areas, the Western Cowcod Conservation Area (CCA) and the Eastern CCA (Figure A-1, a.). However, the take of rockfish, cabezon, greenling, and lingcod shoreward of 20 fm via fixed gear and flatfish by hook-and-line using Number 2 hooks or smaller, no more than 12 hooks per line, is permitted. Closed essential fish habitat (EFH) areas are used to protect bottom habitat from the adverse effects of trawl gear (see regulations at 660.75). Three areas off the Washington coast are designed to reduce bycatch of yelloweye rockfish (Figure A-1, b and c.). 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.

A.2.4.2 Pacific halibut IBQ north of 40°10′ N lat.

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, used 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 2016 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.

A.2.4.3 Impact (Groundfish Mortality)

Table A-7 shows current estimates of fishery mortality during 2017 in the shorebased IFQ program, for IFQ species categories, as well as the allocations in regulation, and historical mortality estimates for 2015 and 2016. 2017 was the first year of the IFQ program with a high canary rockfish allocation; it was nearly 23 times higher than 2016 or previous years. This corresponds to an ACL at a level not seen since the mid to late-1990s (then Optimum Yield, or OY). Canary rockfish had been managed under a rebuilding plan since before the IFQ program began, until the stock was declared rebuilt and harvest specifications were increased in 2017.

The change enabled substantial additional shelf effort, and it corresponded with increased fishery mortality of several stocks compared to previous years. This is reflected in much higher catch levels for lingcod north of 40°10′ N lat., Shelf Rockfish north of 40°10′ N lat., widow rockfish, yellowtail rockfish, and of course canary rockfish itself (12 times 2016 levels, roughly half the level of increase of the allocation). The increases in mortality for many of the affected stocks correspond with dramatically increased attainment, rather than simply scaling proportionally with increases in the allocation itself.

From 2016 to 2017, mortality of slope rockfish species, darkblotched rockfish, and POP increased roughly proportionally with the allocation. Mortality and allocation levels of slope rockfish north of

40°10′ N lat. remained stable.

Mortality of bocaccio increased by approximately half as much as the allocation increased between those two years. Chilipepper rockfish mortality increased on the same scale with the allocation. Cowcod increased by roughly one third, although its allocation remained nearly the same over that period. Although mortality of Slope Rockfish south of 40°10′ N lat. was up 12 percent from 2016 to 2017, three other IFQ southern stocks, including Shelf rockfish south of 40°10′ N lat., sablefish south of 36° N lat., and shortspine thornyhead south of 34°27’ N lat., decreased. Attainment of Pacific whiting was up in 2017, as well as for sablefish north of 36° N lat. and petrale sole, although these species consistently show very high attainment (typically 90 to 100 percent or more, including catch of surplus carryover quota pounds from the previous year).

Yelloweye rockfish mortality, a nearshore/shelf species currently under a rebuilding plan, also increased in 2017, by nearly 3.5 times 2016 levels, which were previously relatively static from 2011-2016. Attainment rose in 2017 to 15 percent of the allocation, from approximately five percent, where it hovered between 2012 and 2016 (it was almost 10 percent in 2011, though the allocation was just 0.6 mt). The increase in yelloweye rockfish bycatch is also likely an effect of the increase in shelf and nearshore effort, in response to the increased 2017 canary rockfish allocation.

Fishery mortality of flatfish stocks including Dover sole, arrowtooth flounder, and other flatfish remained relatively constant compared with previous years. English sole mortality was down by a third in 2017, but still within the middle of the range from 2011-16.

Mortality of Pacific cod dropped to its lowest level in the IFQ program, to just 43 mt, only 11 percent of the 2016 level (385 mt); the previous (2016) level was above average, and very similar to 2015 and 2012 levels. There are reports that Gulf of Alaska Pacific cod suffered a dramatic decline in 2017 (by 80 percent; and a 72 percent drop in abundance since 2015). It has been correlated with forage deficit and poor recruitment related to long lasting deep, warm water anomalies off Vancouver Island and northward into the Gulf of Alaska, as well as high natural mortality in 2011 and 2012. Pacific cod off the West Coast (California, Oregon and Washington) is thought to be a southern extension of the Gulf of Alaska stock (PFMC Groundfish SAFE Document), and has never been formally assessed.

Bycatch mortality of Pacific halibut IBQ has remained fairly consistent from 2011-onward in the IFQ program, and was almost exactly average in 2017, at 35.8 mt.

A.2.4.4 Non-IFQ species

Recent mortality estimates (2015 and 2016) for non-IFQ species are shown in Table A-8. Big skate is the only one of these species managed with a trip limit model (trip limits in regulation for 2017 in Table A-9), and therefore the other estimates serve as guidance in lieu of projections.

Table A-7. Baseline – Shorebased IFQ. Estimated mortality for IFQ species and Pacific halibut IBQ for 2017 compared to the allocations or set-asides. Year-end estimates of mortality for 2015 and 2016 are provided for reference (right panel).

IFQ Species	Area	Baseline 2017		Historical Mortality a/	
		Estimated Mortality (mt)	SB IFQ Allocation (mt)	2015 SB IFQ Mortality (mt)	2016 SB IFQ Mortality (mt)
Arrowtooth flounder	Coastwide	1,374.6	11,050.6	1,669.7	1,419.9
Bocaccio	South of 40°10' N lat.	91.7	302.4	38.7	43.2
Canary rockfish	Coastwide	253.7	1,014.1	44.8	21.5
Chilipepper	South of 40°10' N lat.	110.7	1,920.8	189.1	75.6
COWCOD	South of 40°10' N lat.	0.38	1.40	0.38	0.30
Darkblotched rockfish	Coastwide	181.8	507.6	122.4	123.3
Dover sole	Coastwide	7,346.3	45,981.0	6,238.3	7,195.9
English sole	Coastwide	254.4	9,258.6	329.2	377.6
Lingcod	North of 40°10' N lat.	619.1	1,359.7	185.3	260.5
Lingcod	South of 40°10' N lat.	24.5	558.9	31.7	24.8
Longspine thornyheads	North of 34°27' N lat.	815.2	2,699.8	768.4	659.6
Shelf Rockfish	North of 40°10' N lat.	241.1	1,148.1	33.4	34.4
Shelf Rockfish	South of 40°10' N lat.	2.3	192.2	8.9	4.4
Slope Rockfish	North of 40°10' N lat.	165.1	1,268.8	228.1	160.2
Slope Rockfish	South of 40°10' N lat.	56.0	432.7	69.5	49.9
Other Flatfish	Coastwide	731.2	7,455.4	833.8	857.5
Pacific cod	Coastwide	43.0	1,031.4	377.2	385.0
Pacific halibut b/	North of 40°10’ N lat.	35.8	79.3	35.9	34.8
POP	North of 40°10' N lat.	93.8	198.3	49.9	54.5
Pacific whiting	Coastwide	147,098.8	169,547.0	58,383.8	86,293.5
Petrale sole	Coastwide	2,752.1	2,745.3	2,499.4	2,499.7
Sablefish	North of 36° N lat.	2,529.0	2,416.4	2,203.5	2,299.7
Sablefish	South of 36° N lat.	113.2	780.8	169.9	203.1
Shortspine thornyheads	North of 34°27' N lat.	741.2	1,551.3	718.3	747.3
Shortspine thornyheads	South of 34°27' N lat.	0.0	50.0	0.8	2.0
Splitnose rockfish	South of 40°10' N lat.	13.0	1,661.8	28.0	13.1
Starry flounder	Coastwide	6.9	630.9	6.4	12.7
Widow rockfish	Coastwide	5,919.8	11,392.7	814.6	837.6
YELLOWEYE ROCKFISH	Coastwide	0.17	1.10	0.04	0.05
Yellowtail rockfish	North of 40°10' N lat.	2,466.2	4,246.1	1,449.9	1,145.2

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2018). Pacific whiting values include inseason allocation reapportionments.
b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2018 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2017 values were used.

Table A-8. Recent mortality estimates for non-IFQ stocks in the shorebased IFQ fishery (mt).

Stock	2015	2016
Big Skate	234	360
California Skate	1	2
Grenadier Unidentified	15	10
Groundfish Unidentified	3	3
Longnose skate	780	824
Pacific Flatnose	1	1
Pacific Grenadier	33	30
Shortbelly rockfish	5	23
Skate Unidentified	78	8
Soupfin Shark	2	1
Spiny Dogfish Shark	450	455
Spotted Ratfish	86	95

Table A-9. Big skate trip limits coastwide for shorebased IFQ fishery for 2017.

Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
5,000	25,000	30,000	35,000	10,000	5,000

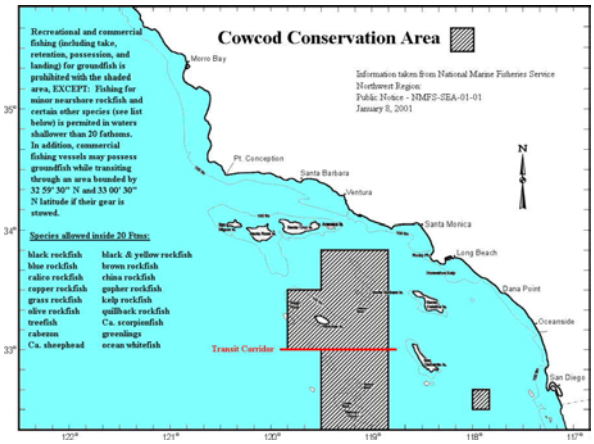
Table A-10. Trawl RCA configuration in regulation for 2017.

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 A-11. Non-Trawl RCA configuration in regulation for 2017.

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)					

a.



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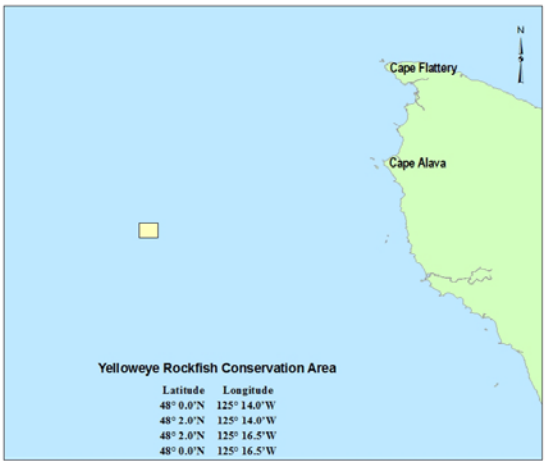

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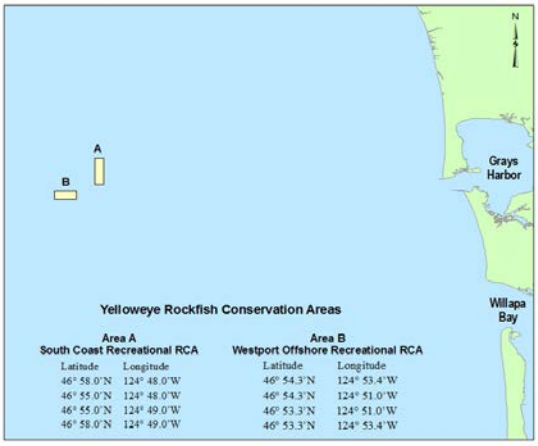


Figure A-1. Baseline – Selected GCAs. a. The current Cowcod Conservation Areas located in the Southern California Bight; b. North Coast Area B, a Yelloweye rockfish Conservation Area in northern Washington; c. South Coast Area A and B, Yelloweye rockfish Conservation Areas in southern Washington. South Coast Area A is an area to be voluntarily avoided.

A.2.5 At-Sea Whiting Co-ops – Baseline 2017

A.2.5.1 At-Sea Whiting Management Measures

The at-sea sector is composed of catcher/processors and motherships that target Pacific whiting with midwater trawl gear and process at sea. The 2017 regulations include allocations for Pacific whiting, canary rockfish, darkblotched rockfish, POP, and widow rockfish, and set-asides for the remaining bycatch species. Further, measures are established that restrict the Pacific whiting season dates and provide for bycatch reduction areas and ocean salmon conservation zones (see regulations at 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 a group, the co-op, instead of an individual. The members of the group then decide how and when the collectively-held harvest privilege would be used. The trawl rationalization program establishes a set of rules for the formation of co-ops in the at-sea mothership sector that provide a strong incentive for catcher vessels to form co-ops associated with a mothership processor (see regulations at 50 CFR 660.150). In the case of the catcher/processor sector, a single, voluntary co-op has been in existence for some time. In that instance, the allocation to the sector is essentially an allocation to the co-op. Further, a catcher/processor permit endorsement is required, which essentially closes this sector to new entrants; a move intended to lend greater stability to the functioning of the current, voluntary co-op. Regulations at 50 CFR 660.160 further outline the catcher/processor co-op provisions.

Principle management measures for the at-sea fisheries include:

- Co-op management as described above.
- Allocations for canary rockfish, darkblotched rockfish, widow rockfish, and POP (Note that Amendment 21-3 was implemented in 2018 and darkblotched rockfish and POP are now managed as sector specific set-asides). Once a sector is projected to or exceeds a Pacific whiting or one of these four non-whiting groundfish 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., incidental open access set asides or the buffer for unforeseen catch events) 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 A-16. 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.
- Ocean salmon conservation zone- Automatic closure to all waters shoreward of 100 fm depth contour if NMFS projects the Pacific whiting fishery may take in excess of 11,000 Chinook salmon within a calendar year.
- 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 fm, 100 fm, or 150 fm (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.

A.2.5.2 Impact (Groundfish Mortality)

The Baseline shows the impacts under the 2017 ACLs (Table A-1) and regulations in place as of November 27, 2017. The catcher/processor and mothership co-op allocations for darkblotched rockfish, POP, and widow rockfish are derived based on the percentages outlined in Section 6.3.2.3 of the FMP and regulations at 660.55 (Table A-12). For canary rockfish, two-year allocations are established. For Pacific whiting, the 2017 TAC and associated allocations (post-tribal reapportionment) were used. The allocations may be considered the highest estimate of groundfish mortality since the fishery is managed to stay within the allocations. Alternatively, groundfish mortality in the at-sea sectors can be projected by using a bycatch rate approach or a bootstrap simulation (see Appendix D for model documentation). Table A-13 shows projections for both catcher/processors and motherships using the average historical

bycatch rate from 2014-2017, positively weighted for more recent years, applied to the 2017 whiting allocations (post-tribal reapportionment). Table A-14 and Table A-15 use a bootstrap simulation to determine the distribution of bycatch compared to the allocations as well as the risk of not attaining the whiting allocations. The bootstrap simulation uses individual whiting haul data from 2000-2017. A total of 17,000 simulations were run on the data, with each individual simulated season first randomly selecting a year (e.g., 2003) and then resampling from all individual non-zero (i.e., at least some whiting was caught) hauls within the selected year until a season closure occurred. A closure was only simulated if a sector was projected to either: 1) attain the whiting allocation, or 2) exceed the POP, widow, canary rockfish, or darkblotched rockfish allocation. In the projections below, it can be understood that a certain percentage of the time, the sector is projected to land the corresponding value or less, as these are a distribution of results. In other words, in Table A-14, the column labeled 95 percent means that 95 percent of the simulations would land 28.7 mt or less of POP, or that 10 percent of the simulations exceed 28.7 mt and therefore the POP allocation.

Set-asides for bycatch species established in the 2017 regulations can be found in Table A-16 along with estimates of historical mortality.

Table A-12. Baseline – At-Sea. Allocations for the catcher/processor (CP) and mothership sectors (MS) under the Baseline Alternative. Historical mortality for 2016 and 2017 by sector is provided (right panel) for reference.

Stock	Area	Allocation a/		Historical Mortality for CPs and MS b/			
		2017 CP (mt)	2017 MS (mt)	2016 CP (mt)	2017 CP (mt)	2016 MS (mt)	2017 MS (mt)
Canary rockfish	Coastwide	16	30	0.1	2.1	0.4	4.5
Darkblotched rockfish	Coastwide	41.4	36.6	3.5	32	1.6	7.6
POP	N of 40º10' N lat.	28.7	25.0	3.1	20.3	7.2	5.9
Pacific whiting a/	Coastwide	137,252	96,884	108,768	136,960	65,035	66,380
Widow rockfish	Coastwide	458.2	243.3	112.3	409.2	74.4	66

a/ The allocations represent those in place as of November 27, 2017 and reflect all inseason changes.
b/ Mortality estimates were derived from NORPAC observer data in the Comprehensive NPAC table in PacFIN.

Table A-13. Baseline - At-Sea. Projections for the CP and MS sectors under the Baseline using average historical bycatch rates (positively weighted for more recent years). Baseline allocations are provided on the right for reference.

Stock	Area	No Action Allocation a/		Projection	
		2017 CP (mt)	2017 MS (mt)	CP (mt)	MS (mt)
Canary rockfish	Coastwide	16	30	0.9	3
Darkblotched rockfish	Coastwide	41.4	36.6	16.8	8
POP	N of 40º10' N lat.	28.7	25	12.1	8.5
Pacific whiting	Coastwide	137,252	96,884	137,252	96,884
Widow rockfish	Coastwide	458.2	243.3	215.7	90

a/ The allocations represent those in place as of November 27, 2017 and reflect all inseason changes.

Table A-14. Baseline - At-Sea - Catcher/processor. Landing projections for the CP sector under the Baseline Alternative using the bootstrap method sampling hauls from 2000-2017. Baseline allocations are provided on the right for reference. Bolded text indicates values that are higher than the allocations.

Stock	**CP All. (mt)**	**Percentage of Simulated Seasons**									
		1%	**5%**	**10%**	**25%**	**50%**	**75%**	**90%**	**95%**	**99%**	**99.99%**
Whiting	137,252	69,860	95,509	135,386	137,252	137,252	137,252	137,252	137,252	137,252	137,252
Canary rockfish	16	0.1	0.1	0.2	0.4	0.7	1.2	2.2	4.7	6.6	9.5
Darkblotched rockfish	41.6	0.5	0.7	2.9	4.3	8.1	12.5	19.1	23.9	37.9	**49.2**
POP	28.7	0.2	0.3	0.5	1.8	7.3	13.8	21.1	**28.7**	**30**	**32.2**
Widow rockfish	458.2	5.4	7.5	12.9	24.8	68.2	139.1	288.4	415.9	**492.6**	**535.8**

Table A-15. Baseline - At-Sea - Mothership. Projections for the MS sector under the Baseline Alternative using the bootstrap method sampling hauls from 2000-2017. Baseline allocations are provided on the right for reference. Bolded text indicates values that are higher than the allocations.

Stock	**MS All. (mt)**	**Percentage of Simulated Seasons**									
		1%	**5%**	**10%**	**25%**	**50%**	**75%**	**90%**	**95%**	**99%**	**99.99%**
Whiting	96,884	58,930	76,543	93,585	96,884	96,884	96,884	96,884	96,884	96,884	96,884
Canary rockfish	30	0.1	0.2	0.3	0.5	1.1	2.5	4.7	8.7	24.3	**32.3**
Darkblotched rockfish	36.6	0.3	0.5	0.8	2.8	6.9	10	13.3	14.4	16.9	24.9
POP	25.0	0.1	0.2	0.4	1.4	3.8	6.9	10.2	**25**	**25.8**	**27.5**
Widow rockfish	243.3	2.4	2.8	25.1	52.8	77.9	105.1	149.7	239.4	**246.6**	**253.8**

Table A-16. Baseline – At-Sea. At-sea whiting set-asides under the Baseline Alternative. Historical mortality for the CP and MS sectors and the 2017 set-asides in regulations are provided for reference.

Baseline Set-Asides			**Historical Mortality for CPs and MS a/**		
Stock	**Area**	**2017 Value in Regulation (mt)**	**2016 (mt)**	**2017 (mt)**	**Average 2014-2017 (mt)**
YELLOWEYE ROCKFISH	Coastwide	0	0.00	0.00	0.00
Arrowtooth flounder	Coastwide	70	10.07	17.50	26.31
Dover sole	Coastwide	5	0.29	0.47	0.62
English sole	Coastwide	5	0.00	0.04	0.02
Lingcod	N. of 40º10' N lat.	15	0.19	0.98	0.73
Longnose skate	Coastwide	5	0.83	0.97	0.76
Longspine thornyhead	N. of 34º27' N lat.	5	0.00	0.00	0.01
Shelf Rockfish	N. of 40º10' N lat.	35	4.13	14.75	4.94
Slope Rockfish	N. of 40º10' N lat.	100	72.91	123.84	64.64
Other Flatfish	Coastwide	20	2.85	8.46	6.43
Pacific cod	Coastwide	5	0.00	0.19	0.05
Pacific halibut b/	Coastwide	10	0.15		0.11
Petrale sole	Coastwide	5	0.00	0.00	0.00
Sablefish	N. of 36º N lat.	50	27.74	153.17	52.16
Shortspine thornyhead	N. of 34º27' N lat.	20	10.56	27.95	17.36
Starry flounder	Coastwide	5	0.00	0.00	0.00
Yellowtail rockfish	N. of 40º10' N lat.	300	62.28	277.77	117.85

a/ Based on Comprehensive NPAC Data, except for halibut (see b/).
b/ As stated in §660.55 (m), the Pacific halibut set-aside is 10 mt, to accommodate bycatch in the at-sea Pacific whiting fisheries and in the shorebased trawl sector south of 40°10' N lat. (estimated to 5 mt each). Pacific halibut bycatch estimates for 2016 are from the 2017 Pacific Halibut Bycatch in US West Coast Fisheries (2002-2016) Report. 2017 estimates are unavailable.

A.2.6 Limited Entry and Open Access Fixed Gear Management – Baseline 2017

A.2.6.1 Limited Entry and Open Access Management Measures

Table A-17 and Table A-18 summarize the principle management measures for the limited entry and open access fixed gear vessels in regulation for 2017. The sablefish stock was the primary target, in terms of volume and revenue, for both the limited entry and open access fixed gear sectors. A variety of nearshore species (e.g., black rockfish, lingcod, species managed in the Nearshore Rockfish complexes, cabezon, and kelp greenling) were targeted by a large number of vessels, but in relatively low volumes.

One non-trawl RCA is implemented for the limited entry and open access fixed gear fisheries (Table A-17 and Table A-18). Routine RCA adjustments can be made for four northern subareas that were previously analyzed for the 2009–10 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. These adjustments may be necessary 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 from 125 to 100 fm).

The non-trawl RCA seaward boundary south of 40°10' N lat. in 2017 is defined by management lines specified with waypoints at roughly 125 fm from 40°10' N lat. south to 34°27´ N lat. and 150 fm 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 limited entry and open access fixed gears since 2007 (Figure A-2). 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" (Figure A-5). Fishing is not allowed in the CCAs (Figure 1-9 under the Baseline, except that fishing for rockfish, cabezon, greenling, California scorpionfish, and lingcod shoreward of 20 fm is allowed.

While the same limited entry and open access fixed gear trip limits apply across all depths within a given regulatory area, there are separate catch estimates and predictive models (Appendix D) for the non-nearshore fisheries and nearshore fisheries. Further, there are specific HGs and shares to the non-nearshore and nearshore fisheries from within the non-trawl allocation for select stocks. The remainder of stocks are managed collectively within the non-trawl allocations for the non-nearshore, nearshore, and recreational fisheries.

Since the same trip limits and other regulations (e.g., 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. Having separate non-nearshore and nearshore HGs/shares and projection models for yelloweye rockfish enhances the ability of each fishery to custom tailor their regulations to best provide opportunity while staying within yelloweye rockfish bycatch limits.

Table A-17. Baseline – Limited Entry Fixed Gear. Summary of limited entry fixed gear fishery management measures in 2017.

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 in Table A-19. • 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 7 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 limited entry sablefish endorsed permits • Retention of shelf rockfish south of 34°27´ N lat. is prohibited in Period 2, except canary rockfish, to aide in the rebuilding of bocaccio. • 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
GCAs	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
	CCA Fishing is prohibited in CCAs with the following exceptions: • Fishing for "Other Flatfish" when using no more than 12 hooks, #2 or smaller • Fishing for rockfish, cabezon, greenling, California scorpionfish and lingcod shoreward of 20 fm
	• 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 Bank commercial fishing for groundfish is prohibited in depths less than 100 fm
	EFH Fishing with all bottom contact gear, including longline and pot/trap gear, is prohibited within the following EFH conservation areas: Thompson Seamount, President Jackson Seamount, Cordell Bank (50 fm (91 m) isobath), Harris Point, Richardson Rock, Scorpion, Painted Cave, Anacapa Island, Carrington Point, Judith Rock, Skunk Point, Footprint, Gull Island, South Point, and Santa Barbara. Fishing with bottom contact gear is also prohibited within the Davidson Seamount
Limited Entry Non-trawl RCAs	• North of 46°16´ N lat. Shoreline to 100 fm • 46°16´- 42°N lat. 30 fm to 100 fm • 42°- 40°10´ N lat. 30 fm to 100 fm • 40°10´ - 34°27´ N lat. 40 fm to 125 fm • South of 34°27´ N lat. 75 fm to 150 fm 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
Monitoring	• VMS required • WCGOP observer coverage when requested • Electronic fish tickets with 24 hour reporting required when sablefish are landed.
Reporting	• VMS declarations

Table A-18. Baseline – Open Access. Summary of open access fishery management measures in 2017.

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 for: pink shrimp, ridgeback prawn, and California halibut or sea cucumbers (south Pt. Arena) Non-groundfish trawl gear: • Is exempt from the limited entry trawl gear restrictions • Footrope (>19") prohibited in EFH closed areas Fixed gear: • Must be marked at the surface, at each terminal end, with a pole, flag, light, radar reflector, and a buoy; vertical hook-and-line gear that is closely tended may be marked only with a single buoy of sufficient size to float the gear • Must be attended at least once every 7 days • Fishing for groundfish with set nets is prohibited in the fishery management area north of 38° N lat. • Traps must have biodegradable escape panels • Spears may be propelled by hand or by mechanical means
Seasons	• Retention of shelf rockfish south of 40°10´ N lat. is prohibited in Period 2, except canary rockfish, to aid in the rebuilding of bocaccio. • 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
GCAs	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
	CCA Fishing is prohibited in CCAs with the following exceptions: • Fishing for "Other Flatfish" when using no more than 12 hooks, #2 or smaller • Fishing for rockfish, cabezon, greenling, California scorpionfish, and lingcod shoreward of 20 fm
Open Access non-trawl RCAs	• North of 46°16´ N lat. Shoreline to 100 fm • 46°16´- 42° N lat. 30 fm to 100 fm • 42°- 40°10´ N lat. 30 fm to 100 fm • 40°10´- 34°27´ N lat. 40 fm to 125 fm • South of 34°27´ N lat. 75 fm to 150 fm 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
Monitoring	• VMS required • WCGOP observer coverage when requested • Electronic fish tickets required when sablefish are landed.
Reporting	• VMS declarations

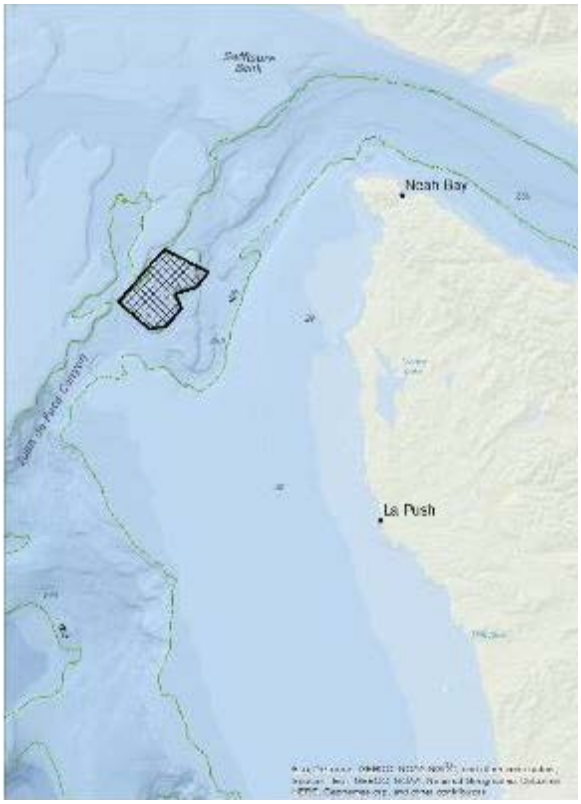


Figure A-2. Baseline. North Coast Commercial YRCA. Limited entry and open access fixed gear vessels are prohibited from fishing in this area though vessels nay transit through with or without groundfish on board.

A.2.6.2 Sablefish

Table A-19 and Table A-20 summarize the FMP allocations of sablefish for limited entry and open access north of 36° N lat. in 2017. South of 36° N lat., the FMP allocation of sablefish is 42 percent to the trawl sector and 58 percent to the non-trawl sector. A short-term allocation between the limited entry and open access fixed gear sectors of 70 percent and 30 percent, respectively, was established (Table A-21). Table A-22 and Table A-23 contain the 2017 sablefish trip limits in regulation for north and south of 36° N lat.

Table A-19. Baseline - Limited entry sablefish FMP allocations north of 36° N lat. for 2017.

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
2017	4,694	4,252	1,786	1,722	1,518	268	45,120	20,509	11,720

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 2013. In 2017, 18 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 A-20. Baseline - Open access sablefish FMP allocations north of 36° N lat. for 2017.

Year	OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt) a/
2017	441	425

a/ The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2013. In 2017, 18 percent of the sablefish caught were anticipated to be discarded, of which 20 percent are expected to die.

Table A-21. Baseline - Short-term sablefish allocations south of 36° N lat. for the limited entry (70 percent) and open access (30 percent) for 2017.

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/
2017	1,859	1,078	755	323	728	312

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 2013. In 2017, 18 percent of the sablefish caught were anticipated to be discarded, of which 20 percent are expected to die.

Table A-22. Baseline. Sablefish trip limits (lbs.) north of 36° N lat. for limited entry and open access fixed gears in 2017.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Attain.
Limited Entry	1,125 lbs./wk., not to exceed 3,375 lbs./2 mo.	1,100 lbs./wk., not to exceed 3,300 lbs./2 mo.				1,500 lbs./wk., not to exceed 4,500 lbs./2 mo.	258	200.9-267.5
Open Access	300 lbs. daily, or one landing per week up to 1,000 lbs., not to exceed 2,000 lbs. bimonthly	300 lbs. daily, or one landing per week up to 900 lbs., not to exceed 1,800 lbs. bimonthly	300 lbs. daily, or one landing per week up to 1,000 lbs., not to exceed 2,000 lbs. bimonthly			300 lbs. daily, or one landing per week up to 1,300 lbs., not to exceed 2,600 lbs. bimonthly	425	349.7-437.2

Table A-23. Baseline. Sablefish trip limits (lbs.) south of 36° N lat. for limited entry and open access in 2017.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Catch Share	Projected Attain.
Limited Entry	2,000 lbs./week						728	445.6-463.8
Open Access	300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 3,200 lbs. bimonthly						312	34.6

A.2.6.3 Impact (Groundfish Mortality) – Non-Nearshore North of 36° N lat.

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, focus has recently shifted to only yelloweye rockfish. Seaward adjustments of the non-trawl RCA boundary are the main management measure for reducing catches of these two stocks. Changes to the shoreward boundary (e.g., changing from 150 to 100 fm) 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.

Management measures and projected mortality for the non-nearshore fishery north of 36° N lat. under Baseline are largely influenced by the sablefish ACL, which would be calculated with a P* of 0.40 with a 40:10 adjustment (Table A-3), and the resulting sablefish allocations (Table A-19 and Table A-20). Trip limits for 2017, including inseason adjustments, are shown in Table A-22 for the limited entry and open access sablefish allocations north of 36° N lat. Trip limits for other species (e.g., Slope Rockfish, Shelf Rockfish, etc.) may also be adjusted inseason to achieve conservation goals or increase yields such as the increases for lingcod north of 40°10´ N lat.

Under Baseline, trawl and non-trawl allocations were established for overfished species, with a share for bocaccio and yelloweye rockfish (Table A-24). Table A-25 contains the 2017 landings for the non-nearshore fishery from PacFIN. Discard information is not available for 2017 and the Total Mortality report does not show discard estimates based on stratification at 36° N lat. However, canary rockfish projections were based on status quo trip limits utilizing 2017 data of which retention was first allowed after more than a decade of non-retention. The seaward non-trawl RCA was moved from 150 fm in 2016 to 125 fm during 2017 from 34°27´ N lat. to 40°10´ N lat.

Table A-24. Baseline – Non-Nearshore fishery: Overfished/rebuilding species shares for the non-nearshore fixed gear fishery in 2017.

Stock	Area	Total OFS Landings 2017 (mt) a/	2017 Share (mt)	Non-Trawl Allocation 2017 (mt)
BOCACCIO	S. of 40°10´ N lat.	1.7	144.3	472.2
COWCOD	S. of 40°10´ N lat.	0		2.6
DARKBLOTCHED ROCKFISH	Coastwide	4.5		28.2
POP	N. of 40°10` N lat.	0.2		11.6
YELLOWEYE ROCKFISH	Coastwide	0.7	0.8	13.4

a/ Yelloweye rockfish and cowcod are currently prohibited species for landing, and therefore these amounts represent the estimated projected mortality from the non-nearshore model based on 2017 sablefish projected catch.

Table A-25. Baseline. Non-nearshore groundfish landings for the limited entry and open access fixed gear fisheries north of 36° N lat. (in mt) in 2017 compared to the non-trawl allocation.

Stock	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation a/ (mt)
Arrowtooth flounder	Coastwide	2.13	0.84	2.13	585.3
Big Skate	Coastwide	2.83	1.33	2.83	21.8
Black rockfish	Washington	0	0	0	
Black rockfish b/	Oregon	0	0	0	
Black rockfish b/	California				
Cabezon	Oregon	0	0	0	
Canary rockfish c/	Coastwide	0.87	1.75	2.62	406.5
Chilipepper rockfish	S. of 40°10´ N lat.	1	0.48	1	640.3
Dover sole	Coastwide	2.16	0.15	2.16	2,420.3
Ecosystem component species		10.88	3.16	10.88	
English sole	Coastwide	0	0	0	487.6
Lingcod	N. of 40°10´ N lat.	10.55	33.42	10.55	1,680.2
Lingcod	S. of 40°10´ N lat.	1.06	20.03	1.06	683.1
Longnose skate	Coastwide	41.49	5.12	41.49	185.3
Longspine thornyhead	N. of 34°27´ N lat.	2.18	0.02	2.18	142.4
Nearshore rockfish	N. of 40°10´ N lat.	0	0.03	0	
Shelf rockfish	N. of 40°10´ N lat.	2.29	0.81	2.29	782.1
Shelf rockfish	S. of 40°10´ N lat.	0.73	1.79	0.73	1,383.6
Slope rockfish	N. of 40°10´ N lat.	53.93	4.73	53.93	321.1
Slope rockfish	S. of 40°10´ N lat.	12	1.07	12	254.1
Mixed thornyheads		0.12	0.26	0.12	
Other Fish	Coastwide	0	0.46	0.46	
Other Flatfish	Coastwide	0.02	0.72	0.74	830.6
Other groundfish		0	0	0	
Other rockfish		0	0.31	0.31	
Pacific cod	Coastwide	1.74	0.04	1.78	54.5
Pacific hake	Coastwide	0.14	0.06	0.2	
Petrale sole	Coastwide	0.97	0.66	1.63	144.8
Shortbelly rockfish	Coastwide	0	0	0	
Shortspine thornyhead	N. of 34°27´ N lat.	38.32	0.46	38.78	82.7
Spiny dogfish	Coastwide	1.28	1.67	2.95	
Splitnose rockfish	S. of 40°10´ N lat.	0	0	0	87.5
Starry flounder	Coastwide	0	0	0	635.9
Widow rockfish	Coastwide	0.43	0.46	0.89	1,196.1
Yellowtail rockfish	N. of 40°10´ N lat.	0.68	3.13	3.81	619.9

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.
b/ Prior to 2017, black rockfish was managed south of 46°16´ N lat. and impacts are only available at that strata.
c/ The non-nearshore share for canary rockfish in 2017 is 46.5.

A.2.6.4 Impact (Groundfish Mortality) – Non-Nearshore South of 36° N lat.

Management measures and projected groundfish mortality for the non-nearshore fishery south of 36° N lat. under the Baseline is largely influenced by the sablefish ACL, which would be calculated with a P* of 0.40 with a 40:10 adjustment (Table A-3). Anticipated catch and projected attainment of sablefish south of 36° N lat. quotas are 61.2-63.7 percent for limited entry and 11.1 percent for open access based on the current trip limits (Table A-23).

In 2017, trawl and non-trawl allocations were established for overfished species. Further, the non-nearshore fishery was allocated a share of the non-trawl allocation for bocaccio and yelloweye rockfish (Table A-4 and Table A-24). Routine adjustments of the non-trawl RCA (Table A-17 and Table A-18) would occur in the event the projected overfished species mortality is expected to exceed the non-nearshore share or non-trawl allocation (Table A-4). RCA modifications 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 from 125 to 100 fm).

Projected landings for the area south of 36° N lat. was estimated by using the three-year (2014-2016) average of landings from PacFIN (Table A-26). There is currently not a model available to project landings south of 36° N lat. and landings through 2017 are incomplete for California. Additionally, the WCGOP Groundfish Mortality report does not report mortalities at a stratification of 36° N lat.

Table A-26. Baseline. Projected landings for the limited entry and open access fixed gear fisheries south of 36° N lat. (in mt) for 2017 compared to the non-trawl allocation.

Stock	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation a/ (mt)
Big Skate	Coastwide	0.0	0.0	0.0	21.8
Bocaccio	South of 40°10´ N lat.	1.9	1.6	3.5	472.2
Chilipepper rockfish	South of 40°10´ N lat.	0.0	0.2	0.2	640.3
Darkblotched rockfish	Coastwide	0.2	0.2	0.5	28.2
Dover sole	Coastwide	0.6	0.6	1.3	2420.3
Ecosystem Component		13.7	0.8	14.5	
Lingcod	South of 40°10´ N lat.	0.4	8.4	8.8	683.1
Longnose skate	Coastwide	1.1	1.1	2.2	185.3
Longspine Thornyhead	North of 34°27´ N lat.	2.2	0.0	2.2	142.4
Longspine Thornyhead	South of 34°27´ N lat.	11.1	0.4	11.4	910.8
Nearshore rockfish	South of 40°10´ N lat.	0.1	0.0	0.1	1,158.9
Shelf rockfish	South of 40°10´ N lat.	6.2	13.1	19.3	1,383.6
Slope rockfish	South of 40°10´ N lat.	12.2	1.5	13.6	254.1
Mixed thornyheads		1.7	0.1	1.7	
Other Flatfish	Coastwide	1.9	1.0	2.8	830.6
Other groundfish		0.0	0.3	0.3	
Pacific cod	Coastwide	0.0	0.0	0.0	54.5
Pacific hake	Coastwide	0.1	0.1	0.1	
Rockfish Unid.	South of 40°10´ N lat.	0.2	0.1	0.3	
Shortspine Thornyhead	North of 34°27´ N lat.	19.5	0.1	19.6	82.7
Shortspine Thornyhead	South of 34°27´ N lat.	83.2	4.3	87.5	813.7
Spiny dogfish	Coastwide	0.0	0.2	0.2	
Splitnose rockfish	South of 40°10´ N lat.	0.1	0.1	0.2	87.5
Widow rockfish	Coastwide	0.2	0.2	0.4	1196.1

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

A.2.6.5 Impact (Groundfish Mortality) - Nearshore – Baseline

The nearshore model projects mortality of overfished species based on the expected landings of nearshore species by the limited entry and opens access sectors shoreward of the non-trawl RCA coastwide. The majority of vessels participating in nearshore commercial fisheries do not hold federal limited entry permits. The most commonly used are jig and pole gear; however, some vessels use longline gear to target nearshore species and, in fewer instances, pots or traps are used in the nearshore fishery.

California and Oregon restrict participation in the nearshore groundfish fishery by requiring a state limited entry permit to take nearshore groundfish species (Washington does not allow a nearshore commercial fishery). Therefore, while these fisheries are considered federal open access fisheries, participation is limited by the states. In Oregon, more conservative state quotas than those specified in federal regulations exist for most nearshore species, and state trip limits apply in these cases. Trip limits

are designed to stay within nearshore species quotas while providing a year-round opportunity, if possible. Detailed descriptions of the state nearshore fisheries can be found in the 2015 EIS (PFMC and NMFS 2015). Federal management measures for west coast 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.

There are state quotas as well as federal limits that restrict landings in the commercial nearshore fishery (Section A.2.3; Table A-4 Table A-5). In the event the projected overfished species 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. RCA changes can also be accommodated to provide greater access to target species when overfished species mortality is projected to be within the nearshore share or non-trawl allocation (e.g., changing from 30 to 40 fm).

The Baseline is based on 2017 regulations (including inseason modifications implemented during the year), projected total 2017 landings based on the most current nearshore model update (i.e., includes 2016 observed bycatch rates; Table A-27 and Table A-28). California and Oregon nearshore fisheries are both projected to be well within their respective shares for canary rockfish, yelloweye rockfish, and bocaccio south of 40°10' N lat., and zero impacts to cowcod are expected.

Table A-27. Baseline. Projected 2017 nearshore total mortality of overfished/rebuilding stocks.

Stock	**Total Nearshore**		**Oregon**		**California**			
	HG	**Proj.**	**Share**	**Proj.**	**Share/ HG**	**Total Proj.**	**40°10' – 42° Proj.**	**S. 40°10' Proj.**
BOCACCIO S. 40°10' N lat.	1.8	1.0	---	0.0	1.8	1.0		1.0
COWCOD S. of 40°10'	---	0.0	---	0.0	---	0.0	0.0	0.0
YELLOWEYE ROCKFISH	2.1	1.2	1.4	0.8	0.7	0.4	0.3	0.1

Table A-28. Baseline. Projected 2017 nearshore landings based on 2017 regulations. Numbers in parenthesis indicate nearshore shares, a measure intended to ensure mortality stays within the non-trawl allocation.

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 rockfish	OR	114	114			
Black rockfish	CA	100		100	95	5
Cabezon	OR	24	24			
Cabezon	CA	65.5		65.5	2.5	63
Canary rockfish	OR & CA	5.5 (100)	2.7 (27)	2.8 (73)	0.8	2.0
Kelp greenling	OR	9.7	9.7			
Kelp greenling	CA	3.8		3.8	0.4	3.4
Lingcod	N. 40°10' N lat.	65	59		6	
Lingcod	S. 40°10' N lat.	35.1		35.1		35.1
Nearshore Rockfish N. a/	N. 40°10' N lat.	22.5	12.1	5.2	5.2	
--Blue/deacon rockfish		*11.8*	*4.6*	*3.6*	*3.6*	
--Other Nearshore Rockfish		*10.7*	*7.5*	*1.6*	*1.6*	
Nearshore Rockfish S.	S. 40°10' N lat.	107.1				
--Blue/deacon rockfish		*5.4*		*5.4*		*5.4*
--Shallow Nearshore Rockfish b/		*50.2*		*50.2*		*50.2*
--Deeper Nearshore Rockfish c/		*51.5*		*51.5*		*51.5*

a/ Nearshore Rockfish 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 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 brown rockfish, calico rockfish, copper rockfish, olive rockfish, quillback rockfish, and treefish south of 40°10' N lat. These species are part of the Nearshore Rockfish complex south of 40°10' N lat. However, for trip limits, black rockfish and blue rockfish are included in Deeper Nearshore Rockfish.

A.2.7 Tribal – Baseline

A.2.7.1 Tribal 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. Tribal set-asides are outlined in Table A-1. The Washington coastal tribes (Makah, Quileute, Hoh, and Quinault) conducted their groundfish fisheries in 2017 with the allocations and management measures as described in Table A-29.

Table A-29. Baseline: 2017 regulations for the Tribal fishery.

