Agenda Item E.5
Supplemental REVISED Attachment 1
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Draft Harvest Specifications Sections of the Pacific Coast Groundfish Fishery 2025-2026 Harvest Specifications and Management Measures

DRAFT

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1. Alternatives

1.1 Description of Alternatives

Chapter 1 describes the alternatives (No Action, Alternative 1) that could be implemented to manage groundfish fisheries for the 2025-2026 biennial period. No Action reflects the default HCRs; whereas, Alternative 1 reflects the alternative HCRs for the identified stocks (canary rockfish, rex sole, sablefish, and shortspine thornyhead). The species with Alternatives proposed which consider changes to their default harvest control rules (HCR) are shown in Table 1-3.

Harvest specifications include the overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL) for all stocks and stock complexes actively managed under the Pacific Coast Groundfish Fishery Management Plan (FMP). These metrics are described in detail in the Status of the Pacific Coast Groundfish Fishery: Stock Assessment and Fishery Evaluation document, which is incorporated by reference.

U.S. West Coast groundfish stocks are managed under a harvest specification framework that considers scientific and management uncertainties. The first specification is the OFL, which is the maximum sustainable yield (MSY) estimated for the stock and the legal harvest limit beyond which constitutes overfishing. The OFL is determined either by applying the harvest rate estimated to result in a biomass capable of sustaining MSY (i.e., F_{MSY}) recommended by the Council's SSC to an estimate of exploitable biomass in the case of assessed stocks or through an approved data-limited method (e.g., DCAC or DB-SRA) in the case of unassessed stocks. Regardless of the method or data informing the calculation of an OFL, there is scientific uncertainty in the estimation of an OFL. The FMP mandates a precautionary buffer to account for this uncertainty by prescribing an ABC harvest level that is less than the OFL. A further reduction from the ABC can be specified when setting an ACL that accounts for management uncertainty, socioeconomic considerations, ecological considerations, conservation objectives, and/or other considerations the Council and NMFS wish to address. Since the ACL can be set equal to the ABC, the ABC is the highest harvest level that can be specified for U.S. West Coast groundfish stocks.

Management measures are designed to keep the mortality of these stocks and stock complexes at or below the ACLs. 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 U.S. West Coast states. Many of these allocations are specified in the FMP, while others are specified as part of the biennial management process. Before these allocations are made, amounts of yield may be deducted from ACLs to account for catches in tribal fisheries, incidental open access (OA) fisheries[1], research activities, and exempted fishing permits (EFPs). These deductions from the ACL are known as off the top deductions. The subsequent amount of catch after these amounts are deducted is known as the fishery harvest guideline.

1.2 Harvest Specification Alternatives

At the national level, National Standard 1 Guidelines at 50 CFR §600.310 define harvest specifications and what must be considered when specifying them. The Pacific Coast Groundfish FMP Chapter 4 describes the framework for biennial specifications, as well as Section 2.8 of the Status of the Pacific Coast Groundfish Fishery: Stock Assessment and Fishery Evaluation document. The OFL, ABC, and the ACL for each stock is based on the best scientific information available including endorsed stock assessments, changes in Scientific and Statistical Committee (SSC)-endorsed stock categories, or changes in SSC-endorsed sigma values (i.e., variances used to estimate the uncertainty in estimating OFLs). Any revised or

[1] Incidental open access fisheries are those fisheries targeting non-groundfish species that incidentally harvest groundfish.

new HCRs adopted by the Council and used to determine specifications for the subject biennial period become the new default for future biennial management cycles. The Alternatives are summarized in Table 1-3 and detailed below in Section 1.2.2.

Harvest specifications are based on the most recent assessments for actively managed stocks, including those managed in stock complexes. Results from new assessments conducted in 2023 were used to determine 2025 and 2026 harvest specifications for copper rockfish in California (south of 42° N. lat.), black rockfish in Washington, Oregon and California, canary rockfish, petrale sole, rex sole, sablefish, and shortspine thornyhead. Harvest specifications were also provided from 2023 catch-only projection updates of the most recent assessments for widow rockfish, chilipepper rockfish, and yellowtail rockfish north of 40 10 N. lat. with actual total catches replacing the removal assumptions in the respective assessments for these stocks. Catch-only projections for yelloweye rockfish were updated in 2023 based on the most recent 2017 rebuilding analysis and utilized for harvest specifications. Rebuilding analyses for quillback rockfish in California (south of 42° N. lat.) were conducted in 2023 to provide the basis for potential harvest specifications.

1.2.1 Default Harvest Specifications (No Action)

Default harvest specifications would be implemented under the No Action Alternative. As discussed above, default harvest specifications are computed by applying the best scientific information available, such as new endorsed stock assessments, to current, default HCRs for all groundfish stocks.

Chapter 4 of the Groundfish FMP specifies the framework for the No Action harvest specifications as follows, "… the harvest controls from the previous biennium (referred to as default harvest control rules) are applied to the best available scientific information to determine the numerical values of the harvest specifications for the next biennial period. The default HCR would establish the harvest specifications based on the F_{MSY} (or proxy value) used in the previous biennium applied to the best current estimate of stock biomass to determine the OFL. The ABC is determined by applying the uncertainty buffer used in the previous biennium except that if the P* approach was used, the same P* value used in the previous biennium is applied. The ACL is determined using the appropriate method for current stock status, if known. If a stock has recovered such that stock size is now above the MSY biomass target, the default harvest control sets the ACL equal to the ABC using the same P* value used in the previous biennium, if applicable. If the status has not changed or is unknown, the same method used in the previous cycle is used to compute the default HCR. This includes cases where a constant catch HCR was used in the previous cycle to set the ACL below the ABC, in which case the same constant catch numerical value is used as the default ACL for the next biennial cycle. In the case of a stock managed under a rebuilding plan, the default HCR is the one described in the current rebuilding plan."

Table 1-1 and Table 1-2 provide 2025 and 2026 OFLs based on the best current estimate of stock biomass, ABCs based on the Scientific and Statistical Committee's (SSC's) default sigma values ($\boldsymbol{\sigma}$ - scientific uncertainty) for each stock category and overfishing probabilities (P*s - probability of overfishing) selected by the Pacific Fishery Management Council from the 2023-2024 management cycle, and ACLs that comport with the default HCRs.

Additionally, the Council adopted stock definitions for 14 species of groundfish under Amendment 31 of the Groundfish FMP.

Table 1-1. 2025 harvest specifications (overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL); units in mt) under default harvest control rules, for U.S. West Coast groundfish stocks and stock complexes. Stocks with new 2023 assessments/catch projections in bold; stocks defined under Groundfish FMP Amendment 31 are in blue highlight.

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Yelloweye Rockfish	**CW**	**1**	**0.40**	**105.80**	**87.20**	**55.80**	**2017**	**OFL based on the 2023 catch-only update of the 2017 rebuilding analysis (Table 1, Agenda Item G.2 Supp Revised Attachment 15 Sept 2023).**
Arrowtooth Flounder	CW	2	0.40	16,460.00	11,193.00	11,193.00	2017	OFL based on the 2021 catch-only update of the 2017 update assessment (Table 1; Correa et al. 2021; Agenda Item C.6 Attachment 9 Sept 2021).
Big Skate	CW	2	0.45	1,456.00	1,224.00	1,224.00	2019	OFL projected using a 50% SPR harvest rate in the 2019 big skate assessment (Table 15 pg 67).
Black Rockfish	**WA**	**1**	**0.45**	**261.56**	**244.56**	**244.56**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table vii, pg xix).**
Black Rockfish	**CA**	**1**	**0.45**	**250.10**	**233.80**	**223.6**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table 65, pg 142).**
Bocaccio	S of 4010	1	0.45	1,849.00	1,681.00	1,681.00	2017	OFL projected using a 50% SPR from the 2019 updated harvest specification projections based on new sigmas with a 7.4% reduction to subtract the portion of the assessed stock north of 40°10' N. lat. (Table 5 pg 3; Agenda Item H.8 Supp Attachment 2 Sept 2019).
Cabezon	CA	1	0.45	176.40	161.76	161.76	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES18 pg 41; Table ES19 pg 42).
Cabezon	S of 3427	1	0.45	20.50	18.80	18.80	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES18 pg 41).
Cabezon	3427 - 42	1	0.45	155.90	142.96	142.96	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES19 pg 42).
Cabezon/Kelp Greenling	WA			25.40	19.76	19.76		Sum of harvest specification contributions of component stocks in the complex.
Cabezon	WA	3	0.45	18.30	14.24	14.24	2019	OFL based on a DB-SRA assessment in the 2019 assessment (Table 48 pg 190, unweighted-50%).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Kelp Greenling	WA	3	0.45	7.10	5.52	5.52	2015	OFL based on a 2015 DB-SRA estimate using a low vulnerability prior (Table 11 pg 12, Delta option 4; Agenda Item I.4 Attachment 4 November 2015). Low vulnerability prior from data-moderate assessment document (Figure 54 in Cope et al. 2015).
Cabezon/Kelp Greenling	OR			195.6	176.93	176.93		Sum of harvest specification contributions of component stocks in the complex.
Cabezon	OR	1	0.45	52.60	48.23	48.23	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES20 pg 43).
Kelp Greenling	OR	1	0.45	143.00	128.70	128.70	2015	OFL projected in the 2021 catch-only update of the 2015 assessment (Table 5, Agenda Item C.8. Attachment 2 September 2021).
California Scorpionfish	CW		0.45	273.00	244.00	244.00	2017	OFL from the 2019 catch-only update of the 2017 assessment (Table 6 pg 4; Agenda Item H.8 Supp Attachment 2 Sept 2019).
Canary Rockfish	**CW**	**1**	**0.45**	**646.93**	**604.88**	**571.28**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table vii, pg xvi).**
Chilipepper	**S of 4010**	**1**	**0.45**	**3,128.06**	**2,815.25**	**2,815.25**	**2015**	**OFL from a 2023 catch-only projection update of the 2015 assessment, based on the corrected 2017 catch-only update to the assessment to correct errors in historical catch estimates between 1916-2016 (based on the 2017 model with time-varying buffers starting in 2015). (Table 1 pg 2; Agenda Item E.2 Attachment 2 Nov 2023). OFLs are apportioned to the North (7%) and South (93%) of 40°10' N lat. based on average historical landings. S of 40°10' N lat. 2025 OFL = 3363.5 * 0.93 = 3128.06; 2026 OFL = 3171.2 * 0.93 = 2949.22.**
Cowcod	S of 4010			111.14	76.56	76.56	2019	Harvest specifications are the sum of assessed area projections (South of Pt Conception 34°27' N. lat.) and DBSRA estimates (40°10' to 34°27' N. lat.).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Cowcod	S of 3427	2	0.40	92.81	65.52	65.52	2019	OFL is based on a 50% SPR harvest rate projected in the 2019 assessment, with a time varying category 2 sigma, P* = 0.4. in 2019 projections (Table 6 pg 5; error in caption as correction is South of 34°27' N. lat.; Agenda Item H.6 Attachment 2 November 2019).
Cowcod	4010 - 3427	3	0.40	18.33	11.04	11.04	2019	OFL is based on the 2019 DB-SRA estimate in Appendix B of the 2019 cowcod assessment (Table F2 pg 179; Percentile 50% (Median)). OFLs are apportioned to the north of 40°10' N lat. (3%) and 40°10' - 34°27' N lat. (97%) based on cumulative historical catch (Table F3 pg 179; 1916-2018).
Darkblotched Rockfish	CW	1	0.45	830.00	754.00	754.00	2017	OFL projected using a 50% SPR in the 2021 catch-only projection update (Table 1; Lee 2021; Agenda Item C.6 Attachment 12 Sept 2021).
Dover Sole	**CW**	**1**	**0.45**	**51,214**	**47,424**	**[50,000]**	**2021**	**OFL projected using a 30% SPR harvest rate in the 2021 full assessment, with assumed removals equal to the adopted ACL of 50,000 mt in 2023-24 (per September 2023 Council request) (Table 2; Agenda Item E.5 Attachment 4 Nov 2023). Default 50k mt ACL.**
English Sole	CW	2	0.45	11,175.00	8,884.00	8,884.00	2013	OFL is based on a 30% SPR harvest rate in the 2013 data-moderate assessment, with ACL = ABC (P* = 0.45) in 2019 projections (Table 3 pg 4; Agenda Item H.6 Attachment 2 November 2019).
Lingcod	N of 4010	2	0.45	4,237.00	3,631.00	3,631.00	2021	OFLs projected using a 45% SPR harvest rate in the 2021 full assessment of lingcod North of 40°10' N lat. (Table vii pg xvi).
Lingcod	S of 4010	2	0.45	897.00	768.00	768.00	2021	OFLs projected using a 45% SPR harvest rate in the 2021 full assessment of lingcod South of 40°10' N lat. (Table vii pg xvi).
Longnose Skate	CW	2	0.45	1,922.00	1,616.00	1,616.00	2019	OFLs projected using a 45% SPR harvest rate in the 2019 assessment (Table ES-6 pg 20). ACL = ABC.