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 lbs. for the area north of Cape Alava, WA (48°09.50' N lat.) and 10,000 lbs. for the area between Destruction Island, WA (47°40' N lat.) and Leadbetter Point, WA (46°38.17' N lat.). This harvest guideline applies and is available to the Pacific Coast treaty Indian tribes. There are no tribal harvest restrictions for black rockfish in the area between Cape Alava and Destruction Island. Sablefish The sablefish allocation to Pacific coast treaty Indian Tribes is 10 percent of the sablefish ACL for the area north of 36° N lat. and is reduced by 1.5 percent (decreased from 1.6 percent in 2016) for estimated discard mortality. Lingcod are subject to an overall catch of 250 mt for all treaty fishing. Pacific whiting -The tribal allocation for 2017 is 77,251 mt. Pacific cod - Managed to the tribal HG of 500 mt. Petrale sole – are subject to a fleetwide harvest target of 220 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 cumulative trip limits are 17,000 lbs. per 2 months, limited to 50 mt annually. • Longspine thornyhead cumulative trip limits are 22,000 lbs. per 2 months, limited to 30 mt annually. Canary rockfish 300 lbs. per trip 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 lbs. per trip limit per species or species group, or to the non-tribal limited entry trip limit for those species if those limits are less restrictive than 300 lbs. per trip. Shelf Rockfish and Slope Rockfish. Redstripe rockfish are subject to an 800 lbs./trip limit. Shelf (excluding redstripe rockfish), and Slope Rockfish groups are subject to a 300 lbs./trip limit per species or species group, or to the non-tribal limited entry fixed gear trip limit for those species if those limits are less restrictive than 300 lbs. per trip. Limited entry fixed gear trip limits are specified in the regulations (Table 2 (North) in 660.00 Subpart E) Other rockfish 300 lbs. per trip limit per species or species group, or to the non-tribal limited entry trip limit for those species if those limits are less restrictive than 300 lbs. 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 limited entry 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

A.2.7.2 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 1.5 percent of the total tribal allocation.

A.2.7.3 Impact (Groundfish Mortality)

For the 2017 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.

All midwater landing limits were subject to inseason adjustments to minimize the take of both canary rockfish and widow rockfish. 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 mortality in the treaty fisheries can be found in Table A-30.

Table A-30. Baseline: Projected mortality in 2017 tribal fisheries.

Group	Species	2017
Flatfish	ARROWTOOTH FLOUNDER	609
	DOVER SOLE	292,709
	ENGLISH SOLE	159,396
	PETRALE SOLE	433,838
	REX SOLE	165,679
	ROCK SOLE	16,285
	UNSP. FLATFISH	66,004
	UNSPECIFIED SANDDAB	402
Flatfish Total		1,134,313
Rockfish	BOCACCIO	5,386
	NOM. BLACK ROCKFISH	444
	NOM. CANARY ROCKFISH	27,384
	REDBANDED ROCKFISH	11,634
	REDSTRIPE ROCKFISH	15,089
	UNSP. POP GROUP	212
	NOM. WIDOW ROCKFISH	19,707
	NOM. YELLOWEYE ROCKFISH	1,571
	NOM. YELLOWTAIL ROCKFISH	510,814
	Unsp. Shelf Rockfish	7,519
	Unsp. Slope Rockfish	18,959
	SHORTRAKER ROCKFISH	2,554
Rockfish Total		621,273
Other Groundfish	SPINY DOGFISH	99,758
	LINGCOD	71,741
	PACIFIC COD	609,615
	SABLEFISH	1,082,865
	UNSPECIFIED SKATE	234,559
	LONGNOSE SKATE	13,750
	SHORTSPINE THORNYHEAD	74,018
	WALLEYE POLLOCK	45,227
Other Groundfish Total		2,231,533
	PACIFIC WHITING	13,250,701
TOTAL	All Groundfish Species	15,006,287

A.2.8 Washington Recreational – Baseline

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 primarily 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 operated under the ACLs that were in place in 2017 including a 20 mt ACL for yelloweye rockfish, and the associated Washington recreational HGs of 3.3 mt (Table A-31).

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 A-31), 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 was 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 A-31. Baseline – Washington Recreational. Harvest guidelines (HG) for the Washington recreational fisheries under the Baseline in 2017.

Species	HG (mt)
Canary rockfish	50.0
YELLOWEYE ROCKFISH	3.3
Black Rockfish	287
Nearshore Rockfish	17.2

A.2.8.1 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 (Figure A-4). The lingcod season in Marine Areas 1 – 3 aligned with the recreational groundfish season and was open the second Saturday in March through the third Saturday in October. The lingcod season in Marine Area 4 was open April 16 through October 15.

Depth restrictions were the primary tool used to keep recreational mortality of yelloweye rockfish within specified HGs. 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 rockfish becomes progressively less. Washington coastal management areas are shown in Figure A-3. Figure A-4 summarizes key features of the Washington recreational regulations under the Baseline.

Figure A-3. Baseline – Washington Recreational Management Areas.

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 May 9 - Labor Day a/				BF Open		BF Closed	
2 (S. Coast)	BF Closed		BF Open <30 fm Mar 15 - June 15 b/ c/ d/ e/			BF Open b/					BF Closed	
1 (Col. River)	BF Closed		BF Open		BF Open f/g						BF Closed	

a/ Retention of lingcod, Pacific cod and sablefish allowed >20 fm on days when Pacific halibut is open.
b/ Retention of lingcod prohibited seaward of line drawn from Queets River (47°31.70' N lat. 124°45.00' W long.) to Leadbetter Point (46°38.17' N lat. 124°30.00' W long.) year-round except on days open to the primary halibut fishery.
c/ Retention of sablefish and Pacific cod allowed > 30 fm from May 1- June 15.
d/ Retention of rockfish allowed > 30 fm.
e/ Retention of lingcod allowed > 30 fm on days that the primary halibut season is open.
f/ Retention of groundfish, except sablefish, Pacific cod and, flatfish (other than halibut) prohibited during the all-depth Pacific halibut fishery.
g/ Retention of lingcod prohibited seaward of line drawn from Leadbetter Point (46°38.17' N lat. 124°21.00' W long.) to 46° 33.00' N lat. 124°21.00' W long. during the open lingcod season.

Figure A-4. Baseline – Washington Recreational seasons and groundfish retention restrictions.

North Coast (Marine Areas 3 and 4)

Retention of bottomfish was prohibited seaward of a line approximating 20 fm from May 9 through the first Monday in September (Labor Day), except lingcod, Pacific cod and sablefish could be retained seaward of 20 fm on days when Pacific halibut fishing was open. Fishing for, retention, or possession of groundfish and Pacific halibut was prohibited in the C-shaped YRCA (Figure A-5).

South Coast (Marine Area 2)

The retention of bottomfish, except rockfish, was prohibited seaward of 30 fm from March 15 through June 15, except sablefish and Pacific cod retention was allowed May 1 through June 15. Retention of lingcod was allowed seaward of 30 fm on days open to the primary Pacific halibut season. When lingcod was open, fishing for, retention, or possession of lingcod was prohibited in deepwater 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 A-5). Fishing for, retention, or possession of bottomfish or Pacific halibut was prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure A-5).

Columbia River (Marine Area 1)

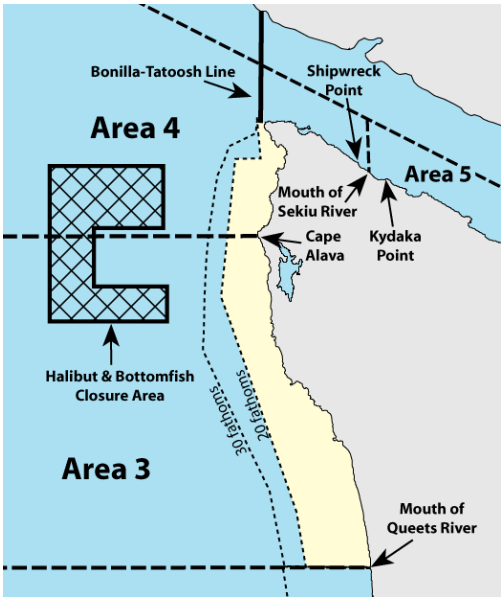
Retention of bottomfish, except sablefish, flatfish other than halibut, and Pacific cod, was prohibited with halibut onboard from May 1 through September 30, and fishing for, retention, or possession of lingcod in deepwater areas seaward of a line extending from 46°38.17 N lat., 124°21.00' W long. to 46°33.00' N lat., 124°21.00' W long. was prohibited during the lingcod season (Figure A-5)).

Area Restrictions

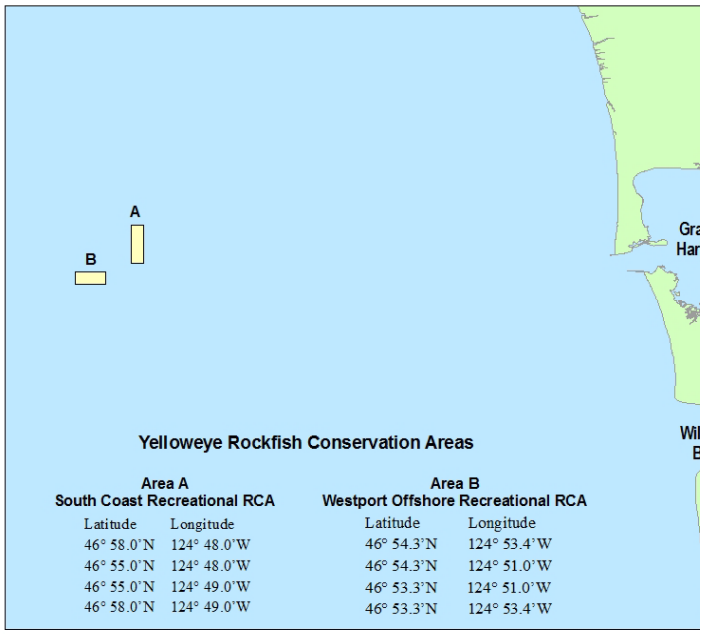
Under the Baseline, fishing for, retention, or possession of groundfish and halibut during the Washington recreational groundfish and Pacific halibut fisheries was prohibited in the C-shaped YRCA in the north coast and the South Coast and Westport YRCAs in the south coast (Figure A-5a and b).

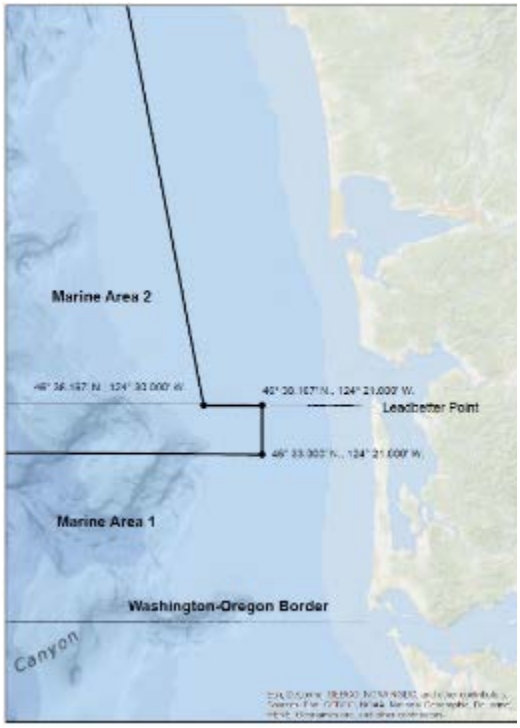
Fishing for, retention, or possession of lingcod was prohibited seaward of a line connecting the following coordinates from the Queets River (47°31.70' N lat., 124° 45.00' W long.) to 46°33.00' N lat., 124°21.00' W long, year-round except as allowed in Washington Marine Area 2 on days open to the primary Pacific halibut fishery (Figure A-5).

a.



b.





c.

Figure A-5. Baseline – Washington recreational area restrictions. a. C-Shaped YRCA; b. Washington South Coast and Westport YRCAs; c. Lingcod Restricted Area.

A.2.8.2 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, sublimits of 7 rockfish including up to 1 canary rockfish in Marine Areas 1 and 2, and two lingcod applied. The recreational bag limit also included a sublimit of two cabezon in Marine Areas 1-3 and one cabezon in Marine Area 4. Retention of yelloweye rockfish was prohibited.

Lingcod Seasons and Size Limits

The lingcod season in Marine Areas 1 through 3 (Washington-Oregon border at 46°16' N lat. to Cape Alava at 48°10' N lat.) was open from the second Saturday in March through the third Saturday in October. Marine Area 4 (Cape Alava to the U.S. Canadian border) was open from April 16 through October 15. There was no lingcod size limit in Marine Areas 1 – 4.

Cabezon Size Limit

Under the Baseline Alternative, there was an 18-inch minimum size limit for cabezon in Marine Area 4 (Cape Alava to the U.S. Canadian border).

Pacific Halibut Seasons

The 2017 recreational halibut season was open for nine days in the north coast (Marine Areas 3 and 4) and five days in the south coast (Marine Area 2) The halibut season in these areas was structured to have the same season dates managed to area-specific quotas. The Columbia River season was open for fourteen days and was co-managed with the ODFW to keep catch within the subarea limit. In the north coast (Marine Areas 3 and 4), groundfish retention was restricted to the area inside 20 fm with exceptions that allow lingcod, sablefish, and Pacific cod retention on days open to the halibut fishery in the north coast. In the south coast (Marine Area 2) groundfish retention is also restricted when the halibut fishery is underway but exceptions allow the retention of lingcod, Pacific cod, and sablefish with a halibut are on board. In the Columbia River area (Marine Area 1) groundfish is prohibited with a halibut on board with the exception of Pacific cod, sablefish, flatfish (except halibut) and lingcod during the month of May north of the Washington-Oregon border. Groundfish impacts from the recreational halibut fishery are included in the estimates for the recreational groundfish fishery.

A.2.8.3 Inseason Management Response

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

A.2.8.4 Impact (Groundfish Mortality)

Final mortality estimates for overfished and non-overfished species under Baseline are summarized in Table A-32. The Baseline includes reductions to the bottomfish daily limit and rockfish sub-bag limits compared to what was in place in 2015–16 and a recreational bottomfish season that was closed from mid-October through mid-March compared to a year-round season that has been in place for many years. The reduced rockfish sub-bag limit was effective at keeping mortality of black rockfish under the 2017 Washington HG. Under the Baseline, canary rockfish 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 compared to simply retaining canary rockfish as they are encountered. The final canary rockfish estimate for 2017 seems to indicate that anglers retained canary rockfish that

were encountered but were not actively targeting them. As stated above, management measures in place for the Washington recreational fishery continue to be driven by the need to keep yelloweye rockfish mortality under small HGs.

Table A-32. Baseline – Washington recreational mortality estimates for 2017 (in mt).

Stock	Baseline
Canary rockfish	4.80
YELLOWEYE ROCKFISH	3.15
Black Rockfish	226.42
Lingcod	149.53
Nearshore Rockfish	4.80
Blue Rockfish	*1.47*
Quillback Rockfish	*1.32*
Copper Rockfish	*0.83*
China Rockfish	*1.18*
Brown Rockfish	-
Grass Rockfish	-
Yellowtail Rockfish	45.26
Vermilion Rockfish	0.82
Cabezon	5.17
Kelp Greenling	1.16

A.2.9 Oregon Recreational – Baseline

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 2017 ACLs (Table A-1) and Oregon recreational HGs, or state quotas, shown in Table A-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 A-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 Baseline analysis are the shares based on 2017 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 A-33. Baseline. Oregon recreational federal HGs or state quotas in 2017 (mt).

Stock	HG or State Quota
Black Rockfish OR a/	400.1
Canary rockfish b/	75.0
Greenlings c/	56.3
Nearshore Rockfish North of 40°10' N lat. d/	33.1
YELLOWEYE ROCKFISH b/	3.0

a/ The state process in Oregon establishes the commercial and recreational quotas for black rockfish. The values are the recreational share based on the 2017 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 greenling. The values are the recreational share based on the 2017 recreational and commercial sharing percentages in Oregon state regulations.
d/ The state process in Oregon establishes commercial and recreational quotas for nearshore rockfish complex species. The Oregon federal HG is 46.1 mt, of which the recreational fishery is allocated 33.1 mt through state regulations.

A.2.9.1 Groundfish Seasons and Area Restrictions

Season structure

Under the Baseline, the Oregon recreational groundfish fishery operated under the season structure described in federal regulations and in Figure A-6. Black rockfish is the primary driver of the projection models, as it accounts for 65-75 percent of landings. Canary rockfish and Nearshore Rockfish complex north of 40°10´ N lat. species were part of the ten fish marine bag (no sub-bag limits). Projected mortality of yelloweye rockfish and canary rockfish are within the federal HGs, therefore the shore-based fishery would be open year-round. Oregon recreational sector federal HGs are not in place for any other species.

Season and Bag Limits	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bottomfish Season	Open all depths			Open < 40 fm						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 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.

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

Figure A-6. 2017 final season structure for the Oregon recreational bottomfish fishery.

For 2017, the state of Oregon put more conservative regulations in place through state process; 7 fish marine bag limit, no more than 6 of which could be black rockfish, and no more than 4 of which could be blue, deacon, copper, quillback, or China rockfish in aggregate. Additionally, from April through September, the fishery was restricted to shoreward of the 40 fm regulatory line. Even with these reductions, due to a large increase in effort, action was taken by the state of Oregon inseason to close the bottomfish fishery on September 17, 2017 due to attainment of state-specified HGs for black rockfish, cabezon, and Nearshore Rockfish complex species, as well projected impacts to yelloweye rockfish approaching the federal Oregon recreational HG. Beginning on October 1, 2017 limited bottomfish

fishing opportunities were re-opened. Fishing for flatfish species at all-depths was allowed because there is very little interaction with any rockfish species when targeting those species. Additionally, fishing with the longleader gear only was allowed outside of the 40 fm regulatory line with no retention of black rockfish or any nearshore rockfish complex species. This gear type in that depth was anticipated to have minimal interactions with black or yelloweye rockfish or any of the nearshore rockfish complex species. ODFW took these actions through state processes, and did not request conforming federal actions.

Area Closures

The Stonewall Bank YRCA has been in place since 2006 and is in place under the Baseline (Figure A-7). The YRCA is located approximately 15 miles west of the Port of Newport and consists of the high-relief area of Stonewall Bank, an area of high yelloweye rockfish encounters. No recreational fishing for groundfish and Pacific halibut can occur within this YRCA, which is bounded by the waypoints contained in Table A-34.

Figure A-7 shows two options that are available in regulation at 50 CFR 660.70 (g) and (h)[1] for expanding the Stonewall Bank YRCA to reduce yelloweye rockfish interactions, if necessary.

Table A-34. Coordinates for the current Stonewall Bank YRCA as specified in regulation.

Latitude	Longitude
44°37.458´ N.	124°24.918´ W.
44°37.458´ N.	124°23.628´ W.
44°28.710´ N.	124°21.798´ W.
44°28.710´ N.	124°24.102´ W.
44°31.422´ N.	124°25.500´ W.

[1] http://www.westcoast.fisheries.noaa.gov/publications/fishery_management/groundfish/pink-pages-may-2017.pdf

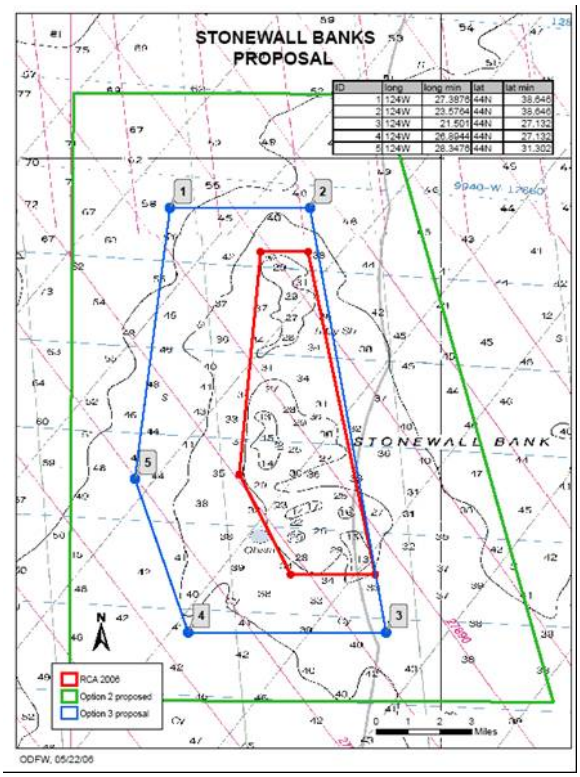


Figure A-7. The Stonewall Bank Yelloweye rockfish Conservation Area where recreational fishing for groundfish and Pacific halibut is prohibited, with two options for expanding the closed area if needed.

A.2.9.2 Groundfish Bag Limits and Size Limits

Under the Baseline, the same daily bag limits and length limits as were in place in 2017 would be in place. The general marine bag limit includes all species of groundfish except lingcod and flatfish, and has a daily bag limit of ten fish per angler per day in federal regulations (there were state-specified sub-bag limits for black rockfish, cabezon, and blue, deacon, copper, quillback and China rockfish combined). Lingcod has a separate daily bag limit of three fish, and flatfish (flounders, soles, turbots, sanddabs and halibuts except Pacific halibut) have a daily bag limit of 25 fish per day. Through state processes, Oregon set the general marine bag and lingcod bag limits at lower levels, 7 and 2, respectively. This was done to be somewhat precautionary, as well as to potentially allow some flexibility.

The federal black rockfish bag limit was ten, as part of the general marine bag limit, however to stay within the Oregon recreational portion of the state-specific Oregon recreational black rockfish HG, a six fish sub-bag limit for black rockfish was implemented through state regulations.

Also beginning in 2017, to stay within the state-specific Oregon recreational HG for the Nearshore Rockfish complex north of 40°10' N lat., ODFW, through state processes, reduced the federal daily bag limit for blue, deacon, copper, China, and quillback rockfish of ten fish, in aggregate, to four fish.

The following minimum size limits applied to the 2017 Oregon recreational fisheries:

- Lingcod – 22 in.
- Cabezon – 16 in.

A.2.9.3 Pacific Halibut Seasons

Under the baseline, the recreational Pacific halibut fisheries for the majority of the Oregon coast were open for 26 all-depth days and 125 nearshore days, the Southern Oregon Subarea (port of Gold Beach and Brookings) was open for 184 days. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. Beginning in 2015, other flatfish species were also allowed. South of Humbug Mountain, groundfish may be retained in areas open to groundfish (e.g., less than 30 fm) when halibut are onboard the vessel. Impacts to groundfish species from the Pacific halibut recreational fishery are included in the estimated projected mortality below.

A.2.9.4 Inseason Management Tools

Oregon has a responsive port-based monitoring program through the Oregon Recreational Boat 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.

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

Season, depth, 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 rockfish, canary rockfish, and black rockfish, 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 fm 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 rockfish or Nearshore Rockfish complex species harvest. The lingcod daily bag limits may be adjusted to no more than 3 fish in the event the marine bag limit changes or the halibut catch limit is reduced from 2017 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 cabezon and greenling species, 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 rockfish 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, and will continue in 2019 and 2020.

Directed midwater rockfish (e.g., yellowtail and widow rockfish) and/or flatfish fisheries may be implemented inseason, as were implemented in 2004 and 2017, in the event of a closure of the recreational groundfish fishery due to attainment of federal or state HGs or targets. 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 2017 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.

A.2.9.5 Impacts (Projected Mortality)

The annual projected mortality under Baseline is presented in Table A-35, and is based on actual 2017 data through August, with estimates for September through December, given the season structure and bag limits detailed above. Black rockfish, Nearshore Rockfish complex, and to a lesser extent yelloweye rockfish, impacts are the most constraining in terms of setting the season structure under the Baseline.

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 fm 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 regulations were implemented on April 1, 2018.

In 2017, Oregon allowed fishing with the longleader gear only, and only outside of the 40 fm regulatory line from October to December. This was in response to the closure of the recreational groundfish fishery in mid-September, and allowed for some bottomfish fishing opportunity during those months. Based on feedback from anglers, the State of Oregon is anticipating that this opportunity would continue to occur during months when the Oregon recreational fishery is open to all-depths (Jan-Mar and Oct-Dec in 2017).

To account for impacts for the new longleader opportunity, it was assumed there would be 5,000 substitution longleader trips (i.e., traditional recreational groundfish to long-leader) and 2,000 new longleader trips (i.e., in addition to current traditional groundfish trips) annually. In 2017, when the only other groundfish opportunity was targeted flatfish fishing, there were approximately 1,000 angler trips in October and 100 in November (December data not available at the time of this writing). Since actual longleader participation is uncertain, liberal trip projections were assumed. The projected mortality with the new longleader opportunity is included in the totals shown in Table A-35. Per this analysis, no changes are needed to management measures for the alternative harvest specifications, as Oregon recreational fisheries would continue to remain within the respective sector allocation.

The projected mortality for the Nearshore Rockfish complex north of 40°10' N lat. is based on modeling with the state-specified sub-bag limit for blue, deacon, China, copper, and quillback rockfish that was required in 2017, based on data through August, with projections for September through December. The projected mortality for the recreational fisheries in Oregon are shown in Table A-35.

Table A-35. 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 fm depth restriction.

Stock	**Projected Mortality (mt)**
Canary rockfish	30.6
YELLOWEYE ROCKFISH	3.7
Black Rockfish OR	410.7
Greenlings a/	5.1
Nearshore Rockfish North of 40°10' N lat.	41.1
Yellowtail Rockfish	13.0
Widow Rockfish	1.6

a/ Includes kelp and other greenlings.

Table A-36 shows the recent mortality of the ten most landed species in the Oregon recreational fishery, including black rockfish. Species in Table A-36, other than black rockfish, had not been modeled prior to 2015–16. This table represents recent mortality under similar season structure and bag limits to what will be in place under the Baseline, but does not include any longleader gear information. With the implementation of the longleader gear, impacts to yellowtail, widow, and canary rockfish will increase.

Table A-36. Recent mortality (mt) of the ten most landed species in the Oregon recreational fishery under similar season structure, bag limits, and area restrictions as the Baseline.

Species	2012	2013	2014	2015	2016	Average
Black Rockfish	212.9	315.6	349.5	461.5	425.3	353.0
Lingcod	145.7	215.9	168.4	221.9	145.5	179.5
Nearshore Rockfish	45.7	37.1	25.9	31.9	22.5	36.2
Blue Rockfish [a/]	*26.0*	*23.6*	*18.1*	*29.6*	*7.8*	*21.0*
Deacon Rockfish [b/]					*12.7*	*12.7*
Quillback Rockfish	*8.9*	*5.5*	*3.4*	*0.9*	*0.6*	*3.9*
Copper Rockfish	*7.2*	*4.3*	*2.6*	*1.0*	*1.1*	*3.2*
China Rockfish	*3.6*	*3.6*	*1.7*	*0.4*	*0.3*	*1.9*
Brown Rockfish	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*
Grass Rockfish	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Cabezon	15.3	12.4	9.1	10.2	11.7	11.7
Yellowtail Rockfish	13.9	16.0	11.3	22.0	7.7	14.2
Kelp Greenling	6.9	8.0	3.8	4.0	2.7	5.1
Vermillion Rockfish	9.2	6.3	4.0	4.7	3.7	5.6
Canary rockfish	2.9	3.8	2.9	14.0	10.0	6.7
YELLOWEYE ROCKFISH	3.1	3.1	2.6	4.1	3.3	3.2
Sablefish	0.3	0.9	0.7	1.7	1.6	1.0

a/ Blue Rockfish is managed separately from the rest of the nearshore rockfish complex under Oregon state regulations through 2014.

b/ Deacon Rockfish not separated out until 2016, prior to that included in Blue Rockfish.

A.2.10 California Recreational – Baseline

Under the Baseline, trawl and non-trawl allocations for overfished species and canary rockfish were established (Table A-37). 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. Further, there was a 304.5 mt HG for blue rockfish south of 42° N lat. within the Nearshore Rockfish complex north of 40°10' N lat. Additionally, a 40.2 mt HG was in place for Nearshore Rockfish between 42° N lat. and 40°10' N lat. Unless otherwise specified, HGs in California were shared by both commercial and recreational fisheries.

Table A-37. Baseline – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries in 2017.

Stock	Non-Trawl Allocation	California Recreational HG
BOCACCIO	472.2	326.1
Canary rockfish	406.5	135
COWCOD	2.6	
DARKBLOTCHED ROCKFISH	28.2	
Nearshore Rockfish North of 40°10´ N lat.	103	40.2
POP	11.6	
Petrale sole	144.8	
YELLOWEYE ROCKFISH	13.1	3.9

A.2.10.1 Groundfish Seasons and Area Restrictions

Season Structure

Current regulations specify seasons and depth constraints for the five groundfish management areas off California. (Figure A-8), which have been primarily constrained by yelloweye rockfish in recent years.

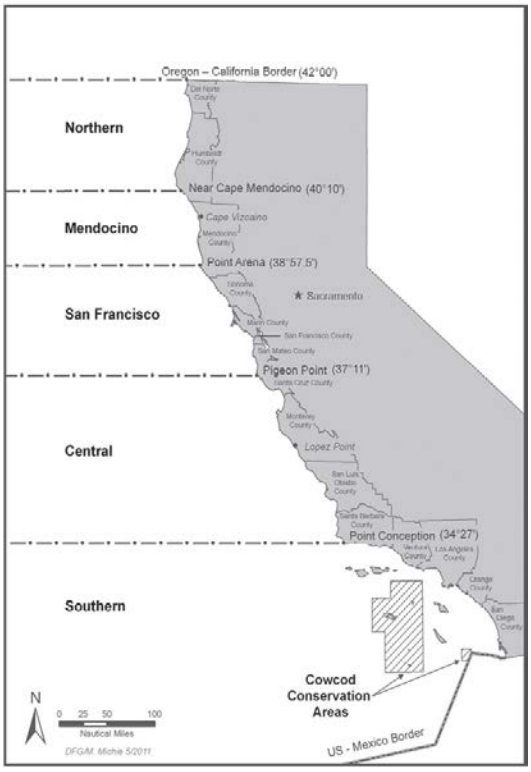


Figure A-8. Recreational Groundfish Management Areas in California.

In 2017, the California recreational fisheries began under more liberal depth restrictions that provided longer seasons and/or increased depths in some management areas (Figure A-14). Inseason action was taken on October 16, 2017 to implement shallower depth restrictions north of Point Conception due to higher than anticipated yelloweye rockfish encounters (**NOAA-NMFS-2017-17-REVISED;** Figure A-9). This resulted in the elimination of an all-depth fishery that was scheduled from November through December in the Northern and Mendocino Management Areas. The recreational fishery in those management areas was permitted to operate through the end of the year, but with a depth constraint of 30 fm and 20 fm, respectively, through the end of the year. Depth restrictions in the San Francisco Management Area was changed from 40 fm to 30 fm; in the Central Management Area, the depth was changed to 50 fm to 40 fm.

<table>
<tr><th>Management Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>Northern</td><td colspan="4">Closed</td><td colspan="6">May 1 – Oct 15, < 30 fm</td><td colspan="2">Oct 16 - Dec 31, < 20 fm</td></tr>
<tr><td>Mendocino</td><td colspan="4">Closed</td><td colspan="8">May 1 – Dec 31, < 20 fm</td></tr>
<tr><td>San Francisco</td><td colspan="4">Closed</td><td colspan="6">April 15 – Oct 15, < 40 fm</td><td colspan="2">Oct 16 - Dec 31, < 30 fm</td></tr>
<tr><td>Central</td><td colspan="4">Closed</td><td colspan="6">April 1 – Oct 15, < 50 fm</td><td colspan="2">Oct 16 - Dec 31, < 40 fm</td></tr>
<tr><td>Southern</td><td colspan="2">Closed</td><td colspan="10">Mar 1 – Dec 31, < 60 fm</td></tr>
</table>

Figure A-9. California recreational groundfish season structure for 2017, reflecting inseason action taken in October 2017.

The season structure for California scorpionfish differs slightly by management area. In the Southern Management Area, the California scorpionfish opens January 1; in other management areas, open dates align with the RCG complex. Retention is prohibited from September 1 through December 31 statewide (Figure A-10).

<table>
<tr><th>Management Area</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>Mendocino</td><td colspan="4">Closed</td><td colspan="4">May 1 – Aug 31, < 20 fm</td><td colspan="4">Closed</td></tr>
<tr><td>San Francisco</td><td colspan="4">Closed</td><td colspan="4">April 15 – Aug 31, < 40 fm</td><td colspan="4">Closed</td></tr>
<tr><td>Central</td><td colspan="4">Closed</td><td colspan="4">April 1 – Aug 31, < 50 fm</td><td colspan="4">Closed</td></tr>
<tr><td>Southern</td><td colspan="8">Jan 1 – Aug 31, < 60 fm</td><td colspan="4">Closed</td></tr>
</table>

Figure A-10. California recreational groundfish season structure for California scorpionfish in 2017.

Area Restrictions

Rockfish Conservation Areas

RCAs are the primary management tool to restrict catch of constraining species coastwide. In the California recreational fishery, these vary by management area and generally prohibit fishing for most groundfish species seaward of the designated depths during the months open to recreational fishing. However, recreational fishing for Other Flatfish[2], petrale sole, and starry flounder is permitted within the RCA.

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

Cowcod Conservation Area

The CCAs, which include a Western and Eastern CCA, were established in 2001 to protect cowcod, which had recently been declared overfished (Figure A-11). These area closures were intended to close off areas to fishing 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 5,126 miles² and limited take by recreational and commercial fixed gears of groundfish species is permitted in open fishing depths (Figure A-12). The eastern CCA encompasses 100 miles^2 and no fishing is permitted in this area.

Within the Western CCA, recreational fishing was permitted shoreward of 20 fm for the following species, when the groundfish season was open (i.e., Figure A-9, March 1-December 31): Nearshore Rockfish south of 40°10´ N lat., cabezon, greenlings, lingcod south of 40°10´ N lat., California scorpionfish south of 34°27´ N lat.[3] (hereafter just California scorpionfish), and Shelf Rockfish south of 40°10´ N lat. Recreational fishing for Other Flatfish, petrale sole, and starry flounder is permitted year-round in all depths. Retention of yelloweye rockfish, bronzespotted rockfish, and cowcod is prohibited within the CCA.

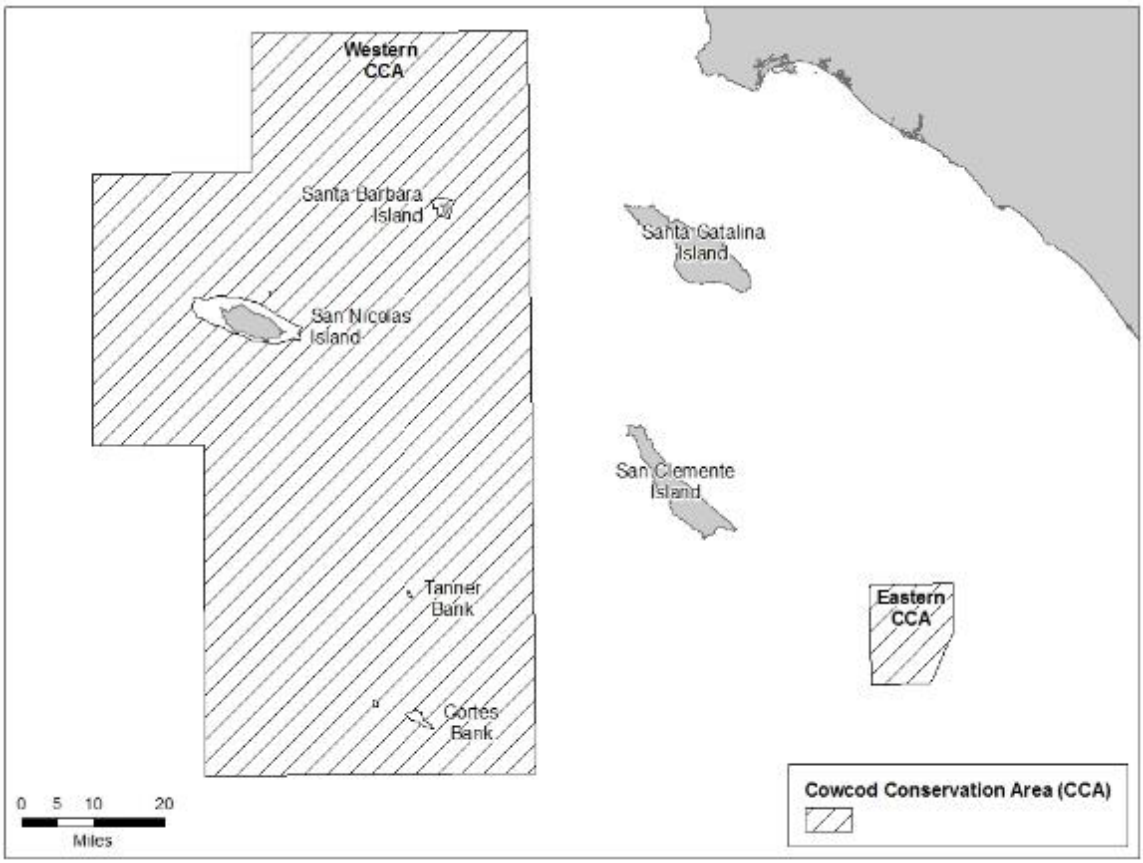


Figure A-11. Baseline: Western and Eastern Cowcod Conservations Areas located in the Southern Management Area.

[3] California scorpionfish may be taken inside the CCA from January 1 through August 31.

Figure A-12. Baseline: The 20 fm depth contour inside the Western Cowcod Conservation Area.

Cordell Bank

Cordell Bank is located offshore near Marin County and groundfish fishing is generally prohibited shoreward of the 100 fm contour line as specified in federal regulation (50 CFR Part 660 Subpart G). Fishing for Other Flatfish[1], petrale sole, and starry flounder are exempt from this prohibition.

Yelloweye rockfish Conservation Areas

In 2008, four YRCAs were adopted for use in management as part of the 2009–10 biennial specifications. 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.

A.2.10.2 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:

- Black rockfish- three fish;
- Cabezon- three fish;
- Canary rockfish- one fish[4].

The following state-wide bag limits also apply in state regulations only:

- Leopard shark- three fish;
- Soupfin shark – one 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;
- Kelp greenling and all greenlings of the genus *Hexagrammos*-12 inches;
- Leopard shark- 36 inches (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.

[4] On December 21, 2017, NMFS published a rule (82 FR 60567) correcting errors in the final rule for 2017–18 harvest specifications and management measures. Corrections included removing the prohibition on retention of canary rockfish in the California recreational fishery.

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

The lingcod season structure is aligned with the RCG complex in each management area. Retention of lingcod is limited to two fish with a minimum size limit of 22 inches, statewide. 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 open season for California scorpionfish is aligned with the RCG complex structure north of Point Conception; however, in the Southern Management Area, retention is permitted starting January 1. The fishery is closed statewide September 1 through December 31 and is aligned with the RCG depth constraints in each management area. The bag limit for California scorpionfish is five fish with a minimum size limit of 10 inches.

Pacific Halibut Seasons

The recreational Pacific halibut fishery in waters off California occur primarily from the Oregon/California border to Point Arena (Mendocino County). This fishery is structured to provide recreational fishing opportunity between May 1 until October 31, with additional closed periods during this season, such as closed weeks or months to achieve the quota. Annual fishery dates are established preseason by NMFS based on the 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.

A.2.10.3 Inseason Management Response

California Department of Fish and Wildlife (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[5]. Preliminary CRFS reports are converted into an anticipated catch value (ACV) in metric tons using catch and effort data from previous years. Weekly "proxy" values are used to approximate catch during the five to eight week lag time between when data are collected and CRFS catch estimates become available. To date, ACVs have proven to be an effective and reliable tool to closely monitor recreational mortality inseason on a weekly basis.

For the 2017–18 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 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, is attained or 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

[5] http://www.pcouncil.org/wp-content/uploads/GF15_16_SpexFEISJanuary2015.pdf

the fishery, there may be impacts to other species, similar to all inseason management measure adjustments.

A.2.10.4 Impact (Groundfish Mortality)

Table A-38 provides projected mortality in the California recreational fishery for 2017. As noted previously, inseason action was taken in October 2017 to restrict fisheries to shallower depths to avoid encounters with yelloweye rockfish. This was due to an unexpected number of high encounters based in part on favorable weather and good fishing conditions.

Table A-38. Projected mortality and allocations in the California recreational fishery in 2017.

Stock	Projected Recreational Mortality	California Recreational HG 2017–18	Non-Trawl Allocation a/	
			2017	2018
BOCACCIO	127.0	326.1	472.2	442.3
Canary rockfish	80.1	135.0	406.5	
COWCOD	0.9		2.6	
YELLOWEYE ROCKFISH	4.2	3.9	13.1	12.9
Black Rockfish	96.8		333	331
Blue Rockfish	184.6			
Cabezon	31.2		150	149
California Scorpionfish	81.4		148	
Greenlings b/	11.1		b/	
Lingcod N. of 40°10' N lat. c/	59.4		1,680.2	1,557.5
Lingcod S. of 40°10' N lat.	446.8		683.1	624.3
Widow Rockfish	4.8		1,196.1	1,119.4
Nearshore Rockfish N. of 40°10' N lat.	17.7	40.2	103	
Nearshore Rockfish S. of 40°10' N lat.	595.3		1,159	1,175
Petrale sole	2.1		144.8	138.6
Starry flounder	5.8		635.9	

a/ Includes non-nearshore, nearshore, and recreational.
b/ Greenling is managed within the Other Fish complex.
c/ Projected impacts only includes the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.

A.3 No Action – Default HCR

The No Action Alternative analyzes ACLs established by applying updated information from each stock's assessment to the default harvest control rules (DHCR) as described in Section 2.1.1. Because the ACLs under the no action alternative change from those in the baseline, small changes to the routine management measures (in the form of different options) are also considered with this alternative. This allows a comparison between the management measures possible under new ACLs under the no action alternative and those possible under the modifications to the HCRs for select stocks under Alternatives 1 and 2. Noteworthy changes from the Baseline, as part of ongoing management and based on updated stock information include:

- Rebuilt status for bocaccio south of 40°10´ N lat., darkblotched rockfish, and POP, which results in higher ACLs and allocations
- Cowcod is rebuilding ahead of schedule

- Yelloweye rockfish is rebuilding ahead of schedule and the 2019 and 2020 ACLs are approximately 10 mt higher than in 2017
- Lingcod north of 40°10´ N lat. ACLs are approximately 1,200 to 1,500 mt higher than in 2017
- Lingcod south of 40°10´ N lat. ACLs are approximately 250 to 412 mt lower than in 2017

A.3.1 Deductions from the ACL

Table A-39 and Table A-41 detail the deductions from the ACLs in 2019 and 2020, respectively, under No Action, necessary to calculate the fishery HG. Ongoing fishery management: For cowcod, the Council recommended reducing the fishery HG from 8 to 6 mt by implementing an ACT. The cowcod ACT is two metric tons higher than the 2017 ACT since cowcod is rebuilding ahead of schedule. No ACT was recommended for California scorpionfish (unlike in 2017) since the stock is healthy and predicted to remain so in the next 10 years. Additionally, there was less uncertainty in the 2017 California scorpionfish assessment than in the 2005 assessment.

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). The values under No Action are the same as in 2017, except that for ongoing fishery management, the set-aside for petrale sole was increased from 220 mt to 290 mt to better accommodate tribal fisheries.

Research: Research activities include the NMFS trawl survey, IPHC longline survey, and other federal and state research. The off-the-top deductions are equal to the maximum historical scientific research catch from 2005 to 2016, except for yelloweye rockfish which were based on needs projected for 2017.

Incidental Open Access: Deductions from ACLs are made to account for groundfish mortality in the incidental open access fisheries. The off-the-top deductions for all species, except longnose skate, were derived from the maximum historical values in the 2007 to 2016 WCGOP Groundfish Mortality reports. The ongoing management deduction for longnose skate was based on data from the 2009 to 2016 WCGOP Groundfish Mortality reports, the years in which longnose skate were reported separately from the Other Fish category.

Exempted Fishing Permits: As part of ongoing management, for 2019/2020, the Council recommended four EFPs for analysis in November 2017, as follows, with set-asides described in Table A-39 and Table A-41:

- San Francisco Community Fishing Association and Dan Platt Application - Commercial jig fishing targeting yellowtail rockfish in the non-trawl RCA off California, which is a renewal of the 2017–18 EFP (Agenda Item F.8, Attachment 2, November 2017). The applicants have been operating under similar EFPs since 2013. Deductions from the ACL to accommodate the EFP would be those requested by the applicants.
- The Council Scott Cook and ODFW Application (Agenda Item F.8, Attachment 4, November 2017): Commercial midwater hook-and-line rockfish fishing in the non-trawl RCA off Oregon. The Council recommended caps be reduced to 0.12 mt for yelloweye rockfish and 3 mt for canary rockfish.
- Monterey Bay Fishermen Exempted Fishing Application (Agenda Item F.8, Attachment 7, November 2017): The EFP proposes to assess the feasibility of a midwater gear type to target chilipepper rockfish in the non-trawl RCA off central California. The Council recommended caps be increased for yelloweye rockfish cap to 0.06 mt.

- Tom Mattusch Application and Addendum (Agenda Item F.8, Attachment 5, November 2017 and Agenda Item F.8, Attachment 8, November 2017): Recreational longleader gear targeting chilipepper and yellowtail rockfish in the recreational RCA. The Council also recommended vessels under this EFP be identified with a research banner.

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 2016 (Table A-43).

Buffer for Unforeseen Catch Events: Buffers have to be affirmatively set each year and are therefore not included in the baseline.

A.3.2 Allocating the Fishery HG

As described under the Baseline (Section A.2.2), the fishery HGs for most species are further allocated between the trawl and non-trawl fisheries based on percentages adopted under Amendment 21 to the groundfish FMP 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. 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 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).

The Council reviewed the performance of the trawl and non-trawl fisheries in recent years to determine two-year allocations (Agenda Item F.9.a, Supplemental GMT Report 3, November 2017) and recommended the 2017 trawl and non-trawl proportions (i.e., the Baseline conditions) for analysis. Table A-40 and Table A-42 detail the trawl and non-trawl allocations in 2019 and 2020, respectively, under No Action. Allocations and projected mortality impacts of overfished groundfish species for 2019–20 can be found in Table A-44.

The within trawl and within non-trawl allocations are noted in the sector descriptions as appropriate. For example, Section A.3.5 contains a description of the canary rockfish and widow rockfish allocations for the at-sea sectors.

Table A-39. No Action 2019. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality (in mt) used to calculate the fishery HG in 2019.

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Arrowtooth flounder	Coastwide	15,574	2,041.0	0.1	13.0	40.8	13,479
Big skate	Coastwide	494	15.0	0.1	5.5	21.3	452
Black rockfish (WA)	Washington	298	18.0	-	0.1	-	280
Black rockfish (OR)	Oregon	516		1.5	0.0	0.6	514
Black rockfish (CA)	California	329		-	0.0		329
Bocaccio	S of 40º10' N lat.	2,097		14.2	5.6	0.5	2,077
Cabezon (OR)	46º16' to 42º N lat.	47		0.1	0.0	0.0	47
Cabezon (CA)	S of 42º N lat.	147		-	0.0	0.3	147
California scorpionfish a/	S of 34°27' N lat.	313		-	0.2	2.2	311
Canary rockfish	Coastwide	1,450	50.0	5.0	7.8	1.3	1,386

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Chilipepper rockfish	S of 40º10' N lat.	2,536		60.6	13.4	11.5	2,451
COWCOD b/	S of 40º10' N lat.	10		0.0	2.0	0.0	6
Darkblotched rockfish	Coastwide	765	0.2	0.6	8.5	7.0	749
Dover sole	Coastwide	50,000	1,497.0	0.1	49.2	49.3	48,404
English sole	Coastwide	10,090	200.0	0.1	8.0	8.1	9,874
Lingcod	N of 40'10º N lat.	4,871	250.0	1.6	16.6	9.8	4,593
Lingcod	S of 40'10º N lat.	1,039		-	3.2	8.1	1,028
Longnose skate	Coastwide	2,000	130.0	0.1	12.5	5.7	1,852
Longspine thornyhead	N of 34º27' N lat.	2,603	30.0	-	14.2	6.2	2,553
Longspine thornyhead	S of 34º27' N lat.	822		-	1.4	0.0	821
Nearshore Rockfish north	N of 40º10' N lat.	183	1.5	0.5	0.3	0.9	180
Nearshore Rockfish south	S of 40º10' N lat.	1,142		0.0	2.7	1.4	1,138
Shelf Rockfish north	N of 40º10' N lat.	2,054	30.0	4.5	24.7	17.7	1,977
Shelf Rockfish south	S of 40º10' N lat.	1,625		30.1	14.5	4.6	1,576
Slope Rockfish north	N of 40º10' N lat.	1,746	36.0	1.5	21.6	21.7	1,665
Slope Rockfish south	S of 40º10' N lat.	744		1.0	2.3	16.9	724
Other Fish	Coastwide	420		0.1	0.1	8.8	411
Other Flatfish	Coastwide	6,498	60.0	0.1	27.8	161.6	6,249
Pacific cod	Coastwide	1,600	500.0	0.1	5.5	0.6	1,094
Pacific whiting	Coastwide	441,433	77,251.0	1.1		1,500.0	362,681
POP	N of 40º10' N lat.	4,340	9.2	0.1	3.1	10.0	4,318
Petrale Sole	Coastwide	2,908	290.0	0.1	24.1	6.4	2,587
Sablefish	N of 36º N lat.	5,606	See Sablefish Tab				
Sablefish	S of 36º N lat.	1,990		-	2.4	1.8	1,986
Shortbelly rockfish	Coastwide	500		0.1	8.2	8.9	483
Shortspine thornyhead	N of 34º27' N lat.	1,683	50.0	0.1	10.5	4.7	1,618
Shortspine thornyhead	S of 34º27' N lat.	890		-	0.7	0.5	889
Spiny dogfish	Coastwide	2,071	275.0	1.1	34.3	22.6	1,738
Splitnose rockfish	S of 40º10' N lat.	1,750		1.5	9.3	5.8	1,733
Starry flounder	Coastwide	452	2.0	0.1	0.6	16.1	433
Widow rockfish	Coastwide	11,831	200.0	28.5	17.3	3.1	11,582
YELLOWEYE ROCKFISH	Coastwide	48	2.3	0.25	2.92	0.4	42
Yellowtail rockfish	N of 40º10' N lat.	5,997	1,000.0	51.2	20.6	4.5	4,921

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.
b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-40. No Action 2019. Stock-specific fishery HGs or ACTs and allocations for 2019 (in mt).

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Arrowtooth flounder	Coastwide	13,479.1	Am. 21	95%	12,805.1	5%	674.0
Big skate	Coastwide	452.1	Biennial	95%	429.5	5%	22.6
Black rockfish (WA)	Washington	279.9	None				

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Black rockfish (OR)	Oregon	513.9	None				
Black rockfish (CA)	California	329.0	None				
Bocaccio	S of 40º10' N lat.	2,076.7	Biennial	39%	810.7	61%	1,266.0
Cabezon (OR)	Oregon	46.9	None				
Cabezon (CA)	California	146.7	None				
California scorpionfish a/	S of 34°27' N lat.	310.6	None				
Canary rockfish	Coastwide	1,385.9	Biennial	72%	1,001.8	28%	384.1
Chilipepper rockfish	S of 40º10' N lat.	2,450.5	Am. 21	75%	1,837.9	25%	612.6
COWCOD b/	S of 40º10' N lat.	6.0	Biennial	36%	2.2	64%	3.8
Darkblotched rockfish	Coastwide	748.7	Am. 21	95%	711.3	5%	37.4
Dover sole	Coastwide	48,404.4	Am. 21	95%	45,984.2	5%	2,420.2
English sole	Coastwide	9,873.8	Am. 21	95%	9,380.1	5%	493.7
Lingcod	N of 40'10º N lat.	4,593.0	Am. 21	45%	2,066.9	55%	2,526.2
Lingcod	S of 40'10º N lat.	1,027.7	Am. 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 34º27' N lat.	2,552.6	Am. 21	95%	2,425.0	5%	127.6
Longspine thornyhead	S of 34º27' N lat.	820.6	None				
Nearshore Rockfish north	N of 40º10' N lat.	179.8	None				
Nearshore Rockfish south	S of 40º10' N lat.	1,137.9	None				
Shelf Rockfish north	N of 40º10' N lat.	1,977.1	Biennial	60.2%	1,190.2	39.8%	786.9
Shelf Rockfish south	S of 40º10' N lat.	1,575.8	Biennial	12.2%	192.3	87.8%	1,383.6
Slope Rockfish north	N of 40º10' N lat.	1,665.2	Am. 21	81%	1,348.8	19%	316.4
Slope Rockfish south	S of 40º10' N lat.	723.8	Am. 21	63%	456.0	37%	267.8
Other Fish	Coastwide	411.1	None				
Other Flatfish	Coastwide	6,248.5	Am. 21	90%	5,623.7	10%	624.9
Pacific cod	Coastwide	1,093.8	Am. 21	95%	1,039.1	5%	54.7
Pacific whiting	Coastwide	362,680.9	Am. 21	100%	362,680.9	0%	0.0
POP	N of 40º10' N lat.	4,317.6	Am. 21	95%	4,101.7	5%	215.9
Petrale sole	Coastwide	2,587.4	Am. 21	95%	2,458.0	5%	129.4
Sablefish	N of 36º N lat.		See Sablefish tab				
Sablefish	S of 36º N lat.	1,985.8	Am. 21	42%	834.0	58%	1,151.8
Shortbelly rockfish	Coastwide	482.8	None				0.0
Shortspine thornyhead	N of 34º27' N lat.	1,617.7	Am. 21	95%	1,536.8	5%	80.9
Shortspine thornyhead	S of 34º27' N lat.	888.8	Am. 21	NA	50.0	NA	838.8
Spiny dogfish	Coastwide	1,738.0	None				
Splitnose rockfish	S of 40º10' N lat.	1,733.4	Am. 21	95%	1,646.7	5%	86.7
Starry flounder	Coastwide	433.2	Am. 21	50%	216.6	50%	216.6
Widow rockfish	Coastwide	11,582.1	Am. 21	91%	10,539.7	9%	1,042.4
YELLOWEYE ROCKFISH	Coastwide	42.1	Biennial	8%	3.4	92%	38.8
Yellowtail rockfish	N of 40º10' N lat.	4,920.7	Am. 21	88%	4,330.3	12%	590.5

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.

b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-41. No Action 2020. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality in metric tons, used to calculate the fishery HG in 2020.

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Arrowtooth flounder	Coastwide	12,750	2,041.0	0.1	13.0	40.8	10,655.1
Big skate	Coastwide	494	15.0	0.1	5.5	21.3	452.1
Black rockfish (WA)	Washington	297	18.0	-	0.1	-	278.9
Black rockfish (OR)	Oregon	512		1.5	0.0	0.6	509.9
Black rockfish (CA)	California	326		-	0.0		326.0
Bocaccio	S of 40º10' N lat.	2,011		14.2	5.6	0.5	1,990.7
Cabezon (OR)	Oregon	47		0.1	0.0	0.0	46.9
Cabezon (CA)	California	146		-	0.0	0.3	145.7
California scorpionfish a/	S of 34°27' N lat.	307		-	0.2	2.2	304.6
Canary rockfish	Coastwide	1,368	50.0	5.0	7.8	1.3	1,303.9
Chilipepper rockfish	S of 40º10' N lat.	2,410		60.6	13.4	11.5	2,324.5
COWCOD b/	S of 40º10' N lat.	10		0.0	2.0	0.0	6.0
Darkblotched rockfish	Coastwide	815	0.2	0.6	8.5	7.0	798.7
Dover sole	Coastwide	50,000	1,497.0	0.1	49.2	49.3	48,404.4
English sole	Coastwide	10,135	200.0	0.1	8.0	8.1	9,918.8
Lingcod	N of 40'10º N lat.	4,541	250.0	1.6	16.6	9.8	4,263.0
Lingcod	S of 40'10º N lat.	869		-	3.2	8.1	857.7
Longnose skate	Coastwide	2,000	130.0	0.1	12.5	5.7	1,851.7
Longspine thornyhead	N of 34º27' N lat.	2,470	30.0	-	14.2	6.2	2,419.6
Longspine thornyhead	S of 34º27' N lat.	780		-	1.4	0.0	778.6
Nearshore Rockfish north	N of 40º10' N lat.	180	1.5	0.5	0.3	0.9	176.8
Nearshore Rockfish south	S of 40º10' N lat.	1,163		0.0	2.7	1.4	1,158.9
Shelf Rockfish north	N of 40º10' N lat.	2,048	30.0	4.5	24.7	17.7	1,971.1
Shelf Rockfish south	S of 40º10' N lat.	1,625		30.1	14.5	4.6	1,575.8
Slope Rockfish north	N of 40º10' N lat.	1,732	36.0	1.5	21.6	21.7	1,651.2
Slope Rockfish south	S of 40º10' N lat.	743		1.0	2.3	16.9	722.8
Other Fish	Coastwide	406		0.1	0.1	8.8	397.1
Other Flatfish	Coastwide	6,041	60.0	0.1	27.8	161.6	5,791.5
Pacific cod	Coastwide	1,600	500.0	0.1	5.5	0.6	1,093.8
Pacific whiting	Coastwide	441,433	77,251.0	1.1		1,500.0	362,680.9
POP	N of 40º10' N lat.	4,229	9.2	0.1	3.1	10.0	4,206.6
Petrale sole	Coastwide	2,845	290.0	0.1	24.1	6.4	2,524.4
Sablefish	N of 36º N lat.	5,723	See Sablefish Tab				
Sablefish	S of 36º N lat.	2,032		-	2.4	1.8	2,027.8
Shortbelly rockfish	Coastwide	500		0.1	8.2	8.9	482.8
Shortspine thornyhead	N of 34º27' N lat.	1,669	50.0	0.1	10.5	4.7	1,603.7
Shortspine thornyhead	S of 34º27' N lat.	883		-	0.7	0.5	881.8
Spiny dogfish	Coastwide	2,059	275.0	1.1	34.3	22.6	1,726.0
Splitnose rockfish	S of 40º10' N lat.	1,731		1.5	9.3	5.8	1,714.4
Starry flounder	Coastwide	452	2.0	0.1	0.6	16.1	433.2

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Widow rockfish	Coastwide	11,199	200.0	28.5	17.3	3.1	10,950.1
YELLOWEYE ROCKFISH	Coastwide	49	2.3	0.3	2.9	0.4	43.1
Yellowtail rockfish	N of 40º10' N lat.	5,716	1,000.0	51.2	20.6	4.5	4,639.7

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.

b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-42. No Action 2020. Stock-specific fishery HGs or ACTs and allocations for 2020 (in mt).

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Arrowtooth flounder	Coastwide	10,655.1	Am. 21	95%	10,122.3	5%	532.8
Big skate	Coastwide	452.1	Biennial	95%	429.5	5%	22.6
Black rockfish (WA)	Washington	278.9	None				
Black rockfish (OR)	Oregon	509.9	None				
Black rockfish (CA)	California	326.0	None				
Bocaccio	S of 40º10' N lat.	1,990.7	Biennial	39%	777.2	61%	1,213.5
Cabezon (OR)	Oregon	46.9	None				
Cabezon (CA)	California	145.7	None				
California scorpionfish a/	S of 34°27' N lat.	304.6	None				
Canary rockfish	Coastwide	1,303.9	Biennial	72%	942.5	28%	361.4
Chilipepper rockfish	S of 40º10' N lat.	2,324.5	Am. 21	75%	1,743.4	25%	581.1
COWCOD b/	S of 40º10' N lat.	6.0	Biennial	36%	2.2	64%	3.8
Darkblotched rockfish	Coastwide	798.7	Am. 21	95%	758.8	5%	39.9
Dover sole	Coastwide	48,404.4	Am. 21	95%	45,984.2	5%	2,420.2
English sole	Coastwide	9,918.8	Am. 21	95%	9,422.9	5%	495.9
Lingcod	N of 40'10º N lat.	4,263.0	Am. 21	45%	1,918.4	55%	2,344.7
Lingcod	S of 40'10º N lat.	857.7	Am. 21	45%	386.0	55%	471.7
Longnose skate	Coastwide	1,851.7	Biennial	90%	1,666.5	10%	185.2
Longspine thornyhead	N of 34º27' N lat.	2,419.6	Am. 21	95%	2,298.6	5%	121.0
Longspine thornyhead	S of 34º27' N lat.	778.6	None				
Nearshore Rockfish north	N of 40º10' N lat.	176.8	None				
Nearshore Rockfish south	S of 40º10' N lat.	1,158.9	None				
Shelf Rockfish north	N of 40º10' N lat.	1,971.1	Biennial	60.2%	1,186.6	39.8%	784.5
Shelf Rockfish south	S of 40º10' N lat.	1,575.8	Biennial	12.2%	192.3	87.8%	1,383.6
Slope Rockfish north	N of 40º10' N lat.	1,651.2	Am. 21	81%	1,337.5	19%	313.7
Slope Rockfish south	S of 40º10' N lat.	722.8	Am. 21	63%	455.4	37%	267.4
Other Fish	Coastwide	397.1	None				
Other Flatfish	Coastwide	5,791.5	Am. 21	90%	5,212.4	10%	579.2
Pacific cod	Coastwide	1,093.8	Am. 21	95%	1,039.1	5%	54.7
Pacific whiting	Coastwide	362,680.9	Am. 21	100%	362,680.9	0%	0.0
POP	N of 40º10' N lat.	4,206.6	Am. 21	95%	3,996.3	5%	210.3
Petrale sole	Coastwide	2,524.4	Am. 21	95%	2,398.2	5%	126.2
Sablefish	N of 36º N lat.		See Sablefish Tab				
Sablefish	S of 36º N lat.	2,027.8	Am. 21	42%	851.7	58%	1,176.1
Shortbelly rockfish	Coastwide	482.8	None				0.0

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Shortspine thornyhead	N of 34º27' N lat.	1,603.7	Am. 21	95%	1,523.5	5%	80.2
Shortspine thornyhead	S of 34º27' N lat.	881.8	Am. 21	NA	50.0	NA	831.8
Spiny dogfish	Coastwide	1,726.0	None				
Splitnose rockfish	S of 40º10' N lat.	1,714.4	Am. 21	95%	1,628.7	5%	85.7
Starry flounder	Coastwide	433.2	Am. 21	50%	216.6	50%	216.6
Widow rockfish	Coastwide	10,950.1	Am. 21	91%	9,964.6	9%	985.5
YELLOWEYE ROCKFISH	Coastwide	43.1	Biennial	8%	3.5	92%	39.7
Yellowtail rockfish	N of 40º10' N lat.	4,639.7	Am. 21	88%	4,083.0	12%	556.8

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.

b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-43. 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 2019 and 2020.

Stock	Year	ACL (mt)	Tribal Share (mt) a/	Research (mt)	Rec. (mt)	EFP (mt)	Commercial HG (mt)
Sablefish N. of 36° N lat.	2019	5,606	561	30.7	6	1.1	5,007
	2020	5,723	572	30.7	6	1.1	5,113

Table A-44. No Action. Allocations and projected mortality impacts (mt) of rebuilding groundfish species for 2019 and 2020.

2019	Cowcod b/		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	2.0	2.0	5.9	5.9
Additional Buffer				
EFPc/	0.030	0.030	0.250	0.250
Research d/	2.0	2.0	2.92	2.92
Incidental OA e/	0.0	0.0	0.4	0.4
Tribal f/			2.3	2.3
Trawl Allocations	2.2	0.6	1.9	0.2
-SB Trawl	2.2	0.6	1.9	0.2
-At-Sea Trawl			0.0	0.0
a) At-sea whiting MS				
b) At-sea whiting CP				
Non-Trawl Allocation	3.8	1.0	21.2	14.8
Non-Nearshore		0.0	1.1	0.8
Directed OA: Nearshore		0.0	3.2	1.4
Recreational Groundfish				
WA			5.5	4.7
OR			4.9	4.6
CA - Option 1		1.0	6.5	3.3
TOTAL	8.0	3.6	29.0	20.9
2017 Harvest Specification	**10.0**	**10.0**	**29**	**29**
Difference	2.0	6.4	0.0	8.1
Percent of ACL	80%	36.4%	100%	72.2%

a/ Formal allocations are represented in the black shaded cells and would be specified in regulation in Tables 1b and 1e. The other values in the allocation columns are off the top deductions, biennial allocations, and recreational HG for YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate applications. Values in this table represent the estimates from the proposed EFPs.

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

e/ The GMT's best estimate of impacts.

f/ Tribal values in the allocation column represent tribal requests.

2020	Cowcod b/		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	2.0	2.0	5.9	5.9
Additional Buffer				
EFPc/	0.030	0.030	0.250	0.250
Research d/	2.0	2.0	2.92	2.92
Incidental OA e/	0.0	0.0	0.4	0.4
Tribal f/			2.3	2.3
Trawl Allocations	2.2	0.6	1.9	0.2
-SB Trawl	2.2	0.6	1.9	0.2
-At-Sea Trawl			0.0	0.0
a) At-sea whiting MS				
b) At-sea whiting CP				
Non-Trawl Allocation	3.8	0.0	22.2	14.8
Non-Nearshore		0.0	1.2	0.8
Directed OA: Nearshore		0.0	3.4	1.4
Recreational Groundfish				
WA			5.7	4.7
OR			5.2	4.6
CA - Option 1		1.0	6.7	3.3
TOTAL	8.0	2.6	30.0	20.9
2017 Harvest Specification	**10.0**	**10.0**	**30**	**30**
Difference	2.0	7.4	0.0	9.1
Percent of ACL	80%	26.4%	100%	69.7%

a/ Formal allocations are represented in the black shaded cells and would be specified in regulation in Tables 1b and 1e. The other values in the allocation columns are off the top deductions, biennial allocations, and recreational HG for YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate applications. Values in this table represent the estimates from the proposed EFPs.

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

e/ The GMT's best estimate of impacts.

f/ Tribal values in the allocation column represent tribal requests.

A.3.3 Harvest Guidelines

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 section. For example, the Washington recreational HGs are described in Section A.3.8.

A.3.3.1 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. in 2019–20. In the south, the 2017 blackgill rockfish update assessment indicated the stock was at 39.4 percent depletion at the start of 2017 and is estimated to be above 40 percent in 2019. A blackgill rockfish south of 40°10' N lat. HG is established within the harvest specifications in the amount of 158.9 mt, which is the blackgill rockfish contribution to the Slope Rockfish complex

(ACL=ABC, P* 0.45). The blackgill rockfish HG is subject to trawl and non-trawl allocations implemented under Amendment 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 3 in Agenda Item E.9.b, GMT Report 2, November 2011).

A.3.3.2 Nearshore rockfish

As described under the Baseline, the West Coast states monitor and manage catches of Nearshore Rockfish north of 40°10' N lat. using state-specific HGs. 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. The 2019–20 nearshore rockfish HGs were calculated using the status quo proportions to allocate stocks without state-specific assessment boundaries (Table A-45). For stocks that have state-specific stock assessment boundaries, the states receive 100 percent of the ACL contribution.

Table A-45. Baseline: Nearshore Rockfish north of 40°10' N lat. HGs in 2019 and 2020 in mt.

Stock	State	2019 HG	2020 HG
Nearshore Rockfish North of 40°10´ N lat.	WA	19	18.7
	OR	123.4	120.1
	CA – 40°10´ to 42° N lat.	37.3	38.6

A.3.3.3 State Quotas

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 OFWC. The nearshore species that are allocated between the commercial and recreational fisheries by the OWFC include kelp greenling, cabezon, black 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 CFGC, with the authority to allocate nearshore rockfish, cabezon, and kelp greenling. The 2017 allocations were used to support analyses in development of management measures for federal action.

A.3.4 Shorebased Individual Fishing Quota (IFQ) – No Action DHCR

The No Action Alternative analyzes the shorebased IFQ fishery under the DHCR ACLs and associated limit (Table A-39 and Table A-41). Notable changes under No Action include:

- Darkblotched rockfish, bocaccio, and POP declared rebuilt with associated higher ACLs and allocations

- Increase in bocaccio ACL (264 percent on average), cowcod (150 percent), darkblotched rockfish (137 percent), lingcod north of 40°10’ N lat. (146 percent), starry flounder (34 percent), and yelloweye rockfish (172 percent)
- Decrease in lingcod south of 40°10’ N lat.

A.3.4.1 Impact (Groundfish Mortality)

IFQ Species

Table A-46 and Table A-47 show proposed allocations under the No Action Alternative and corresponding projected catch levels in the shorebased IFQ fishery, as well as historical catches in years 2015 and 2016, for IFQ species categories. Projections were made based in input data from the IFQ fishery from 2011-2017. 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, changes to trawl gear rules, or upcoming gear EFPs.

Particularly notable changes in allocations would occur under the No Action Alternative for seven IFQ species categories, compared with 2017 levels. Those include bocaccio (264 percent of 2017 levels, on average), cowcod (150 percent), darkblotched rockfish (137 percent), lingcod north of 40°10’ N lat. (146 percent), POP (18 times 2017 levels), starry flounder (34 percent), and yelloweye rockfish (172 percent).

Projected mortality under No Action for those species is expected to increase most dramatically for POP, to levels more than ten times those of 2017 (see Table A-46 and Table A-47 for projected mortality in mt). Other notable changes in mortality that are predicted using model-based projections include:

- Bocaccio - up nearly four-fold compared with 2017
- Cowcod mortality - up by 60 percent
- Darkblotched rockfish - up by 41 percent
- Lingcod north of 40°10’ N lat. - up by 40 percent on average
- Lingcod south of 40°10’ N lat. - up by 40 percent on average
- Yelloweye rockfish - up 37 percent

These projected changes are averaged across years 2019 and 2020 (see Table A-46 and Table A-47 for projected mortality in metric tons). Bocaccio mortality is expected to rise along with the large increase in its allocation, and modest increases are projected in other southern shelf species, although projections of co-occurring shelf targets such as Shelf Rockfish south of 40°10’ N lat. may be conservative, given the large amount of newly available bocaccio. Low variability in catch and allocations, and covariation between bocaccio and shelf target species within the model reference data catch over IFQ years drives the current projection for shelf rockfish. A similar situation may exist between darkblotched rockfish and Slope Rockfish north of 40°10’ N lat., although to a lesser extent. Yelloweye rockfish mortality may continue to increase as bycatch, in response to increased shelf and nearshore effort inspired both by the direct increase to the yelloweye rockfish allocation itself, and shelf and nearshore opportunities presented from the current high allocation levels of canary rockfish, which began in 2017. The additional lingcod north of 40°10’ N lat. in the projection is expected to be made available by the increased yelloweye rockfish allocation. An increased catch of lingcod south of 40°10’ N lat. is plausible considering the increased bocaccio and cowcod made available by those allocations. Because lingcod was modeled coastwide (due to inclusion of 2011 and 2012 data), then apportioned by area post-projection, the southern lingcod projection may be somewhat inflated as a result.

Pacific cod is currently projected to maintain a similar level of catch as in 2017, also relying on average annual catch, weighted heavily to 2017, which was quite low compared with historical mortality. The model does not directly take into account recent pessimistic stock assessment information from Alaska. The stock has not been formally assessed on the West Coast of the U.S. (California, Oregon, and Washington). West coast harvest specifications for Pacific cod are based on historical harvest amounts.

Although splitnose rockfish is projected to show only a small increase in mortality, it is likely an underestimate, given the large increase in the allocation of the co-occurring species POP, and the projected sharp increase in its catch.

For other species, projected differences in catch compared with 2017 levels are generally minor. Sablefish north of 36° N lat. and petrale sole are projected to continue their high attainment trend of approximately 99 percent of the allocation. Widow and yellowtail rockfish are projected to continue their recent increases in catch and attainment, respectively. Starry flounder is vastly under-attained, and catch does not typically respond to changes in the allocation. Due to these two factors, it is projected using weighted average annual mortality, and it is not expected to drop to the scale of the decrease in the allocation. It is currently projected to drop by 18 percent, although that corresponds to a small actual difference in absolute catch. Catch of Slope Rockfish south of 40°10’ N lat. of is also markedly under-attained, with catch staying at less than 20 percent of the allocation in the past three years. It is projected to increase by 19 percent, keying on the recent upswing in 2017.

Table A-46. No Action for 2019 – Shorebased IFQ. Projected mortality for IFQ species and Pacific halibut IBQ under No Action for 2019, compared to the allocations or set-asides. Year-end estimates of mortality for 2015 and 2016 are provided for reference (right panel).

IFQ Species	Area	No Action 2019		Historical Mortality a/	
		Projected Mortality (mt)	SB IFQ Allocation (mt)	2015 SB IFQ Mortality (mt)	2016 SB IFQ Mortality (mt)
Arrowtooth flounder	Coastwide	1,364.2	12,735.1	1,669.7	1,419.9
Bocaccio	South of 40°10' N lat.	352.9	810.7	38.7	43.2
Canary rockfish	Coastwide	255.8	946.9	44.8	21.5
Chilipepper rockfish	South of 40°10' N lat.	114.0	1,837.9	189.1	75.6
COWCOD	South of 40°10' N lat.	0.61	2.16	0.38	0.30
Darkblotched rockfish	Coastwide	249.9	674.1	122.4	123.3
Dover sole	Coastwide	7,406.2	45,979.2	6,238.3	7,195.9
English sole	Coastwide	264.3	9,375.1	329.2	377.6
Lingcod	North of 40°10' N lat.	854.2	2,046.5	185.3	260.5
Lingcod	South of 40°10' N lat.	35.7	443.1	31.7	24.8
Longspine thornyheads	North of 34°27' N lat.	795.8	2,420	768.4	659.6
Shelf Rockfish	North of 40°10' N lat.	265.8	1,155.2	33.4	34.4
Shelf Rockfish	South of 40°10' N lat.	2.5	192.3	8.9	4.4
Slope Rockfish	North of 40°10' N lat.	176.7	1,248.8	228.1	160.2
Slope Rockfish	South of 40°10' N lat.	66.8	456	69.5	49.9
Other Flatfish	Coastwide	732.2	5,603.7	833.8	857.5
Pacific cod	Coastwide	46.8	1,034.1	377.2	385.0
Pacific halibut b/	North of 40°10 N lat.	39.4	79.3	35.9	34.8
POP	North of 40°10' N lat.	1,018.9	3,697.3	49.9	54.5
Pacific whiting c/	Coastwide	130,503.9	152,326	58,383.8	86,293.5
Petrale sole	Coastwide	2,419.0	2,453	2,499.4	2,499.7
Sablefish	North of 36° N lat.	2,566.7	2,581.3	2,203.5	2,299.7
Sablefish	South of 36° N lat.	126.4	834	169.9	203.1
Shortspine thornyheads	North of 34°27' N lat.	739.1	1,511.8	718.3	747.3
Shortspine thornyheads	South of 34°27' N lat.	0.0	50	0.8	2.0
Splitnose rockfish	South of 40°10' N lat.	13.5	1,646.7	28.0	13.1
Starry flounder	Coastwide	5.6	211.6	6.4	12.7
Widow rockfish	Coastwide	5,297.6	9,928.4	814.6	837.6
YELLOWEYE ROCKFISH	Coastwide	0.23	1.85	0.04	0.05
Yellowtail rockfish	North of 40°10' N lat.	2,446.9	4,030.3	1,449.9	1,145.2

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2018). Pacific whiting values include inseason allocation reapportionments.
b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2018 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2017 values were used.
c/ The 2018 Pacific whiting TAC was unavailable during the preparation of the analysis, therefore the 2017 values were used.

Table A-47. No Action for 2020 – Shorebased IFQ. Projected mortality for IFQ species and Pacific halibut IBQ under No Action for 2020, compared to the allocations or set-asides. Year-end estimates of mortality for 2015 and 2016 are provided for reference (right panel).

IFQ Species	Area	No Action 2020		Historical Mortality a/	
		Projected Mortality (mt)	SB IFQ Allocation (mt)	2015 SB IFQ Mortality (mt)	2016 SB IFQ Mortality (mt)
Arrowtooth flounder	Coastwide	1,369.8	10,052.3	1,669.7	1,419.9
Bocaccio	South of 40°10' N lat.	341.9	785.4	38.7	43.2
Canary rockfish	Coastwide	243.7	887.8	44.8	21.5
Chilipepper rockfish	South of 40°10' N lat.	112.2	1743.4	189.1	75.6
COWCOD	South of 40°10' N lat.	0.61	2.16	0.38	0.30
Darkblotched rockfish	Coastwide	264.4	719.2	122.4	123.3
Dover sole	Coastwide	7,406.2	45,979.2	6,238.3	7,195.9
English sole	Coastwide	264.3	9,417.9	329.2	377.6
Lingcod	North of 40°10' N lat.	784.4	1,899.8	185.3	260.5
Lingcod	South of 40°10' N lat.	32.7	372.5	31.7	24.8
Longspine thornyheads	North of 34°27' N lat.	776.2	2,293.6	768.4	659.6
Shelf Rockfish	North of 40°10' N lat.	265.0	1,151.6	33.4	34.4
Shelf Rockfish	South of 40°10' N lat.	2.5	192.3	8.9	4.4
Slope Rockfish	North of 40°10' N lat.	176.7	1,237.5	228.1	160.2
Slope Rockfish	South of 40°10' N lat.	66.7	455.4	69.5	49.9
Other Flatfish	Coastwide	718.7	5,192.4	833.8	857.5
Pacific cod	Coastwide	46.8	1,034.1	377.2	385.0
Pacific halibut b/	North of 40°10 N lat.	39.5	79.3	35.9	34.8
POP	North of 40°10' N lat.	994.0	3,602.2	49.9	54.5
Pacific whiting c/	Coastwide	130,503.9	15,2326	58,383.8	86,293.5
Petrale sole	Coastwide	2,360.0	2,393.2	2,499.4	2,499.7
Sablefish	North of 36° N lat.	2,621.5	2,636.8	2,203.5	2,299.7
Sablefish	South of 36° N lat.	128.9	851.7	169.9	203.1
Shortspine thornyheads	North of 34°27' N lat.	732.8	1,498.5	718.3	747.3
Shortspine thornyheads	South of 34°27' N lat.	0.0	50	0.8	2.0
Splitnose rockfish	South of 40°10' N lat.	13.5	1,628.7	28.0	13.1
Starry flounder	Coastwide	5.6	211.6	6.4	12.7
Widow rockfish	Coastwide	5,054.4	9,386.6	814.6	837.6
YELLOWEYE ROCKFISH	Coastwide	0.22	1.93	0.04	0.05
Yellowtail rockfish	North of 40°10' N lat.	2,323.3	3,783	1,449.9	1,145.2

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2018). Pacific whiting values include inseason allocation reapportionments.
b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2018 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2017 values were used.
c/ The 2016 Pacific whiting TAC was unavailable during the preparation of the analysis, therefore the 2017 values were used.

Pacific Halibut

Annual bycatch mortality of Pacific halibut in the IFQ fishery is projected to increase slightly from the recent past (up as much as 10 percent) at just under 40 mt. The minor projected increase is coincident with some increases in shelf, and shelf/slope effort (e.g., Shelf Rockfish north), which may be generous given the general lack of projected increases for shelf flatfishes, and low projected catch of Pacific cod. Bycatch of this species does not tend to positively co-vary with the IBQ itself.

Non-IFQ Species

Recent mortality estimates (2015 and 2016) for non-IFQ species are shown in Table A-8, to serve as guidance in lieu of projections, since no model exists for these species.

A.3.5 At-Sea Whiting Co-ops – No Action DHCR

Under the No Action Alternative, DHCR ACLs would be implemented for 2019–20 (Table A-39 and Table A-41) with any adjustments to routine management measures (described below). Allocations and principle management measures for the at-sea sectors would be the same as described under the Baseline, except:

- Management of POP and darkblotched rockfish as set-asides instead of allocations. Under Amendment 21-3 (implemented January 8, 2018; 83 FR 757) POP and darkblotched rockfish will be managed as sector-specific set-asides for the at-sea sectors based on the percentages outlined in Section 6.3.2.3 of the FMP and regulations at 50 CFR 660.55 (Table A-48). As written, NMFS would have the automatic authority to close either at-sea sector if a sector were projected to exceed their set-aside value for either species and the buffer. There is currently no buffer proposed for analysis in 2019–20, and therefore, in essence, darkblotched rockfish and POP would be managed as allocations for the at-sea sectors. Under the new management measures section below, the Council is considering removing the automatic authority for these species so that they would be managed like all other set-asides (described above under Baseline).
- Increases in the set-aside amounts for POP and decreased amounts for darkblotched rockfish (to be managed as a set-aside) and widow rockfish (allocation). Note that the decrease in darkblotched rockfish from the Baseline is due to the release of the 50 mt buffer in 2017, where there is no buffer proposed in 2019–20.
- Set-asides from the trawl allocation would be the same as under the Baseline (Table A-16), except shortspine thornyhead north of 34°27´ N lat. would increase from 20 mt to 25 mt in 2019 and 2020.

A.3.5.1 Impact (Groundfish Mortality)

Under No Action, the 2019–20 ACLs for non-whiting species would be established using default harvest control rules. The catcher/processor and mothership co-op allocations or set-aside values for darkblotched rockfish, POP, and widow rockfish would be derived based on the percentages outlined in Section 6.3.2.3 of the FMP and regulations at 660.55 (Table A-48). For Pacific whiting, the 2017 TAC and start of the year allocations were used as a proxy for the analysis since the 2019 and 2020 TACs are established in another process and are not yet available. Table A-49 shows projections for both catcher/processors and motherships using the average historical bycatch rate from 2014-2017, positively weighted for more recent years, applied to the 2017 whiting allocations (pre-reapportionment) as a proxy. Table A-50 through Table A-53 use a bootstrap simulation to determine the distribution of bycatch compared to the allocations or set asides as well the risk of not attaining the whiting allocation. Data and parameters for the bootstrap simulation are the same as described above under the Baseline, including the risk of

exceeding the set-asides for darkblotched rockfish and POP. As described in the previous section, without a buffer in place for 2019–20 or a change to the proposed rule, NMFS would close the sectors when the sector was projected to exceed the set-aside amount.

All remaining set-asides would be the same as shown in Table A-16 under the Baseline, except the shortspine thornyhead north of 34°27´ N lat. set-aside would be increased, as part of ongoing management, to 25 mt.

Table A-48. No Action – At-Sea. Allocations and set-asides derived from FMP formulas along with two-year allocations for the catcher/processor (CP) and mothership sectors (MS) under the No Action Alternative for 2019–20. Historical mortality for 2016 and 2017 by sector is provided (right panel) for reference.

Stock	Area	No Action Allocation				Historical Mortality for CPs and MS e/			
		2019 CP (mt)	2020 CP (mt)	2019 MS (mt)	2020 MS (mt)	2016 CP (mt)	2017 CP (mt)	2016 MS (mt)	2017 MS (mt)
Canary rockfish a/	Coastwide	16	16	30	30	0.1	2.1	0.4	4.5
Darkblotched rockfish b/	Coastwide	21.8	23.2	15.4	16.4	3.5	32	1.6	7.6
POP b/	N of 40º10' N lat.	237.1	231.0	167.4	163.0	3.1	20.3	7.2	5.9
Pacific whiting c/	Coastwide	123,312		87,044		108,768	136,960	65,035	66,380
Widow rockfish d/	Coastwide	358.3	338.8	253.0	239.1	112.3	409.2	74.4	66

a/ Two-year allocation based on the 2017 proportions.
b/ Set-aside values derived from formulas in Section 6.3.2.3 of the FMP and regulations at 660.55.
c/ The 2019 and 2020 Pacific whiting TACs were unavailable during the preparation of the analysis; therefore, the 2017 values (pre-apportionment) were used.
d/ Allocation based on formulas in Section 6.3.2.3 of the FMP and regulations at 660.55.
e/ Pacific whiting mortality estimates were derived from the Comprehensive NPAC Database and include inseason adjustments to allocations.

Table A-49. No Action- At-Sea. Projections for the CP and MS sectors under the No Action Alternative for 2017–18 using average historical bycatch rates (positively weighted for more recent years). No Action allocations and set-asides are provided on the left for reference.

Stock	Area	No Action Allocation a/				2019/2020 Projection	
		2019 CP (mt)	2020 CP (mt)	2019 MS (mt)	2020 MS (mt)	CP (mt)	MS (mt)
Canary rockfish	Coastwide	16	16	30	30	0.8	2.7
Darkblotched rockfish	Coastwide	21.8	23.2	15.4	16.4	15.1	7.1
POP	N of 40º10' N lat.	237.1	231.0	167.4	163.0	10.9	7.6
Pacific whiting	Coastwide	123,312		87,044		123,312	87,044
Widow rockfish	Coastwide	358.3	338.8	253.0	239.1	193.8	80.9

a/ The 2019 and 2020 Pacific whiting TACs were unavailable during the preparation of the analysis; therefore, the 2017 values were used.

Table A-50. No Action - At-Sea - Catcher/processor. Landing projections for the CP sector under the No Action Alternative for 2019 using the bootstrap methodology. No Action allocations and set-asides are provided on the left for reference. Bolded text indicates values that are higher than the allocations or set-asides.

Stock	CP All./Set-Aside (mt)	Percentage of Simulated Seasons									
		1%	5%	10%	25%	50%	75%	90%	95%	99%	99.99%
Whiting	123,312	59,103	92,309	112,983	123,312	123,312	123,312	123,312	123,312	123,312	123,312
Canary rockfish	16	0.1	0.1	0.1	0.3	0.6	1.2	2	4	5.8	9.3
Darkblotched rockfish	21.8	0.4	0.7	2.6	3.7	7	11	20	**23.2**	**24.1**	**31.3**
POP	237.1	0.2	0.3	0.4	1.7	6.5	11.9	17.8	27.6	43.7	56.9
Widow rockfish	358.3	4.8	7	11.6	22.2	61	126.9	281.2	341.1	**389.2**	**416**

Table A-51. No Action - At-Sea - Catcher/processor. Landing projections for the CP sector under the No Action Alternative for 2020 using the bootstrap methodology. No Action set-asides and allocations are provided on the left for reference. Bolded text indicates values that are higher than the allocations or set-asides.

Stock	CP All./Set-Aside (mt)	Percentage of Simulated Seasons									
		1%	5%	10%	25%	50%	75%	90%	95%	99%	99.99%
Whiting	123,312	58,410	91,961	113,285	123,312	123,312	123,312	123,312	123,312	123,312	123,312
Canary rockfish	16	0.1	0.1	0.1	0.3	0.6	1.2	2	3.9	5.8	8.2
Darkblotched rockfish	23.2	0.4	0.7	2.6	3.8	7.1	11.1	20.6	**23.2**	**24.7**	**31.3**
POP	231	0.2	0.3	0.4	1.6	6.5	12	18.2	30.1	44.9	58.7
Widow rockfish	338.8	4.9	6.8	11.5	22.2	61.2	128.6	278.8	**340.4**	**387**	**417**

Table A-52. No Action - At-Sea - Mothership. Landing projections for the MS sector under the No Action Alternative for 2019 using the bootstrap methodology. No Action allocations and set-asides are provided on the left for reference. Bolded text indicates values that are higher than the allocations or set-aside.

Stock	MS All./Set-Aside (mt)	Percentage of Simulated Seasons									
		1%	5%	10%	25%	50%	75%	90%	95%	99%	99.99%
Whiting	87,044	71,025	85,725	87,044	87,044	87,044	87,044	87,044	87,044	87,044	87,044
Canary rockfish	30	0.1	0.2	0.3	0.5	1	2.3	4.3	8.5	20.4	**32.2**
Darkblotched rockfish	15.4	0.3	0.4	0.8	2.7	6.4	9.4	12.4	13.6	**16.4**	**19.2**
POP	167.4	0.1	0.2	0.3	1.3	3.6	6.3	9.1	24	35.1	47
Widow rockfish	253	2.2	2.6	23.1	48.5	72.2	95	134.6	223	242.1	249.5

Table A-53. No Action - At-Sea - Mothership. Landing projections for the MS sector under the No Action Alternative for 2020 using the bootstrap methodology. No Action allocations and set-asides are provided on the left for reference. Bolded text indicates values that are higher than the allocations.