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Longspine Thornyhead	CW	2	0.40	4,284.00	2,697.92	2,697.92	2013	Coastwide OFL projected using a 50% SPR harvest rate in the 2019 catch-only projection update (Table g pg 13). The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 34°27' N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey.
Longspine Thornyhead	S of 3427	2	0.40			647.5	2013	Coastwide OFL projected using a 50% SPR harvest rate in the 2019 catch-only projection update (Table g pg 13). The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 34°27' N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey. S of 34°27' N lat. 2025 ACL = ABC 2,697.92 * 0.24 = 647.5; 2026 ACL = ABC 2,574.60 * 0.24 = 617.9.
Longspine Thornyhead	N of 3427	2	0.40			2,050.42	2013	Coastwide OFL projected using a 50% SPR harvest rate in the 2019 catch-only projection update (Table g pg 13). The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 34°27' N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey. N of 34°27' N lat. 2025 ACL = ABC 2,697.92 * 0.76 = 2050.42; 2026 ACL = ABC 2,574.60 * 0.76 = 1956.70.
Pacific Ocean Perch	N of 4010	2	0.45	4,029.00	3,328.00	3,328.00	2017	OFL projected using a 50% SPR harvest rate in the 2019 Pacific Ocean Perch Updated Harvest Specification Projections (Table 7, Agenda Item H.8 Supplemental Attachment 2 September 2019). ACL = ABC (P* = 0.45).
Petrale Sole	**CW**	**1**	**0.45**	**2,518.00**	**2,354.00**	**2,354.00**	**2023**	**OFL projected using a 30% SPR harvest rate in the 2023 full assessment (Table 30, pg 75).**

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Sablefish	**CW**	**1**	**0.45**	**39,085.00**	**36,544.70**	**36,544.7**	**2023**	**OFL projected using a 45% SPR harvest rate in the 2023 limited update assessment (Table vii, pg xvi). ACL split N (78.5%) and S (21.5%) of 36° N. Lat. using a 5-yr rolling avg (2017-2022, no survey 2020) of biomass estimates by area from the NWFSC WCGBT survey.**
Sablefish	**S of 36**	**1**	**0.45**			**7857.11**	**2023**	
Sablefish	**N of 36**	**1**	**0.45**			**28687.59**	**2023**	
Shortspine Thornyhead	**CW**	**2**	**0.40**	**939.75**	**716.09**	**710.84**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table 7, pg 42). ACL split N (68.5%) and S (31.5%) of 34° 27' N. Lat. long term avg (2003-2012) of biomass estimates from WCGBT survey.**
Shortspine Thornyhead	**S of 3427**	**2**	**0.40**			**223.91**	**2023**	
Shortspine Thornyhead	**N of 3427**	**2**	**0.40**			**486.93**	**2023**	
Spiny Dogfish	CW	2	0.40	1,857.00	1,361.00	1,361.00	2021	OFL is based on a 50% SPR harvest rate projected in the 2021 assessment, with a category 2 sigma, P* = 0.4, ACL=ABC in 2019 projections (Table 4 pg 5; Agenda Item E.3 Supp Revised Attachment 4 November 2021).
Splitnose	S of 4010	1	0.45	1,724.00	1,508.00	1,508.00	2009	Projections based on the 2009 assessment using the sigmas for 2020 and beyond (Table 2 pg 3; Agenda Item G.6 Attachment 2 September 2023).
Widow Rockfish	**CW**	**1**	**0.45**	**12,254.00**	**11,237.00**	**11,237.0**	**2019**	**OFL based on the 2023 catch-only update of the 2019 update assessment (Table 2; Agenda Item G.2 Attachment 14 Sept 2023).**
Yellowtail Rockfish	**N of 4010**	**1**	**0.45**	**6,865.96**	**6,241.16**	**6,241.16**	**2017**	**OFL based on the 2023 catch-only update of the 2017 update assessment (Table 1; Agenda Item E.2 Attachment 3 Nov 2023).**
Pacific Cod	CW	3	0.40	3,200.00	1,926.00	1,600.00		OFL is based on the highest historical catch (in 1985), ACL = 50% of the OFL.
Starry Flounder	CW	3	0.40	652.00	392.00	392.00	2017	OFL based on the 2017 DB-SRA assessment of starry flounder (Agenda Item F.6.a Supp SSC Rpt1 November 2017).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Blue/Deacon/Black Rockfish	OR		0.45	463.94	423.28	423.28		Sum of harvest specification contributions of component stocks in the complex.
Black Rockfish	**OR**	**1**	**0.45**	**367.50**	**343.62**	**343.62**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table vii pg xix).**
Blue	OR	2	0.45	96.44	79.66	79.66	2017	OFL projected using a 50% SPR from the 2021 updated harvest specification projections for blue and deacon rockfishes (Table 3; Agenda Item C.8 Attachment 2 September 2021). HG = ABC/ACL for managing OR fisheries.
Nearshore Rockfish North	N of 4010			105.89	87.89	87.77		Sum of harvest specification contributions of component stocks in the complex.
Black and Yellow	N of 4010	3	0.45					
Blue	42 - 4010	2	0.45	33.56	27.72	27.72	2017	OFL from the 2019 catch-only projection update (Table g pg 16; Agenda Item H.5 Supp Revised Attachment 17 September 2019). 10% of the CA OFL is apportioned North of 40°10' N lat. (see Appendix D of the 2017 Assessment, pg 361).N of 40°10' N lat. 2025 OFL = 335.61 * 0.10 = 33.561; 2026 OFL = 335.08 * 0.10 = 33.508.
Blue	WA	3	0.45	7.20	5.60	5.60	2017	Inferred Washington OFL provided in Appendix F (Table F2 pg 373) of the 2017 Blue and Deacon Rockfishes assessment.
Brown	N of 4010	2	0.45	2.10	1.67	1.67	2013	OFL from the 2019 harvest projection update (Table 1 pg 3; Agenda Item H.6 Attachment 2 November 2019). The portion of the coastwide stock North of 40`10 N lat. based on the proportion of cumulative removals by area during 1916-2012 (~1.15%). N of 40°10' N lat. 2025 OFL = 181.9 * 0.0115 = 2.1; 2026 OFL = 182.5 * 0.0115 = 2.11.
Calico	N of 4010	3	0.45					
China	WA	2	0.45	9.45	7.65	7.65	2015	OFLs projected from the North Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
China	4010 - 4616	2	0.45	19.89	16.11	16.11	2015	OFLs projected from the Central Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).
Copper	**N of 42**	**2**	**0.45**	**19.06**	**16.34**	**16.34**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of OR and WA (N of 42) (Table 5 pg 4; Agenda Item G.6 Supp Revised Attachment 2 September 2023).**
Copper	**42 - 4010**	**1**	**0.45**	**7.4**	**6.92**	**6.80**	**2023**	**OFL projected from the 2023 full assessment; stock defined as CA (S of 42), apportioned to complex (N 4010 = 5.86%) based on estimates of rocky habitat and density of copper rockfish in the area (Table xv, pg xxvii, version Sept2023).**
Gopher	N of 4010	3	0.45				2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Grass	N of 4010	3	0.45	0.66	0.51	0.51	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Kelp	N of 4010	3	0.45	0.01	0.01	0.01	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Olive	N of 4010	3	0.45	0.32	0.25	0.25	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Quillback	**42 - 4010**	**2**	**0.45**				**2021**	**Harvest specifications not yet available. Stock defined as CA (S of 42), apportioned to complex.**