Stock	MS All./Set-Aside (mt)	Percentage of Simulated Seasons									
		1%	5%	10%	25%	50%	75%	90%	95%	99%	99.99%
Whiting	87,044	70599	86,545	87,044	87,044	87,044	87,044	87,044	87,044	87,044	87,044
Canary rockfish	30	0.1	0.2	0.3	0.5	1	2.3	4.4	8.4	20.3	32.2
Darkblotched rockfish	16.4	0.3	0.4	0.7	2.6	6.3	9.4	12.4	13.6	16.4	19.1
POP	163.0	0.1	0.2	0.3	1.3	3.5	6.3	9.1	23.7	35.4	46.4
Widow rockfish	239.1	2.2	2.6	22.8	47.9	72.2	95.1	135.1	218.8	241.9	249.1

A.3.6 Limited Entry and Open Access Fixed Gear – No Action DHCR

The No Action Alternative analyzes the limited entry and open access fixed gear fisheries under the DHCR ACLs (Table A-39 and Table A-40) and associated allocations (Table A-40 and Table A-42). Notable ongoing management changes from the Baseline conditions include:

- Decrease in the lingcod ACL south of 40°10´ N lat. (~1/3 reduction)
- Increase in ACLs for lingcod north of 40°10´ N lat. (~1.5 fold increase) and yelloweye rockfish (~1.6 fold increase)
- Darkblotched rockfish, bocaccio south of 40°10´ N lat., and POP declared rebuilt with associated higher ACLs and allocations

- Increase in the discard rate for sablefish north of 36° N lat. (from 18 percent to 23 percent) and decrease for sablefish south of 36° N lat. (from 18 percent to 11 percent), based on the latest WCGOP data

The limited entry and open access fixed gear fisheries under No Action have the same principle management measures as described under the Baseline (Table A-17 and Table A-18), except for routine adjustments to trip limits for sablefish, canary rockfish, lingcod, Slope Rockfish complex north of 40°10´ N lat., darkblotched rockfish, and shortspine and longspine thornyheads.

A.3.6.1 Trip Limit Analysis

Limited Entry and Open Access Sablefish

Table A-54 and Table A-55 summarize the FMP allocations of sablefish for limited entry and open access north of 36° N lat. under No Action. South of 36° N lat., the FMP allocation of sablefish is 42 percent to the trawl sector and 58 percent to the non-trawl sector. A short-term allocation between the limited entry and open access fixed gear sectors of 70 percent and 30 percent, respectively, would be established (Table A-56). Table A-57 and Table A-58 contain the proposed trip limits for 2019 with projected attainment.

Table A-54. No Action - Limited entry sablefish FMP allocations north of 36° N lat., based on the default harvest control rule.

Year	Sablefish Comm. 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
2019	5,007	4,537	1,905	1,818	1,620	286	47,637	21,653	12,373
2020	5,113	4,632	1,946	1,856	1,654	292	48,642	22,110	12,634

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 2016. In 2019–20, 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 A-55. No Action - Open access FMP allocations north of 36° N lat., based on the default harvest control rule.

Year	OA Total Catch Share (mt)	Directed OA Landed Catch Share (mt) a/
2019	471	449
2020	481	459

a/ The open access total catch share is reduced by the anticipated discard mortality of sablefish, based on WCGOP data from 2002 to 2016. In 2019–20, 23 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table A-56. No Action. Short-term sablefish allocations south of 36° N lat. for the non-trawl sector, limited entry and open access, under the No Action sharing alternative (70 percent to limited entry; 30 percent to open access).

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/
2019	1,986	1,152	806	346	788	338
2020	2,028	1,176	823	353	805	345

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 2016. In 2019–20, 11 percent of the sablefish caught are anticipated to be discarded and 20 percent are expected to die.

Table A-57. No Action. Sablefish trip limits (lbs.) north of 36° N lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2019.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Share	Projected Attain.
Limited Entry	1,200 lbs./week, not to exceed 3,600 lbs. bimonthly						273	200.1-266.5
Open Access	300 lbs. daily, or one landing per week up to 1,100 lbs., not to exceed 2,200 lbs. bimonthly						449	384.4-480.5

Table A-58. No Action. Sablefish trip limits (lbs.) south of 36° N lat. for limited entry and open access fixed gears, with landed share and projected attainment for 2019.

Fishery	Jan-Feb	Mar-Apr	May-Jun	July-Aug	Sept-Oct	Nov-Dec	Landed Share	Projected Attain.
Limited Entry	2,000 lbs./week						788	445.6-463.8
Open Access	300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 3,200 lbs. bimonthly						338	34.6

Limited Entry and Open Access – Canary Rockfish South of 40°10´ N lat.

In the 2017–18 management cycle, limited retention of canary rockfish was allowed coastwide for limited entry and open access fixed gear fisheries because the stock was declared rebuilt based on the 2015 assessment (Thorson and Wetzel 2015). The objective of the management measure was to allow retention of the majority of incidental catch to provide some economic benefit, and to reduce discarding while targeting other nearshore and shelf rockfish species. The 2017 trip limits were intended to allow retention in the amount for which was previously bycatch, without providing incentive to target the stock (Table A-59).

The proposed ongoing management options for 2019–20 under the no action alternative would apply to canary rockfish trip limits south of the 40°10´ N lat. for limited entry and open access fixed gear sectors. Canary rockfish retention would be permitted in the limited entry sector year-round between 40°10´ N lat. and 34°27´ N lat. (i.e., no change to status quo regulations) but would be closed during Period 2 (March-

April) south of 34°27´ N lat. (Option 1; Table A-59)[6]. For open access, canary rockfish would be closed during Period 2 (March-April) south of 40°10´ N lat. (Option 1; Table A-59). The canary rockfish closures are proposed primarily to align with the existing trip limit structure currently in place for Shelf Rockfish; however, the Period 2 closure would also align with the trip limit structure for Deeper Nearshore, Shallow Nearshore, California scorpionfish, and lingcod south of 40°10´ N lat. Establishing a canary rockfish bi-monthly trip limit that matches the Shelf Rockfish would provide a uniform approach for monitoring, management, and law enforcement and would likely not affect the fishing behavior of the fleet.

Observer data are not yet available to inform the reductions in canary rockfish mortality that may be expected by closing March and April, therefore 2017 landings during that time were used as a proxy. Landings during March and April in 2017 totaled 0.04 mt and came from the open access non-nearshore sector south of 40°10´ N lat. There were no landings for canary rockfish in the limited entry sector south of 34°27´ N lat. Subtracting the 0.04 mt from the non-nearshore projected impact of 1.0 mt provides minor reductions to the total coastwide projected mortality. The total coastwide projected mortality is 66 percent of the allocation under both the No Action and Option 1. The action is expected to result in minimal adverse economic impacts since few canary rockfish were landed in 2017.

Table A-59. No Action - Limited entry and open access trip limits for canary rockfish under No Action and Ongoing management Option 1.

Sector	Area	Option	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Limited Entry	S. of 34°27´ N lat.	No Action	300 lbs. / 2 months					
		Option 1	300 lbs. / 2 months	CLOSED	300 lbs. / 2 months			
Open Access	S. of 40°10´ N lat.	No Action	150 lbs. / 2 months					
		Option 1	150 lbs. / 2months	CLOSED	150 lbs. / 2 months			

Open Access - Slope Rockfish and Darkblotched Rockfish North of 40°10´ N lat.

The open access trip limit for the Slope Rockfish complex north of 40°10´ N lat. and darkblotched rockfish is no more than 25 percent of the landed weight of sablefish per trip, which corresponds to a maximum of 500 pounds bimonthly (25 percent of the 2,000 pound bimonthly limit of sablefish) under No Action.

Ongoing management Option 1 would be 500 pounds per month of Slope Rockfish north of 40°10´ N lat. and darkblotched rockfish (with no link to sablefish), which is double the current limit that is linked to 25 percent of sablefish landings. The Council proposed Option 1 in November 2017 based on industry feedback that stock-specific limits are simpler for them to abide by, and because it would better allow them to retain more of their incidental catches and have to discard less. Since discards are less than

[6] As noted in A.1, routine management measures such as trip limits, reflect no change in the level of management intensity as the Council and NMFS routinely adjust them throughout a fishing season. The adjustment of these measures is necessary in every fishing season and is therefore considered under all alternatives, including the No-Action Alternative.

landings (1/3 on average from 2014-2016), doubling the trip limit with Option 1 should provide an effective means for them to retain most if not all of their incidental catches.

Option 1 trip limits are projected to result in higher attainments than the No Action trip limits (Table A-60), but only by relatively minor amounts compared to the non-trawl allocations for both darkblotched rockfish (< 20 percent for both options) and for the Slope Rockfish complex north of 40°10´ N lat. (< 26 percent for both options).

Projections were based on: (1) determining the current attainment rates of slope and darkblotched rockfish by vessel and period based on the current trip limit approach (25 percent of sablefish landings); (2) for the Option 1 trip limit of 500 pounds per month, vessels were assumed to maintain their current attainment rates for each month in a period, as well as their current landings ratios of darkblotched rockfish to slope rockfish.

Providing separate projections for darkblotched rockfish and slope rockfish (per step two) was important, since they have different harvest specifications despite being managed under the same collective trip limits. For instance, darkblotched rockfish ACLs and non-trawl allocations are coastwide; therefore, impacts from south of 40°10´ N lat. must be included when considering increases to the north (2014-2016 average used). The Slope Rockfish complex is more straightforward since the allocations and trip limit proposals are both specific to north of 40°10´ N lat.

Table A-60. No Action. Projected mortality and non-trawl allocation attainment for darkblotched rockfish and the Slope Rockfish complex north of 40°10' N lat. complex, based on ongoing management open access trip limits options.

Stock	Trip limit Option	LE	OA N	OA S	Rec.	Total	Allocation	% Attainment
Darkblotched rockfish	Baseline 2017 OA sablefish limits	3.2	2.6	< 0.1	< 0.1	5.8	37.4	15.6%
	No Action 2019–20 OA sablefish trip limits	3.2	2.7	< 0.1	< 0.1	5.9		15.9%
	Option 1	3.2	3.1	< 0.1	< 0.1	6.3		17.0%
Slope Rockfish complex N. of 40°10´ N lat.	Baseline 2017 OA sablefish limits	68.7	5.8	NA	< 0.1	74.5	316.4	23.6%
	No Action 2019–20 OA sablefish trip limits	68.7	6.1	NA	< 0.1	74.8		23.7%
	Option 1	68.7	11.5	NA	< 0.1	80.2		25.4%

Open Access – Shortspine Thornyhead and Longspine Thornyhead North of 40°10´ N lat.

Retention of shortspine and longspine thornyheads is currently prohibited year-round for open access north of 34°27´ N lat. Ongoing management Option 1 would provide a 50 pound per month trip limit for

shortspine and longspine thornyheads north of 40°10´ N lat. only. Retention would continue to be prohibited for open access from 40°10´ N lat. to 34°27´ N lat. Note that retention is allowed for limited entry coastwide and for open access south of 34°27´ N lat.

The Council forwarded Option 1 during November 2017 based on an industry recommendation to allow for retention of incidental catches. The reason for the current open access prohibition is not well known, but is thought to have been a holdover from when there were separate limited entry and open access allocations of thornyheads. If all the catch history from the 1980's was attributed to vessels issued limited entry permits, then there would have been zero open access thornyhead allocations and thus no open access retention during that era. If true, then there would no longer be a need for non-retention for open access since limited entry and open access are now managed under the same collective non-trawl allocations, which have low attainment rates and could benefit from higher open access landings.

Non-trawl attainments of longspine and shortspine thornyheads north of 34°27´ N lat. are projected to remain low for Option 1, even under an unlikely maximum catch scenario. The maximum scenario would only add an extra 3.9 mt in landings if every single open access vessel were to catch the full 50 pounds of either species every single month (Table A-61). Since maximum possible attainments are not problematic with Option 1, there is no need for more precise modeling of what more realistic attainments could be.

Table A-61. No Action. Projected total mortality for the No Action and Ongoing management Option 1 (maximum mortality) open access trip limits for shortspine and longspine thornyheads north of 40°10´ N lat. DM = discard mortality. Limited entry and recreational projections are 2014-2016 averages.

Stock	OA Trip limit	Projected non-trawl mortality (mt)					Non-trawl		
		LE landed	LE DM	OA DM	OA max extra landed	Rec.	Total	Alloc.	% Attain.
Longspine thornyhead north of 34°27´ N lat.	No Action	3.1	4.0	0.4	0.0	< 0.1	7.7	127.6	6.0%
	Option 1	3.1	4.0	0.4	3.9	< 0.1	11.5	127.6	9.0%
Shortspine thornyhead north of 34°27´ N lat.	No Action	42.4	0.4	3.4	0.0	< 0.1	46.4	80.9	57.3%
	Opt 1	42.4	0.4	3.4	3.9	< 0.1	50.2	80.9	62.1%

Limited Entry and Open Access - Lingcod North of 40°10´ N lat.

Lingcod is managed north and south of 40°10´ N lat. in terms ACLs, allocations, and trip limits for limited entry and open access. As described in the next section, reductions to southern lingcod trip limits are being considered since the 2019–20 allocations will be reduced by roughly a third of current levels.

However, increases to northern lingcod trip limits can be considered for 2019–20 because there are sufficient lingcod and yelloweye rockfish impacts to do so. Although lingcod is one the most highly valued stocks, non-trawl attainments of northern lingcod have been low for over a decade as a result of management measures designed to reduce yelloweye rockfish bycatch. Despite repeated industry requests for increased northern lingcod trip limits, none were proposed for the 2017–18 biennium since there were insufficient yelloweye rockfish shares to do so at that time. However, updates to the nearshore discard mortality rates and the nearshore model resulted in reduced yelloweye rockfish impacts, which provided for inseason lingcod trip limit increases in both 2017 (July-Dec) and for all of 2018.

The updated discard mortality rates and nearshore model can support higher lingcod limits in 2019–20. There are four ongoing management trip limit options based on previous Council actions and public feedback (Table A-62). Attachment 1 contains information on the history of the nearshore model updates and discussions surrounding past lingcod trip limit adjustments and yelloweye rockfish impacts.

All lingcod trip limit options are projected to be conservative in regards to both lingcod non-trawl attainments (Table A-63) and yelloweye rockfish attainments for the collective and individuals' HGs and shares of the non-nearshore and nearshore fisheries (Table A-64). For instance, Option 3 is the most aggressive trip limit option, and only results in a projected 17.4 percent attainment of the non-trawl lingcod allocation and 59.0 percent attainment of the collective yelloweye rockfish HG for the non-nearshore and nearshore fisheries. Note that these lingcod projections are conservative (possibly overestimated) since they are based on point estimates buffered to reflect the following recent (2015-2016) inter-annual variability in landings when trip limits were constant: +50 percent to CA Nearshore; + 30 percent to OR nearshore, and +13 percent to the non-nearshore. This also means that the yelloweye rockfish projections are conservative since they are based on the quantity of lingcod landings (i.e., bycatch rate models).

More aggressive trip limits than Option 3 could have been therefore been considered; however, as mentioned in the Attachment 1, industry did not want more aggressive trip limits since they were worried it could result in flooding of markets or unanticipated impacts to yelloweye rockfish.

Table A-62. No Action. Limited entry and open access trip limit ongoing management options for lingcod north of 40°10´ N lat.

Sector	Alternative	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec	
Limited Entry	NA	200 lbs. / 2 months		1,200 lbs. / 2 months	1,400 lbs. / 2 months		700 lbs. / month	400 lbs. / month
	Opt 1	600 lbs. / 2 months		1,400 lbs. / 2 months			700 lbs. / month	400 lbs. / month
	Opt 2	1,500 lbs. / 2 months						
	Opt 3	2,000 lbs. / 2 months						
Open Access	NA	100 lbs. / month		600 lbs. / month	700 lbs. / month			200 lbs. / month
	Opt 1	300 lbs. /month		700 lbs. / month				300 lbs. / month
	Opt 2	700 lbs. / month						
	Opt 3	900 lbs. month						

Table A-63. No Action. Projected lingcod landings and mortality for the limited entry and open access lingcod trip limits options for north of 40°10´ N lat. Projections are conservative since they are based on point estimates buffered to reflect the following recent inter-annual variability: +50 percent to CA Nearshore; +30 percent to OR nearshore, and +13 percent to the non-nearshore.

Sector	Trip Limit Option			
	NA	Opt 1	Opt 2	Opt 3
CA Nearshore landings	7.5	9.2	12.5	14.6
OR Nearshore landings	65.7	77.1	100.5	117.3
Non-Nearshore landings	19.3	20.9	22.8	26.1
Total Commercial non-trawl landings	92.5	107.2	135.8	158.0
Recreational mortality a/	264.4	264.4	264.4	264.4
Commercial non-trawl discard mortality a/	15.1	15.1	15.1	15.1
Total non-trawl mortality	372.0	386.7	415.3	437.5
Non-trawl 2019 allocation	2,520.0	2,520.0	2,520.0	2,520.0
% Non-trawl	14.76%	15.34%	16.48%	17.36%
Non-trawl residual	2,148.0	2,133.3	2,104.7	2,082.5

a/ 2014-2016 average.

Table A-64. No Action. Projected yelloweye rockfish impacts for each of the lingcod trip limit options for the area north of 40°10´ N lat. Projections are conservative since they are based on buffered lingcod landings described above.

Sector a/	NA	Opt 1	Opt 2	Opt 3	2019 share	2020 share
CA Nearshore	0.5	0.5	0.5	0.5	0.9	0.9
OR Nearshore	0.9	1.0	1.1	1.2	2.4	2.5
Non-Nearshore	0.8	0.8	0.8	0.8	1.1	1.2
Total b/	2.2	2.3	2.4	2.6	4.4	4.6

a/ CA nearshore share and non-nearshore HG are coastwide.
b/ Projections increase for non-nearshore and CA nearshore (N 40°10') by trace amounts that are not seen due to rounding except for in the total.

Limited Entry and Open Access: Lingcod North of 42° N lat. Only

The section above pertains to ongoing management of lingcod trip limit increases for the entire area north of 40°10´ N lat. since the same trip limits currently apply to that entire area. However, there is rationale to consider having the trip limit increases apply to just north of 42° N lat. (i.e., CA/OR border) as a routine management measure option. Therefore, this section provides rationale and projections if the lingcod trip limits (Table A-62) were to apply to just north of 42° N lat.

There are negligible differences to lingcod and yelloweye rockfish projections if the lingcod trip limits were to apply to the entire area north of 40°10´ N lat. or just north of 42° N lat. That is because the majority of the lingcod fisheries occur off Oregon and Washington, which means there would be only minor reductions if the area off Northern California (40°10´ - 42° N lat.) were excluded from trip limit increases. For instance, there is less than a 10 mt difference in projected lingcod landings if the trip limits were to apply to the whole area north of 40°10´ N lat. (Table A-63) or just to the north of 42° N lat. (Table A-65). Yelloweye rockfish projections are nearly identical amongst the two area options (Table A-64 vs. Table A-66, respectively), given the similarity in lingcod landings.

The first rationale for a trip limit split at 42° N lat. is that it would provide the Oregon and California nearshore fisheries more flexibility to use alternative management strategies to promote opportunity while staying within their respective yelloweye rockfish shares. For instance, the preference from the Oregon nearshore fishery has been primarily higher lingcod trip limits, while the preference for the California fisheries has been primarily greater depth expansion (e.g., the proposal for 2019–20 is to liberalize the seaward non-trawl RCA from 100 fm to 75 fm in the area between 40°10´ N lat. and 42° N lat.).

A second rationale for a trip limit split at 42° N lat. is biological. Allocations for lingcod are north and south of 40°10´ N lat.; however, the 2017 lingcod assessment was separated north and south of 42° N lat. The 2017 assessment provided an optimistic outlook for the north (i.e., boost in biomass scale and healthy above the 40 percent depletion management target), but a pessimistic outlook for the south (i.e., decline in biomass scale and in the precautionary depletion zone). Although the north of 40°10 N lat. ACL is based on the north of 42° N lat. assessment plus a 40°10´ - 42° N lat. partitioning of the southern S of 42° N lat. assessment, it creates a situation where northern California (40°10´ - 42° N lat.) gets lumped in the allocation benefits driven by the optimistic north of 42° N lat. assessment despite being part of the pessimistic S of 42° N lat. assessment.

Splitting trip limits at 42° N lat. for lingcod would be a change from status quo, but still within the scope of the 2015 EIS. This change would not be expected to be problematic from a regulatory perspective since 42° N lat. is already a well-established regulatory break. To the north and south of 42° N lat., there are different: (1) state limited entry nearshore permits, (2) lingcod minimum size limits, (3) federal trip limits (e.g., nearshore rockfish), (4) lower state trip limits in Oregon, (5) sorting and reporting requirements, and more.

In addition, adding a split at 42° N lat. for lingcod trip limits does not appear to be problematic from a catch accounting and modeling perspective. All lingcod landings regardless of how the trip limits are split would count toward the non-trawl allocation for lingcod 40°10´ N lat.; noting that if higher limits were pursued to north of 42° N lat. it would not jeopardize opportunity to south of 42° N lat., since the projected extra lingcod landings associated with the trip limit requests are relatively minor (<100 mt extra) compared to the projected non-trawl residual of 2,000 mt.

Furthermore, a trip limit split at 42° N lat. would not be problematic for modeling nearshore projected impacts of yelloweye rockfish against each state's respective share of the nearshore HG since the nearshore model already has alternative strata for northern California (40°10´ - 42° N lat.) and north of 42° N lat. As such, the model can already evaluate projected yelloweye rockfish impacts associated with different lingcod trip limits for north and south of 42° N lat. (and/or open depths if desired). While the nearshore model is already equipped to project yelloweye rockfish by having different regulations from 40°10´ - 42° N lat. and north of 42° N lat., adjustments would be needed to evaluate actual yelloweye rockfish impacts in those two areas since the estimates produced by WCGOP are not that granular (i.e., north and south of 40°10´ N lat. only). However, estimates of actual yelloweye rockfish mortality for the whole area north of 40°10´ N lat. could be easily partitioned by areas to accommodate a trip limit split at 42° N lat. (i.e., 40°10´ - 42° N lat. and north of 42° N lat.), since it would only require minor adjustments to single lines in the R scripts that are nearly identical for the model and estimation procedures.

Table A-65. No Action. Projected lingcod landings for the lingcod trip limit options if applicable to north of 42° N lat. only. Projections are conservative since they are based on point estimates buffered to reflect the following recent inter-annual variability: +50 percent to CA Nearshore; +30 percent to OR nearshore, and +13 percent to the non-nearshore.

Sector	Trip Limit Option			
	NA	Opt 1	Opt 2	Opt 3
CA Nearshore landings	7.5	7.5	7.5	7.5
OR Nearshore landings	65.7	77.1	100.5	117.3
Non-Nearshore landings	16.0	17.3	18.9	21.6
Total Commercial non-trawl landings	89.2	101.9	126.9	146.4
Recreational mortality a/	264.4	264.4	264.4	264.4
Commercial non-trawl discard mortality a/	15.1	15.1	15.1	15.1
Total non-trawl mortality	368.7	381.4	406.4	425.9
Non-trawl 2019 allocation	2,520.0	2,520.0	2,520.0	2,520.0
% Non-trawl	14.6%	15.1%	16.1%	16.9%
Non-trawl residual	2,151.3	2,138.6	2,113.6	2,094.1

a/ 2014-2016 average.

Table A-66. No Action. Projected yelloweye rockfish impacts for each of the lingcod trip limit options based on if they are made applicable to north of 42° N lat. only. Projections are conservative since based on buffered lingcod landings described above.

Sector a/	NA	Opt 1	Opt 2	Opt 3	2019 share	2020 share
CA Nearshore	0.5	0.5	0.5	0.5	0.9	0.9
OR Nearshore	0.9	1.0	1.1	1.2	2.4	2.5
Non-Nearshore	0.8	0.8	0.8	0.8	1.1	1.2
Total	2.2	2.3	2.4	2.5	4.4	4.6

a/ CA nearshore share and non-nearshore share are coastwide.

Considerations for the Status Quo Lingcod Management Line

Splitting the lingcod north of 40º10´ N lat. trip limits at 42º N lat. would create two management lines for a species with an overfishing limit (OFL) set north of 40º10´ N lat., and affect both the non-nearshore and nearshore fishery. The original intent behind moving the lingcod management line from 42º N lat. to 40º 10´ N lat. in 2013 was to avoid disruption in the IFQ trawl fishery because more management lines that were specified in regulation caused the fishery to be further constrained. Additionally, the prospect of another management line at 42° N lat. created problems for fishermen fishing out of ports in northern California and southern Oregon (2013–14 FEIS). Although the moving of the line was to ease constraints on the trawl sector, the Council decided to revise the OFLs, ABCs, and ACLs for the coastwide stock of lingcod to 40º10´ N lat. Aligning the lingcod management line with the Shelf Rockfish complex and Nearshore Rockfish complex also eased constraints on the non-trawl sector that would target both lingcod and rockfish.

The above proposal mentions that splitting lingcod trip limits would provide more flexibility in the alternative management strategies for the nearshore fishery; however, splitting lingcod north of 40º10´ N

lat. trip limits at 42º N lat. also affects the non-nearshore fishery because the trip limits are made for the federal limited entry permitted holders and open access participants, not for the nearshore and non-nearshore fisheries. As mentioned above, there are different trip limits for nearshore rockfish north and south of 42º N lat. and state permits that restrict access to the stocks. However, there are also state shares of the Nearshore Rockfish North of 40º10´ N lat. and of the coastwide stock of yelloweye rockfish, and the nearshore model allows each state to estimate of the impacts to yelloweye rockfish from the nearshore fishery. All of this makes it feasible and equitable to manage a stock with a non-trawl allocation at 40º10´ N lat. but trip limits set at 42º N lat. Currently, there are no state or non-trawl fishery shares or HG for lingcod, and there is no model to estimate the impacts to yelloweye rockfish from lingcod caught in the non-nearshore fishery. Adding a trip limit management line at 42º N lat. without a share or HG set may result in an inequitable use of the lingcod north of 40º10´ N lat. non-trawl allocation.

Furthermore, there were two increases to lingcod north of 40º10´ N lat. in 2017 made through inseason action of which the mortality of yelloweye rockfish are not yet known. One inseason increase went into effect July 1, 2017 with associated projected lingcod landings of 75 mt and an estimated mortality of 1.4 mt of yelloweye rockfish (Nearshore impact = 0.6mt, Non-nearshore impact 0.8 mt) (Agenda Item F.10.a GMT Report 2, June 2017). The second increase in trip limits went into effect February 2 2018, with projected lingcod landings of 92.5 mt and estimated yelloweye rockfish mortality of 2.3 mt (Agenda Item F.13.a GMT Report 1, November 2017). Although the impacts from proposed higher trip limits are estimated to be within the lingcod and yelloweye rockfish non-trawl allocations, there is no inseason tracking on yelloweye rockfish mortality to evaluate the estimated impacts. The overall effects of increasing projected lingcod by 167.5 mt in less than a year may have created unforeseeable impacts to the coastwide yelloweye rockfish stock; therefore, it may be more precautionary to postpone further changes to the lingcod north of 40º 10´ N lat. trip limits until the results of the 2017 inseason trip limit increases are known. The Council can also revisit the trip limits early in the year to check whether they are appropriate to keep catch within the HG.

Limited entry and Open Access - Lingcod South of 40°10´ N lat.

In 2017, the lingcod stock in the management area south of 42° N lat. was found to be at 32.1 percent of the estimated unfished biomass, which is below the target reference point of 40 percent, and places the southern stock in the precautionary zone. The resulting ACLs for 2019 and 2020 under No Action, where P* = 0.4, are 996 mt and 839 mt, respectively. The 2019–20 ACLs are about one-third less than the 2017 ACL of 1,251 mt.

In California, the non-trawl allocation for lingcod is shared by the commercial and recreational sectors, and is further divided in the commercial sector between the limited entry fixed gear and the open access fisheries. Both the limited entry and open access fisheries have a non-nearshore and a nearshore component. The average estimated mortality from the non-nearshore limited entry and open access fisheries land an average 33.9 mt per year (2014–16), with a high of 44.8 mt in 2016, of lingcod south of 40°10´ N lat. Typically, the limited entry fishery lands less than 5 percent of the average landings. In an effort to provide stability for the limited entry fishery, under the no action alternative the trip limits would remain the same as under the baseline (Table A-67). However, to accommodate for the reduction in the 2019–20 ACLs for lingcod south of 40°10´ N lat., the trip limits will be reduced for the open access fishery (Table A-69). Under No Action, the projected mortality for the limited entry fishery is 9.9 mt: 2.7 mt in the Non-nearshore fishery and 7.2 mt in the Nearshore fishery. Open access impacts range from 50.1 mt under Option 1 to 39.6 mt under Option 4 (Table A-69). Projected yelloweye rockfish impacts for each of the lingcod trip limit options are shown in Table A-70. Estimated mortality from trip limits include a discard rate of 3 percent.

Table A-67. No Action. Limited entry trip limits for lingcod south of 40º10´ N lat.

Sector	Alternative	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov	Dec	Total (lbs)
Limited Entry	No Action	200 lbs. / 2 months	CLOSED	800 lbs. / 2 months	1,200 lbs. / 2 months		600 lbs. / month	300 lbs. / month	4,000

Table A-68. No Action. Open access trip limit options for lingcod south of 40°10´ N lat.

Sector	Option	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov	Dec	Total (lbs)
Open Access	No Action	100 lbs. / month	CLOSED	400 lbs. / month	600 lbs. / month		400 lbs. / month	150 lbs. / month	3,950
	Opt 1	300 lbs. / month	CLOSED	300 lbs/ month					3,000
	Opt 2	100 lbs. / month	CLOSED	200 lbs. / month	400 lbs. / month		200 lbs. / month	100 lbs. / month	2,500
	Opt 3	250 lbs. / month	CLOSED	250 lbs. / month					2,500
	Opt 4	100 lbs. / month	CLOSED	200 lbs. / month	350 lbs. / month		200 lbs. / month	100 lbs. / month	2,300

Table A-69. No Action. Projected lingcod mortality for the lingcod trip limit options if applicable to south of 40°10´ N lat.

Sector	Trip Limit Option (mt)			
	Opt 1	Opt 2	Opt 3	Opt 4
CA Nearshore	20.5	16.7	17.0	15.4
Non-Nearshore	29.6	26.1	24.7	24.2
Recreational a/	320	320	320	320
Non-trawl total	380.3	373.0	371.9	369.8
Non-trawl 2019 allocation	541.6	541.6	541.6	541.6
% Non-trawl	70%	69%	69%	68%

a/ Estimated mortality based on a 1-fish bag limit which includes a discard rate of 7%.

Table A-70. No Action. Projected yelloweye rockfish impacts for each of the lingcod south of 40°10´ N lat. trip limit options.

Sector a/	NA (mt)	Opt 1 (mt)	Opt 2 (mt)	Opt 3 (mt)	2019 share (mt)	2020 share (mt)
N. CA Nearshore	0.4	0.4	0.4	0.4	0.9	0.9
S. CA Nearshore	0.1	0.2	0.1	0.1		
Non-Nearshore	0.1	0.1	0.1	0.1	1.1	1.2

a/ CA nearshore share and non-nearshore HG are coastwide.

A.3.6.2 Impact (Groundfish Mortality)

Non-Nearshore North of 36° N lat.

The non-nearshore model projects mortality of overfished and non-overfished species for the limited entry fixed gear and the open access 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 limited entry and open access allocations for sablefish are completely harvested. The projected species mortality, as a result of harvesting the sablefish allocations, was evaluated using 2002-2016 WCGOP data in the non-nearshore model (Table A-71 and Table A-72).

Non-Nearshore South of 36° N lat.

Impacts are expected to be the same as shown in Table A-26.

Nearshore

The No Action Alternative analyzes the nearshore fishery under the DHCR ACLs (Table A-39 and Table A-41) and associated limits (Table A-40 and Table A-42). The nearshore fisheries under No Action have the same principle management measures as described under the Baseline (Table A-17 and Table A-18), except routine trip limit adjustments are considered as follows: increases for lingcod north 40°10' N lat., reductions for lingcod south of 40°10' N lat., and implementing the March-April closure for canary rockfish south of 40°10' N lat. (as described in the Non-Nearshore Section and summarized below).

Projected landings are shown in Table A-73 and 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 commercial HGs minus nearshore discard mortality and other commercial groundfish fishery removals (i.e., IFQ, at-sea, and non-nearshore) that are not taken off-the-top of ACLs and thus must be accounted for in Oregon allocations. In California, landings targets are based on the projected mortality from 2017 trip limits[7] rather than on average landings to account for the potential additional effort within the fishery due to newly adopted changes in the Nearshore Permit transfer provisions.

In 2017, the CFGC adopted changes to transfer provisions for the Deeper Nearshore Fishery Permit (DNSFP) and the Shallow Nearshore Fishery Permit (SNFP), which are expected to go into effect in early 2018. The FGC recommended allowing 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 is the first time any changes to provisions have been made since the permits were implemented in the early 2000s. While these changes could affect landings and participation in the California nearshore fishery, the extent is unknown. Given this uncertainty, nearshore trip limits are proposed to remain status quo, and adjustments can be made inseason if needed.

Note that California projected landings for lingcod south of 40°10' N lat. will be less due to a significant reduction in the OFL from 2017 (1,502 mt) to 2019 (996 mt) and 2020 (839 mt). Oregon lingcod landings are expected to be 71.3 mt based on continuing the No Action trip limits described under the non-nearshore section (i.e., does not take into account the trip limit options). Oregon canary rockfish landings represent year-end 2017 projections since no trip limit changes are being proposed for 2019–20, despite the projected landings (2.7 mt) being well within the Oregon nearshore share of ~27 mt. Similarly, 2017 landing projections for canary rockfish in California are well within the nearshore share (~73 mt), with projected landings to be 0.8 mt in the north and 2.2 mt in the south.

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 limited 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 for the near term, 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 rockfish, chilipepper, and bocaccio) with minimal impacts to benthic yelloweye rockfish.

Projected total mortality of yelloweye rockfish, the last remaining rebuilding rockfish species impacted by the nearshore fisheries, are shown in Table A-74. The nearshore fisheries are projected to be well within their No Action shares of yelloweye rockfish: Oregon is projected to take 0.9 mt of their 2.3-2.4 mt shares for 2019–20, and California is projected to take 0.5-0.6 mt of their 0.9 mt shares for 2019–20.

The primary objective of the nearshore fisheries has been to maximize opportunity for target stocks while staying within the overfished/rebuilding species limits, in particular yelloweye rockfish. In past biennial analyses, there has been insufficient yelloweye rockfish allocated to the nearshore fisheries to examine anything more than minor changes to nearshore management measures (e.g., lingcod trip limits).

The increased yelloweye rockfish shares under No Action could provide increased opportunity for the nearshore fisheries. These increases could be achieved via routine managements as part of the 2019–20 biennial harvest specifications and management measures (e.g., lingcod trip limit increase proposal described under the non-nearshore section) or via future inseason actions.

Under No Action, the California yelloweye rockfish share increases from 0.7 mt to 0.9 mt, which could accommodate increases in landings due to nearshore permit transfers without exceeding allowable limits. Assuming no changes in fishing behavior, the additional yelloweye rockfish could potentially also allow for increased opportunities, including full attainment of state landing targets based on 2019–20 ACLs for black rockfish, nearshore rockfish (north and south of 40°10' N lat.), and cabezon.

Table A-71. No Action. Projected groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N lat. (in mt) for 2019 compared to the non-trawl allocation (excluding proposed routine adjustments).

Stock	Management Area	LE (mt)	OA (mt)	Total (mt)	Non-Trawl Allocation a/ (mt)
Arrowtooth flounder	Coastwide	49.65	8.43	58.08	674.0
Big Skate	Coastwide	7.07	1.22	8.29	22.6
Black rockfish	Washington	0.00	0.00	0.00	
Black rockfish b/	Oregon	0.03	0.00	0.03	
Black rockfish b/	California				
Bocaccio c/	S. of 40°10´ N lat.	0.30	0.09	0.39	1,266.0
Cabezon	Oregon	0.00	0.00	0.00	
Canary rockfish d/	Coastwide	1.94	7.53	9.47	384.1
Chilipepper rockfish	S. of 40°10´ N lat.	5.18	0.99	6.18	612.6
Darkblotched rockfish	Coastwide	5.16	1.08	6.24	37.4
Dover sole	Coastwide	5.16	1.08	6.24	2,420.2
Ecosystem component species		74.00	19.72	93.72	
English sole	Coastwide	0.03	0.01	0.04	493.7
Lingcod	N. of 40°10´ N lat.	13.20	1.82	15.02	2,519.6
Lingcod	S. of 40°10´ N lat.	1.81	1.84	3.65	541.6
Longnose skate	Coastwide	51.92	9.75	61.67	185.2
Longspine thornyhead	N. of 34°27´ N lat.	1.77	0.45	2.22	127.6
Nearshore rockfish	N. of 40°10´ N lat.	0.14	0.02	0.16	
Shelf rockfish	N. of 40°10´ N lat.	5.21	0.89	6.10	786.9
Shelf rockfish	S. of 40°10´ N lat.	0.08	0.03	0.10	1,383.6
Slope rockfish	N. of 40°10´ N lat.	116.47	19.70	136.17	316.4
Slope rockfish	S. of 40°10´ N lat.	20.54	7.53	28.08	267.8
Mixed thornyheads		0.87	0.24	1.11	
Other Flatfish	Coastwide	0.28	0.05	0.32	624.9
Other groundfish		0.01	0.00	0.01	
Other rockfish		0.14	0.04	0.18	
Pacific cod	Coastwide	2.32	0.40	2.72	54.7
Pacific hake	Coastwide	0.53	0.09	0.63	
POP	N. of 40°10´ N lat.	0.32	0.05	0.37	215.9
Petrale sole	Coastwide	0.71	0.13	0.85	129.4
Shortbelly rockfish	Coastwide	0.00	0.00	0.00	
Shortspine thornyhead	N. of 34°27´ N lat.	23.46	5.21	28.67	80.9
Spiny dogfish	Coastwide	106.18	18.52	124.70	
Splitnose rockfish	S. of 40°10´ N lat.	0.04	0.02	0.06	86.7
Starry flounder	Coastwide	0.01	0.00	0.01	216.6
Widow rockfish	Coastwide	0.14	0.02	0.17	1,042.4
Yellowtail rockfish	N. of 40°10´ N lat.	0.83	0.14	0.98	590.5

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.
b/ Black rockfish south of 46°16´ N lat. is managed with sector-specific ACLs for California and Oregon in 2017.
c/ The non-nearshore share for bocaccio south of 40°10´ N lat. in 2019 is 386.8 mt.
d/ The non-nearshore share for canary rockfish in 2019 is 43.9 mt.

Table A-72. No Action. Projected groundfish mortality for the limited entry and open access fixed gear fisheries north of 36° N lat. (in mt) for 2020 compared to the non-trawl allocation (excluding proposed routine adjustments).

Stock	Management Area	Limited Entry (mt)	Open Access (mt)	Total (mt)	Non-Trawl Allocation a/ (mt)
Arrowtooth flounder	Coastwide	50.72	8.61	59.33	532.8
Big Skate	Coastwide	7.22	1.25	8.47	22.6
Black rockfish	Washington	0.00	0.00	0.00	
Black rockfish b/	Oregon	0.03	0.00	0.03	
Black rockfish b/	California				
Bocaccio c/	S. of 40°10´ N lat.	0.31	0.09	0.39	1,266.3
Cabezon	Oregon	0.00	0.00	0.00	
Canary rockfish d/	Coastwide	1.94	7.53	9.47	361.4
Chilipepper rockfish	S. of 40°10´ N lat.	0.40	0.12	0.52	581.1
Darkblotched rockfish	Coastwide	5.29	1.02	6.31	39.9
Dover sole	Coastwide	5.28	1.10	6.37	2,420.2
Ecosystem component species		75.60	20.14	95.73	
English sole	Coastwide	0.04	0.01	0.04	495.9
Lingcod	N. of 40°10´ N lat.	13.49	1.86	15.34	2,340.3
Lingcod	S. of 40°10´ N lat.	1.85	1.88	3.73	455.2
Longnose skate	Coastwide	53.04	9.96	62.99	185.2
Longspine thornyhead	N. of 34°27´ N lat.	1.81	0.46	2.27	121.0
Nearshore rockfish	N. of 40°10´ N lat.	0.14	0.02	0.17	
Shelf rockfish	N. of 40°10´ N lat.	5.32	0.91	6.23	784.5
Shelf rockfish	S. of 40°10´ N lat.	0.08	0.03	0.11	1,383.6
Slope rockfish	N. of 40°10´ N lat.	118.98	20.12	139.10	313.7
Slope rockfish	S. of 40°10´ N lat.	20.99	7.69	28.68	267.4
Mixed thornyheads		0.89	0.24	1.13	
Other Flatfish	Coastwide	0.28	0.05	0.33	579.2
Other groundfish		0.01	0.00	0.01	
Other rockfish		0.14	0.04	0.18	
Pacific cod	Coastwide	2.37	0.41	2.78	54.7
Pacific hake	Coastwide	0.54	0.10	0.64	
POP	N. of 40°10´ N lat.	0.32	0.05	0.38	210.3
Petrale sole	Coastwide	0.73	0.14	0.86	126.2
Shortbelly rockfish	Coastwide	0.00	0.00	0.00	
Shortspine thornyhead	N. of 34°27´ N lat.	23.96	5.32	29.29	80.2
Spiny dogfish	Coastwide	108.46	18.91	127.37	
Splitnose rockfish	S. of 40°10´ N lat.	0.04	0.02	0.06	85.7
Starry flounder	Coastwide	0.01	0.00	0.01	216.6
Widow rockfish	Coastwide	0.15	0.03	0.17	985.5
Yellowtail rockfish	N. of 40°10´ N lat.	0.85	0.15	1.00	556.8

a/ The non-trawl allocation includes the non-nearshore, nearshore, and recreational fisheries.
b/ Black rockfish south of 46°16´ N lat. is managed with sector specific ACLs for California and Oregon in 2017.
c/ The non-nearshore share for bocaccio south of 40°10´ N lat. in 2020 is 374.7 mt.
d/ The non-nearshore share for canary rockfish in 2020 is 43.9 mt.

Table A-73. No Action. 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 2019–20			
			OR (mt)	CA (mt)	40°10'- 42° N lat. (mt)	S. of 40°10' N lat. (mt)
Black rockfish	OR	120	120	N/A		
Black rockfish	CA	100	N/A	100	95	5
Bocaccio	S. 40°10' N lat.	1.0 (4.9)		1.0 (4.9)		
Cabezon	OR	30	30	N/A		
Cabezon	CA	65	N/A	65	2.5	63
Canary rockfish	OR & CA	6.3 (95)	3.3 (25)	3.0 (69)	0.8	2.2
Kelp greenling	OR	15.5	15.5	N/A		
Kelp greenling	CA	21.3	N/A	21.3	21.0	0.3
Lingcod	N. 40°10' N lat.	71.3	65.7		6	
Lingcod	S. 40°10' N lat.	15.4-20.5	N/A	15.4-20.5		15.4-20.5
Nearshore Rockfish N. a/	N. 40°10' N lat.	33.2	28	5.2	5.2	
--*Blue/deacon rockfish*		20.3	16.7	2.5	2.5	
--*Other Nearshore Rockfish*		12.9	11.3	1.6	1.6	
Nearshore Rockfish S. a/	S. 40°10' N lat.	138.3	N/A	138.3	N/A	138.3
--*Blue/deacon rockfish*			N/A		N/A	
--*Shallow Nearshore Rockfish b/*		81.8	N/A	81.8	N/A	81.5
--*Deeper Nearshore Rockfish c/d/*		56.7	N/A	56.5	N/A	56.7

a/ Nearshore Rockfish totals consists of black-and-yellow, blue, China, gopher, grass, kelp, brown, olive, copper, treefish, calico, and quillback rockfish.
b/ Shallow Nearshore Rockfish consists of black-and-yellow rockfish, China rockfish, gopher rockfish, grass rockfish, and kelp rockfish south of 40°10' N lat. These species are part of the Nearshore Rockfish complex south of 40°10' N lat.
c/ In this table, Deeper Nearshore Rockfish consists of blue rockfish, brown rockfish, calico rockfish, copper rockfish, olive rockfish, quillback rockfish, and treefish south of 40°10' N lat. These species are part of the Nearshore Rockfish complex south of 40°10' N lat. However, for trip limits, black rockfish is included in Deeper Nearshore Rockfish.