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Quillback	WA	3	0.45	2.86	2.23	2.23	2021	OFL projected using a 50% SPR harvest rate MSY proxy from the 2021 assessment of quillback rockfish in WA (November 2021 version Section 4.2 pg 20, per SSC recommendation as constant OFL = 2.86 mt, Category 3, P*=0.45, ABC = 2.22 mt).
Quillback	OR	2	0.45	3.17	2.72	2.72	2021	OFL projected using a 50% SPR harvest rate from the 2021 assessment of quillback rockfish in Oregon (December 2021 version, Table 14 pg 51, per Section 4.1 pg 23).
Treefish	N of 4010	3	0.45	0.22	0.17	0.17	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Nearshore Rockfish South	S of 4010			1,137.10	933.90	931.76		Sum of harvest specification contributions of component stocks in the complex.
Black and Yellow	S of 4010	2	0.45				2019	Gopher and black-and-yellow rockfishes are now combined in the 2019 assessment and resulting harvest specifications (documented in the gopher specifications). OFL based on a 50% SPR harvest rate projected in the 2019 assessment (Table g pg xix).
Blue	4010 - 3427	2	0.45	302.05	249.49	249.49	2017	OFL from the 2019 catch-only projection update (Table g pg 16; Agenda Item H.5 Supp Revised Attachment 17 September 2019). 90% of the CA OFL is apportioned South of 40°10' N lat. (see Appendix D of the 2017 Assessment, pg 361).S of 40°10' N lat. 2025 OFL = 335.61 * 0.90 = 302.049; 2026 OFL = 335.08 * 0.90 = 301.572.
Blue	S of 3427	3	0.45	21.80	16.96	16.96	2017	Appendix G of the 2017 blue and deacon assessment describes calculation of the OFL proxy (pg 376).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Brown	S of 4010	2	0.45	179.80	142.94	142.94	2013	OFL from the 2019 harvest projection update (Table 1 pg 3; Agenda Item H.6 Attachment 2 November 2019). The portion of the coastwide stock South of 40`10 N lat. based on the proportion of cumulative removals by area during 1916-2012 (~98.8%).S of 40°10' N lat. 2025 OFL = 181.9 * 0.988 = 179.8; 2026 OFL = 182.5 * 0.988 = 180.39.
Calico	S of 4010	3	0.45					
China	S of 4010	2	0.45	17.23	13.96	13.96	2015	OFLs projected from the South Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).
Copper	**S of 4010**	**1**	**0.45**	**136.06**	**127.22**	**125.08**	**2023**	**OFL projected from the 2023 full assessment; stock defined as CA (S of 42), apportioned to complex (N 4010 = 5.86%) based on estimates of rocky habitat and density of copper rockfish in the area (Table xv, pg xxvii, version Sept2023).**
Gopher	S of 4010	2	0.45	155.00	130.36	130.36	2019	Gopher and black-and-yellow rockfishes are now combined in the 2019 assessment and resulting harvest specifications (documented in the gopher specifications). OFL based on a 50% SPR harvest rate projected in the 2019 assessment (Table g pg xix).
Grass	S of 4010	3	0.45	59.63	46.39	46.39	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Kelp	S of 4010	3	0.45	27.66	21.52	21.52	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Olive	S of 4010	3	0.45	224.64	174.77	174.77	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Quillback	**S of 4010**	**2**	**0.45**				**2021**	**Harvest specifications not yet available. Stock defined as CA (S of 42), apportioned to complex.**
Treefish	S of 4010	3	0.45	13.23	10.29	10.29	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Other Fish	CW			286.00	223.00	223.00		Sum of harvest specification contributions of component stocks in the complex.
Kelp Greenling	CA	3	0.45	118.90	92.50	92.50	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Leopard Shark	CW	3	0.45	167.10	130.00	130.00	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Other Flatfish	CW			10,894.36	7,391.30	7,391.30		Sum of harvest specification contributions of component stocks in the complex.
Butter Sole	CW	3	0.40	4.63	2.79	2.79		Based on the average catch during 1994-1998 + a 60% discard rate estimated from the EDCP study (2020 SAFE; Table 2-19 pg 260).
Curlfin Sole	CW	3	0.40	8.24	4.96	4.96		Based on the average catch during 1994-1998 + a 60% discard rate estimated from the EDCP study (2020 SAFE; Table 2-19 pg 260).
Flathead Sole	CW	3	0.40	35.00	21.07	21.07		Max. catch = 35 mt in 2005 (2020 SAFE; Table 2-19 pg 260).
Pacific Sanddab	CW	3	0.40	4,801.00	2,890.20	2,890.20	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rex Sole	**CW**	**2**	**0.40**	**5,205.59**	**3,966.66**	**3,966.66**	**2023**	**OFL projected using a 30% SPR harvest rate in the 2023 data moderate assessment, with revised projections per Council September 2023 request (Table 4; Agenda Item E.2 Attachment 4 Nov 2023).**

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Rock Sole	CW	3	0.40	66.70	40.15	40.15	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Sand Sole	CW	3	0.40	773.20	465.47	465.47	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Shelf Rockfish North	N of 4010			1,747.35	1391.95	1391.52		Sum of harvest specification contributions of component stocks in the complex.
Bocaccio	N of 4010	3	0.45	284.00	220.95	220.95	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Bronzespotted	N of 4010	3	0.45					
Chameleon	N of 4010	3	0.45					
Chilipepper	**N of 4010**	**1**	**0.45**	**235.45**	**211.9**	**211.9**	**2015**	**OFL from a 2023 catch-only projection update of the 2015 assessment, based on the corrected 2017 catch-only update to the assessment to correct errors in historical catch estimates between 1916-2016 (based on the 2017 model with time-varying buffers starting in 2015). (Table 1 pg 2; Agenda Item E.2 Attachment 2 Nov 2023). OFLs are apportioned to the North (7%) and South (93%) of 40°10' N lat. based on average historical landings. N of 40°10' N lat. 2025 OFL = 3363.5 * 0.07 = 235.45; 2026 OFL = 3171.2 * 0.07 = 221.98.**
Cowcod	N of 4010	3	0.45	0.57	0.44	0.44	2019	OFL is based on the 2019 DB-SRA estimate in Appendix B of the 2019 cowcod assessment (Table F2 pg 179; Percentile 50% (Median)). OFLs are apportioned to the north of 40°10' N lat. (3%) and 40°10' - 34°27' N lat. (97%) based on cumulative historical catch (Table F3 pg 179; 1916-2018).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Flag	N of 4010	3	0.45	0.10	0.08	0.08	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Freckled	N of 4010	3	0.45					
Greenblotched	N of 4010	3	0.45	1.30	1.01	1.01	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Greenspotted	**42 - 4010**	**2**	**0.45**	**88.44**	**69.70**	**69.27**	**2011**	**2024 OFL and ABC values.**
Greenspotted	WA - OR	3	0.45	6.10	4.75	4.75	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Greenstriped	N of 4010	3	0.45	623.61	485.17	485.17	2009	OFL based on the MSY associated with the FMSY proxy in the 2009 assessment (Table d pg vii; Yield with SPR50% at SBSPR). The portion of the coastwide stock North (84.5%) and South (15.5%) of 40°10' N lat. is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.
Halfbanded	N of 4010	3	0.45					
Harlequin	N of 4010	3	0.45					
Honeycomb	N of 4010	3	0.45					
Mexican	N of 4010	3	0.45					
Pink	N of 4010	3	0.45	0.004	0.003	0.003	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Pinkrose	N of 4010	3	0.45					
Puget Sound	N of 4010	3	0.45					
Pygmy	N of 4010	3	0.45					

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Redstripe	N of 4010	3	0.45	269.90	209.98	209.98	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rosethorn	N of 4010	3	0.45	12.90	10.04	10.04	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rosy	N of 4010	3	0.45	3.00	2.33	2.33	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Silvergray	N of 4010	3	0.45	159.40	124.01	124.01	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Speckled	N of 4010	3	0.45	0.20	0.16	0.16	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Squarespot	42 - 4010	2	0.45				2021	An OFL is not provided in this geographic area, per Section 4.3 (pg 21) of the 2021 squarespot rockfish data-moderate assessment in California, as after 2000 it is assumed that 100% of removals are from South of 40°10' N lat. and thus no apportionment of the overall OFL was made to this area.
Starry	N of 4010	3	0.45	0.004	0.003	0.003	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Stripetail	N of 4010	3	0.45	40.40	31.43	31.43	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Swordspine	N of 4010	3	0.45	0.0001	0.0001	0.0001	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Tiger	N of 4010	3	0.45	1.00	0.78	0.78	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Vermilion	**N of 42**	**1 and 2**	**0.45**	**13.97**	**13.01**	**13.01**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of OR and WA (N of 42) (Table 6 pg 4; Agenda Item G.6 Supp Revised Attachment 2 September 2023).**
Vermilion	**42 - 4010**	**1 and 2**	**0.45**	**7.0**	**6.2**	**6.2**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of CA (S of 42) (Table 3; Agenda Item E.2 Supp Revised Attachment 5 November 2023). Stock apportioned to complex based on yield from the northern assessment model (4.4%) and southern complex is the remainder (95.6%) of the northern model yields plus the southern model yields.**
Shelf Rockfish South	S of 4010			1,837.05	1,465.15	1,464.47		Sum of harvest specification contributions of component stocks in the complex.
Bronzespotted	S of 4010	3	0.45	3.60	2.80	2.80	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Chameleon	S of 4010	3	0.45					
Flag	S of 4010	3	0.45	23.40	18.21	18.21	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Freckled	S of 4010	3	0.45					