Table A-74. No Action. Nearshore shares, state shares, and projections under No Action for 2019–20 yelloweye rockfish. There are no other rebuilding stocks impacted by the nearshore fisheries.

Stock	Nearshore Total			Oregon			California				
	2019/2020 HG		Proj.	2019/2020 Share		Proj.	2019/2020 Share		Total Proj.	40°10' – 42° Proj.	S. 40°10' Proj.
YELLOWEYE ROCKFISH	3.2	3.4	1.4	2.3	2.4	0.9	0.9	0.9	0.5-0.6	0.4	0.1-0.2

A.3.6.3 Trip Limit Analysis

The following trip limit adjustments are proposed for the nearshore fishery under No Action: increases for lingcod north 40°10' N lat., reductions for lingcod south of 40°10' N lat., and implementing the March-April closure for canary rockfish south of 40°10' N lat. 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.

Limited Entry and Open Access - Lingcod North of 40°10´ N lat.

Throughout 2016 and 2017, there has been interest to increase limited entry and open access fixed gear trip limits for lingcod north of 40°10' N lat. The background for these trip limit increases are described in greater detail in the non-nearshore section, since the same trip limits pertain to both the nearshore and non-nearshore. Alternative trip limit increases for lingcod north of 40°10´ N lat. can be found in Table A-62, the projected lingcod impacts in Table A-63, and the associated yelloweye rockfish impacts from the lingcod trip limit increases in Table A-64.

Limited Entry and Open Access - Lingcod South of 40°10´ N lat.

The California nearshore fishery lands on average (2014-2016) 31.2 mt of lingcod south of 40°10´ N lat. per year. In 2017, a new stock assessment was conducted for lingcod in California waters (south of 42° N lat.). Because the stock was found to be in the precautionary zone, the ACLs for 2019–20 will be reduced approximately 20 percent and 33 percent, respectively as part of ongoing management. Under the No Action Alternative (P* = 0.4), ACLs are 996 mt (2019) and 839 mt (2020). The reduction in ACLs will require lowering the trip limits for both limited entry and open access fixed gear fisheries. Table A-67 describes the Status Quo 2017 trip limits and Table A-68 lists the proposed reduced trip limits. Projected mortality estimates of southern lingcod from all non-trawl fisheries compared to the non-trawl allocation are shown in Table A-71 and Table A-72. Lastly, projected impacts to yelloweye rockfish for the California nearshore fishery (0.5-0.6 mt) and for the non-nearshore fishery (0.8 mt) are shown in Table A-74. Further details can be found in the non-nearshore section.

Limited Entry and Open Access – Canary Rockfish South of 40°10´ N lat.

In 2017–18, limited retention of canary rockfish was allowed coastwide for limited entry and open access fixed gear fisheries because the stock was declared rebuilt. The adopted trip limits for 2017–18 were intended to allow retention in the amount for which was previously bycatch, without providing incentive to target the stock. The limited entry and open access fisheries south of 40°10´ N lat. have closures in March and April for shelf rockfish (i.e., Shelf Rockfish complex, bocaccio, chilipepper, shortbelly, widow). Originally, the season closure was implemented in conjunction with RCAs as a way to help rebuild bocaccio and canary rockfish more quickly. Although the stocks have been recently declared rebuilt, the closure will remain in place to align with the other season closures south of 40°10´ N lat. (i.e., Deeper Nearshore, Shallow Nearshore, California scorpionfish, and lingcod). Therefore, to prevent targeting of the canary rockfish stock south of 40°10´ N lat., the proposed trip limit changes to canary rockfish include a March-April closure for the limited entry sector south of 34º 27´ N lat., and for the open access sector south of 40°10´ N lat. (Table A-59). Further details can be found in the non-nearshore section.

A.3.7 Tribal – No Action DHCR

Under No Action, the tribal fisheries allocations, HG, and set-asides are the same as in 2017 (Baseline; Table A-1), except for petrale sole. With the high attainment of petrale sole within the treaty fisheries, the

tribes have asked for an increase within the set-aside, as part of ongoing management, from 220 mt to 290 mt. The projected mortality under No Action is the same as in 2017 (Table A-30).

A.3.8 Washington Recreational – No Action DHCR

Under the No Action Alternative, Washington recreational fisheries would operate under the DHCR ACLs for 2019 and 2020 (Table A-39 and Table A-41), including a 29 and 30 mt ACL for yelloweye rockfish and the associated Washington recreational HGs of 5.5 and 5.8 mt for 2019 and 2020, respectively (Table A-75).

Table A-75. No Action – Washington Recreational. Harvest guidelines (HG) for the Washington recreational fisheries under the No Action Alternative.

Stocks	HG (mt)	
	2019	**2020**
Canary rockfish	47.2	44.4
YELLOWEYE ROCKFISH	5.5	5.7
Black Rockfish	280	278.9
Nearshore Rockfish North of 40°10´ N lat.	19.4	19

A.3.8.1 Groundfish Seasons and Area Restrictions

Season Structure

Under the No Action Alternative, the Washington recreational groundfish season would be open from the second Saturday in March through the third Saturday in October (Table A-76), except lingcod (see the section on Lingcod Seasons and Size Limits), which is the same as Baseline.

Depth restrictions are the primary tool used to keep recreational mortality of yelloweye rockfish within specified HGs. Restrictions limiting the depth where groundfish fisheries are permitted are more severe in the area north of the Queets River (Marine Areas 3 and 4) where yelloweye rockfish abundance is higher and therefore caught incidentally at a higher rate. Depth restrictions are fewer in the south coast where incidental catch of yelloweye rockfish becomes progressively less. Washington coastal management areas are shown in Figure A-3. The No Action Alternative considers moderate changes to depth restrictions in Marine Areas 2, 3, and 4, as described below.

Table A-76. 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- Labor Day a/				BF Open		BF Closed	
2 (S. Coast)	BF Closed			BF Open b/ c/			BF Open b/				BF Closed	
1 (Col. River)	BF Closed			BF Open d/ e/							BF Closed	

a/ Retention of lingcod, Pacific cod and sablefish allowed >20 fm on days when Pacific halibut is open.
b/ When lingcod is open, retention is prohibited seaward of line drawn from Queets River (47°31.70' N lat. 124°45.00' W long.) to Leadbetter Point (46° 38.17' N lat. 124°30.00' W long.) except on days open to the primary halibut fishery.
c/ From April 15 through June 15 lingcod retention prohibited > 30 fm except on days that the primary halibut season is open.
d/ Retention of groundfish, except sablefish, flatfish, and Pacific cod, prohibited during the all-depth Pacific halibut fishery May 1 - Sept 30. Lingcod retention allowed with halibut on board during the all depth halibut fishery north of the WA-OR border.

e/ Retention of lingcod prohibited seaward of line drawn from Leadbetter Point (46° 38.17' N lat. 124°21.00' W long.) to (46° 33.00' N lat. 124°21.00' W long.) year-round.

North Coast (Marine Areas 3 and 4)

The retention of bottomfish would be prohibited seaward of a line approximating 20 fm from June 1 through the first Monday in September (Labor Day), except lingcod, Pacific cod, and sablefish can be retained seaward of 20 fm on days that Pacific halibut fishing is open. Under the No Action Alternative, the 20 fm depth restriction would be in place approximately three weeks less than in 2017, under the Baseline. Fishing for, retention, or possession of groundfish and Pacific halibut would continue to be prohibited in the C-shaped YRCA (Figure A-5).

South Coast (Marine Area 2)

Under the No Action Alternative, the retention of lingcod would be prohibited seaward of 30 fm from April 15 through June 15, except lingcod retention would be allowed seaward of 30 fm on days open to the primary Pacific halibut season. Under No Action, the 30 fm depth restriction would go in place one month later and would be specific to prohibiting lingcod retention compared to the Baseline Alternative. Under the Baseline Alternative, the 30 fm depth restriction exempts rockfish retention and allows the retention of sablefish and Pacific cod beginning May 1. Changes under the No Action Alternative would be more specific to the prohibition to lingcod retention, which is more closely associated with yelloweye rockfish encounters, and as such the measure can be viewed as regulatory streamlining.

When lingcod is open (see *Lingcod Seasons and Size Limits* below), fishing for, retention, or possession of lingcod would be prohibited in deepwater 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., except as allowed on days open to the Pacific halibut fishery (Figure A-5). Fishing for, retention, or possession of bottomfish or Pacific halibut would be prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure A-5).

Columbia River (Marine Area 1)

Under the No Action Alternative, the fishery is open all depths, except for lingcod. Lingcod could be retained north of the Washington-Oregon border on days open to the all-depth Pacific halibut season. When lingcod is open, fishing for, retention, or possession of lingcod would be prohibited in deepwater areas seaward of a line extending from 46°38.17 N lat., 124°21.00' W long. to 46°33.00' N lat., 124°21.00' W long. (Figure A-5). Retention of bottomfish, except sablefish, flatfish other than halibut, and Pacific cod, would be prohibited with halibut onboard from May 1 through September 30.

Area Restrictions

Area restrictions under the No Action Alternative would be the same as the Baseline (Figure A-5 a, b, and c).

A.3.8.2 Groundfish Bag Limits

Under the No Action Alternative, there would be no changes to the 2017 (Baseline) recreational groundfish bag limit of 9 fish per day or the rockfish sublimit of 7 rockfish per day. However, three canary rockfish sublimit options and one cabezon sublimit option, in addition to status quo, were analyzed as part of ongoing management.

- Canary rockfish
    - Baseline: One canary rockfish in Marine Areas 1 and 2.
    - Option 1: Up to one canary rockfish can be retained as part of the 7 rockfish sublimit in Marine Areas 1 – 4.
    - Option 2: Up to two canary rockfish can be retained as part of the 7 rockfish sublimit in Marine Areas 1 – 4.
    - Option 3: No canary rockfish sublimit in Marine Areas 1 – 4.
- Cabezon
    - Baseline: Two cabezon in Marine Areas 1-3 and one cabezon in Marine Area 4.
    - Option 1: Sublimit of one cabezon can be retained in Marine Areas 1 – 4.

Under the No Action Alternative, there is an 18-inch minimum size limit for cabezon in Marine Area 4 (Cape Alava to the U.S. Canadian border) which is the same as the Baseline. 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, the lingcod seasons would be the same as the Baseline. In Marine Areas 1 through 3 (Washington-Oregon border at 46°16' N lat. to Cape Alava at 48°10' N lat.) the lingcod season would be open from the second Saturday in March through the third Saturday in October. Marine Area 4 (Cape Alava to the U.S. Canadian border) would be open from April 16 through October 15. There is no lingcod size limit in Marine Areas 1 – 4.

Under the No Action Alternative, the lingcod seasons by area would be as follows:

- Marine Areas 1-3: March 9 through October 19 in 2019 and March 14 through October 17 in 2020.
- Marine Area 4: April 16 through October 15 in 2019 and 2020.

Pacific Halibut Seasons

It is expected that the Pacific halibut seasons in 2019–20 will be similar to the halibut seasons in 2017–18. .

A.3.8.3 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 in Recreational Fishery Information Network (RecFIN). It should be noted that the precision of recreational groundfish catch estimates based upon previous seasons will continue to be influenced by factors such as the length and success of salmon and halibut seasons, weather, and unforeseen factors.

Washington's OSP is able to produce estimates of groundfish catch with a one-month lag time. Management measures such as more restrictive depth closures, area closures, groundfish retention restrictions, or changes to seasons can be considered and implemented through emergency changes to state regulations if inseason catch reports indicate that recreational harvests of overfished/rebuilding species or healthy species are exceeding pre-season projections to the point where HGs are at risk of being exceeded.

A.3.8.4 Impact (Groundfish Mortality)

Projected mortality for rebuilding and healthy species under the No Action Alternative are summarized in Table A-77. Management measures under No Action include: reducing the time period that depth restrictions are in place in Marine Area 2, 3, and 4, streamlining the 30 fm depth restriction in Marine Area 2, options for canary rockfish and cabezon sublimits, and consideration of a new Washington kelp greenling and cabezon stock complex.

Under the No Action Alternative, the Washington yelloweye rockfish HG is 5.5 and 5.8 mt for 2019 and 2020 respectively, considerably higher than the 3.3 mt HG under the Baseline. As mentioned above, small yelloweye rockfish HGs have driven the need for restrictive management measures such as depth restrictions for Washington recreational fisheries for many years. With additional yelloweye rockfish available to the recreational fishery, management measure alternatives that reduce depth restrictions and provide more access for recreational anglers were explored for 2019 and 2020. In addition, under a rebuilt canary rockfish stock, limited retention of canary rockfish was permitted in 2017 for the first time since the early 2000s. 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 and the Washington recreational HG for canary rockfish, which would be 47.2 and 44.4 mt in 2019 and 2020 respectively, there is sufficient allocation to consider canary rockfish sublimit options that allow retention at different levels in all marine areas.

Yelloweye rockfish catch per angler from 2005, prior to the implementation of depth restrictions, was used as the basis to estimate projected impacts under less conservative depth restrictions considered under the No Action Alternative. Under the No Action Alternative, the 20 fm depth restriction would be implemented in June, approximately three weeks later than under the Baseline. A yelloweye rockfish per angler catch rate from May of 2005 was applied to angler effort from 2017 (the most current year with final data) and updated with 2017 average weight to produce a new yelloweye rockfish projection for May 2019 and May 2020. It was assumed that angler effort would increase from 2017 if depth restrictions were removed so the 2017 effort estimate was increased by 35 percent. Final yelloweye rockfish estimates from 2017 were used to estimate projected impacts in other months where status quo depth restrictions would be in place. Similarly, under the No Action Alternative, the 30 fm depth restriction in Marine Area 2 would be implemented one month later than under the Baseline. Yelloweye rockfish per angler from March 2005 was applied to the number of anglers in March and April 2017 and divided in half to produce projected impacts for the month (stretched out over two months, mid-March through mid-April) where no depth restriction would be in place. Final yelloweye rockfish estimates from 2017 were used to estimate projected impacts in other months where status quo depth restrictions would be in place. These projected estimates rely on older data, and while it is considered the best available information, actual impacts could be higher or lower than projected due to differences in the status of the stock in 2005 compared to 2017.

Angler effort is expected to increase 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. More angler effort has shifted to groundfish opportunities as a result of limited salmon fishing opportunities in recent years. There was a general increase in angler effort per month from 2015 to 2016 of approximately 35 percent. Projected angler effort for 2019 and 2020 was estimated by assuming a similar increase of angler effort of 35 percent continues in months where less restrictive depth restrictions are in place. Status quo effort is used as a projection in months where depth restrictions are not changed. 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.

Projected impacts to canary rockfish relied on data from 2017 when limited canary rockfish retention was allowed for the first time in many years. As mentioned above, projected mortality was difficult to estimate based on uncertainties surrounding angler behavior around targeting. Final estimates from 2017 show an increase in canary rockfish mortality in Marine Areas 1 and 2 compared to years when canary rockfish were prohibited but there did not appear to be a shift toward targeting canary rockfish. An updated bag limit analysis using 2017 data was used to produce projected impacts for canary rockfish in all Marine Areas in 2019 and 2020 under the three sublimit options that assumes similar angler behavior as was seen in 2017 (Table A-78). Actual canary rockfish impacts could be higher depending on angler behavior, which might continue to change as anglers get used to retaining canary rockfish. The Washington recreation HG provides a significant buffer for higher than projected canary rockfish impacts if angler behavior or encounter rates increase from what was seen in 2017. Additional yelloweye rockfish impacts were not estimated under the three canary rockfish sublimit options. Inseason catch estimates for yelloweye rockfish could be higher than projected if anglers misreport yelloweye rockfish as canary rockfish. 2017 angler interview data shows that while the amount of retained canary rockfish increased, there was not a notable increase in yelloweye rockfish retention as a result of misidentification. Significant effort has been focused on educating anglers on species identification with a specific focus on identification traits for yellow, orange, and red rockfish species that might be incorrectly identified. As mentioned above, inseason action can be taken to address higher than anticipated yelloweye rockfish impacts if necessary.

A bag limit analysis was used to project mortality of cabezon under an option that would reduce the sublimit in Marine Areas 1 – 3 from 2 to 1 fish per day (Table A-78). Because most cabezon are caught in Marine Area 4 where the sublimit is already one fish per day, the reduction in projected impacts as a result of reducing the sublimit is small. However, the change would streamline regulations by making the sublimit the same in all marine areas. Under the No Action Alternative, an option to manage cabezon in a Washington Kelp Greenling/Cabezon stock complex is also considered. Projected mortality of cabezon would not change as a result of which stock complex it was managed under. However, if action was needed to keep catch within the proposed stock complex ACL, the process would be simplified under a state- specific stock complex management where WDFW could take inseason action immediately.

Table A-77. No Action – Projected Mortality (in mt) for the Washington Recreational fishery under No Action.

Stock	2019–20
Canary rockfish	4.80
YELLOWEYE ROCKFISH	4.73
Black Rockfish	226.42
Lingcod	149.53
Nearshore Rockfish	4.80
Blue Rockfish	*1.47*
Quillback Rockfish	*1.32*
Copper Rockfish	*0.83*
China Rockfish	*1.18*
Brown Rockfish	-
Grass Rockfish	-
Yellowtail Rockfish	45.26
Vermilion Rockfish	0.82
Cabezon	*5.17*
Kelp Greenling	*1.16*

Table A-78. No Action – Projected mortality (in mt) under a range of sublimit options for canary rockfish and cabezon.

Stock	Option 1 one per day, all marine areas	Option 2 two per day, all marine areas	Option 3 no sublimit
Canary rockfish	5.67	6.22	6.29
Cabezon	5.09		

A.3.9 Oregon Recreational – No Action DHCR

The No Action Alternative analyzes the Oregon recreational fishery under the DHCR ACLs (Table A-39 and Table A-41) and Oregon recreational HGs, or presumed state quotas (Table A-79). 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 A.2.3. Under No Action, the ACL will increase significantly, as will the presumed state-specified recreational HG (~33 mt to ~90 mt) for the Nearshore Rockfish complex. The Oregon black rockfish ACL, and associated presumed state-specified HG for the recreational fishery decreases from 400.1 mt in 2017 to 390.6 and 387.6 mt in 2019 and 2020, respectively (Table A-33 and Table A-79). For yelloweye rockfish, the federal HG increases from 3.0 mt in 2017 to 5.0 and 5.2 mt in 2019 and2020, respectively. This will cause black rockfish, the primary driver of the Oregon recreational fishery, along with yelloweye rockfish to be the drivers of the season structure and bag limits. The HGs for Oregon recreational fisheries for the Nearshore Rockfish complex and black rockfish would be state-specified HGs and not established in federal regulations. In the event inseason action is needed to keep mortality within the values in Table A-79, the state of Oregon would

take action through state regulation. 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 allocations.

Table A-79. No Action. Oregon recreational federal harvest guidelines (HG) or state quotas under the No Action Alternative (mt).

Stock	2019 HG [a/]	2020 HG [a/]
Canary rockfish	70.9	66.7
YELLOWEYE ROCKFISH	4.9	5.2
Black rockfish OR [b/]	390.6	387.6
Greenlings [c/]	46.5	44.0
Nearshore Rockfish North of 40°10' N lat. [d/]	92.4	90.9

a/ Federal HG are established for canary rockfish and yelloweye rockfish only. The state process in Oregon establishes recreational quotas for black rockfish, Nearshore Rockfish complex species, and greenlings (all species). The state quotas, which are yet to be determined are not intended to be implemented in federal regulation, they are only provided as information.
b/ The values shown are the presumptive share based on the 2017 recreational and commercial sharing percentages in Oregon State Regulations.
c/ Includes kelp and other greenlings. The values shown are the presumptive share based on the 2017 recreational and commercial sharing percentages in Oregon State Regulations.
d/ Includes blue rockfish. The state of Oregon has a federal HG for Nearshore Rockfish North of 40°10' N lat., which is shared between the Oregon commercial nearshore and recreational fisheries. The values shown are the presumptive share based on 2017 recreational and commercial sharing percentages in Oregon State Regulations.

A.3.9.1 Groundfish Seasons and Area Restrictions

Season Structure

Under the No Action Alternative, the Oregon recreational groundfish fishery would be open offshore year-round, except from June 1 to August 31 when fishing is only allowed shoreward of 40 fm, as defined by waypoints in regulation at 50 CFR 660.71 (Figure A-13). The federal depth restriction would be in place for three months in 2019–20, compared to six months in 2017. Closing the fishery deeper than 40 fm from June 1 to August 31, the period of highest angler effort and yelloweye rockfish encounters, mitigates mortality of yelloweye rockfish. However, shallow depth restrictions increase encounters, and associated mortality impacts, with black rockfish. This makes it a complicated analysis to try to control impacts to both species, as changing the depth to reduce impacts to one increases impacts to the other. The season structure and bag limit presented in Figure A-13 are designed to balance impacts to black and yelloweye rockfish, to stay within the respective HGs. Canary rockfish and Nearshore Rockfish complex north species would be part of the 10-fish marine bag (no sub-bag limits) in 2019 and 2020. Projected mortality of yelloweye rockfish and canary rockfish are within the federal HGs, therefore the shore-based fishery would be open year-round.

Season and Bag Limits	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bottomfish Season	Open all depths					< 40 fm			Open all depths			
Marine Bag Limit b/	Ten (10)											
Lingcod Bag Limit	Three (3)											
Flatfish Bag Limit c/	Twenty Five (25)											

a/ From July 1 through August 31, the marine bag limit is Ten (10) fish per day, of which no more than one (1) may be cabezon.
b/ Marine bag limit 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.
c/ Flounders, soles, sanddabs, turbots and halibuts except Pacific halibut.

Figure A-13. Oregon recreational groundfish season structure and bag limits under the No Action Alternative.

Area Restrictions

The Stonewall Bank YRCA has been in place since 2006 and would also remain under the No Action Alternative (Figure A-7). The YRCA is located approximately 15 miles west of the Port of Newport and consists of the high-relief area of Stonewall Bank, an area of high yelloweye rockfish encounters. No recreational fishing for groundfish and Pacific halibut can occur within this YRCA, which is bounded by the waypoints contained in Table A-34.

Figure A-7 shows two options that are available in regulation at 50 CFR 660.70 (g) and (h)[8] for expanding the Stonewall Bank YRCA to reduce yelloweye rockfish interactions, if necessary.

A.3.9.2 Groundfish Bag Limits and Size Limits

Under the No Action Alternative, bag and size limits under the Baseline would remain the same, except there would be no state-specified sub-bag limits, except for cabezon.

Pacific Halibut Seasons

Same as the Baseline.

A.3.9.3 Additional Considerations

While retention of yelloweye rockfish remains prohibited, the higher yelloweye rockfish HG allows for additional bycatch mortality, which in turn allows for fewer months with depth restrictions, which could take some pressure off of more nearshore stocks such as black rockfish. Due to the lower HGs for Nearshore Rockfish complex in 2017, there was a 4-fish sub-bag limit for blue, deacon, copper, quillback, or China rockfish in aggregate specified in state regulations. With the increased Nearshore Rockfish complex HGs, the state-specified sub-bag limit would not be necessary. In 2017, Oregon ACL for black rockfish was much lower than the previous Oregon share of the combined OR/CA black rockfish ACL, and as such there was a 6-fish sub-bag limit for black rockfish, specified in state rules in 2017. With the Oregon black rockfish ACL being lower in 2019–20 than in 2017, a state-specified sub-bag limit may again be implemented. Adjustments to routine and currently available management measures would be used to keep recreational harvests of rebuilding species within specified federal HGs under No Action.

[8] http://www.westcoast.fisheries.noaa.gov/publications/fishery_management/groundfish/pink-pages-may-2017.pdf

As under the Baseline, the midwater rockfish longleader gear would be available outside of the 40 fm regulatory line during months when the groundfish season has depth restrictions. Estimated mortality from longleader gear trips are included in the total mortality estimates below.

A.3.9.4 Inseason Management Response

The same inseason response as described under the Baseline.

A.3.9.5 Impact (Groundfish Mortality)

The annual projected mortality presented in Table A-80 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. The majority of the data that is used in the model is for time periods when anglers were encouraged to avoid canary rockfish, and were required to discard when encountered. Limited retention of canary rockfish was allowed beginning in 2015-2016 when a 1-fish sub-bag limit was put into place. Beginning in 2017, canary rockfish was part of the regular bag limit, there was no sub-bag limit. Inseason tracking through mid-September has the estimated impacts to canary rockfish at 26.1 mt, which is approximately 10 mt over what was modeled for 2017 (17.7 mt). The current projected impacts are 42.8 mt. Even with 2017 data, the model still does not have enough retention data to provide a certain estimate for canary rockfish. Yelloweye rockfish and black rockfish 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 longleader recreational groundfish fishing seaward of a line approximating the 40 fm 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/rebuilding rockfish species. The final federal rule was implemented on April 1, 2018 and is therefore available for 2019–20. However, because it was not in place until then, estimating impacts from anglers using the longleader gear are difficult and highly uncertain. Table A-80 includes estimates of projected mortality for both target (yellowtail and widow rockfish) as well as bycatch discard mortality (primarily yelloweye rockfish and deacon rockfish).

Table A-80. 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	42.8
YELLOWEYE ROCKFISH	4.6
Black rockfish OR a/	426.8 a/
Greenlings b/	5.8
Nearshore Rockfish North of 40°10' N lat. c/	40.9
Yellowtail rockfish	18.2
Widow rockfish	3.0
Lingcod	181.2

a/ Projected mortality is higher than the presumed state-specified recreational HG. The state will implement sub-bag limits through state rules as in 2017 to keep impacts within the HG.
b/ Includes kelp and other greenlings.
c/ Includes blue rockfish. The state of Oregon has a federal HG of Nearshore Rockfish North of 40°10´ N lat. of 60.5 mt, which is shared between the Oregon commercial nearshore and recreational fisheries.

A.3.10 California Recreational – No Action DHCR

Under the No Action Alternative, the California recreational yelloweye rockfish HG is expected to increase from 3.9 mt to 6.5 and 6.7 mt in 2019 and 2020, respectively (Table A-82). California scorpionfish would remain under a constant catch scenario, resulting in an ACL of 150 mt. The non-trawl allocation of lingcod south of 40°10' N lat. would be based on a P* of 0.40 resulting in 541.6 mt and 455.2 mt in 2019 and 2020, respectively. Other noteworthy ongoing management changes are that bocaccio, darkblotched rockfish, and POP are rebuilt with higher ACLs and allocations than under the Baseline, and blue rockfish is no longer managed under an HG in California (south of 42° N lat.).

Table A-81. No Action – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2019 and 2020.

Stock	Non-Trawl Allocation		California Recreational HG	
	2019	2020	2019	2020
Bocaccio	1,266	1,226.3	874.3	846.9
Canary rockfish	384.1	361.4	127.6	120.0
COWCOD	3.8			
Darkblotched rockfish	37.4	39.9		
Nearshore Rockfish North of 40°10´ N lat.	179.8	176.8	37.3	38.6
POP	215.9	210.3		
Petrale sole	129.4	126.2		
YELLOWEYE ROCKFISH	21.3	22.2	6.5	6.7

A.3.10.1 Groundfish Seasons and Area Restrictions

Season Structure

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 2015 and 2016. Further description of the RecFISH model is provided in Appendix D.

California's recreational fisheries are constrained by yelloweye rockfish and, to a degree, lingcod south of 40°10' N lat. Because more yelloweye rockfish is available under this no-action alternative, it may allow for the prosecution of the recreational fisheries under the season structure analyzed in the 2017–18 EA, including all-depth fishing opportunities in the Northern and Mendocino Management Areas. The additional yelloweye rockfish available under this alternative may also help buffer against unanticipated encounters, similar to those experienced in 2017. Two season structure ongoing management options are presented below, as recommended by California Department of Fish and Wildlife.

Option 1

Option 1 examines the same season structure that was in place at the beginning of 2017 (Figure A-14), prior to inseason action, except that the season structure for California scorpionfish would be extended through December 31 statewide. This would allow for year-round fishing for California scorpionfish in

the Southern Management Area. The season structure for California scorpionfish in all other management areas would be aligned with the RCG complex (Figure A-14, Figure A-15).

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 15 – Dec 31 <40fm								
Central	Closed		April 1 – Dec 31 <50fm									
Southern	Closed		Mar 1 – Dec 31 <60 fm									

Figure A-14. Option 1: California recreational groundfish season structure assuming same season structure analyzed in 2017–18 FEIS.

Option 2

Option 2 explores providing additional depth in the Southern Management Area. Under Option 2, the management areas north of Point Conception would be the same as Option 1, and the depth would be increased from 50 fm to 75 fm in the Southern Management Area (Figure A-15). The season structure for California scorpionfish would remain the same as Option 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 15 – Dec 31 <40fm								
Central	Closed		April 1 – Dec 31 <50fm									
Southern	Closed		Mar 1 – Dec 31 <75 fm									

Figure A-15. Option 2: California recreational groundfish season structure with depth increased to 75 fm in the Southern Management Area.

Area Restrictions

Same as described under the Baseline.

A.3.10.2 Groundfish Bag Limits Gear Limits and Size Limits

Bag limits, size limits, and gear restrictions are the same as described under the Baseline, except that changes to sub-bag limits for canary rockfish and cabezon are considered as part of ongoing management.

Canary rockfish – CDFW has received requests to consider increasing the canary rockfish sub-bag limit from one to two fish. A 2-fish sub-bag limit can be accommodated under Option 1 and Option 2.

Cabezon – CDFW is considering eliminating the sub-bag limit for cabezon within the 10-fish RCG bag limit to reduce regulatory complexity. Eliminating the sub-bag limit can be accommodated under Option 1 and Option 2.

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

The most recent stock assessment indicated that the southern portion of the stock is in the precautionary zone, whereas the northern stock is healthy. Given the northern stock is healthy, no ongoing management changes are proposed to the 2-fish bag limit in the Northern Management Area (i.e., 40°10' N lat.). A 1-fish bag limit is considered south of 40°10' N lat. to keep mortality within the non-trawl allocation. Under Option 1 and Option 2, the lingcod season would remain aligned with the RCG complex, as under the 2017 regulations (Baseline).

Gear and size limit restrictions are the same as the Baseline.

California Scorpionfish Seasons, Bag Limits, and Size Limits

The most recent stock assessment indicated that California scorpionfish is healthy. This optimistic outlook on stock status coupled with lower mortality in recent years suggests the statewide closure from September through December is no longer necessary. The California scorpionfish season structure is proposed to be returned to those in place prior to 2015, allowing for year-round fishing in the Southern Management Area. The season structure in all other management areas will be aligned with the RCG complex.

Gear and size limit restrictions are the same as the Baseline.

Pacific Halibut Seasons

Same as described under the Baseline.

A.3.10.3 Inseason Management Response

Same inseason response as described under the Baseline.

A.3.10.4 Impact (Groundfish Mortality)

To the degree that fishing behavior, encounter rates, and availability of other target opportunities differ from prior years, actual mortality may be higher or lower than projections.

Option 1

Table A-83 provides projected mortality under Option 1. Compared to the Baseline, projected impacts under Option 1 are generally higher for other species, which is expected given increased access to deeper depths and all-depth fishing opportunities.

Under Option 1, projected impacts for yelloweye rockfish are less than the Baseline because of unusual environmental conditions, which led to high effort during summer months. Because it is unclear whether these same conditions will persist in 2018, projected impacts for yelloweye rockfish are derived from the RecFISH model. Participation in the California recreational groundfish fishery is strongly influenced by weather conditions and availability of other recreational fishing targets (e.g., salmon). Given the uncertainty in future salmon opportunities and in weather patterns, actual mortality may be higher or lower than model projections.

The projections for California scorpionfish is higher compared to the Baseline. This is to be expected given that season would be extended through December 31 statewide under Option 1. Mortality for

canary rockfish and cabezon would be higher than the Baseline due to changes in bag limits; projected impacts for lingcod south of 40°10' N lat. would be lower due to a reduction in the bag limit.

Table A-82. Option 1: Projected mortality in the California recreational fishery in 2019–20 under No Action. Values in parenthesis indicate bag limits other than status quo and resulting projected mortality.

Stock	Projected Recreational Mortality	California Recreational HG		Non-Trawl Allocation a/	
		2019	2020	2019	2020
Bocaccio	113.7	874.3	846.9	1,266	1,226.3
Canary rockfish (2)	83.7 (110.4)	127.6	120.0	384.1	361.4
COWCOD	1.0			3.8	
YELLOWEYE ROCKFISH	3.3	6.5	6.7	21.3	22.2
Black rockfish	108.1			329	326
Cabezon (10)	53.8 (59.2)			146.7	145.7
California scorpionfish	124.0			147.6	
Greenlings	10.3			b/	
Lingcod N. of 40°10' N lat. c/	70.9			2,434.3	2,299.6
Lingcod S. of 40°10' N lat. (1)	422.4 (315.3)			541.6	455.2
Widow rockfish	7.4			1,042.4	985.6
Nearshore Rockfish N. of 40°10' N lat. d/	12.4	37.3	38.6	179.8	176.8
Nearshore Rockfish S. of 40°10' N lat. d/	538.5			1,137.9	1,158.9
Petrale sole	2.1			129.4	126.2
Starry flounder	5.8			216.6	

a/ Includes non-nearshore, nearshore, and recreational.
b/ California kelp greenling is managed within the Other Fish complex.
c/ Projected impacts only includes the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.
d/ Includes blue rockfish.

Option 2

Table A-84 provides projected mortality under Option 2. Projected mortality is similar to Option 1 except that projected impacts are slightly increased for some species (e.g., cowcod) as a result of the depth change to 75 fm in the Southern Management Area. As noted in Option 1, projected impacts may be higher or lower than actual mortality given uncertainty in weather conditions and availability of other recreational fishing targets (e.g., salmon).

Table A-83. Option 2: Projected mortality in the California recreational fishery in 2019–20 under No Action. Values in parenthesis indicate bag limits other than status quo and resulting projected mortality.

Stock	Projected Recreational Mortality	California Recreational HG		Non-Trawl Allocation a/	
		2019	2020	2019	2020
Bocaccio	122.4	874.3	846.9	1,266	1,226.3
Canary rockfish (2)	83.9 (110.7)	127.6	120.0	384.1	361.4
COWCOD	1.6			3.8	
YELLOWEYE ROCKFISH	3.3	6.5	6.7	21.3	22.2
Black rockfish	108.1			329	326
Cabezon (10)	53.8/(59.2)			146.7	145.7
California scorpionfish	124.0			147.6	
Greenlings	10.3			b/	
Lingcod N. of 40°10' N lat. c/	70.9			2,434.3	2,299.6
Lingcod S. of 40°10' N lat. (1)	423.8 (316.3)			541.6	455.2
Widow rockfish	7.4			1,042.4	985.6
Nearshore Rockfish N. of 40°10' N lat. d/	12.4	37.3	38.6	179.8	176.8
Nearshore Rockfish S. of 40°10' N lat. d/	538.5			1,137.9	1,158.9
Petrale sole	2.1			129.4	126.2
Starry flounder	5.8			216.6	

a/ Includes non-nearshore, nearshore, and recreational.
b/ Greenling is managed within the Other Fish complex.
c/ Projected impacts only includes the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.
d/ Includes blue rockfish.

A.4 Alternative 1

Under Alternative 1, the default harvest specifications, as described under No Action (Table A-85, Table A-87, and Table A-89), would be implemented for all stocks except:

- California Scorpionfish: The ACL is set equal to the ABC using a P* value of 0.45, and the 2019-20 ACLs would be approximately 160 mt higher than under the No Action and 2017 ACL of 150 mt.
- Lingcod north and south of 40°10´ N lat.: The No Action DHCR would apply except that the P* value is increased from 0.4 to 0.45 reflecting greater confidence in the current stock assessment. For the northern stock in 2019, the ACL would increase from 4,859 mt under No Action to 4,871 mt under Alternative 1. For 2020, it would increase from 4,533 mt to 4,541 mt. For the southern stock, the 2019 ACL would increase from 996 mt to 1,039 mt, and the 2020 ACL would increase from 839 mt to 869 mt.
- Yelloweye rockfish: The spawning potential ratio (SPR) scaled exploitation rate is changed to 70 percent from the current rate of 76 percent. This increases the 2019 and 2020 ACLs by approximately 10 mt and adds one year to the median time to rebuild, compared to No Action.

A.4.1 Deductions from the ACL

Under Alternative 1, 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 No Action (Section A.3.1).

A.4.2 Allocating the Fishery HG

Under Alternative 1, the allocation percentages are the same as described under No Action (Section A.3.1). The increased ACLs for yelloweye rockfish, California scorpionfish, lingcod north of 40°10´ N lat., and lingcod S. of 40°10´ N lat. result in larger sector allocations (Table A-86 and Table A-88).

Table A-84. Alternative 1 2019. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality in metric tons, used to calculate the fishery HG in 2019.

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Arrowtooth flounder	Coastwide	15,574	2,041.0	0.1	13.0	40.8	13,479
Big skate	Coastwide	494	15.0	0.1	5.5	21.3	452
Black rockfish (WA)	Washington	298	18.0	-	0.1	-	280
Black rockfish (OR)	Oregon	516		1.5	0.0	0.6	514
Black rockfish (CA)	California	329		-	0.0		329
Bocaccio	S of 40º10' N lat.	2,097		14.2	5.6	0.5	2,077
Cabezon (OR)	Oregon	47		0.1	0.0	0.0	47
Cabezon (CA)	California	147		-	0.0	0.3	147
California scorpionfish a/	S of 34°27' N lat.	313		-	0.2	2.2	311
Canary rockfish	Coastwide	1,450	50.0	5.0	7.8	1.3	1,386
Chilipepper rockfish	S of 40º10' N lat.	2,536		60.6	13.4	11.5	2,451
COWCOD b/	S of 40º10' N lat.	10		0.0	2.0	0.0	6
Darkblotched rockfish	Coastwide	765	0.2	0.6	8.5	7.0	749
Dover sole	Coastwide	50,000	1,497.0	0.1	49.2	49.3	48,404
English sole	Coastwide	10,090	200.0	0.1	8.0	8.1	9,874
Lingcod	N of 40'10º N lat.	4,871	250.0	1.6	16.6	9.8	4,593
Lingcod	S of 40'10º N lat.	1,039		-	3.2	8.1	1,028
Longnose skate	Coastwide	2,000	130.0	0.1	12.5	5.7	1,852
Longspine thornyhead	N of 34º27' N lat.	2,603	30.0	-	14.2	6.2	2,553
Longspine thornyhead	S of 34º27' N lat.	822		-	1.4	0.0	821
Nearshore Rockfish north	N of 40º10' N lat.	183	1.5	0.5	0.3	0.9	180
Nearshore Rockfish south	S of 40º10' N lat.	1,142		0.0	2.7	1.4	1,138
Shelf Rockfish north	N of 40º10' N lat.	2,054	30.0	4.5	24.7	17.7	1,977
Shelf Rockfish south	S of 40º10' N lat.	1,625		30.1	14.5	4.6	1,576
Slope Rockfish north	N of 40º10' N lat.	1,746	36.0	1.5	21.6	21.7	1,665
Slope Rockfish south	S of 40º10' N lat.	744		1.0	2.3	16.9	724
Other Fish	Coastwide	420		0.1	0.1	8.8	411
Other Flatfish	Coastwide	6,498	60.0	0.1	27.8	161.6	6,249
Pacific cod	Coastwide	1,600	500.0	0.1	5.5	0.6	1,094
Pacific whiting	Coastwide	441,433	77,251.0	1.1		1,500.0	362,681
POP	N of 40º10' N lat.	4,340	9.2	0.1	3.1	10.0	4,318
Petrale Sole	Coastwide	2,908	290.0	0.1	24.1	6.4	2,587
Sablefish	N of 36º N lat.	5,606	See Sablefish Tab				
Sablefish	S of 36º N lat.	1,990		-	2.4	1.8	1,986
Shortbelly rockfish	Coastwide	500		0.1	8.2	8.9	483
Shortspine thornyhead	N of 34º27' N lat.	1,683	50.0	0.1	10.5	4.7	1,618
Shortspine thornyhead	S of 34º27' N lat.	890		-	0.7	0.5	889
Spiny dogfish	Coastwide	2,071	275.0	1.1	34.3	22.6	1,738
Splitnose rockfish	S of 40º10' N lat.	1,750		1.5	9.3	5.8	1,733
Starry flounder	Coastwide	452	2.0	0.1	0.6	16.1	433

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Widow rockfish	Coastwide	11,831	200.0	28.5	17.3	3.1	11,582
YELLOWEYE ROCKFISH	Coastwide	39	2.3	0.25	2.92	0.4	33
Yellowtail rockfish	N of 40º10' N lat.	5,997	1,000.0	51.2	20.6	4.5	4,921

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.
b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-85. Alternative 1 2019. Stock-specific fishery HGs or ACTs and allocations for 2019 (in mt).

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Arrowtooth flounder	Coastwide	13,479.1	Am. 21	95%	12,805.1	5%	674.0
Big skate	Coastwide	452.1	Biennial	95%	429.5	5%	22.6
Black rockfish (WA)	Washington	279.9	None				
Black rockfish (OR)	Oregon	513.9	None				
Black rockfish (CA)	California	329.0	None				
Bocaccio	S of 40º10' N lat.	2,076.7	Biennial	39%	810.7	61%	1,266.0
Cabezon (OR)	Oregon	46.9	None				
Cabezon (CA)	California	146.7	None				
California scorpionfish a/	S of 34°27' N lat.	310.6	None				
Canary rockfish	Coastwide	1,385.9	Biennial	72%	1,001.8	28%	384.1
Chilipepper rockfish	S of 40º10' N lat.	2,450.5	Am. 21	75%	1,837.9	25%	612.6
COWCOD b/	S of 40º10' N lat.	6.0	Biennial	36%	2.2	64%	3.8
Darkblotched rockfish	Coastwide	748.7	Am. 21	95%	711.3	5%	37.4
Dover sole	Coastwide	48,404.4	Am. 21	95%	45,984.2	5%	2,420.2
English sole	Coastwide	9,873.8	Am. 21	95%	9,380.1	5%	493.7
Lingcod	N of 40'10º N lat.	4,593.0	Am. 21	45%	2,066.9	55%	2,526.2
Lingcod	S of 40'10º N lat.	1,027.7	Am. 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 34º27' N lat.	2,552.6	Am. 21	95%	2,425.0	5%	127.6
Longspine thornyhead	S of 34º27' N lat.	820.6	None				
Nearshore Rockfish north	N of 40º10' N lat.	179.8	None				
Nearshore Rockfish south	S of 40º10' N lat.	1,137.9	None				
Shelf Rockfish north	N of 40º10' N lat.	1,977.1	Biennial	60.2%	1,190.2	39.8%	786.9
Shelf Rockfish south	S of 40º10' N lat.	1,575.8	Biennial	12.2%	192.3	87.8%	1,383.6
Slope Rockfish north	N of 40º10' N lat.	1,665.2	Am. 21	81%	1,348.8	19%	316.4
Slope Rockfish south	S of 40º10' N lat.	723.8	Am. 21	63%	456.0	37%	267.8
Other Fish	Coastwide	411.1	None				
Other Flatfish	Coastwide	6,248.5	Am. 21	90%	5,623.7	10%	624.9
Pacific cod	Coastwide	1,093.8	Am. 21	95%	1,039.1	5%	54.7
Pacific whiting	Coastwide	362,680.9	Am. 21	100%	362,680.9	0%	0.0
POP	N of 40º10' N lat.	4,317.6	Am. 21	95%	4,101.7	5%	215.9
Petrale sole	Coastwide	2,587.4	Am. 21	95%	2,458.0	5%	129.4
Sablefish	N of 36º N lat.		See Sablefish tab				
Sablefish	S of 36º N lat.	1,985.8	Am. 21	42%	834.0	58%	1,151.8
Shortbelly rockfish	Coastwide	482.8	None				0.0

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Shortspine thornyhead	N of 34º27' N lat.	1,617.7	Am. 21	95%	1,536.8	5%	80.9
Shortspine thornyhead	S of 34º27' N lat.	888.8	Am. 21	NA	50.0	NA	838.8
Spiny dogfish	Coastwide	1,738.0	None				
Splitnose rockfish	S of 40º10' N lat.	1,733.4	Am. 21	95%	1,646.7	5%	86.7
Starry flounder	Coastwide	433.2	Am. 21	50%	216.6	50%	216.6
Widow rockfish	Coastwide	11,582.1	Am. 21	91%	10,539.7	9%	1,042.4
YELLOWEYE ROCKFISH	Coastwide	33.1	Biennial	8%	2.7	92%	30.5
Yellowtail rockfish	N of 40º10' N lat.	4,920.7	Am. 21	88%	4,330.3	12%	590.5

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.
b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-86. Alternative 1 2020. 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 2020.

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Arrowtooth flounder	Coastwide	12,750	2,041.0	0.1	13.0	40.8	10,655.1
Big skate	Coastwide	494	15.0	0.1	5.5	21.3	452.1
Black rockfish (WA)	Washington	297	18.0	-	0.1	-	278.9
Black rockfish (OR)	Oregon	512		1.5	0.0	0.6	509.9
Black rockfish (CA)	California	326		-	0.0		326.0
Bocaccio	S of 40º10' N lat.	2,011		14.2	5.6	0.5	1,990.7
Cabezon (OR)	Oregon	47		0.1	0.0	0.0	46.9
Cabezon (CA)	California	146		-	0.0	0.3	145.7
California scorpionfish a/	S of 34°27' N lat.	307		-	0.2	2.2	304.6
Canary rockfish	Coastwide	1,368	50.0	5.0	7.8	1.3	1,303.9
Chilipepper	S of 40º10' N lat.	2,410		60.6	13.4	11.5	2,324.5
COWCOD b/	S of 40º10' N lat.	10		0.0	2.0	0.0	6.0
Darkblotched rockfish	Coastwide	815	0.2	0.6	8.5	7.0	798.7
Dover sole	Coastwide	50,000	1,497.0	0.1	49.2	49.3	48,404.4
English sole	Coastwide	10,135	200.0	0.1	8.0	8.1	9,918.8
Lingcod	N of 40'10º N lat.	4,541	250.0	1.6	16.6	9.8	4,263.0
Lingcod	S of 40'10º N lat.	869		-	3.2	8.1	857.7
Longnose skate	Coastwide	2,000	130.0	0.1	12.5	5.7	1,851.7
Longspine thornyhead	N of 34º27' N lat.	2,470	30.0	-	14.2	6.2	2,419.6
Longspine thornyhead	S of 34º27' N lat.	780		-	1.4	0.0	778.6
Nearshore Rockfish north	N of 40º10' N lat.	180	1.5	0.5	0.3	0.9	176.8
Nearshore Rockfish south	S of 40º10' N lat.	1,163		0.0	2.7	1.4	1,158.9
Shelf Rockfish north	N of 40º10' N lat.	2,048	30.0	4.5	24.7	17.7	1,971.1
Shelf Rockfish south	S of 40º10' N lat.	1,625		30.1	14.5	4.6	1,575.8
Slope Rockfish north	N of 40º10' N lat.	1,732	36.0	1.5	21.6	21.7	1,651.2
Slope Rockfish south	S of 40º10' N lat.	743		1.0	2.3	16.9	722.8
Other Fish	Coastwide	406		0.1	0.1	8.8	397.1
Other Flatfish	Coastwide	6,041	60.0	0.1	27.8	161.6	5,791.5

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Pacific cod	Coastwide	1,600	500.0	0.1	5.5	0.6	1,093.8
Pacific whiting	Coastwide	441,433	77,251.0	1.1		1,500.0	362,680.9
POP	N of 40º10' N lat.	4,229	9.2	0.1	3.1	10.0	4,206.6
Petrale Sole	Coastwide	2,845	290.0	0.1	24.1	6.4	2,524.4
Sablefish	N of 36º N lat.	5,723	See Sablefish Tab				
Sablefish	S of 36º N lat.	2,032		-	2.4	1.8	2,027.8
Shortbelly rockfish	Coastwide	500		0.1	8.2	8.9	482.8
Shortspine thornyhead	N of 34º27' N lat.	1,669	50.0	0.1	10.5	4.7	1,603.7
Shortspine thornyhead	S of 34º27' N lat.	883		-	0.7	0.5	881.8
Spiny dogfish	Coastwide	2,059	275.0	1.1	34.3	22.6	1,726.0
Splitnose rockfish	S of 40º10' N lat.	1,731		1.5	9.3	5.8	1,714.4
Starry flounder	Coastwide	452	2.0	0.1	0.6	16.1	433.2
Widow rockfish	Coastwide	11,199	200.0	28.5	17.3	3.1	10,950.1
YELLOWEYE ROCKFISH	Coastwide	40	2.3	0.3	2.9	0.4	34.1
Yellowtail rockfish	N of 40º10' N lat.	5,716	1,000.0	51.2	20.6	4.5	4,639.7

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.
b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-87. Alternative 1 2020. Stock-specific fishery HGs or ACTs and allocations for 2020 (in mt).

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Arrowtooth flounder	Coastwide	10,655.1	Am. 21	95%	10,122.3	5%	532.8
Big skate	Coastwide	452.1	Biennial	95%	429.5	5%	22.6
Black rockfish (WA)	Washington	278.9	None				
Black rockfish (OR)	Oregon	509.9	None				
Black rockfish (CA)	California	326.0	None				
Bocaccio	S of 40º10' N lat.	1,990.7	Biennial	39%	777.2	61%	1,213.5
Cabezon (OR)	Oregon	46.9	None				
Cabezon (CA)	California	145.7	None				
California scorpionfish a/	S of 34°27' N lat.	304.6	None				
Canary rockfish	Coastwide	1,303.9	Biennial	72%	942.5	28%	361.4
Chilipepper rockfish	S of 40º10' N lat.	2,324.5	Am. 21	75%	1,743.4	25%	581.1
COWCOD b/	S of 40º10' N lat.	6.0	Biennial	36%	2.2	64%	3.8
Darkblotched rockfish	Coastwide	798.7	Am. 21	95%	758.8	5%	39.9
Dover sole	Coastwide	48,404.4	Am. 21	95%	45,984.2	5%	2,420.2
English sole	Coastwide	9,918.8	Am. 21	95%	9,422.9	5%	495.9
Lingcod	N of 40'10º N lat.	4,263.0	Am. 21	45%	1,918.4	55%	2,344.7
Lingcod	S of 40'10º N lat.	857.7	Am. 21	45%	386.0	55%	471.7
Longnose skate	Coastwide	1,851.7	Biennial	90%	1,666.5	10%	185.2
Longspine thornyhead	N of 34º27' N lat.	2,419.6	Am. 21	95%	2,298.6	5%	121.0
Longspine thornyhead	S of 34º27' N lat.	778.6	None				
Nearshore Rockfish north	N of 40º10' N lat.	176.8	None				

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Nearshore Rockfish south	S of 40º10' N lat.	1,158.9	None				
Shelf Rockfish north	N of 40º10' N lat.	1,971.1	Biennial	60.2%	1,186.6	39.8%	784.5
Shelf Rockfish south	S of 40º10' N lat.	1,575.8	Biennial	12.2%	192.3	87.8%	1,383.6
Slope Rockfish north	N of 40º10' N lat.	1,651.2	Am. 21	81%	1,337.5	19%	313.7
Slope Rockfish south	S of 40º10' N lat.	722.8	Am. 21	63%	455.4	37%	267.4
Other Fish	Coastwide	397.1	None				
Other Flatfish	Coastwide	5,791.5	Am. 21	90%	5,212.4	10%	579.2
Pacific cod	Coastwide	1,093.8	Am. 21	95%	1,039.1	5%	54.7
Pacific whiting	Coastwide	362,680.9	Am. 21	100%	362,680.9	0%	0.0
POP	N of 40º10' N lat.	4,206.6	Am. 21	95%	3,996.3	5%	210.3
Petrale sole	Coastwide	2,524.4	Am. 21	95%	2,398.2	5%	126.2
Sablefish	N of 36º N lat.		See Sablefish Tab				
Sablefish	S of 36º N lat.	2,027.8	Am. 21	42%	851.7	58%	1,176.1
Shortbelly rockfish	Coastwide	482.8	None				0.0
Shortspine thornyhead	N of 34º27' N lat.	1,603.7	Am. 21	95%	1,523.5	5%	80.2
Shortspine thornyhead	S of 34º27' N lat.	881.8	Am. 21	NA	50.0	NA	831.8
Spiny dogfish	Coastwide	1,726.0	None				
Splitnose rockfish	S of 40º10' N lat.	1,714.4	Am. 21	95%	1,628.7	5%	85.7
Starry flounder	Coastwide	433.2	Am. 21	50%	216.6	50%	216.6
Widow rockfish	Coastwide	10,950.1	Am. 21	91%	9,964.6	9%	985.5
YELLOWEYE ROCKFISH	Coastwide	34.1	Biennial	8%	2.7	92%	31.4
Yellowtail rockfish	N of 40º10' N lat.	4,639.7	Am. 21	88%	4,083.0	12%	556.8

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.
b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-88. 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 2019 and 2020.

Stock	Year	ACL (mt)	Tribal Share (mt) a/	Research (mt)	Rec. (mt)	EFP (mt)	Commercial HG (mt)
Sablefish N. of 36° N lat.	2019	5,606	561	30.7	6	1.1	5,007
	2020	5,723	572	30.7	6	1.1	5,113

Table A-89. Alternative 1. Allocations and projected mortality impacts (mt) of rebuilding groundfish species for 2020.

2019				
	Cowcod b/		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	2.0	2.0	5.9	5.9
Additional Buffer				
EFPc/	0.030	0.030	0.250	0.250
Research d/	2.0	2.0	2.92	2.92
Incidental OA e/	0.0	0.0	0.4	0.4
Tribal f/			2.3	2.3
Trawl Allocations	2.2	0.6	2.7	0.2
-SB Trawl	2.2	0.6	2.7	0.2
-At-Sea Trawl			0.0	0.0
a) At-sea whiting MS				
b) At-sea whiting CP				
Non-Trawl Allocation	3.8	3.3	30.5	20.9
Non-Nearshore		0.0	1.6	0.8
Directed OA: Nearshore		0.0	4.6	1.4
Recreational Groundfish				
WA			7.9	5.0
OR			7.1	6.5
CA		3.3	9.3	7.2
TOTAL	8.0	5.9	39.1	27.0
2017 Harvest Specification	**10.0**	**10.0**	**39**	39
Difference	2.0	4.1	-0.1	12.0
Percent of ACL	80%	59.4%	100%	69.2%

a/ Formal allocations are represented in the black shaded cells and would be specified in regulation in Tables 1b and 1e. The other values in the allocation columns are off the top deductions, biennial allocations, and recreational HG for YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate applications. Values in this table represent the estimates from the proposed EFPs.

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

e/ The GMT's best estimate of impacts.

f/ Tribal values in the allocation column represent tribal requests.

2020				
	Cowcod b/		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	2.0	2.0	5.9	5.9
Additional Buffer				
EFPc/	0.030	0.030	0.250	0.250
Research d/	2.0	2.0	2.92	2.92
Incidental OA e/	0.0	0.0	0.4	0.4
Tribal f/			2.3	2.3
Trawl Allocations	2.2	0.6	2.7	0.2
-SB Trawl	2.2	0.6	2.7	0.2
-At-Sea Trawl			0.0	0.0
a) At-sea whiting MS				
b) At-sea whiting CP				
Non-Trawl Allocation	3.8	3.3	31.4	20.9
Non-Nearshore		0.0	1.7	0.8
Directed OA: Nearshore		0.0	4.8	1.4
Recreational Groundfish				
WA			8.1	5.0
OR			7.3	6.5
CA		3.3	9.5	7.2
	8.0	5.9	40.0	27.0
2017 Harvest Specification	**6.0**	**6.0**	**40**	40
Difference	-2.0	0.1	0.0	13.0
Percent of ACL	134%	99.0%	100%	67.5%

a/ Formal allocations are represented in the black shaded cells and would be specified in regulation in Tables 1b and 1e. The other values in the allocation columns are off the top deductions, biennial allocations, and recreational HG for YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate applications. Values in this table represent the estimates from the proposed EFPs.

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

e/ The GMT's best estimate of impacts.

f/ Tribal values in the allocation column represent tribal requests.

A.4.3 Harvest Guidelines

Under Alternative 1, the HGs and state quotas are the same as described under No Action (Section A.3.3 and A.3.1).

A.4.4 Shorebased Individual Fishing Quota (IFQ) – Alternative 1

ACLs and allocations are the same as No Action, except for increases to the yelloweye rockfish (~42 percent) and lingcod north and south of 40°10' N lat. No additional management measures are proposed.

A.4.4.1 Impact (Groundfish Mortality)

IFQ Species

Table A-91 and Table A-92 show the proposed allocations under Alternative 1 and corresponding projected catch levels in the shorebased IFQ fishery, as well as historical catches in years 2015 and 2016, for IFQ species categories. Projections were made based on input data from the IFQ fishery from 2011–17. They should be considered baseline projections in that respect, as they do not directly reflect potential fishery actions in the near future such as opening the RCA in Oregon and California, changes to trawl gear rules, or upcoming gear EFPs.

The primary difference between Alternative 1 and No Action is that the yelloweye rockfish allocation is markedly higher under Alternative 1 (42 percent higher on average). Additionally, both lingcod stocks increase marginally due to the P* (0.4 in No Action, 0.45 for Alternative 1). All other allocations and projected mortalities are the same as No Action.

Although the yelloweye rockfish allocation was 42 percent higher on average for Alternative 1 than for No Action, the projected mortality was only 0.24 mt for Alternative 1 in 2019 versus 0.23 mt for No Action in 2019, a difference of approximately 0.01 mt. Model-based projections of yelloweye rockfish mortality were relatively insensitive to changes in the allocation. One reason for this is since it is modeled as bycatch, the levels of allocations and projected mortality for aggregate shelf species were very similar among alternatives. Changes in projected mortality of shelf target species drive the yelloweye rockfish projection. This is coupled with the low level of variation in yelloweye rockfish catch throughout the reference data that inform the model during IFQ years (2011–16). Yelloweye rockfish was modeled using both bycatch and attainment-based methods during preliminary trials. In the end, the bycatch method provided a more responsive result and better fit to 2017 data. The bycatch rates for yelloweye rockfish seen in IFQ years (even since the 1990s) are extremely low and show little variation, and yelloweye rockfish encounters are very rare, which hampers the data's usefulness for forecasting.

It is difficult to quantify how much additional access higher yelloweye rockfish allocations would give to shelf and nearshore stocks. Modeling that question with current IFQ data has not given plausible answers thus far. Some preliminary supplementary analyses were performed using a bootstrap simulation with yelloweye rockfish and lingcod. Results suggested that the entire northern lingcod allocation could theoretically be taken at Alternative 1 levels of the yelloweye rockfish allocation. However, this result likely reflects a lack of relevant data under the current extreme yelloweye rockfish avoidance regime, from which to answer this question. It is plausible that there may be a threshold beyond which fishers would feel secure enough to pursue target strategies that pose a risk of catching significant quantities of yelloweye rockfish. The recent catch data show an extreme avoidance of the species. The potential change that would need to occur in the fishery may be a difference of kind rather than degree (or a step). In other words, fishing behavior would have to change to enable target strategies at shallow depths, which were previously ruled out under the extremely low yelloweye rockfish allocations in recent years. Landings time series show an extreme drop in yelloweye rockfish landings beginning in 2000; the stock was declared overfished in 2002. During the 1990s, landings ranged between 25 and 132 mt, and abruptly dropped to approximately 1 mt for two years, and then to less than 1 mt from 2002 forward. Thus, there are no catches to inform these types of questions in between the two regimes with intermediate catch ratios. However, it is logical that incremental increases in the allocation should yield access to additional target species catch, and that as long as it poses acceptably low conservation risk, that such increases should not be avoided just because of a lack of precise information about the potential for gain in target catch.

Table A-90. Alternative 1, 2019 – Shorebased IFQ. Projected mortality for IFQ species and Pacific halibut IBQ under Alternative 1 for 2019, compared to the allocations or set-asides. Year-end estimates of mortality for 2015 and 2016 are provided for reference (right panel).

IFQ Species	Area	Alternative 1 2019		Historical Mortality a/	
		Projected Mortality (mt)	SB IFQ Allocation (mt)	2015 SB IFQ Mortality (mt)	2016 SB IFQ Mortality (mt)
Arrowtooth flounder	Coastwide	1,364.2	12,735.1	1,669.7	1,419.9
Bocaccio	South of 40°10' N lat.	352.9	810.7	38.7	43.2
Canary rockfish	Coastwide	255.8	946.9	44.8	21.5
Chilipepper	South of 40°10' N lat.	114.0	1,837.9	189.1	75.6
COWCOD	South of 40°10' N lat.	0.61	2.16	0.38	0.30
Darkblotched rockfish	Coastwide	249.9	674.1	122.4	123.3
Dover sole	Coastwide	7,406.2	45,979.2	6,238.3	7,195.9
English sole	Coastwide	264.3	9,375.1	329.2	377.6
Lingcod	North of 40°10' N lat.	862.2	2,051.9	185.3	260.5
Lingcod	South of 40°10' N lat.	36.0	462.5	31.7	24.8
Longspine thornyheads	North of 34°27' N lat.	795.8	2,420	768.4	659.6
Shelf Rockfish	North of 40°10' N lat.	265.8	1,155.2	33.4	34.4
Shelf Rockfish	South of 40°10' N lat.	2.5	192.3	8.9	4.4
Slope Rockfish	North of 40°10' N lat.	176.7	1,248.8	228.1	160.2
Slope Rockfish	South of 40°10' N lat.	66.8	456	69.5	49.9
Other Flatfish	Coastwide	732.2	5,603.7	833.8	857.5
Pacific cod	Coastwide	46.8	1,034.1	377.2	385.0
Pacific halibut b/	North of 40°10 N lat.	39.4	79.3	35.9	34.8
POP	North of 40°10' N lat.	1,018.9	3,697.3	49.9	54.5
Pacific whiting c/	Coastwide	130,503.9	152,326	58,383.8	86,293.5
Petrale sole	Coastwide	2,419.0	2,453	2,499.4	2,499.7
Sablefish	North of 36° N lat.	2,566.7	2,581.3	2,203.5	2,299.7
Sablefish	South of 36° N lat.	126.4	834	169.9	203.1
Shortspine thornyheads	North of 34°27' N lat.	739.1	1,511.8	718.3	747.3
Shortspine thornyheads	South of 34°27' N lat.	0.0	50	0.8	2.0
Splitnose rockfish	South of 40°10' N lat.	13.5	1,646.7	28.0	13.1
Starry flounder	Coastwide	5.6	211.6	6.4	12.7
Widow rockfish	Coastwide	5,297.6	9,928.4	814.6	837.6
YELLOWEYE ROCKFISH	Coastwide	0.24	2.65	0.04	0.05
Yellowtail rockfish	North of 40°10' N lat.	2,446.9	4,030.3	1,449.9	1,145.2

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2018). Pacific whiting values include inseason allocation reapportionments.
b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2019 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2017 values were used.
c/ The 2019 Pacific whiting TAC was unavailable during the preparation of the analysis, therefore the 2017 values were used.

Table A-91. Alternative 1, 2020 – Shorebased IFQ. Projected mortality for IFQ species and Pacific halibut IBQ under Alternative 1 for 2020, compared to the allocations or set-asides. Year-end estimates of mortality for 2015 and 2016 are provided for reference (right panel).

IFQ Species	Area	Alternative 1 2020		Historical Mortality a/	
		Projected Mortality (mt)	SB IFQ Allocation (mt)	2015 SB IFQ Mortality (mt)	2016 SB IFQ Mortality (mt)
Arrowtooth flounder	Coastwide	1,369.8	1,0052.3	1,669.7	1,419.9
Bocaccio	South of 40°10' N lat.	341.9	785.4	38.7	43.2
Canary rockfish	Coastwide	243.7	887.8	44.8	21.5
Chilipepper	South of 40°10' N lat.	112.2	1,743.4	189.1	75.6
COWCOD	South of 40°10' N lat.	0.61	2.16	0.38	0.30
Darkblotched rockfish	Coastwide	264.4	719.2	122.4	123.3
Dover sole	Coastwide	7,406.2	45,979.2	6,238.3	7,195.9
English sole	Coastwide	264.3	9,417.9	329.2	377.6
Lingcod	North of 40°10' N lat.	789.9	1,903.4	185.3	260.5
Lingcod	South of 40°10' N lat.	32.9	386	31.7	24.8
Longspine thornyheads	North of 34°27' N lat.	776.2	2,293.6	768.4	659.6
Shelf Rockfish	North of 40°10' N lat.	265.0	1,151.6	33.4	34.4
Shelf Rockfish	South of 40°10' N lat.	2.5	192.3	8.9	4.4
Slope Rockfish	North of 40°10' N lat.	176.7	1,237.5	228.1	160.2
Slope Rockfish	South of 40°10' N lat.	66.7	455.4	69.5	49.9
Other Flatfish	Coastwide	718.7	5,192.4	833.8	857.5
Pacific cod	Coastwide	46.8	1,034.1	377.2	385.0
Pacific halibut b/	North of 40°10 N lat.	39.5	79.3	35.9	34.8
POP	North of 40°10' N lat.	994.0	3,602.2	49.9	54.5
Pacific whiting c/	Coastwide	130,503.9	152,326	58,383.8	86,293.5
Petrale sole	Coastwide	2,360.0	2,393.2	2,499.4	2,499.7
Sablefish	North of 36° N lat.	2,621.5	2,636.8	2,203.5	2,299.7
Sablefish	South of 36° N lat.	128.9	851.7	169.9	203.1
Shortspine thornyheads	North of 34°27' N lat.	732.8	1,498.5	718.3	747.3
Shortspine thornyheads	South of 34°27' N lat.	0.0	50	0.8	2.0
Splitnose rockfish	South of 40°10' N lat.	13.5	1,628.7	28.0	13.1
Starry flounder	Coastwide	5.6	211.6	6.4	12.7
Widow rockfish	Coastwide	5,054.4	9,386.6	814.6	837.6
YELLOWEYE ROCKFISH	Coastwide	0.22	2.73	0.04	0.05
Yellowtail rockfish	North of 40°10' N lat.	2,323.3	3783	1,449.9	1,145.2

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2018). Pacific whiting values include inseason allocation reapportionments.
b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2020 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2017 values were used.
c/ The 2020 Pacific whiting TAC was unavailable during the preparation of the analysis, therefore the 2017 values were used.

Pacific Halibut

Same as No Action

Non-IFQ Species

Same as No Action

A.4.5 At-Sea Whiting Co-ops - Alternative 1

The at-sea sector measures and impacts are the same as described under No Action (Section A.3.5), since the alternative ACLs (i.e., Alternative 1-3) have no effect on the at-sea allocations or set asides.

A.4.6 Limited Entry and Open Access Fixed Gear - Alternative 1

The Alternative 1 ACLs are the same as under No Action (Table A-39 and Table A-41), except for lingcod north and south of 40°10´ N lat. and yelloweye rockfish (Table A-85 and Table A-87). As such, the non-trawl allocations from No Action are as follows: lingcod south of 40°10´ N lat. (~1/3 reduction), lingcod north of 40°10´ N lat. (~1.5 fold increase), and yelloweye rockfish (~1.6 fold increase). (Table A-93 contains the non-trawl allocations, shares, and HGs for select stocks in the non-nearshore and nearshore fisheries.)

The proposed routine management measures for Alternative 1 are the same as described under No Action Alternative (Section A.3.6) since the projected impacts of the options are within lesser No Action Alternative allocations.

Table A-92. Alternative 1 - Non-trawl allocations, shares, and HGs for select stocks pertinent to the non-nearshore and nearshore fisheries.

Stock	Non-trawl Allocation		Non-Nearshore		Nearshore Share		CA Nearshore Share		OR Nearshore Share	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Lingcod N. of 40°10' N lat.	2,526.2	2,344.7	---	---	---	---	---	---	---	---
Lingcod S. of 40°10' N lat.	565.2	471.7	---	---	---	---	---	---	---	---
YELLOWEYE ROCKFISH a/	30.5	31.4	1.6	1.7	4.6	4.8	1.3	1.3	3.4	3.5

a/ Nearshore yelloweye rockfish is shared 27.3 percent California and 72.7 percent Oregon.

A.4.6.1 Trip Limit Analysis

No trip limits different than proposed under No Action (Section A.3.6) under Alternative 1.

A.4.6.2 Impact (Groundfish Mortality)

Non-Nearshore North of 36° N lat.

Table A-93. Alternative 1 – Non-Nearshore fishery: Rebuilding species shares for the non-nearshore fixed gear fishery in 2019/2020.

Stock	Area	Total Projected Mortality (mt)		Share (mt)		Non-Trawl Allocation (mt)	
		2019	2020	2019	2020	2019	2020
COWCOD	S. of 40°10´ N lat.	0	0	n/a	n/a	3.8	3.8
YELLOWEYE	Coastwide	0.76	0.78	1.6	1.7	30.5	31.4

Groundfish mortality under Alternative 1 are the same as under No Action (Table A-66, Table A-71, and Table A-72).

Non-Nearshore South of 36° N lat.

Impacts the same as under No Action, except for increases in the non-trawl allocations for lingcod south of 40°10´ N lat.

Nearshore

Projected landings, routine management measures, and projected mortality of stocks with nearshore specific limits would be the same as No Action.

Note that the yelloweye rockfish shares increase considerably from 3.2 mt and 3.4 mt for No Action to 4.6 mt and 4.8 for Alternative 1 (Table A-95). Although the nearshore fisheries are projected to be within their No Action shares, the extra yelloweye rockfish could allow for increased opportunities beyond the routine management measures currently being proposed via future inseason actions. Examples of opportunities include higher trip limits and increasing depth south of 40°10' N lat. or maintaining No Action landings and increasing depth restrictions between 40°10´ N lat. and 42° N lat.

Table A-94. Alternative 1. Nearshore shares, state shares, and projections under Alternative 1 for 2019–20 yelloweye rockfish. There are no other rebuilding stocks impacted by the nearshore fisheries.

Stock	Nearshore Total			Oregon			California				
	'19-'20 HG		Proj.	'19-'20 Share		Proj.	'19-'20 Share		Total Proj.	40°10' – 42° Proj.	S. 40°10' Proj.
YELLOWEYE ROCKFISH	4.6	4.8	1.4	3.4	3.5	0.9	1.3	1.3	0.5	0.4	0.1

A.4.6.3 Trip Limit Analysis

Limited Entry and Open Access - Lingcod North of 40°10´ N lat.

There is no effect to the northern stock, as the non-trawl differences are negligible (Table A-40 compared to Table A-86), and because past attainments (e.g., ~500 mt in 2016) are only about a fifth of the 2019–20 allocations.

Limited Entry and Open Access - Lingcod South of 40°10´ N lat.

The southern stock is estimated to be significantly less in 2019–20 compared to previous years, according to the 2017 lingcod stock assessment. However, the ACLs under Alternative 1 (1,039 mt for 2019, 869 mt for 2020) are slightly higher than the No Action (996 mt for 2019, 839 mt for 2020). The California nearshore fishery takes an average of 31.2 mt per year, based on 2014-2016 landings, of the southern stock.

Table A-68 lists the reduced trip limit options for lingcod south of 40°10´ N lat. See the non-nearshore section for further details.

A.4.7 Tribal Fisheries – Alternative 1

Under Alternative 1, the tribal fisheries allocations, HG, and set-asides and projected mortality are the same as under No Action.

A.4.8 Washington Recreational – Alternative 1

Under Alternative 1, Washington recreational fisheries would operate under a 39 and 40 mt ACL for yelloweye rockfish (Table A-85 and Table A-87and) and the associated Washington recreational HGs of 7.8 and 8.1 mt for 2019 and 2020, respectively. HGs for other recreationally important groundfish stocks would be the same as No Action (Table A-96).

Table A-95. Alternative 1 – Washington Recreational. Harvest guidelines (HG) for the Washington recreational fisheries under Alternative 1.

Stocks	HG (mt)	
	2019	2020
Canary rockfish	47.2	44.4
YELLOWEYE ROCKFISH	7.9	8.1
Black rockfish	280	278.9
Nearshore Rockfish	19.4	19

A.4.8.1 Groundfish Seasons and Area Restrictions

Season Structure

The season structure under Alternative 1 would be the same as No Action, except that the 20 fm depth restriction in Marine Areas 3 and 4 would be in place from June 1 through August 31 (Figure A-16).

Table A-96. Summarization of key features of the Washington recreational regulations under Alternative 1.

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/			BF Open		BF Closed	
2 (S. Coast)	BF Closed		BF Open b/ c/			BF Open b/					BF Closed	
1 (Col. River)	BF Closed		BF Open d/ e/								BF Closed	

a/ Retention of lingcod, Pacific cod, and sablefish allowed >20 fm on days when Pacific halibut is open.
b/ Retention of lingcod prohibited seaward of line drawn from Queets River (47°31.70' N lat. 124°45.00' W long.) to Leadbetter Point (46°38.17' N lat. 124°30.00' W long.) year-round, except on days open to the primary halibut fishery.
c/ From April 15 through June 15 lingcod retention prohibited > 30 fm except on days that the primary halibut season is open.
d/ Retention of groundfish, except sablefish, flatfish, and Pacific cod, prohibited during the all-depth Pacific halibut fishery May 1 - Sept 30. Lingcod retention allowed with halibut on board north of the WA-OR border.
e/ Retention of lingcod prohibited seaward of line drawn from Leadbetter Point (46°38.17' N lat. 124°21.00' W long.) to (46°33.00' N lat., 124°21.00' W long.) year-round.

North Coast (Marine Areas 3 and 4)

The retention of bottomfish would be prohibited seaward of a line approximating 20 fm from June 1 through August 31, except lingcod, Pacific cod, and sablefish can be retained seaward of 20 fm on days that Pacific halibut fishing is open. Under Alternative 1, the 20 fm depth restriction would be in place 3 fewer days in 2019 and 7 fewer days in 2020 compared to No Action, allowing access to deepwater areas beginning September 1 as opposed to the day after Labor Day. Fishing for, retention of, or possession of groundfish and Pacific halibut is prohibited in the C-shaped YRCA (Figure A-7).

South Coast (Marine Area 2) and Columbia River (Marine Area 1)

Same as No Action.

Area Restrictions

Same as No Action.

A.4.8.2 Groundfish Seasons, Bag Limits, and Size Limits

Same as No Action.

Lingcod Seasons

Same as No Action.

Cabezon Size Limit

Same as No Action.

Pacific Halibut Seasons

Same as No Action.

A.4.8.3 Inseason Management Response

Same inseason response as described under the Baseline.

A.4.8.4 Impact (Groundfish Mortality)

Projected mortality for rebuilding and healthy species under the Alternative 1 are summarized in Table A-97. The only change to management measures under Alternative 1 compared to No Action is a reduction in the time period that the 20 fm depth restriction in Marine Areas 3 and 4 is in place. As a result, the only change to projected impacts compared to No Action is an increase in projected catch of yelloweye rockfish.

Projected impacts for yelloweye rockfish were analyzed in the same manner as No Action, which used yelloweye rockfish catch per angler from 2005, the last year when no depth restrictions were in place, to estimate changes in catch during months that would be open under Alternative 1 that weren't already analyzed under No Action (September). The same approach was also used for projecting changes to angler effort, and assumed a 35 percent increase in angler trips in months when access to areas outside 20 fm would be new under Alternative 1.

Table A-97. Alternative 1 – Washington Recreational.

Stock	**2019–20**
Canary rockfish	4.80
YELLOWEYE ROCKFISH	5.01
Black Rockfish	226.42
Lingcod	149.53
Nearshore Rockfish	4.80
Blue Rockfish	*1.47*
Quillback Rockfish	*1.32*
Copper Rockfish	*0.83*
China Rockfish	*1.18*
Brown Rockfish	-
Grass Rockfish	-
Yellowtail Rockfish	45.26
Vermilion Rockfish	0.82
Cabezon	*5.17*
Kelp Greenling	*1.16*

A.4.9 Oregon Recreational – Alternative 1

Alternative 1 analyzes the Oregon recreational fishery under the default HCR ACLs, except for California scorpionfish, lingcod north of 40°10´ N lat., lingcod south of 40°10´ N lat., and yelloweye rockfish (Table A-85 and Table A-87). The ACLs for California scorpionfish and lingcod south of 40°10´ N lat. apply in California only. There are no proposed management measure adjustments to respond to the increased lingcod amounts because the yelloweye rockfish HG limits access to lingcod. The management measures for the Oregon recreational fisheries are only responsive to the yelloweye rockfish ACLs, which are based

on SPR 70 percent, and Oregon recreational HGs or presumed state quotas (Table A-98). 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 yelloweye rockfish ACL and associated Oregon recreational HG of 7.1 and 7.3 mt (Table A-98) for 2019–20, respectively, is higher than under No Action (Table A-79, 5.0 and 5.2 mt) and in 2017 (Table A-33; 3.0 mt). The black rockfish Oregon ACL, and associated presumed state-specified HG for the recreational fishery for Alternative 1 (Table A-98) are the same as under No Action (Table A-79), but are lower than in 2017 (Baseline; Table A-33). Given that the yelloweye rockfish HG increases from No Action but black rockfish remains the same, black rockfish will be the primary species that requires management measure adjustments in the Oregon recreational fishery. The HGs for Oregon recreational fisheries for the Nearshore Rockfish complex and black rockfish would be state-specified HGs, and not established in federal regulations (Table A-98). 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 to provide information on how the fishery is progressing and impacts are tracking compared to allocations.

Table A-98. Alternative 1. Oregon recreational federal harvest guidelines (HG) or state quotas under Alternative 1 (mt).

Stock	2019 HG [a/]	2020 HG [a/]
Canary rockfish	70.9	66.7
YELLOWEYE ROCKFISH	7.1	7.3
Black Rockfish OR [b/]	390.6	387.6
Greenlings [c/]	46.5	44.0
Nearshore Rockfish North of 40°10' N lat. [d/]	92.4	90.9

a/ Federal HGs are established for canary rockfish and yelloweye rockfish only. The state process in Oregon establishes quotas for black rockfish, Nearshore Rockfish complex species, and greenlings (all species). The state quotas, which are yet to be determined, are not intended to be implemented in federal regulation, they are only provided as information.
b/ The values shown are the presumptive share based on the 2017 recreational and commercial sharing percentages in Oregon State Regulations.
c/ Includes kelp and other greenlings. The values shown are the presumptive share based on the 2017 recreational and commercial sharing percentages in Oregon State Regulations.
d/ Includes blue rockfish. The state of Oregon has a federal HG for Nearshore Rockfish North of 40°10' N lat., which is shared between the Oregon commercial nearshore and recreational fisheries. The values shown are the presumptive share based on 2017 recreational and commercial sharing percentages in Oregon State Regulations.

A.4.9.1 Groundfish Seasons and Area Restrictions

Season Structure

Under Alternative 1, the Oregon recreational groundfish fishery would be open offshore year-round (Figure A-17). This differs from the season structure in place in 2017 (Baseline) and under No Action by having no months with depth restrictions. The seasonal depth restrictions, implemented during periods of the highest angler effort and yelloweye rockfish encounters, were used to mitigate mortality of yelloweye rockfish. Shallow depth restrictions increase encounters and associated mortality impacts with black rockfish. Under Alternative 1, the yelloweye rockfish ACL and subsequent Oregon recreational HG increase such that black rockfish rather than yelloweye rockfish would be the most constraining species.

The season structure and bag limit are designed to balance impacts to black rockfish while staying within the updated yelloweye rockfish HGs. Canary rockfish and Nearshore Rockfish complex north species would be part of the 10-fish marine bag (no sub-bag limits). Projected mortality of yelloweye rockfish and canary rockfish are within the federal HGs; therefore, the shore-based fishery would be open year-round.

Season and Bag Limits	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Bottomfish Season	Open all depths											
Marine Bag Limit [a/]	Ten (10)											
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 A-16. 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, keeping it closed should help to ensure that the HG is not exceeded.

A.4.9.2 Groundfish Seasons, Bag Limits and Size Limits

The same bag limits and size limits under the No Action Alternative would be in place under Alternative 1.

Additional Considerations

Under Alternative 1, the yelloweye rockfish HGs would be higher than under the Baseline or No Action. Retention of yelloweye rockfish would remain prohibited, additional bycatch mortality impacts would allow 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 rebuilding 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 from April to September, should there be a need to implement depth restrictions to slow catch of a particular species.

A.4.9.3 Inseason Management Response

The same inseason response as described under the Baseline and No Action will be in place under Alternative 1.

A.4.9.4 Impact (Groundfish Mortality)

The annual projected mortality presented in Table A-99 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 depths, 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 the Baseline and No Action. As anglers are allowed to fish deeper depths, they encounter and catch fewer black rockfish. The projected impacts to lingcod, yellowtail, and widow rockfish increase compared to the Baseline and 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 A-99, 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 A-99. Projected Mortality (mt) of species with Oregon recreational specific allocations under Alternative 1.

Stock	Projected Mortality
Canary rockfish	50.3
YELLOWEYE ROCKFISH	6.5
Black Rockfish OR	391.9[a/]
Greenlings [b/]	5.3
Nearshore Rockfish North of 40°10´ N lat. [c/]	36.9
Yellowtail Rockfish	32.1
Widow Rockfish	6.8
Lingcod	221.9

a/ Projected mortality is higher than the presumed state-specified recreational HG. The state will implement sub-bag limits through state rules as in 2017 to keep impacts within the HG.
b/ Includes kelp and other greenlings.
c/ Includes blue rockfish. The state of Oregon has a federal HG of Nearshore Rockfish North of 40°10´ N lat. of 60.5 mt, which is shared between the Oregon commercial nearshore and recreational fisheries.

A.4.10 California Recreational – Alternative 1

Under Alternative 1, the California recreational yelloweye rockfish HG is expected to increase to 9.3 mt and 9.5 mt in 2019 and 2020, respectively (Table A-100). The ACL for California scorpionfish would increase to 313 mt and 307 mt. The non-trawl allocation of lingcod south of 40°10' N lat. would be based on a P* of 0.45, resulting in 565.2 mt and 471.7 mt, in 2019 and 2020, respectively.

Table A-100. Alternative 1 – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2019 and 2020.

Stock	Non-Trawl Allocation		California Recreational HG	
	2019	2020	2019	2020
Bocaccio	1,266	1,226.3	874.3	846.9
Canary rockfish	384.1	361.4	127.6	120.0
COWCOD	3.8			
Darkblotched rockfish	37.4	39.9		
Nearshore Rockfish North of 40°10´ N lat.	179.8	176.8	37.3	38.6
POP	215.9	210.3		
Petrale sole	129.4	126.2		
YELLOWEYE ROCKFISH	30.5	31.4	9.3	9.5

A.4.10.1 Groundfish Seasons and Area Restrictions

Season Structure

California's recreational fisheries are constrained by yelloweye rockfish and, to a degree, lingcod south of 40°10' N lat. Given the increase in yelloweye rockfish available under this alternative, increased opportunities can be provided.

Option 3

Option 3 examines a year-round fishing opportunity without depth restrictions (Figure A-18). Option 3 would apply to all groundfish that are currently subject to season and depth restrictions (i.e., RCG complex, California scorpionfish, lingcod).

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 A-17. Option 3: California recreational groundfish season structure assuming a year-round fishery with no depth restrictions.

Area Restrictions

Same as described under No Action.

A.4.10.2 Groundfish Seasons, Bag Limits, Hook Limits, and Size Limits

Generally the same as described under No Action with the exceptions noted below.

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

Same as described under No Action, except that lingcod would be open year-round.

California Scorpionfish Seasons, Bag Limits, and Size Limits

Same as described under No Action, except that California scorpionfish would be open year-round in all management areas.

Pacific Halibut Seasons

Same as described under No Action.

A.4.10.3 Inseason Management Response

Same inseason response as described under the Baseline.

A.4.10.4 Impact (Groundfish Mortality)

Table A-101 provides projected mortality under Option 3. Projected mortality is higher than Options 1 and 2 for most species except California scorpionfish (which is unchanged). Projected mortality is expected to be higher as a result of access to deeper depths and year-round fishing opportunities. Under Option 3, a 1-fish bag limit must be implemented for lingcod south of 40°10' N lat. to keep mortality under the non-trawl allocation in 2020.

Table A-101. Option 3: Projected mortality in the California recreational fishery under Alternative 1.

Stock	Projected Recreational Mortality	California Recreational HG		Non-Trawl Allocation a/	
		2019	2020	2019	2020
Bocaccio	181.9	874.3	846.9	1,266	1,226.3
Canary rockfish (2)	99.7 (131.6)	127.6	120.0	384.1	361.4
COWCOD	3.3			3.8	
YELLOWEYE ROCKFISH	7.2	9.3	9.5	21.3	22.2
Black rockfish	122.7			329	326
Cabezon (10)	60.7 (69.8)			146.7	145.7
California scorpionfish	124			304.6	
Greenlings	11.5			b/	
Lingcod N. of 40°10' N lat. c/	83.4			2,434.3	2,299.6
Lingcod S. of 40°10' N lat. (1)	479.2 (357.8)			565.2	471.7
Widow rockfish	47.8			1,042.4	985.6
Nearshore Rockfish N. of 40°10' N lat. d/	14.6	37.3	38.6	179.8	176.8
Nearshore Rockfish S. of 40°10' N lat. d/	634			1,137.9	1,158.9
Petrale sole	2.1			129.4	126.2
Starry flounder	5.8			216.6	

a/ Includes non-nearshore, nearshore, and recreational.
b/ Greenling is managed within the Other Fish complex.
c/ Projected impacts only includes the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat..
d/ Includes blue rockfish.

A.5 Alternative 2

Alternative 2 has the same harvest specifications as Alternative 1 (Table A-85 through Table A-90) except that the yelloweye rockfish ACL is derived using a P* of 0.45 and an SPR of 65 percent with a median time to rebuild of 2029. This increases the 2019 ACL by 18 mt and the 2020 ACL by 19 mt compared to ACLs under No Action.

A.5.1 Deductions from the ACL, Allocating the Fishery HG, and HG

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 No Action (Section A.3.1). Table A-102 to Table A-105 contain the yelloweye rockfish ACLs and fishery HGs under Alternative 2. Table A-106 summarizes the allocations and projected mortality impacts (mt) of rebuilding groundfish species for 2019 and 2020.

Table A-102. Alternative 2 2019. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality in metric tons, used to calculate the fishery HG in 2019.

Stock/Complex	Area	ACL a/	Tribal	EFP	Research	OA	Fishery HG or ACT a/ b/
YELLOWEYE ROCKFISH	Coastwide	48	2.3	0.25	2.92	0.4	42

Table A-103. Alternative 2 2019. Stock-specific fishery HGs or ACTs and allocations for 2019 (in mt).

Stock/Complex	Area	Fishery HG or ACT a/ b/	Allocation Type	Trawl		Non-trawl	
				%	Mt	%	Mt
YELLOWEYE	Coastwide	42.1	Biennial	8%	3.4	92%	38.8

Table A-104. Alternative 2 2020. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality in metric tons, used to calculate the fishery HG in 2019.

Species	Area	ACL a/	Tribal	EFP	Research	OA	Fishery HG or ACT a/ b/
YELLOWEYE ROCKFISH	Coastwide	49	2.3	0.25	2.92	0.4	43.1

Table A-105. Alternative 2. Stock-specific fishery HGs or ACTs and allocations for 2019 (in mt).

Species	Area	Fishery HG or ACT a/ b/	Allocation Type	Trawl		Non-trawl	
				%	Mt	%	Mt
YELLOWEYE ROCKFISH	Coastwide	43.1	Biennial	8%	3.5	92%	39.7

Table A-106. Alternative 2. Allocations and projected mortality impacts (mt) of rebuilding groundfish species for 2019 and 2020.