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Greenblotched	S of 4010	3	0.45	23.10	17.97	17.97	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Greenspotted	**4010 - 3427**	**2**	**0.45**	**42.58**	**33.55**	**33.12**	**2011**	**2024 OFL and ABC values.**
Greenspotted	**S of 3427**	**2**	**0.45**	**45.86**	**36.14**	**36.14**	**2011**	**2024 OFL and ABC values.**
Greenstriped	S of 4010	3	0.45	114.39	89.00	89.00	2009	OFL based on the MSY associated with the FMSY proxy in the 2009 assessment (Table d pg vii; Yield with SPR50% at SBSPR). The portion of the coastwide stock North (84.5%) and South (15.5%) of 40°10' N lat. is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.
Halfbanded	S of 4010	3	0.45					
Harlequin	S of 4010	3	0.45					
Honeycomb	S of 4010	3	0.45	9.90	7.70	7.70	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Mexican	S of 4010	3	0.45	5.10	3.97	3.97	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Pink	S of 4010	3	0.45	2.50	1.95	1.95	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Pinkrose	S of 4010	3	0.45					
Pygmy	S of 4010	3	0.45					
Redstripe	S of 4010	3	0.45	0.50	0.39	0.39	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Rosethorn	S of 4010	3	0.45	2.10	1.63	1.63	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rosy	S of 4010	3	0.45	44.50	34.62	34.62	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Silvergray	S of 4010	3	0.45	0.50	0.39	0.39	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Speckled	S of 4010	3	0.45	39.40	30.65	30.65	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Squarespot	S of 4010	2	0.45	6.58	5.64	5.39	2021	OFL projected using a 50% SPR harvest rate from the 2021 squarespot rockfish data-moderate assessment in CA (Table 17 pg 47 – table incorrectly labeled ACL as ABC and buffer calculations were corrected in final projection values Agenda Item G.6 Attachment 2 September 2023).
Starry	S of 4010	3	0.45	62.60	48.70	48.70	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Stripetail	S of 4010	3	0.45	23.60	18.36	18.36	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Swordspine	S of 4010	3	0.45	14.20	11.05	11.05	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Tiger	S of 4010	3	0.45	0.04	0.03	0.03	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Vermilion	**S of 4010**	**1 and 2**	**0.45**	**308.2**	**274.3**	**274.3**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of CA (S of 42) (Table 3; Agenda Item E.2 Supp Revised Attachment 5 November 2023). Stock apportioned to complex based on yield from the northern assessment model (4.4%) and southern complex is the remainder (95.6%) of the northern model yields plus the southern model yields.**
Yellowtail Rockfish	S of 4010	3	0.45	1,064.40	828.10	828.10	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Slope Rockfish North	N of 4010			1,778.83	1,487.97	1,487.97		Sum of harvest specification contributions of component stocks in the complex.
Aurora	N of 4010	1	0.45	17.29	15.42	15.42	2013	OFL is based on the 2013 assessment, with a category 1 sigma, P* = 0.45, ACL=ABC in projections provided in 2023 (Table 2 pg 3; Agenda Item G.6 Attachment 2 September 2023). The portion of the coastwide stock north (19%) and south (81%) of 40º10' N lat. is based on average survey biomass.
Bank	N of 4010	3	0.45	17.20	13.38	13.38	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Blackgill Rockfish	N of 4010	3	0.45	4.70	3.66	3.66	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Redbanded	N of 4010	3	0.45	45.30	35.24	35.24	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rougheye/Blackspotted	N of 4010	2	0.45	233.24	185.43	185.43	2013	OFL based on the 2019 catch-only update of the 2013 assessment (Table f pg xi; Agenda Item H.5 Supp Revised Attachment 24 Sept 2019). The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012. N of 4010 2025 OFL = 238 * 0.98 = 233.24; 2026 OFL = 237 * 0.98 = 232.26.
Sharpchin	N of 4010	2	0.45	280.00	222.60	222.60	2013	OFL from the 2019 projection update of the 2013 assessment (Table 15 pg 8; Agenda Item H.8 Supp Attachment 2 September 2019). OFLs are apportioned to the North (80%) and South (20%) of 40°10' N lat. based on average swept area biomass estimates from the triennial survey. N of 40°10' N lat. 2025 OFL = 350 * 0.8 = 280; 2026 OFL = 348 * 0.8 = 278.4.
Shortraker	N of 4010	3	0.45	18.70	14.55	14.55	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Splitnose	N of 4010	1	0.45	970.00	848.00	848.00	2009	Projections based on the 2009 assessment using the sigmas for 2020 and beyond (Table 3 pg 3; Agenda Item G.6 Attachment 2 September 2023).
Yellowmouth	N of 4010	3	0.45	192.40	149.69	149.69	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Slope Rockfish South	S of 4010			865.97	693.14	693.14		Sum of harvest specification contributions of component stocks in the complex.

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Aurora	S of 4010	1	0.45	73.71	65.75	65.75	2013	OFL is based on the 2013 assessment, with a category 1 sigma, P* = 0.45, ACL=ABC in projections provided in 2023 (Table 2 pg 3; Agenda Item G.6 Attachment 2 September 2023). The portion of the coastwide stock north (19%) and south (81%) of 40º10' N lat. is based on average survey biomass.
Bank	S of 4010	3	0.45	503.20	391.49	391.49	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Blackgill Rockfish	S of 4010	2	0.45	203.00	167.68	167.68	2017	Values from a 2019 catch-only update/projection from the 2017 assessment update of blackgill rockfish in the Conception and Monterey INPFC areas (Table f pg x; Agenda Item H.5 Attachment 16 September 2019).
Pacific Ocean Perch	S of 4010	3	0.45					
Redbanded	S of 4010	3	0.45	10.40	8.09	8.09	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rougheye/Blackspotted	S of 4010	2	0.45	4.76	3.78	3.78	2013	OFL based on the 2019 catch-only update of the 2013 assessment (Table f pg xi; Agenda Item H.5 Supp Revised Attachment 24 Sept 2019). The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012. S of 4010 2025 OFL = 238 * 0.02 = 4.76; 2026 OFL = 237 * 0.02 = 4.74.
Sharpchin	S of 4010	2	0.45	70.00	55.65	55.65	2013	OFL from the 2019 projection update of the 2013 assessment (Table 15 pg 8; Agenda Item H.8 Supp Attachment 2 September 2019). OFLs are apportioned to the North (80%) and South (20%) of 40°10’ N lat. based on average swept area biomass estimates from the triennial survey. S of 40°10’ N lat. 2025 OFL = 350 * 0.2 = 70; 2026 OFL = 348 * 0.2 = 69.6.

Stock/Complex	Area	Category	P*	2025 OFL	2025 ABC	2025 ACL	Assess Year	Notes
Shortraker	S of 4010	3	0.45	0.10	0.08	0.08	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Yellowmouth	S of 4010	3	0.45	0.80	0.62	0.62	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Table 1-2. 2026 harvest specifications (overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL); units in mt) under default harvest control rules, for U.S. West Coast groundfish stocks and stock complexes. Stocks with new 2023 assessments/catch projections in bold; stocks defined under Groundfish FMP Amendment 31 are in blue highlight.