2019				
	Cowcod b/		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	2.0	2.0	5.9	5.9
Additional Buffer				
EFPc/	0.030	0.030	0.250	0.250
Research d/	2.0	2.0	2.92	2.92
Incidental OA e/	0.0	0.0	0.4	0.4
Tribal f/			2.3	2.3
Trawl Allocations	2.2	0.6	3.4	0.2
-SB Trawl	2.2	0.6	3.4	0.2
-At-Sea Trawl			0.0	0.0
a) At-sea whiting MS				
b) At-sea whiting CP				
Non-Trawl Allocation	3.8	3.3	38.8	24.7
Non-Nearshore		0.0	2.1	0.8
Directed OA: Nearshore		0.0	5.9	1.4
Recreational Groundfish				
WA			10.0	7.3
OR			9.0	8.1
CA		3.3	11.8	7.2
TOTAL	8.0	5.9	48.1	30.8
2017 Harvest Specification	10.0	10.0	48	48
Difference	2.0	4.1	-0.1	17.2
Percent of ACL	80%	59.4%	100%	64.2%

a/ Formal allocations are represented in the black shaded cells and would be specified in regulation in Tables 1b and 1e. The other values in the allocation columns are off the top deductions, biennial allocations, and recreational HG for YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate applications. Values in this table represent the estimates from the proposed EFPs.

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

e/ The GMT's best estimate of impacts.

f/ Tribal values in the allocation column represent tribal requests.

2020				
	Cowcod b/		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
Off the Top Deductions	2.0	2.0	5.9	5.9
Additional Buffer				
EFPc/	0.030	0.030	0.250	0.250
Research d/	2.0	2.0	2.92	2.92
Incidental OA e/	0.0	0.0	0.4	0.4
Tribal f/			2.3	2.3
Trawl Allocations	2.2	0.6	3.5	0.2
-SB Trawl	2.2	0.6	3.5	0.2
-At-Sea Trawl			0.0	0.0
a) At-sea whiting MS				
b) At-sea whiting CP				
Non-Trawl Allocation	3.8	3.3	39.7	24.7
Non-Nearshore		0.0	2.1	0.8
Directed OA: Nearshore		0.0	6.0	1.4
Recreational Groundfish				
WA			10.3	7.3
OR			9.2	8.1
CA		3.3	12.0	7.2
	8.0	5.9	49.1	30.8
2017 Harvest Specification	6.0	6.0	49	49
Difference	-2.0	0.1	-0.1	18.2
Percent of ACL	134%	99.0%	100%	62.9%

a/ Formal allocations are represented in the black shaded cells and would be specified in regulation in Tables 1b and 1e. The other values in the allocation columns are off the top deductions, biennial allocations, and recreational HG for YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate applications. Values in this table represent the estimates from the proposed EFPs.

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

e/ The GMT's best estimate of impacts.

f/ Tribal values in the allocation column represent tribal requests.

A.5.2 Shorebased Individual Fishing Quota (IFQ) – Alternative 2

ACLs and allocations are the same as Alternative 1, except for increases to the yelloweye rockfish (~82 percent). No additional management measures are proposed.

A.5.2.1 Impact (Groundfish Mortality)

IFQ Species

Table A-107 and Table A-108 show proposed allocations under the Alternative 2 and corresponding projected catch levels in the shorebased IFQ fishery, as well as historical catches in years 2015 and 2016 for IFQ species categories. Projections were made based on input data from the IFQ fishery from 2011–17. They should be considered baseline projections in that respect, as they do not directly reflect potential fishery actions in the near future such as opening the RCA in Oregon and California, changes to trawl gear rules, or upcoming gear EFPs.

The primary difference between Alternative 2 and No Action and Alternative 1 is that the yelloweye rockfish allocation is the highest under Alternative 2 (three-fold higher than Status Quo, and 82 percent higher than No Action). As with No Action and Alternative 1, noteworthy changes in allocations would occur under the Alternative 2 in seven IFQ species categories, compared with 2017 levels (see No Action and Alternative 1 sections).

Although the yelloweye rockfish allocation was 82 percent higher on average for Alternative 2 than for No Action, the projected mortality was only 0.24 for Alternative 2 in 2019 versus No Action in 2019, a difference of 0.01 mt, and the difference was smaller than 0.01 between the projection under Alternative 2 and Alternative 1. Model-based projections of yelloweye rockfish mortality were relatively insensitive to changes in the allocation. See the Alternative 1 section for a discussion of this and some implications.

Table A-107. Alternative 2, 2019 – Shorebased IFQ. Projected mortality for IFQ species and Pacific halibut IBQ under Alternative 2 for 2019, compared to the allocations or set-asides. Year-end estimates of mortality for 2015 and 2016 are provided for reference (right panel).

IFQ Species	Area	Alternative 2 2019		Historical Mortality a/	
		Projected Mortality (mt)	SB IFQ Allocation (mt)	2015 SB IFQ Mortality (mt)	2016 SB IFQ Mortality (mt)
Arrowtooth flounder	Coastwide	1364.2	12735.1	1669.7	1419.9
Bocaccio	South of 40°10' N lat.	352.9	810.7	38.7	43.2
Canary rockfish	Coastwide	255.8	946.9	44.8	21.5
Chilipepper	South of 40°10' N lat.	114.0	1837.9	189.1	75.6
COWCOD	South of 40°10' N lat.	0.61	2.16	0.38	0.30
Darkblotched rockfish	Coastwide	249.9	674.1	122.4	123.3
Dover sole	Coastwide	7406.2	45979.2	6238.3	7195.9
English sole	Coastwide	264.3	9375.1	329.2	377.6
Lingcod	North of 40°10' N lat.	862.2	2051.9	185.3	260.5
Lingcod	South of 40°10' N lat.	36.0	462.5	31.7	24.8
Longspine thornyheads	North of 34°27' N lat.	795.8	2420	768.4	659.6
Shelf Rockfish	North of 40°10' N lat.	265.8	1155.2	33.4	34.4
Shelf Rockfish	South of 40°10' N lat.	2.5	192.3	8.9	4.4
Slope Rockfish	North of 40°10' N lat.	176.7	1248.8	228.1	160.2
Slope Rockfish	South of 40°10' N lat.	66.8	456	69.5	49.9
Other Flatfish	Coastwide	732.2	5603.7	833.8	857.5
Pacific cod	Coastwide	46.8	1034.1	377.2	385.0
Pacific halibut b/	North of 40°10 N lat.	39.4	79.3	35.9	34.8
POP	North of 40°10' N lat.	1018.9	3697.3	49.9	54.5
Pacific whiting c/	Coastwide	130503.9	152326	58383.8	86293.5
Petrale sole	Coastwide	2419.0	2453	2499.4	2499.7
Sablefish	North of 36° N lat.	2566.7	2581.3	2203.5	2299.7
Sablefish	South of 36° N lat.	126.4	834	169.9	203.1
Shortspine thornyheads	North of 34°27' N lat.	739.1	1511.8	718.3	747.3
Shortspine thornyheads	South of 34°27' N lat.	0.0	50	0.8	2.0
Splitnose rockfish	South of 40°10' N lat.	13.5	1646.7	28.0	13.1
Starry flounder	Coastwide	5.6	211.6	6.4	12.7
Widow rockfish	Coastwide	5297.6	9928.4	814.6	837.6
YELLOWEYE ROCKFISH	Coastwide	0.24	3.37	0.04	0.05
Yellowtail rockfish	North of 40°10' N lat.	2446.9	4030.3	1449.9	1145.2

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2018). Pacific whiting values include inseason allocation reapportionments.
b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2019 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2017 values were used.
c/ The 2019 Pacific whiting TAC was unavailable during the preparation of the analysis, therefore the 2017 values were used.

Table A-108. Alternative 2, 2020 – Shorebased IFQ. Projected mortality for IFQ species and Pacific halibut IBQ under Alternative 2 for 2020, compared to the allocations or set-asides. Year-end estimates of mortality for 2015 and 2016 are provided for reference (right panel).

IFQ Species	Area	Alternative 2 2020		Historical Mortality a/	
		Projected Mortality (mt)	SB IFQ Allocation (mt)	2015 SB IFQ Mortality (mt)	2016 SB IFQ Mortality (mt)
Arrowtooth flounder	Coastwide	1369.8	10052.3	1669.7	1419.9
Bocaccio	South of 40°10' N lat.	341.9	785.4	38.7	43.2
Canary rockfish	Coastwide	243.7	887.8	44.8	21.5
Chilipepper	South of 40°10' N lat.	112.2	1743.4	189.1	75.6
COWCOD	South of 40°10' N lat.	0.61	2.16	0.38	0.30
Darkblotched rockfish	Coastwide	264.4	719.2	122.4	123.3
Dover sole	Coastwide	7406.2	45979.2	6238.3	7195.9
English sole	Coastwide	264.3	9417.9	329.2	377.6
Lingcod	North of 40°10' N lat.	789.9	1903.4	185.3	260.5
Lingcod	South of 40°10' N lat.	32.9	386	31.7	24.8
Longspine thornyheads	North of 34°27' N lat.	776.2	2293.6	768.4	659.6
Shelf Rockfish	North of 40°10' N lat.	265.0	1151.6	33.4	34.4
Shelf Rockfish	South of 40°10' N lat.	2.5	192.3	8.9	4.4
Slope Rockfish	North of 40°10' N lat.	176.7	1237.5	228.1	160.2
Slope Rockfish	South of 40°10' N lat.	66.7	455.4	69.5	49.9
Other Flatfish	Coastwide	718.7	5192.4	833.8	857.5
Pacific cod	Coastwide	46.8	1034.1	377.2	385.0
Pacific halibut b/	North of 40°10 N lat.	39.5	79.3	35.9	34.8
POP	North of 40°10' N lat.	994.0	3602.2	49.9	54.5
Pacific whiting c/	Coastwide	130503.9	152326	58383.8	86293.5
Petrale sole	Coastwide	2360.0	2393.2	2499.4	2499.7
Sablefish	North of 36° N lat.	2621.5	2636.8	2203.5	2299.7
Sablefish	South of 36° N lat.	128.9	851.7	169.9	203.1
Shortspine thornyheads	North of 34°27' N lat.	732.8	1498.5	718.3	747.3
Shortspine thornyheads	South of 34°27' N lat.	0.0	50	0.8	2.0
Splitnose rockfish	South of 40°10' N lat.	13.5	1628.7	28.0	13.1
Starry flounder	Coastwide	5.6	211.6	6.4	12.7
Widow rockfish	Coastwide	5054.4	9386.6	814.6	837.6
YELLOWEYE ROCKFISH	Coastwide	0.22	3.45	0.04	0.05
Yellowtail rockfish	North of 40°10' N lat.	2323.3	3783	1449.9	1145.2

a/ Historical estimates of mortality were generated using the NMFS Pacific Coast IFQ Program Database (January 2018). Pacific whiting values include inseason allocation reapportionments.
b/ Pacific halibut is managed using IBQ, see regulations at §660.140. The 2018 Pacific halibut TAC was unavailable during the preparation of the analysis; therefore, the 2017 values were used.
c/ The 2016 Pacific whiting TAC was unavailable during the preparation of the analysis, therefore the 2017 values were used.

Pacific Halibut

Same as No Action.

Non-IFQ Species

Same as No Action.

A.5.3 At-Sea Whiting Coops – Alternative 2

The at-sea sector measures and impacts are the same as described under No Action (Section A.3.5), since the alternative ACLs (i.e., Alternative 1-3) have no effect on the at-sea allocations or set asides.

A.5.4 Limited Entry and Open Access Fixed Gear - Alternative 2

Alternative 2 is the same as Alternative 1, except the yelloweye rockfish ACLs and allocations are higher. The trip limit option described under No Action (Section A.3.6) could also be implemented under Alternative 2.

A.5.4.1 Impact (Groundfish Mortality)

Non-Nearshore North and South of 36° N lat.

Table A-109 contains the rebuilding species shares and projected impacts for the non-nearshore fishery under Alternative 2. The projected mortality in the non-nearshore fishery under Alternative 2 is the same as under No Action (Table A-71, and Table A-72). The trip limit options and new management described under No Action (Section A.3.6) are also available for implementation under Alternative 2.

Table A-109. Alternative 2 – Non-Nearshore fishery: Rebuilding species shares for the non-nearshore fixed gear fishery in 2019/2020.

Stock	Area	Total Projected Mortality (mt)		Share (mt)		Non-Trawl Allocation (mt)	
		2019	2020	2019	2020	2019	2020
COWCOD	S. of 40°10´ N lat.	0	0	n/a	n/a	3.8	3.8
YELLOWEYE ROCKFISH	Coastwide	0.76	0.78	2.1	2.1	38.8	39.7

Nearshore – Alternative 2

Projected landings, routine management measures, new management measures, and projected mortality of stocks with nearshore specific limits would be the same as No Action (Section A.3.6). The only difference in allocations would be for yelloweye rockfish, of which the nearshore shares for Alternative 2 would be nearly double those of No Action for yelloweye rockfish (Table A-110).

Since the nearshore fisheries are projected to be within their No Action shares for the routine management measures being considered for 2019–20 (discussed under No Action), there are no notable differences between No Action and Alternative 2.

However, under Alternative 2, the California yelloweye rockfish share increases to 1.6 mt from 0.9 mt, which provides greater flexibility for increased opportunities. The extra 0.7 mt of yelloweye rockfish could allow the California nearshore fishery to increase landings by 25 percent compared to No Action, as well as increase depth restrictions north of 40°10´ N lat. Alternatively, if there are no changes to landings (i.e., maintain No Action landings), deeper depth restrictions could be implemented statewide.

Table A-110. Alternative 2. Nearshore Shares, State Shares, and projections under Alternative 2 for 2019–20 yelloweye rockfish. There are no other rebuilding stocks impacted by the nearshore.

Stock	Nearshore Total			Oregon			California				
	'19-'20 HG		Proj.	'19-'20 Share		Proj.	'19-'20 Share		Total Proj.	40°10' – 42° Proj.	S. 40°10' Proj.
YELLOWEYE ROCKFISH	5.9	6.0	1.4	4.3	4.4	0.9	1.6	1.6	0.5	0.4	0.1

A.5.5 Tribal Fisheries – Alternative 2

Under Alternative 2, the tribal fisheries allocations, HG, set-asides, and projected mortality are the same as under No Action (Section A.3.7).

A.5.6 Washington Recreational – Alternative 2

Under Alternative 2, Washington recreational fisheries would operate under a 47 and 49 mt ACL for yelloweye rockfish and the associated Washington recreational HGs of 10 and 10.3 mt for 2019 and 2020, respectively (Table A-111). HGs for other recreationally important groundfish stocks would be the same as No Action (Table A-75).

Table A-111. Alternative 2 – Washington Recreational. Harvest guidelines (HG) for the Washington recreational fisheries under Alternative 2.

Stocks	HG (mt)	
	2019	2020
Canary rockfish	47.2	44.4
YELLOWEYE ROCKFISH	10.0	10.3
Black rockfish	280	278.9
Nearshore Rockfish	19.4	19

A.5.6.1 Groundfish Seasons and Area Restrictions

Season Structure

The season structure under Alternative 2 would be the same as No Action except that the 20 fm depth restriction in Marine Areas 3 and 4 and the 30 fm depth restriction in Marine Area 1 would be removed (Figure A-19).

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

a/ Retention of lingcod prohibited seaward of line drawn from Queets River (47°31.70' N lat. 124°45.00' W long.) to Leadbetter Point (46° 38.17' N lat. 124°30.00' W long.) when lingcod is open except on days open to the primary halibut fishery.

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

c/ Retention of lingcod prohibited seaward of line drawn from Leadbetter Point (46°38.17' N lat. 124°21.00' W long.) to (46°33.00' N lat. 124°21.00' W long.) year-round.

Figure A-18. Summarization of the key features of the Washington recreational regulations under Alternative 2.

North Coast (Marine Areas 3 and 4)

Under Alternative 2, when the season is open, recreational fishing for groundfish, retention, and possession would be allowed at all depths. Under Alternative 2, access to deepwater areas would be allowed at all times compared to No Action where groundfish fishing would be restricted to the area shallower than 20 fm for four months (June 1 through Labor Day). Fishing for, retention of, or possession of groundfish and Pacific halibut is prohibited in the C-shaped YRCA (Figure A-5).

South Coast (Marine Area 2)

Under Alternative 2, when the season is open, recreational fishing for groundfish, retention, and possession would be allowed at all depths. This would open recreational fishing outside 30 fm for two months that would have been closed under the No Action Alternative. The deepwater lingcod closure and YRCAs in place under No Action would remain in place under Alternative 2. When lingcod is open, fishing for, retention of, or possession of lingcod is prohibited in deepwater 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., except as allowed on days open to the Pacific halibut fishery (Figure A-5). Fishing for, retention of, or possession of bottomfish or Pacific halibut is prohibited in the South Coast YRCA and Westport Offshore YRCA (Figure A-5).

Columbia River (Marine Area 1)

The structure would be the same as under No Action (Section A.3.8).

A.5.6.2 Area Restrictions, Groundfish Bag Limits, Lingcod Seasons, Cabezon Size Limit, and Pacific Halibut Seasons

The restrictions under Alternative 2 would be the same as under No Action (Section A.3.8).

A.5.6.3 Inseason Management Response

The same inseason response as described under the Baseline would apply under Alternative 2.

A.5.6.4 Impact (Groundfish Mortality)

Projected mortality for rebuilding and healthy species under the Alternative 2 are summarized in Table A-112. Under Alternative 2, depth restrictions in place in Marine Areas 2, 3, and 4 would be removed, with the exception of the deepwater lingcod closure in Marine Area 2 that would remain in place when lingcod is open. The primary change to projected impacts is an increase in yelloweye rockfish mortality, as encounters would be expected to increase with access to waters outside 20 and 30 fm would not be restricted. Increases to mortality of vermilion rockfish or other shelf species in Marine Areas 3 and 4 might also increase, although projected impacts were not estimated, as catch of these species is well below ACLs. Catch of shelf species would not be expected to increase in Marine Area 2, as current (i.e., 2017) management measures already allow retention of rockfish seaward of the 30 fm depth restriction.

Projected impacts for yelloweye rockfish were analyzed in the same manner as No Action and Alternative 1 which used yelloweye rockfish catch per angler from 2005, the last year when no depth restrictions were in place, to estimate changes in catch during months that would be open under Alternative 2 that weren't already analyzed under No Action. The same approach was also used for projecting changes to angler effort, and assumed a 35 percent increase in angler trips in months when access to areas outside 20 fm or 30 fm would be new under Alternative 2 compared to Alternative 1. 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. Therefore, angler effort was projected to increase by only 5 percent in July 2019 and 2020 under Alternative 2.

Table A-112. Alternative 2 – Washington Recreational projected mortality.

Stock	**2019–20**
	Alt. 2
Canary rockfish	4.80
YELLOWEYE ROCKFISH	7.26
Black Rockfish	226.42
Lingcod	149.53
Nearshore Rockfish	4.80
Blue Rockfish	*1.47*
Quillback Rockfish	*1.32*
Copper Rockfish	*0.83*
China Rockfish	*1.18*
Brown Rockfish	-
Grass Rockfish	-
Yellowtail Rockfish	45.26
Vermilion Rockfish	0.82
Cabezon	*5.17*
Kelp Greenling	*1.16*

A.5.7 Oregon Recreational – Alternative 2

The Alternative 2 ACLs and associated Oregon recreational values in Table A-113 are the same as Alternative 1 (Table A-113), except for yelloweye rockfish where the ACL is based on SPR 65 percent.

Under Alternative 2, the yelloweye rockfish ACL and associated Oregon recreational HG of 9.0 and 9.2 mt (Table A-113) for 2019–20, respectively, is higher than under Baseline (Table A-33; 3.0 mt), No Action (Table A-79, 5.0 and 5.2 mt), and Alternative 1 (Table A-98, 7,1 and 7.3 mt). The yelloweye rockfish values which are higher than under No Action and Alterative 1, allowing for potential additional liberalization of regulations.

As under Alternative 1, black rockfish is the primary driver of the Oregon recreational fishery season structure and bag limits. 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 to provide information on how the fishery is progressing and impacts are tracking compared to allocations.

Table A-113. Alternative 2. Oregon recreational federal harvest guidelines (HG) or state quotas under Alternative 2 (mt).

Stock	2019 HG [a/]	2020 HG [a/]
Canary rockfish	70.9	66.7
YELLOWEYE ROCKFISH	9.0	9.2
Black Rockfish OR [b/]	390.6	387.6
Greenlings [c/]	46.5	44.0
Nearshore Rockfish North of 40°10' N lat. [d/]	92.4	90.9

a/ Federal HGs are established for canary rockfish and yelloweye rockfish only. The state process in Oregon establishes quotas for black rockfish, Nearshore Rockfish complex species, and greenlings (all species). The state quotas, which are yet to be determined, are not intended to be implemented in federal regulation, they are only provided as information.
b/ The values shown are the presumptive share based on the 2017 recreational and commercial sharing percentages in Oregon State Regulations.
c/ Includes kelp and other greenlings. The values shown are the presumptive share based on the 2017 recreational and commercial sharing percentages in Oregon State Regulations.
d/ Includes blue rockfish. The state of Oregon has a federal HG for Nearshore Rockfish North of 40°10' N lat., which is shared between the Oregon commercial nearshore and recreational fisheries. The values shown are the presumptive share based on 2017 recreational and commercial sharing percentages in Oregon State Regulations.

A.5.7.1 Groundfish Seasons and Area Restrictions

Season Structure

Under Alternative 2, the same as under Alternative 1, the Oregon recreational groundfish fishery would be open offshore year-round (Figure A-13). This differs from the season structure in place in 2017 (Baseline) and under No Action by having no months with depth restrictions. Additionally, with the increased yelloweye rockfish HG, easing of the prohibition of retention of groundfish on all-depth halibut trips may be allowed.

Area Restrictions

Under Alternative 2, the yelloweye rockfish HG would be high enough that the Stonewall Bank YRCA could be considered for elimination. Projecting impacts to yelloweye rockfish from that removal would be difficult to estimate, however would likely increase compared to the other alternatives. Input from anglers

has indicated that this would be a lower priority than easing the depth restrictions, allowing more lingcod opportunities, or allowing groundfish retention on all-depth halibut days.

A.5.7.2 Groundfish Seasons, Bag Limits and Size Limits

The same bag limits and size limits under the No Action Alternative and Alternative 1 would be in place under Alternative 2.

Pacific Halibut Seasons

Under Alternative 2, the recreational Pacific halibut fisheries should be able to proceed as in 2017, in regards to days and areas open, etc., depending on the halibut quota. Since 2009, only sablefish and Pacific cod may be retained in the Pacific halibut fishery at any depth in the area north of Humbug Mountain, Oregon. Beginning in 2015, other flatfish species were also allowed. South of Humbug Mountain, groundfish may be retained in areas open to groundfish (e.g., less than 30 fm) when halibut are onboard the vessel. The increase in the yelloweye rockfish HG should allow for some groundfish retention in the all-depth Pacific halibut fishery, such as lingcod retention. Retention of lingcod, or any other bottomfish, could increase the yelloweye rockfish impacts, however to what extent is difficult to predict, given that it has not been allowed since 2009. Any changes to groundfish retention in the halibut fishery would also need to go through the annual halibut catch sharing plan and regulatory process.

Additional Considerations

Under Alternative 2, the yelloweye rockfish HGs would be higher than under the Baseline, No Action, or Alternative 1. Retention of yelloweye rockfish would remain prohibited, additional bycatch mortality impacts would allow 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 rebuilding species within specified federal HGs under Alternative 2.

As under Alternative 1, under Alternative 2 the midwater recreational fishery targeting yellowtail rockfish would be available April-September should there be a need to implement depth restrictions to slow catch of a particular species.

A.5.7.3 Inseason Management Response

The same inseason response as described under the Baseline, No Action, and Alternative 1 will be in place under Alternative 2.

A.5.7.4 Impact (Groundfish Mortality)

The annual projected mortality presented in Table A-114 anticipated, given the season structure and bag limits detailed above. The model uncertainties are the same as described under Alternative 1.

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 A-114, 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.

Additionally, if the Stonewall Bank YRCA were eliminated and/or groundfish retention were to be allowed during the all-depth Pacific halibut fishery, there would be additional bycatch mortality of yelloweye rockfish, which are included in the estimate in Table A-114.

Table A-114. Projected Mortality (mt) of species with Oregon recreational specific allocations under Alternative 2.

Stock	Projected Mortality
Canary rockfish	50.3
YELLOWEYE ROCKFISH	8.1
Black Rockfish OR	391.9[a/]
Greenlings [b/]	5.3
Nearshore Rockfish North of 40°10´ N lat. [c/]	36.9
Yellowtail Rockfish	32.1
Widow Rockfish	6.8
Lingcod	221.9

a/ Projected mortality is higher than the presumed state-specified recreational HG. The state will implement sub-bag limits through state rules as in 2017 to keep impacts within the HG.
b/ Includes kelp and other greenlings.
c/ Includes blue rockfish. The state of Oregon has a federal HG of Nearshore Rockfish North of 40°10´ N lat. of 60.5 mt, which is shared between the Oregon commercial nearshore and recreational fisheries.

A.5.8 California Recreational – Alternative 2

Under Alternative 2, allowable harvest is the same for all species as Alternative 1, except for yelloweye rockfish. Under Alternative 2, the California recreational HG would be 11.8 mt and 12.0 mt, respectively in 2019 and 2020 (Table A-115).

Table A-115. Alternative 2 – California Recreational: Allocations (mt) to the non-trawl sector and shares (mt) for the California recreational fisheries for 2019 and 2020.

Stock	Non-Trawl Allocation	California Recreational HG
Bocaccio	1,266/1,226.3	874.3/846.9
Canary rockfish	384.1/361.4	127.6/120.0
COWCOD	3.8	
Darkblotched rockfish	37.4/39.9	
Nearshore rockfish North of 40°10´ N lat.	179.8/176.8	37.3/38.6
POP	215.9/210.3	
Petrale sole	129.4/126.2	
YELLOWEYE ROCKFISH	38.8/39.7	11.8/12.0

A.5.8.1 Groundfish Seasons and Area Restrictions

Season Structure

Same as described under Alternative 1.

Area Restrictions

Same as described under the Baseline.

A.5.8.2 Groundfish Seasons, Bag Limits, Hook Limits, and Size Limits

Same as described under No Action except as noted below.

Lingcod

Same as described under Alternative 1.

California Scorpionfish Seasons Bag, Limits, and Size Limits

Same as described under Alternative 1.

Pacific Halibut Seasons

Same as described under the Baseline.

A.5.8.3 Inseason Management Response

Same inseason response as described under the Baseline.

A.5.8.4 Impact (Groundfish Mortality)

Projected mortality is the same as is described under No Action (Options 1 and 2) and Alternative 1 (Option 3).

A.6 The Preferred Alternative

The following section describes the routine management measures identified by the Council in June 2018 as part of their final preferred alternative (Preferred Alternative or simply, "preferred alternative"). The Council adopted Alternative 2 for harvest specifications and to inform a new yelloweye rockfish rebuilding plan, which species an SPR harvest rate of 65 percent to determine ACLs and a target rebuilding year of 2029. Routine management measures are consistent with those modeled under Alternative 1 with sector-specific HGs as determined under Alternative 2 and non-trawl sector specific ACTs based on Alternative 1. The difference in impacts are to buffer against the uncertainty of non-trawl sector impacts on yelloweye rockfish in 2019 and 2020.

A.6.1 Deductions from the ACL

Table A-116 and Table A-118 detail the deductions from the ACLs in 2019 and 2020, respectively, under the Preferred Alternative necessary to calculate the fishery HG. For cowcod, the Council recommended reducing the fishery HG from 8 to 6 mt by implementing an ACT. The cowcod ACT is two metric tons higher than the 2017 ACT since cowcod is rebuilding ahead of schedule. No ACT was recommended for California scorpionfish (unlike in 2017) since the stock is healthy and predicted to remain so in the next 10 years. Additionally, there was less uncertainty in the 2017 California scorpionfish assessment than in the 2005 assessment.

Table A-117 and Table A-119 detail the trawl and non-trawl allocations in 2019 and 2020, respectively, under the Preferred Alternative. Allocations and projected mortality impacts of overfished groundfish species for 2019–20 can be found in Table A-106, which depict the allocations and impacts under Alternative 2. However, the projected impacts under Alternative 1 shown in Table A-90 may be more likely given the proposed management measures under the Preferred Alternative.

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). The values under No Action are the same as in 2017, except that the set-aside for petrale sole was increased from 220 mt to 290 mt to better accommodate tribal fisheries.

Research: Research activities include the NMFS trawl survey, 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. For yelloweye rockfish, the Council adopted a 2.92 mt research deduction based on anticipated research needs of the IPHC (1.1 mt), WDFW (1 mt), ODFW (0.4 mt), CDFW (0.22 mt), and other projects (0.2 mt). If data are available to determine that a deduction for research has been exceeded during the fishing year, it would be evaluated by the Council and NMFS. Adjustments could be made to prevent the harvest specifications from being exceeded.

Incidental Open Access: Deductions from ACLs are made to account for groundfish mortality in the incidental open access fisheries. The off-the-top deductions for all species, except longnose skate, were derived from the maximum historical values in the 2007 to 2016 WCGOP Groundfish Mortality reports. The recommended deduction for longnose skate was based on data from the 2009 to 2016 WCGOP Groundfish Mortality reports, the years in which longnose skate were reported separately from the Other Fish category. An additional 0.22 mt of yelloweye rockfish was set aside for incidental open access fisheries to account for the salmon troll fishery north of 40°10' N lat.

Exempted Fishing Permits: The Council recommended three EFPs for implementation[9], as follows, with set-asides described in Table A-39 and Table A-41, with the exceptions as follows:

- San Francisco Community Fishing Association and Dan Platt Application - Commercial jig fishing targeting yellowtail rockfish in the non-trawl RCA off California, which is a renewal of the 2017–18 EFP (Agenda Item E.2, Attachment 1, June 2018). The applicants have been operating under similar EFPs since 2013. Deductions from the ACL to accommodate the EFP would be those requested by the applicants.
- The Council Scott Cook and Oregon Department of Fish and Wildlife Application (Agenda Item E.2, Attachment 2, June 2018): Commercial midwater hook-and-line rockfish fishing in the non-trawl RCA off Oregon. The Council recommended caps be reduced to 0.12 mt for yelloweye rockfish and 5 mt for canary rockfish.
- Monterey Bay Fishermen Exempted Fishing Application (Agenda Item E.2, Supplemental Revised Attachment 3, June 2018): The EFP proposes to assess the feasibility of a midwater gear type to target chilipepper rockfish in the non-trawl RCA off central California. The Council recommended caps be increased for yelloweye rockfish cap to 0.06 mt.

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 2016 (Table A-43).

Buffer for Unforeseen Catch Events: The Council did not identify buffers to account for unforeseen catch events in 2019–20.

A.6.2 Allocating the Fishery HG

Under the Preferred Alternative, the allocation percentages are the same as described under No Action (Section A.3.1). The increased ACLs for yelloweye rockfish, California scorpionfish, lingcod north of 40°10´ N lat., and lingcod S. of 40°10´ N lat. result in larger sector allocations (Table A-117 and Table A-119). The adoption of Alternative 2 harvest specifications, the creation of three nearshore stock complexes (Oregon Black/Blue/Deacon Rockfish, Oregon Cabezon/Kelp Greenling, and Washington Cabezon/Kelp Greenling), as well as the changes in some of the set-asides and off-the-top deductions are changes from the No Action Alternative.

Table A-116. Preferred Alternative for 2019. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality in metric tons, used to calculate the fishery HG in 2019.

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Stocks							
Arrowtooth flounder	Coastwide	15,574	2,041.0	0.1	13.0	40.8	13,479
Big skate	Coastwide	494	15.0	0.1	5.5	21.3	452
Black rockfish (WA)	Washington	298	18.0	-	0.1	-	280
Black rockfish (CA)	California	329		1.0	0.0	0.3	327.7
Bocaccio	S of 40º10' N lat.	2,097		40.0	5.6	0.5	2,050.9
Cabezon (CA)	California	147		-	0.0	0.3	146.7

[9] The Mattusch EFP which was initially considered and described under the No Action Alternative and was ultimately not approved for implementation.

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
California scorpionfish	S of 34°27' N lat.	313		-	0.2	2.2	310.6
Canary rockfish	Coastwide	1,450	50.0	8.0	7.8	1.3	1,382.9
Chilipepper rockfish	S of 40º10' N lat.	2,536		60.0	13.4	11.5	2,451.1
COWCOD a/	S of 40º10' N lat.	10		0.0	2.0	0.0	6.0
Darkblotched rockfish	Coastwide	765	0.2	0.6	8.5	24.5	731.2
Dover sole	Coastwide	50,000	1,497.0	0.1	49.2	49.3	48,404.4
English sole	Coastwide	10,090	200.0	0.1	8.0	8.1	9,873.8
Lingcod	N of 40'10º N lat.	4,871	250.0	1.6	16.6	9.8	4,593.0
Lingcod	S of 40'10º N lat.	1,039		-	3.2	8.1	1,027.7
Longnose skate	Coastwide	2,000	130.0	0.1	12.5	5.7	1,851.7
Longspine thornyhead	N of 34º27' N lat.	2,603	30.0	-	14.2	6.2	2,552.6
Longspine thornyhead	S of 34º27' N lat.	822		-	1.4	0.0	820.6
Pacific cod	Coastwide	1,600	500.0	0.1	5.5	0.6	1,093.8
Pacific whiting	Coastwide	441,433	77,251.0	1.1		1,500.0	362,680.9
POP	N of 40º10' N lat.	4,340	9.2	0.1	3.1	10.0	4,317.6
Petrale Sole	Coastwide	2,908	290.0	0.1	24.1	6.4	2,587.4
Sablefish	N of 36º N lat.	5,606	See Sablefish Tab				
Sablefish	S of 36º N lat.	1,990		-	2.4	1.8	1,985.8
Shortbelly rockfish	Coastwide	500		0.1	8.2	8.9	482.8
Shortspine thornyhead	N of 34º27' N lat.	1,683	50.0	0.1	10.5	4.7	1,617.7
Shortspine thornyhead	S of 34º27' N lat.	890		-	0.7	0.5	888.8
Spiny dogfish	Coastwide	2,071	275.0	1.1	34.3	22.6	1,738.0
Splitnose rockfish	S of 40º10' N lat.	1,750		1.5	9.3	5.8	1,733.4
Starry flounder	Coastwide	452	2.0	0.1	0.6	16.1	433.2
Widow rockfish	Coastwide	11,831	200.0	28.0	17.3	3.1	11,582.6
YELLOWEYE ROCKFISH	Coastwide	48	2.3	0.24	2.92	0.62	41.9
Yellowtail rockfish	N of 40º10' N lat.	5,997	1,000.0	20.0	20.6	4.5	4,951.9
Stock complexes							
Nearshore Rockfish North	N of 40º10' N lat.	81	1.5	0.1	0.3	0.9	78.6
Oregon Black/Blue/Deacon Rockfish	Oregon	617		0.9		0.3	616.2
Nearshore Rockfish South	S of 40º10' N lat.	1,142		0.0	2.7	1.4	1,137.9
Shelf Rockfish North	N of 40º10' N lat.	2,054	30.0	4.5	24.7	17.7	1,977.1
Shelf Rockfish South	S of 40º10' N lat.	1,625		60.0	14.5	4.6	1,545.9
Slope Rockfish North	N of 40º10' N lat.	1,746	36.0	1.5	21.6	21.7	1,665.2
Slope Rockfish South	S of 40º10' N lat.	744		1.0	2.3	16.9	723.8
Oregon Cabezon/Kelp Greenling	Oregon	218		0.2	0.0	0.0	217.8
Washington Cabezon/Kelp Greenling	Washington	11					10.5
Other Fish	Coastwide	239			0.1	8.8	229.7
Other Flatfish	Coastwide	6,498	60.0	0.1	27.8	161.6	6,248.5

a/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-117. Preferred Alternative for 2019. Stock-specific fishery HGs or ACTs and allocations for 2019 (in mt).

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Stocks							
Arrowtooth flounder	Coastwide	13,479.1	Am. 21	95%	12,805.1	5%	674.0
Big skate	Coastwide	452.1	Biennial	95%	429.5	5%	22.6
Black rockfish (WA)	Washington	279.9	None				
Black rockfish (CA)	California	327.7	None				
Bocaccio	S of 40º10' N lat.	2,050.9	Biennial	39%	800.7	61%	1,250.2
Cabezon (CA)	California	146.7	None				
California scorpionfish	S of 34°27' N lat.	310.6	None				
Canary rockfish	Coastwide	1,382.9	Biennial	72%	999.6	28%	383.3
Chilipepper rockfish	S of 40º10' N lat.	2,451.1	Am. 21	75%	1,838.3	25%	612.8
COWCOD a/	S of 40º10' N lat.	6.0	Biennial	36%	2.2	64%	3.8
Darkblotched rockfish	Coastwide	731.2	Am. 21	95%	694.6	5%	36.6
Dover sole	Coastwide	48,404.4	Am. 21	95%	45,984.2	5%	2,420.2
English sole	Coastwide	9,873.8	Am. 21	95%	9,380.1	5%	493.7
Lingcod	N of 40'10º N lat.	4,593.0	Am. 21	45%	2,066.9	55%	2,526.2
Lingcod	S of 40'10º N lat.	1,027.7	Am. 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 34º27' N lat.	2,552.6	Am. 21	95%	2,425.0	5%	127.6
Longspine thornyhead	S of 34º27' N lat.	820.6	None				
Pacific cod	Coastwide	1,093.8	Am. 21	95%	1,039.1	5%	54.7
Pacific whiting	Coastwide	362,680.9	Am. 21	100%	362,680.9	0%	0.0
POP	N of 40º10' N lat.	4,317.6	Am. 21	95%	4,101.7	5%	215.9
Petrale sole	Coastwide	2,587.4	Am. 21	95%	2,458.0	5%	129.4
Sablefish	N of 36º N lat.		See Sablefish tab				
Sablefish	S of 36º N lat.	1,985.8	Am. 21	42%	834.0	58%	1,151.8
Shortbelly rockfish	Coastwide	482.8	None				0.0
Shortspine thornyhead	N of 34º27' N lat.	1,617.7	Am. 21	95%	1,536.8	5%	80.9
Shortspine thornyhead	S of 34º27' N lat.	888.8	Am. 21	NA	50.0	NA	838.8
Spiny dogfish	Coastwide	1,738.0	None				
Splitnose rockfish	S of 40º10' N lat.	1,733.4	Am. 21	95%	1,646.7	5%	86.7
Starry flounder	Coastwide	433.2	Am. 21	50%	216.6	50%	216.6
Widow rockfish	Coastwide	11,582.6	Am. 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 40º10' N lat.	4,951.9	Am. 21	88%	4,357.7	12%	594.2
Stock complexes							
Nearshore Rockfish North	N of 40º10' N lat.	78.6	None				
Oregon Black/Blue/Deacon Rockfish	Oregon	616.2	None				
Nearshore Rockfish South	S of 40º10' N lat.	1,137.9	None				
Shelf Rockfish North	N of 40º10' N lat.	1,977.1	Biennial	60.2%	1,190.2	39.8%	786.9
Shelf Rockfish South	S of 40º10' N lat.	1,545.9	Biennial	12.2%	188.6	87.8%	1,357.3
Slope Rockfish North	N of 40º10' N lat.	1,665.2	Am. 21	81%	1,348.8	19%	316.4
Slope Rockfish South	S of 40º10' N lat.	723.8	Am. 21	63%	456.0	37%	267.8
Oregon Cabezon/Kelp Greenling	Oregon	217.8	None				
Washington Cabezon/Kelp Greenling	Washington	10.5	None				

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Other Fish	Coastwide	229.7	None				
Other Flatfish	Coastwide	6,248.5	Am. 21	90%	5,623.7	10%	624.9

a/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

Table A-118. Preferred Alternative for 2020. Estimates of tribal, EFP, research (Res.), and incidental OA groundfish mortality in metric tons, used to calculate the fishery HG in 2020.

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Stocks							
Arrowtooth flounder	Coastwide	12,750	2041.0	0.1	13.0	40.8	10,655.1
Big skate	Coastwide	494	15.0	0.1	5.5	21.3	452.1
Black rockfish (WA)	Washington	297	18.0	-	0.1	-	278.9
Black rockfish (CA)	California	326		1.0	0.0	0.3	324.7
Bocaccio	S of 40º10' N lat.	2,011		40.0	5.6	0.5	1,964.9
Cabezon (CA)	California	146		-	0.0	0.3	145.7
California scorpionfish	S of 34°27' N lat.	307		-	0.2	2.2	304.6
Canary rockfish	Coastwide	1,368	50.0	8.0	7.8	1.3	1,300.9
Chilipepper rockfish	S of 40º10' N lat.	2,410		60.0	13.4	11.5	2,325.1
COWCOD a/	S of 40º10' N lat.	10		0.03	2.0	0.0	6.0
Darkblotched rockfish	Coastwide	815	0.2	0.6	8.5	24.5	781.2
Dover sole	Coastwide	50,000	1497.0	0.1	49.2	49.3	48,404.4
English sole	Coastwide	10,135	200.0	0.1	8.0	8.1	9,918.8
Lingcod	N of 40'10º N lat.	4,541	250.0	1.6	16.6	9.8	4,263.0
Lingcod	S of 40'10º N lat.	869		-	3.2	8.1	857.7
Longnose skate	Coastwide	2,000	130.0	0.1	12.5	5.7	1,851.7
Longspine thornyhead	N of 34º27' N lat.	2,470	30.0	-	14.2	6.2	2,419.6
Longspine thornyhead	S of 34º27' N lat.	780		-	1.4	0.0	778.6
Pacific cod	Coastwide	1,600	500.0	0.1	5.5	0.6	1,093.8
Pacific whiting	Coastwide	441,433	77251.0	1.1		1500.0	362,680.9
POP	N of 40º10' N lat.	4,229	9.2	0.1	3.1	10.0	4,206.6
Petrale sole	Coastwide	2,845	290.0	0.1	24.1	6.4	2,524.4
Sablefish	N of 36º N lat.	5,723	See Sablefish Tab				
Sablefish	S of 36º N lat.	2,032		-	2.4	1.8	2,027.8
Shortbelly rockfish	Coastwide	500		0.1	8.2	8.9	482.8
Shortspine thornyhead	N of 34º27' N lat.	1,669	50.0	0.1	10.5	4.7	1,603.7
Shortspine thornyhead	S of 34º27' N lat.	883		-	0.7	0.5	881.8
Spiny dogfish	Coastwide	2,059	275.0	1.1	34.3	22.6	1,726.0
Splitnose rockfish	S of 40º10' N lat.	1,731		1.5	9.3	5.8	1,714.4
Starry flounder	Coastwide	452	2.0	0.1	0.6	16.1	433.2
Widow rockfish	Coastwide	11,199	200.0	28.0	17.3	3.1	10,950.6
YELLOWEYE ROCKFISH	Coastwide	49	2.3	0.24	2.92	0.62	42.9

Stocks/Stock complexes	Area	ACL a/	Tribal	EFP	Res.	OA	Fishery HG or ACT a/ b/
Yellowtail rockfish	N of 40º10' N lat.	5,716	1000.0	20.0	20.6	4.5	4,670.9
Stock complexes							
Nearshore Rockfish North	N of 40º10' N lat.	82	1.5	0.1	0.3	0.9	79.3
Oregon Black/Blue/Deacon Rockfish	Oregon	611		0.9	0.0	0.3	609.3
Nearshore Rockfish South	S of 40º10' N lat.	1,163		0.0	2.7	1.4	1,158.9
Shelf Rockfish North	N of 40º10' N lat.	2,048	30.0	4.5	24.7	17.7	1,971.1
Shelf Rockfish South	S of 40º10' N lat.	1,625		60.0	14.5	4.6	1,545.9
Slope Rockfish North	N of 40º10' N lat.	1,732	36.0	1.5	21.6	21.7	1,651.2
Slope Rockfish South	S of 40º10' N lat.	743		1.0	2.3	16.9	722.8
Oregon Cabezon/Kelp Greenling	Oregon	204		0.2	0.0	0.0	204.2
Washington Cabezon/Kelp Greenling	Washington	10					10.4
Other Fish	Coastwide	239			0.1	8.8	229.7
Other Flatfish	Coastwide	6,041	60.0	0.1	27.8	161.6	5,791.5

a/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt

Table A-119. Preferred Alternative for 2020. Stock-specific fishery HGs or ACTs and allocations for 2020 (in mt).

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Stocks							
Arrowtooth flounder	Coastwide	10,655.1	Am. 21	95%	10,122.3	5%	532.8
Big skate	Coastwide	452.1	Biennial	95%	429.5	5%	22.6
Black rockfish (WA)	Washington	278.9	None				
Black rockfish (CA)	California	324.7	None				
Bocaccio	S of 40º10' N lat.	1,964.9	Biennial	39%	767.1	61%	1,197.8
Cabezon (CA)	S of 42º N lat.	145.7	None				
California scorpionfish	S of 34°27' N lat.	304.6	None				
Canary rockfish	Coastwide	1,300.9	Biennial	72%	940.3	28%	360.6
Chilipepper rockfish	S of 40º10' N lat.	2,325.1	Am. 21	75%	1,743.8	25%	581.3
COWCOD a/	S of 40º10' N lat.	6.0	Biennial	36%	2.2	64%	3.8
Darkblotched rockfish	Coastwide	781.2	Am. 21	95%	742.1	5%	39.1
Dover sole	Coastwide	48,404.4	Am. 21	95%	45,984.2	5%	2,420.2
English sole	Coastwide	9,918.8	Am. 21	95%	9,422.9	5%	495.9
Lingcod	N of 40'10º N lat.	4,263.0	Am. 21	45%	1,918.4	55%	2,344.7
Lingcod	S of 40'10º N lat.	857.7	Am. 21	45%	386.0	55%	471.7
Longnose skate	Coastwide	1,851.7	Biennial	90%	1,666.5	10%	185.2
Longspine thornyhead	N of 34º27' N lat.	2,419.6	Am. 21	95%	2,298.6	5%	121.0
Longspine thornyhead	S of 34º27' N lat.	778.6	None				
Pacific cod	Coastwide	1,093.8	Am. 21	95%	1,039.1	5%	54.7
Pacific whiting	Coastwide	362,680.9	Am. 21	100%	362,680.9	0%	0.0
POP	N of 40º10' N lat.	4,206.6	Am. 21	95%	3,996.3	5%	210.3
Petrale sole	Coastwide	2,524.4	Am. 21	95%	2,398.2	5%	126.2
Sablefish	N of 36º N lat.		See Sablefish Tab				

Stocks/Stock complexes	Area	Fishery HG or ACT a/ b/	Alloc. Type	Trawl		Non-trawl	
				%	Mt	%	Mt
Sablefish	S of 36º N lat.	2,027.8	Am. 21	42%	851.7	58%	1,176.1
Shortbelly rockfish	Coastwide	482.8	None				0.0
Shortspine thornyhead	N of 34º27' N lat.	1,603.7	Am. 21	95%	1,523.5	5%	80.2
Shortspine thornyhead	S of 34º27' N lat.	881.8	Am. 21	NA	50.0	NA	831.8
Spiny dogfish	Coastwide	1,726.0	None				
Splitnose rockfish	S of 40º10' N lat.	1,714.4	Am. 21	95%	1,628.7	5%	85.7
Starry flounder	Coastwide	433.2	Am. 21	50%	216.6	50%	216.6
Widow rockfish	Coastwide	10,950.6	Am. 21	91%	9,965.0	9%	985.6
YELLOWEYE ROCKFISH	Coastwide	42.9	Biennial	8%	3.4	92%	39.5
Yellowtail rockfish	N of 40º10' N lat.	4,670.9	Am. 21	88%	4,110.4	12%	560.5
Stock complexes							
Nearshore Rockfish North	N of 40º10' N lat.	79.3	None				
Oregon Black/Blue/Deacon Rockfish	Oregon	609.3	None				
Nearshore Rockfish South	S of 40º10' N lat.	1,158.9	None				
Shelf Rockfish North	N of 40º10' N lat.	1,971.1	Biennial	60.2%	1,186.6	39.8%	784.5
Shelf Rockfish South	S of 40º10' N lat.	1,545.9	Biennial	12.2%	188.6	87.8%	1,357.3
Slope Rockfish North	N of 40º10' N lat.	1,651.2	Am. 21	81%	1,337.5	19%	313.7
Slope Rockfish South	S of 40º10' N lat.	722.8	Am. 21	63%	455.4	37%	267.4
Oregon Cabezon/Kelp Greenling	Oregon	204.2	None				
Washington Cabezon/Kelp Greenling	Washington	10.4	None				
Other Fish	Coastwide	229.7	None				
Other Flatfish	Coastwide	5,791.5	Am. 21	90%	5,212.4	10%	579.2

a/ The default HCR for CA scorpionfish is a constant catch of 150 mt.

b/ The cowcod fishery harvest guideline (8 mt) is further reduced to an ACT of 6 mt.

A.6.3 Harvest Guidelines

Under the Preferred Alternative, the HGs and state quotas are the same as described under No Action (Section A.3.3 and A.3.1) for most stocks. The sector allocations and HGs for yelloweye rockfish are based on Alternative 2 and are shown in Table A-120. Management measures for the non-trawl sectors are designed to stay within the ACTs shown in Table A-121.

Table A-120. Yelloweye rockfish allocations (shares, harvest guidelines, etc.) by annual catch limit alternative for 2019 and 2020.

	No Action		**Alternative 1**		**Alternative 2**	
	2019 (29 mt)	**2020 (30 mt)**	**2019 (39 mt)**	**2020 (40 mt)**	**2019 (48 mt)**	**2020 (49 mt)**
Off the Top Deductions	6.1	6.1	6.1	6.1	6.1	6.1
EFP	0.24	0.24	0.24	0.24	0.24	0.24
Research	2.9	2.9	2.9	2.9	2.9	2.9
Incidental OA	0.62	0.62	0.62	0.62	0.62	0.62
Tribal	2.3	2.3	2.3	2.3	2.3	2.3
Bottom Trawl						
Troll						
Fixed gear	2.3	2.3	2.3	2.3	2.3	2.3
mid-water						
Whiting						
Trawl Allocations	1.8	1.9	2.6	2.7	3.4	3.4
-SB Trawl	1.8	1.9	2.6	2.7	3.4	3.4
-At-Sea Trawl	0.0	0.0	0.0	0.0	0.0	0.0
a) At-sea whiting MS						
b) At-sea whiting CP						
Non-Trawl Allocation	21.1	22.0	30.3	31.2	38.6	39.5
Non-Nearshore	1.1	1.2	1.6	1.7	2.0	2.1
Directed OA: Nearshore	3.3	3.4	4.7	4.9	6.0	6.2
Recreational Groundfish						
WA	5.4	5.7	7.8	8.1	10.0	10.2
OR	4.9	5.1	7.0	7.2	8.9	9.1
CA	6.4	6.7	9.1	9.4	11.6	11.9
Harvest Specification	**29**	30	**39**	40	**48**	49

Table A-121. Yelloweye rockfish harvest guidelines and annual catch targets (in mt) for non-trawl sectors in 2019 and 2020.

Fishery	2019		2020	
	HG (mt)	ACT (mt)	HG (mt)	ACT (mt)
Non-Nearshore	2.0	1.6	2.1	1.7
Nearshore	6.0	4.7	6.2	4.9
Washington Recreational	10.0	7.8	10.2	8.1
Oregon Recreational	8.9	7.0	9.1	7.2
California Recreational	11.6	9.1	11.9	9.4

A.6.4 Shorebased Individual Fishing Quota (IFQ) – Preferred Alternative

ACLs and allocations are the same as No Action, except for increases to the yelloweye rockfish (~82 percent) and lingcod north and south of 40°10' N lat. The preferred shorebased IFQ allocation for 2019 and 2020 is 3.4 mt of yelloweye rockfish (Table A-120). The additional amount of yelloweye rockfish quota to the shorebased IFQ sector may allow quota to flow more freely since quota holders were reluctant in the past to sell quota for fear of needing it to cover unintentional bycatch. No additional management measures are proposed.

A.6.4.1 Impact (Groundfish Mortality)

IFQ Species

Table A-120 shows allocations under the Preferred Alternative and Table A-107 and Table A-108 show corresponding projected catch levels in the shorebased IFQ fishery, as well as historical catches in years 2015 and 2016 for IFQ species categories. Projections were made based on input data from the IFQ fishery from 2011–17. They should be considered baseline projections in that respect, as they do not directly reflect potential fishery actions in the near future such as opening the RCA in Oregon and California, changes to trawl gear rules, or upcoming gear EFPs.

The primary difference between the Preferred Alternative and No Action is that the yelloweye rockfish allocation is markedly higher under the Preferred Alternative (82 percent higher on average). Additionally, both lingcod stocks increase marginally due to the P* (0.4 under the No Action Alternative, 0.45 for the stock south of 42° N lat. under the Preferred Alternative). All other allocations and projected mortalities are the same as No Action.

Although the yelloweye rockfish allocation was 82 percent higher on average for the Preferred Alternative than for No Action, the projected mortality was only 0.24 mt for the action alternatives including the Preferred Alternative in 2019 versus 0.23 mt for No Action in 2019, a difference of approximately 0.01 mt. Model-based projections of yelloweye rockfish mortality were relatively insensitive to changes in the allocation. One reason for this is since it is modeled as bycatch, the levels of allocations and projected mortality for aggregate shelf species were very similar among alternatives. Changes in projected mortality of shelf target species drive the yelloweye rockfish projection. This is coupled with the low level of variation in yelloweye rockfish catch throughout the reference data that inform the model during IFQ years (2011–16). Yelloweye rockfish was modeled using both bycatch and attainment-based methods during preliminary trials. In the end, the bycatch method provided a more responsive result and better fit to 2017 data. The bycatch rates for yelloweye rockfish seen in IFQ years (even since the 1990s) are extremely low and show little variation, and yelloweye rockfish encounters are very rare, which hampers the data's usefulness for forecasting.

It is difficult to quantify how much additional access higher yelloweye rockfish allocations would give to shelf and nearshore stocks. Modeling that question with current IFQ data has not given plausible answers thus far. Some preliminary supplementary analyses were performed using a bootstrap simulation with yelloweye rockfish and lingcod. Results suggested that the entire northern lingcod allocation could theoretically be taken at preferred levels of the yelloweye rockfish allocation. However, this result likely reflects a lack of relevant data under the current extreme yelloweye rockfish avoidance regime, from which to answer this question. It is plausible that there may be a threshold beyond which fishers would feel secure enough to pursue target strategies that pose a risk of catching significant quantities of yelloweye rockfish. The recent catch data show an extreme avoidance of the species. The potential change that would need to occur in the fishery may be a difference of kind rather than degree (or a step). In other words, fishing behavior would have to change to enable target strategies at shallow depths, which were previously ruled out under the extremely low yelloweye rockfish allocations in recent years. Landings time series show an extreme drop in yelloweye rockfish landings beginning in 2000; the stock was declared overfished in 2002. During the 1990s, landings ranged between 25 and 132 mt, and abruptly dropped to approximately 1 mt for two years, and then to less than 1 mt from 2002 forward. Thus, there are no catches to inform these types of questions in between the two regimes with intermediate catch ratios. However, it is logical that incremental increases in the allocation should yield access to additional target species catch, and that as long as it poses acceptably low conservation risk, that such increases should not be avoided just because of a lack of precise information about the potential for gain in target catch.

Trawl Rockfish Conservation Area (RCA) would have the same configuration as in 2018.

Pacific Halibut

Same as No Action

Non-IFQ Species

Same as No Action

A.6.5 At-Sea Whiting Co-ops – Preferred Alternative

The at-sea sector measures and impacts are the same as described under No Action (Section A.3.5), since the alternative ACLs (i.e., Alternatives 1 and 2) have no effect on the at-sea allocations or set asides.

A.6.6 Limited Entry and Open Access Fixed Gear – Preferred Alternative

The preferred ACLs are the same as under No Action, except for lingcod north and south of 40°10´ N lat., California scorpionfish south of 34°27’ N lat., and yelloweye rockfish with the ACLs analyzed under Alternative 2. Table A-120 contains the non-trawl allocations, shares, and HGs for select stocks in the non-nearshore and nearshore fisheries. Table A-121 shows the yelloweye rockfish ACTs specified for the non-trawl sectors under the Preferred Alternative, which are based on the allocations analyzed under the lower Alternative 1 yelloweye rockfish ACLs.

The proposed routine management measures for the Preferred Alternative are the same as described under No Action Alternative (Section A.3.6) except for the differential sablefish and lingcod trip limits described below.

A.6.6.1 Trip Limit Analysis

Trip limits different than proposed under No Action (Section A.3.6) are described below.

Table A-122. Trip limits for sablefish for limited entry and open access fixed gear fisheries.

Sector	Area	Jan-Dec
Limited Entry	N. of 36° N lat.	1,200 lbs./week, not to exceed 3,600 lbs. bi-monthly
	S. of 36° N lat.	2,000 lbs./week
Open Access	N. of 36° N lat.	300 lbs. daily, or one landing per week up to 1,000 lbs., not to exceed 2,000 lbs. bi-monthly
	S. of 36° N lat.	300 lbs. daily, or 1 landing per week up to 1,600 lbs., not to exceed 3,200 lbs. bimonthly

Table A-123. Trip limits for lingcod north of 40°10’ N lat. for limited entry and open access fixed gear fisheries.

Sector	Area	Jan-Dec
Limited Entry	N. of 42° N lat.	2,000 lbs./2 months
	42° N lat. to 40°10’ N lat.	1,400 lbs./2 months
Open Access	N. of 42° N lat.	900 lbs./month
	42° N lat. to 40°10’ N lat.	600 lbs./month

A.6.6.2 Impact (Groundfish Mortality)

Non-Nearshore North of 36° N lat.

Groundfish mortalities under the Preferred Alternative are the same as under No Action (Table A-71 and Table A-72).

Non-Nearshore South of 36° N lat.

Impacts the same as under No Action, except for increases in the trawl and non-trawl allocations for lingcod south of 40°10´ N lat. and yelloweye rockfish.

Nearshore

Projected landings, routine management measures, and projected mortality of stocks with nearshore specific limits would be the same as No Action.

Note that the yelloweye rockfish shares increase considerably from 3.2 mt and 3.4 mt for No Action to 4.6 mt and 4.8 for the Preferred Alternative (Table A-95). Although the nearshore fisheries are projected to be within their No Action shares, the extra yelloweye rockfish could allow for increased opportunities beyond the routine management measures currently being proposed via future inseason actions. Examples of opportunities include higher trip limits and increasing depth south of 40°10' N lat. or maintaining No Action landings and increasing depth restrictions between 40°10´ N lat. and 42° N lat.

A.6.6.3 Trip Limit Analysis

Limited Entry and Open Access - Lingcod North of 40°10´ N lat.

There is no effect to the northern stock, as the non-trawl differences are negligible (Table A-44 compared to Table A-90), and because past attainments (e.g., ~500 mt in 2016) are only about a fifth of the 2019–20 allocations.

Limited Entry and Open Access - Lingcod South of 40°10´ N lat.

The southern stock is estimated to be significantly less in 2019–20 compared to previous years, according to the 2017 lingcod stock assessment. However, the ACLs under the Preferred Alternative (1,039 mt for 2019, 869 mt for 2020) are slightly higher than the No Action (996 mt for 2019, 839 mt for 2020). The California nearshore fishery takes an average of 31.2 mt per year, based on 2014-2016 landings, of the southern stock.

A.6.7 Tribal Fisheries – Preferred Alternative

Under the Preferred Alternative, the tribal fisheries allocations, HG, and set-asides and projected mortality are the same as under No Action with the exception of petrale sole. For petrale sole the tribes have requested the treaty harvest guideline to be adjusted from 220 mt to 290 mt annually for 2019 – 2020 to accommodate the treaty fisheries.

The treaty tribes preferred management measure are provided in Agenda Item F.9.a, REVISED Supplemental Tribal Report 1, November 2017.

A.6.8 Washington Recreational – Preferred Alternative

Under the Preferred Alternative, Washington recreational fisheries would operate under the preferred ACLs for yelloweye rockfish and the associated Washington recreational HGs for 2019 and 2020, respectively (Table A-124). HGs for other recreationally important groundfish stocks would be the same as No Action (Table A-124).

Table A-124. Preferred harvest guidelines (HGs) for the Washington recreational fisheries.

Stocks	HG (mt)	
	2019	2020
YELLOWEYE ROCKFISH	10.0	10.2
Canary rockfish	47.2	44.4
Black Rockfish	280	278.9
Nearshore Rockfish	19.4	19

A.6.8.1 Groundfish Seasons and Area Restrictions

Season Structure

- Align the lingcod season in Marine Area 4 with the recreational groundfish season and the lingcod season in Marine Areas 1-3.

- North Coast (Marine Areas 3 and 4):
    - Revise the dates for the 20 fm depth restriction from, May 9 through Labor Day, to June 1 through Labor Day and;
    - Allow yellowtail and widow rockfish retention seaward of 20 fm in July and August on days open to salmon fishing.
- South Coast (Marine Area 2):
    - Revise the 30 fm line to be in place from the second Saturday in March through May 31;
    - Revise the 30 fm line to restrict lingcod only;
    - Allow lingcod retention seaward of the deepwater lingcod line from June 1 through June 15 and from September 1 through September 15;
    - Allow lingcod retention seaward of 30 fm and the deepwater lingcod line area every Sunday in May in the event that the Area 2A halibut quota does not provide sufficient quota to likely accommodate recreational halibut fishing in Marine Area 2 for four days.

Pacific Halibut Seasons

Same as No Action.

Area Restrictions

Same as No Action.

A.6.8.2 Bag limits

- Remove the sublimit for canary rockfish in all marine areas (Marine Areas 1 through 4) and;
- Reduce the cabezon sublimit from two fish per day in Marine Areas 1 – 3 to one fish per day in all marine areas, and remove the minimum size limit of 18” in Marine Area 4.

A.6.8.3 Inseason Management Response

Same inseason response as described under No Action.

A.6.8.4 Impact (Groundfish Mortality)

Projected mortality for overfished and non-overfished species under the Preferred Alternative are summarized in Table A-125. Routine management measures under the Preferred Alternative include: reducing the time period that depth restrictions are in place in Marine Areas 2, 3, and 4; streamlining the 30 fm depth restriction in Marine Area 2 to be specific to prohibiting lingcod retention; removing the canary rockfish sublimit; reducing the cabezon sublimit from 2 to 1 per day in Marine Areas 1, 2 and 3; removing the 18 inch cabezon minimum size limit in Marine Area 4; aligning the lingcod season opening date in Marine Area 4 with the opening date of the recreational bottomfish season and the lingcod season opening date in Marine Areas 1 through 3; allowing yellowtail and widow rockfish retention in Marine Areas 3 and 4 on days open to recreational salmon fishing in July and August; extending the allowance to keep lingcod with halibut on board in Marine Area 1 north of the Washington and Oregon border to September 30; and consideration of a new Washington kelp greenling and cabezon stock complex.

Projected impacts for yelloweye rockfish were analyzed in the same manner as No Action, which used yelloweye rockfish catch per angler from 2005, the last year when no depth restrictions were in place, to estimate changes in catch during months that would be open under the Preferred Alternative. The same approach was also used for projecting changes to angler effort and assumed a 35 percent increase in

angler trips in months when access to areas outside 20 fm would be allowed under the Preferred Alternative.

Changes to the lingcod season opening date in Marine Area 4 would open the lingcod approximately one month earlier, but would only be slightly different from the status quo closing date. Projected impacts to yelloweye rockfish were estimated by assuming yelloweye rockfish impacts in April would double from No Action and that March yelloweye rockfish impacts would be the same as the current yelloweye rockfish impacts in April under the No Action Alternative where the season is open for two weeks. These estimates are included in the projected yelloweye rockfish impacts summarized in Table A-125.

Several options for the 20 fm depth restriction were analyzed under the range of yelloweye rockfish ACL alternatives, including completely removing the depth restriction for the duration of the season. The Preferred Alternative management measures for Marine Areas 3 and 4 allow some opportunity to retain mid-water yellowtail and widow rockfish in waters deeper than 20 fm combined with a modest change to the timing of the 20 fm depth restriction. In general, the majority of yellowtail discards during the month of July and August are on vessels targeting salmon (60 percent and 74 percent during July and August 2017, respectively). As suggested by the high discard rate, salmon fisheries primarily occur in the mid-water area where yellowtail and widow rockfish are likely to be encountered. This measure would allow the retention of healthy rockfish resources that are already being caught and released and where attainment in 2016 was only 22 percent of the yellowtail rockfish ACL North of 40°10' N lat. and 51 percent for widow rockfish (Somers, *et al.* 2017).

To evaluate the impacts of this measure, we considered whether yelloweye rockfish impacts would increase as a result of allowing yellowtail and widow rockfish retention seaward of 20 fm. Since this measure would simply allow the retention of mid-water rockfish species that are currently being caught and discarded, the expectation is that there will be little if any increased mortality of yelloweye rockfish. In July and August 2017, there was 0.011 yelloweye rockfish released per angler trip targeting salmon. Total yelloweye rockfish mortality on all trip types in the north coast subarea is relatively low in July and August with the high amounts over the last three years (2015-2017) at 0.07 mt and 0.06 mt in July and August respectively. Again, while yelloweye rockfish mortality is not expected to increase as a result of this measure, total yelloweye rockfish impacts for July and August 2017 were doubled to estimate projected mortality for 2019 and 2020 in the event that angler behavior changes. Projected mortality for yellowtail rockfish was estimated assuming that all of the yellowtail rockfish released on trips targeting salmon in July and August 2017 were retained.

In Marine Area 2, the Preferred Alternative includes a slight change to the timing of the 30 fm depth restriction so that it opens concurrently with the opening of the recreational bottomfish season on the second Saturday in March and would close on May 31, approximately two weeks earlier than under No Action in addition to allowing the retention of lingcod in the deep water area during two, two week periods (July 1-15, and September 1-15). The analysis for completely removing the 30 fm line estimated impacts when there would be no depth restriction in place at all (i.e., neither the deep water lingcod restriction nor the 30 fm line). As such, the projected impacts from the removing the 30 fm line analysis was used to estimate projected impacts when allowing lingcod retention in the deepwater closure area during portions of the months of June and September.

Table A-125. Projected impacts in the Washington recreational fishery under the Preferred Alternative.

Stock	2019–20
Canary rockfish	6.29
YELLOWEYE ROCKFISH	5.22
Black Rockfish	226.42
Lingcod	149.53
Nearshore Rockfish	4.80
Blue Rockfish	*1.47*
Quillback Rockfish	*1.32*
Copper Rockfish	*0.83*
China Rockfish	*1.18*
Brown Rockfish	-
Grass Rockfish	-
Yellowtail Rockfish	46.05
Vermilion Rockfish	0.82
Cabezon	*5.17*
Kelp Greenling	*1.16*

A.6.9 Oregon Recreational – Preferred Alternative

The analysis of management measures under the Preferred Alternative for the Oregon recreational fishery maintains impacts within the default HCR ACLs, except for lingcod north of 40°10´ N lat. and yelloweye rockfish (Table A-87). The ACLs for California scorpionfish and lingcod south of 40°10´ N lat. apply in California only. There are no proposed management measure adjustments to respond to the increased lingcod amounts because the yelloweye rockfish HG limits access to lingcod. The management measures for the Oregon recreational fisheries are only responsive to the yelloweye rockfish ACLs, which are based on SPR 70 percent for the ACTs specified for the fishery; the Oregon recreational HGs are based on the preferred yelloweye rockfish ACLs under Alternative 2 (Table A-121). 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 the Preferred Alternative, the yelloweye rockfish ACL and associated Oregon recreational HGs of 8.9 and 9.1 mt and the Oregon recreational ACTs of 7.0 and 7.2 mt (Table A-121) for 2019–20, respectively, are higher than under No Action (Table A-79, 5.0 and 5.2 mt) and in 2017 (Table A-33; 3.0 mt). The black rockfish Oregon ACL, and associated state-specified HG for the recreational fishery for the Preferred Alternative (Table A-98) are the same as under No Action (Table A-79), but are lower than in 2017 (Baseline; Table A-33). Given that the yelloweye rockfish HG increases from No Action but black rockfish remains the same, black rockfish will be the primary species that requires management measure adjustments in the Oregon recreational fishery. The HGs for Oregon recreational fisheries for the Nearshore Rockfish complex and black rockfish would be state-specified HGs, and not established in federal regulations (Table A-98). 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 to provide information on how the fishery is progressing and impacts are tracking compared to allocations.

A.6.9.1 Groundfish Seasons and Area Restrictions

Season Structure

Under the Preferred Alternative, the Oregon recreational groundfish fishery would be open offshore year-round, except from June 1 to August 31 when fishing is only allowed shoreward of 40 fm, as defined by waypoints in regulation at 50 CFR 660.71 (Figure A-20). In recent years, the state of Oregon has been more conservative, restricting the fishery to shoreward of 30 fm, as defined by waypoints, through state regulations, to further limit impacts to yelloweye rockfish. Under the Preferred Alternative season structure, the federal depth restriction would be in place for three months in 2019–20, compared to six months in 2017. The state regulation would be liberalized to 40 fm for those same months. Closing the fishery deeper than 40 fm from June 1 to August 31, the period of highest angler effort and yelloweye rockfish encounters, mitigates mortality of yelloweye rockfish. However, shallow depth restrictions increase encounters, and associated mortality impacts, with black rockfish. This makes it a complicated analysis to try to control impacts to both species, as changing the depth to reduce impacts to one increases impacts to the other. The season structure and bag limits presented in Figure A-20 are designed to balance impacts to black and yelloweye rockfish and to stay within the respective HGs, while still trying to be precautionary with yelloweye rockfish. Canary rockfish and Nearshore Rockfish complex north species would be part of the ten fish marine bag (no sub-bag limits) in 2019 and 2020. Projected mortality of yelloweye rockfish are within the federal HGs; therefore, the shorebased fishery would be open year-round.

Season and Bag Limits	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Bottomfish Season	Open all depths					< 40 fm			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 A-19. The preferred Oregon recreational groundfish season and bag limits for 2019 and 2020.

Area Restrictions

The same area restrictions as under the No Action Alternative would be in place under the Preferred Alternative. The Stonewall Bank YRCA is an area of known high yelloweye rockfish concentrations, keeping it closed should help to ensure that the HG is not exceeded.

A.6.9.2 Groundfish Seasons, Bag Limits and Size Limits

The same bag limits and size limits under the No Action Alternative would be in place under the Preferred Alternative.

Additional Considerations

Under the preferred yelloweye rockfish ACLs, the HGs would be higher than under the Baseline or No Action. Retention of yelloweye rockfish would remain prohibited, additional bycatch mortality impacts are needed for additional months with depth restrictions, which will take some pressure off of more nearshore stocks such as black rockfish. Adjustments to routine and currently available management measures will be used to keep recreational harvests of overfished/rebuilding stocks within specified federal HGs under the Preferred Alternative.

As under the Baseline and No Action, under the Preferred Alternative, the midwater recreational fishery targeting yellowtail rockfish will be available during months with depth restrictions.

A.6.9.3 Inseason Management Response

The same inseason response as described under the Baseline and No Action will be in place under the Preferred Alternative.

A.6.9.4 Impact (Groundfish Mortality)

The annual projected mortality presented in Table A-126 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 in April, May, and September since 2003. Additionally the fishery has not been open between 30 and 40 fm in state rules since 2012. Yelloweye rockfish impacts would increase due to the increased encounter rate and higher discard mortality rate at deeper depth, even with no retention allowed. The current estimated mortality is 4.2 mt (Table A-126) which is below the 2019 and 2020 HGs of 8.9 and 9.1 mt and ACTs of 7.0 and 7.2 mt, respectively; however, that estimate is uncertain. This uncertainty is why the preferred season structure (months with depth restrictions) is somewhat conservative. Model runs for a year-round all-depth season projected impacts to be 6.5 mt, which is under the HGs and ACTs. However, there were concerns by ODFW, and members of the public, about going from six months with depth restrictions to no depth restrictions in one year being too risky due to the uncertainty around potential impacts.

With the fishery being open to all depth for three additional months, the projected impacts to black rockfish decrease from what is projected under the Baseline and No Action. As anglers are allowed to fish deeper depths they encounter and catch fewer black rockfish. However, under this Preferred Alternative federally specified season structure, the projected impacts are above the state-specified recreational HG for black rockfish. ODFW has indicated that, as in previous years, the bag limit will be adjusted through state regulations, or a sub-bag limit implemented, to maintain impacts from the recreational fishery within the HG. As an example, in 2017 the bag limit in state regulations is five fish. Keeping a more liberal bag limit in federal regulations allows for some flexibility if the season progresses differently than anticipated.

The projected impacts to lingcod, and yellowtail, and widow rockfish increase compared to the Baseline and 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 A-126, since the longleader gear opening would be more restrictive than the Preferred Alternative season structure.

Table A-126. Projected Mortality (mt) of species with Oregon recreational specific allocations under the preferred season structure.

Stock	Projected Mortality
Canary rockfish	41.2
YELLOWEYE ROCKFISH	4.2
OR Black/Blue/Deacon Rockfish complex	457.5
Black Rockfish	*434.5* [a/]
Blue/Deacon Rockfish	*23.0*
OR Cabezon/Kelp Greenling complex	
Cabezon	*21.4*
Greenlings [b/]	*5.9*
Nearshore Rockfish North of 40°10’ N lat.	16.7
Yellowtail Rockfish	37.6
Widow Rockfish	11.1
Lingcod	221.9

a/ Projected mortality is higher than the presumed state-specified recreational HG. The state will implement sub-bag limits through state rules as in 2017 to keep impacts within the HG.
b/ Includes kelp and other greenlings.

A.6.10 California Recreational – Preferred Alternative

The preferred season structure and management measure are, in part, responsive to the 2019 and 2020 yelloweye rockfish ACLs of 48 and 49 mt, respectively, which is the basis for the preferred 2019 and 2020 HGs for the California recreational fishery of 11.6 mt and 11.9 mt, respectively, and preferred ACTs of 9.1 mt and 9.4 mt in 2019 and 2020, respectively (Table A-127). The preferred ACTs are based on the Alternative 1 2019 and 2020 yelloweye rockfish ACLs of 39 mt and 40 mt, respectively. The preferred 2019 and 2020 ACLs for California scorpionfish of 313 and 307 mt, respectively influenced recreational opportunity in the Southern management area south of 34°27’ N lat. The non-trawl allocation of lingcod south of 40°10' N lat. is based on a P* of 0.45, resulting in 565.2 mt and 471.7 mt, in 2019 and 2020, respectively.

Table A-127. Allocations (mt) to the non-trawl sector, harvest guidelines, and yelloweye rockfish annual catch targets (mt) for the California recreational under the Preferred Alternative for 2019–20.

Stock	Non-Trawl Allocation		CA Rec. HGs		CA Rec. ACTs	
	2019	2020	2019	2020	2019	2020
Bocaccio	1,250.2	1,197.8	863.4	827.2		
Canary rockfish	383.3	360.6	127.6	120.0		
COWCOD	3.8					
Darkblotched rockfish	36.6	39.1				
Nearshore Rockfish North of 40°10´ N lat.	78.6	79.3	37.3	38.6		
POP	215.9	210.3				
Petrale sole	129.4	126.2				
YELLOWEYE ROCKFISH	38.6	39.5	11.6	11.9	9.1	9.4

A.6.10.1 Groundfish Seasons and Area Restrictions

Season Structure

The California recreational groundfish season structure under the Preferred Alternative is shown in Figure A-21. The preferred season structure would allow for the prosecution of the recreational fisheries under the season structure analyzed in the 2017–18 FEIS, including all-depth fishing opportunities in the Northern and Mendocino Management Areas and extending the season length in the San Francisco Management Area to open on April 1 (to align with the Central Management Area opening date). The additional yelloweye rockfish available under Alternative 2 may also help buffer against unanticipated encounters, similar to those experienced in 2017. In addition, it provides access to deeper fishing grounds in the Southern Management Area (out to 75 fm).

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 1 – Oct 31 <30 fm						All Depth	
Mendocino	Closed				May 1 – Oct 31 <20 fm						All Depth	
San Francisco	Closed			April 1 – Dec 31 <40 fm								
Central	Closed			April 1 – Dec 31 <50 fm								
Southern [a/]	Closed		Mar 1 – Dec 31 <75 fm									

a/ California scorpionfish: year round retention in the Southern management area. In all other management areas, the open season for California scorpionfish would remain the same as the recreational groundfish season (e.g., the Rockfish, Cabezon, and Greenling (RCG) season).

Figure A-20. Preferred season structure for the California recreational fishery in 2019–20.

Area Restrictions

Same as described under the No Action would be in place for the Preferred Alternative.

A.6.10.2 Groundfish Seasons, Bag Limits, Gear Limits, and Size Limits

The bag limits, size limits, and gear restrictions for canary rockfish and lingcod as described under the No Action Alternative would be in place for the Preferred Alternative. The following bag limits would apply:

- Canary rockfish: 2 fish sub-bag limit.
- Lingcod: 2 fish north of 40°10' N lat.; 1 fish south of 40°10' N lat.

The bag limit, size limit and gear restriction for cabezon as described under the Baseline would be in place for the Preferred Alternative. The following bag limit would apply:

- Cabezon: 3 fish sub-bag limit within the 10 fish RGC bag limit.

California Scorpionfish Seasons, Bag Limits, and Size Limits

Season length, bag limits, and size limits as described for California scorpionfish under the No Action Option 2 would be implemented under the Preferred Alternative.

Pacific Halibut Seasons

Same as described under the Baseline.

A.6.10.3 Impact (Groundfish Mortality)

The projected mortality under the Preferred Alternative is presented in Table A-128. The projected mortality is slightly increased for some species (e.g., cowcod) as a result of the depth change to 75 fm in the Southern Management Area as compared to the baseline. There are minimal/trace increases to species impacts as a result of increasing the season length in the San Francisco Management Area. The minimal increases can be attributed to less fishing effort during that time of year in that portion of the coast compared to peak summer months. In addition, the projected impacts may be higher or lower than actual mortality given uncertainty in weather conditions and availability of other recreational fishing targets (e.g., salmon).

Table A-128. Projected mortality in the California recreational fishery in 2019–20 under the Preferred Alternative.

Stock	Projected Recreational Mortality	California Recreational HG		Non-Trawl Allocation a/	
		2019	2020	2019	2020
Bocaccio	124.3	863.4	827.2	1,250.2	1,197.8
Canary rockfish	110.7	127.6	120.0	383.3	360.6
COWCOD	1.6			3.8	
YELLOWEYE ROCKFISH	3.3	11.6; ACT: 9.1	11.9; ACT: 9.4	38.6	39.5
Black rockfish	108.1			327.7	324.7
Cabezon	53.8			146.7	145.7
California scorpionfish	124.0			310.6	304.6
Greenlings	10.3			b/	
Lingcod N. of 40°10' N lat. c/	70.9			2,526.2	2,344.7
Lingcod S. of 40°10' N lat.	316.3			565.2	471.7
Widow rockfish	7.4			1,042.4	985.6
Nearshore Rockfish N. of 40°10' N lat. d/	12.4	37.3	38.6	78.2	78.9
Nearshore Rockfish S. of 40°10' N lat. d/	539.8			1,137.9	1,158.9
Petrale sole	2.1			129.4	126.2
Starry flounder	5.8			216.6	

a/ Includes non-nearshore, nearshore, and recreational.
b/ Kelp greenling is managed within the Other Fish complex.
c/ Projected impacts only includes the area between 42° N lat. and 40°10' N lat., while the non-trawl allocation is applicable for the entire area North of 40°10' N lat.
d/ Includes blue/deacon rockfish.

Attachment 1

PROPOSED LINGCOD NORTH OF 40°10´ N LAT. TRIP LIMIT INCREASES FOR LIMITED ENTRY AND OPEN ACCESS FIXED GEARS

More than 2,000 mt of the northern lingcod non-trawl allocation are projected to be unutilized for 2019–20. The economic benefits could be considerable even if only a portion of that were to be obtained (Table A-129). For example, an increase of 100 mt could increase the entire value of the nearshore fisheries (north of 40°10´ N lat.) by 44 percent, and an increase of 200 mt could nearly double the entire nearshore value (+88 percent). For the non-nearshore fisheries, the increases could be 5 percent and 10 percent for an extra 100 mt and 200 mt of lingcod, respectively. The relative increases are less for the non-nearshore than the nearshore since it is a higher value fishery of which roughly 95 percent of the value is attributed to sablefish. It is important to note that no management measures are being proposed that could increase lingcod attainments by more than 100 mt at this time. The purpose of this lingcod added value exercise to demonstrate how valuable lingcod is to the non-trawl fisheries, and to emphasize that even modest increases to attainments could bring considerable benefits.

Table A-129. Projected increases in the entire values of the nearshore and non-nearshore fisheries north of 40°10' N lat. if an extra X mt of lingcod were to be landed of the >2,000 mt projected residual.

Sector	Metric	Current value all species	Value if landed an extra X mt more lingcod				
			100	200	300	400	500
Nearshore	ex-vessel	1.5	2.2	2.8	3.5	4.1	4.8
Nearshore	income	2.7	3.9	5.2	6.4	7.6	8.8
Nearshore	jobs	89.0	128.3	167.5	206.8	246.0	285.2
Nearshore	% increase from current	---	44%	88%	132%	176%	220%
Non-nearshore	ex-vessel	9.6	10.1	10.6	11.1	11.6	12.1
Non-nearshore	income	19.6	20.5	21.5	22.4	23.4	24.3
Non-nearshore	jobs	329.4	374.2	418.9	463.7	508.5	553.2
Non-nearshore	% increase from current	---	5%	10%	16%	21%	26%

Note that the primary objective of non-trawl analyses from past biennial harvest specification and management measures has been to maximize opportunity for target stocks, such as lingcod, while staying within the biological constraints of overfished/rebuilding species limits, such as yelloweye rockfish. For instance, this was a main focus of the lingcod trip limit analyses used to establish the 2017 pre-season limited entry and open access trip limits (Appendix B7) from the Final Environmental Impact Statement (FEIS) for Proposed Harvest Specifications and Management Measures for the 2015-2016).

No lingcod trip limit increases were proposed during the 2017–18 biennial harvest specifications and management measures, since there was insufficient yelloweye rockfish residual to do so at that time. However, there were considerable science upgrades to nearshore discard mortality rates and the nearshore model that provided sufficient yelloweye rockfish savings for inseason lingcod trip limit increases in both 2017 (July-Dec) and for all of 2018.

The following is a chronological summary of why limited entry and open access trip limits were increased inseason for 2017 and 2018, and why even higher limits could be considered for 2019–20:

(1) As part of the June 2016 omnibus prioritization process, the GMT recommended (Agenda Item G.6.a, Supplemental GMT Report, June 2016) and the Council selected (June 2016 PFMC Decision Summary) "updates to nearshore discard mortality rates," of which the GMT hypothesized that scientific upgrades could possibly reduce nearshore estimates of yelloweye rockfish discard mortality by 1/3 (Agenda Item G.6.a, Supplemental GMT Report, June 2016);

(2) In March 2017, the Council chose to lower the nearshore DMRs for rockfish caught with "sport-like" jig-and-pole gears in 20-30 fm from 100 percent to the same SSC-endorsed surface discard mortality rates used by the recreational fisheries (Agenda Item I.2.a, GMT Report 2, March 2017; March 2017 PFMC Decision Summary);

(3) Also in March 2017, the Council requested and WCGOP added (Agenda Item E.1.b, NMFS NWFSC Report 1, September 2017) a fourth (20-30 fm) depth bin to their estimation stratum to improve discard mortality estimates and model projections;

(4) In June 2017, the GMT made four considerable scientific improvements to the methodology used to devise overall nearshore DMRs (Agenda Item F.10.a, Supplemental GMT Report, June 2017) that combined DMRs associated with jig-and-pole gears with the DMRs associated with other gears;

(5) WCGOP first implemented the GMT's updated nearshore DMRs reflecting the science upgrades (from steps 2-4) for their 2016 estimates of total mortality, which resulted in a coastwide nearshore mortality of 0.63 mt of yelloweye rockfish compared to the 1.9 mt nearshore HG. It is important to emphasize that 2016 is the best baseline for nearshore mortality of yelloweye rockfish and not earlier years. That is because previous estimates have not yet been reconstructed to include the GMT's DMR science upgrades;

(6) As hypothesized by the GMT from #1 above, the resulting savings to yelloweye rockfish discard mortality were indeed approximately a 1/3 reduction;

(7) Based on these savings, there was sufficient yelloweye rockfish residual for the Council to adopt inseason trip limit increases for lingcod north of 40°10' N lat. for July-December of 2017 and all of 2018 (June 2017 PFMC Decision Summary, November 2017 PFMC Decision Summary, respectively);

(8) Lingcod trip limit increases can also be considered for 2019–20 for the same reasons listed above that led to the inseason changes for 2017 and 2018, and because the 2019–20 yelloweye rockfish ACLs, HGs, and nearshore shares increase approximately 1.5 fold for the No Action Alternative (described below).

Four lingcod trip limit alternatives are provided in Table A-62 based on past public comment and Council decisions and discussions.

No Action (NA) represents the trip limits that were in place at the end of 2017. Option 1 represents the 2018 inseason trip limits that were adopted during the November 2017 Council meeting, and were based on past practices that used set limits: OA limits set first, with limited entry getting the bimonthly limit that is equivalent to double the open access monthly limit from Jan-Oct, both getting equal monthly limits in November, and limited entry getting an extra 100 lbs. monthly in December).

Note that while Option 1 is rather straight-forward for open access (300 lbs. or 700 lbs./month), the limits are erratic and confusing for limited entry. In November 2017, the Council recommended that any further lingcod trip limit proposals be simple and straightforward for both limited entry and open access, which

led to Options 2 and 3. These options also fulfill industry requests for constant year-round trip limits for market stability.

Option 3 was the preferred approach from nearshore public meetings hosted in September 2017 by the Oregon Department of Fish and Wildlife. The participants, mainly open access, wanted a flat 900 lbs./month since it would increase opportunity and provide greater market stability. Although modeling results indicated that higher limits could be possible while staying within yelloweye rockfish limits, they were adamant not to exceed 1,000 lbs. monthly for open access, since that would be the breaking point that could make lingcod-only targeted trips profitable and entice additional effort. This additional effort could cause undesirable impacts such as flooding of the artisanal lingcod markets or unanticipated impacts to yelloweye rockfish bycatch that could limit overall opportunity.

By staying at 900 lbs./month, industry indicated that the impacts to lingcod and yelloweye rockfish would be limited and predictable since it would be the same participants using the same fishing strategies (i.e., gears, areas, etc.), albeit with extra opportunity to target lingcod. For instance, the "summer limits" (May-Nov) would only be modestly higher, so the "summer" impacts would be expected to be similar. Since the main focus of Option 3 is to increase "winter" limits (Dec.-Apr.) to be more consistent with those of "summer," they do not expect "winter" increases to be much different than what already occurs during "summer"; therefore, the lingcod and yelloweye rockfish impacts should be reliable to predict (i.e., assume future "winter" is similar to current "summer"). Option 2 maintains the same simple and constant approach as Option 3, but is more precautionary.

Feedback from limited entry participants has been limited since lingcod is predominately an open access fishery occurring in the nearshore. Limited entry primarily occurs in the non-nearshore of which sablefish comprise 95 percent of total revenues, and their lingcod landings are incidental to their sablefish activities. While they support higher lingcod trip limits since it would allow them to retain more of their incidental catches, they do not believe that the proposed limits would be high enough to warrant targeting since even maximum lingcod catches based on higher limits would be relatively minor relative to their sablefish revenues.

As mentioned above, Options 2 and 3 would primarily be focused toward allowing greater "winter" landings in order to provide better market stability, and it should therefore be noted that there was a winter closure prior to 2015 to protect lingcod during their spawn. However, this closure was adopted to help the stock recover when they were overfished, and they are now healthy and underutilized based on the 2009 and 2017 assessments (62 and 55 percent depletion, respectively). In addition, lingcod is one of the few stocks that has a minimum size limit (24 inches in California and 22 inches in Washington and Oregon) that results in most fish reaching maturity before being harvested (i.e., the length of 50 percent maturity is approximately 23.5 inches for females and 15-22 inches for males (Hamel, *et al.* 2009). Finally, lingcod have a broad habitat range from the shore to the outer shelf, and much of their habitat is closed to the non-trawl fisheries due to the non-trawl RCA, which is expected to remain in effect until yelloweye rockfish rebuild. While there were concerns with lingcod during their winter spawning months during the past, there now may be less concern since the stock is now healthy and provided protection by minimum size limits and the non-trawl RCA.

A.7 Literature Cited

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