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Yelloweye Rockfish	**CW**	**1**	**0.40**	**108.30**	**88.50**	**56.60**	**2017**	**OFL based on the 2023 catch-only update of the 2017 rebuilding analysis (Table 1, Agenda Item G.2 Supp Revised Attachment 15 Sept 2023).**
Arrowtooth Flounder	CW	2	0.40	13,833.00	9,227.00	9,227.00	2017	OFL based on the 2021 catch-only update of the 2017 update assessment (Table 1; Correa et al. 2021; Agenda Item C.6 Attachment 9 Sept 2021).
Big Skate	CW	2	0.45	1,426.00	1,188.00	1,188.00	2019	OFL projected using a 50% SPR harvest rate in the 2019 big skate assessment (Table 15 pg 67).
Black Rockfish	**WA**	**1**	**0.45**	**259.38**	**241.22**	**241.22**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table vii, pg xix).**
Black Rockfish	**CA**	**1**	**0.45**	**265.30**	**246.80**	**235.7**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table 65, pg 142).**

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Bocaccio	S of 4010	1	0.45	1,846.00	1,668.00	1,668.00	2017	OFL projected using a 50% SPR from the 2019 updated harvest specification projections based on new sigmas with a 7.4% reduction to subtract the portion of the assessed stock north of 40°10' N. lat. (Table 5 pg 3; Agenda Item H.8 Supp Attachment 2 Sept 2019).
Cabezon	CA	1	0.45	169.90	155.12	155.12	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES18 pg 41; Table ES19 pg 42).
Cabezon	S of 3427	1	0.45	20.20	18.44	18.44	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES18 pg 41).
Cabezon	3427 - 42	1	0.45	149.70	136.68	136.68	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES19 pg 42).
Cabezon/Kelp Greenling	WA			22.00	17.11	17.11		Sum of harvest specification contributions of component stocks in the complex.
Cabezon	WA	3	0.45	14.90	11.59	11.59	2019	OFL based on a DB-SRA assessment in the 2019 assessment (Table 48 pg 190, unweighted-50%).
Kelp Greenling	WA	3	0.45	7.10	5.52	5.52	2015	OFL based on a 2015 DB-SRA estimate using a low vulnerability prior (Table 11 pg 12, Delta option 4; Agenda Item I.4 Attachment 4 November 2015). Low vulnerability prior from data-moderate assessment document (Figure 54 in Cope et al. 2015).
Cabezon/Kelp Greenling	OR			193.63	174.38	174.38		Sum of harvest specification contributions of component stocks in the complex.
Cabezon	OR	1	0.45	52.00	47.48	47.48	2019	OFL projected using a 45% SPR from the 2019 assessment (Table ES20 pg 43).
Kelp Greenling	OR	1	0.45	141.63	126.90	126.90	2015	OFL projected in the 2021 catch-only update of the 2015 assessment (Table 5, Agenda Item C.8. Attachment 2 September 2021).
California Scorpionfish	CW		0.45	267.00	238.00	238.00	2017	OFL from the 2019 catch-only update of the 2017 assessment (Table 6 pg 4; Agenda Item H.8 Supp Attachment 2 Sept 2019).
Canary Rockfish	**CW**	**1**	**0.45**	**654.71**	**608.88**	**572.51**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table vii, pg xvi).**

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Chilipepper	**S of 4010**	**1**	**0.45**	**2949.22**	**2642.50**	**2642.50**	**2015**	**OFL from a 2023 catch-only projection update of the 2015 assessment, based on the corrected 2017 catch-only update to the assessment to correct errors in historical catch estimates between 1916-2016 (based on the 2017 model with time-varying buffers starting in 2015). (Table 1 pg 2; Agenda Item E.2 Attachment 2 Nov 2023). OFLs are apportioned to the North (7%) and South (93%) of 40°10' N lat. based on average historical landings. S of 40°10' N lat. 2025 OFL = 3363.5 * 0.93 = 3128.06; 2026 OFL = 3171.2 * 0.93 = 2949.22.**
Cowcod	S of 4010			111.04	75.26	75.26	2019	Harvest specifications are the sum of assessed area projections (South of Pt Conception 34°27' N. lat.) and DBSRA estimates (40°10' to 34°27' N. lat.).
Cowcod	S of 3427	2	0.40	92.42	64.05	64.05	2019	OFL is based on a 50% SPR harvest rate projected in the 2019 assessment, with a time varying category 2 sigma, P* = 0.4. in 2019 projections (Table 6 pg 5; error in caption as correction is South of 34°27' N. lat.; Agenda Item H.6 Attachment 2 November 2019).
Cowcod	4010 - 3427	3	0.40	18.62	11.21	11.21	2019	OFL is based on the 2019 DB-SRA estimate in Appendix B of the 2019 cowcod assessment (Table F2 pg 179; Percentile 50% (Median)). OFLs are apportioned to the north of 40°10' N lat. (3%) and 40°10' - 34°27' N lat. (97%) based on cumulative historical catch (Table F3 pg 179; 1916-2018).
Darkblotched Rockfish	CW	1	0.45	810.00	732.00	732.00	2017	OFL projected using a 50% SPR in the 2021 catch-only projection update (Table 1; Lee 2021; Agenda Item C.6 Attachment 12 Sept 2021).

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Dover Sole	**CW**	**1**	**0.45**	**46,049**	**42,457**	**[50,000]**	**2021**	**OFL projected using a 30% SPR harvest rate in the 2021 full assessment, with assumed removals equal to the adopted ACL of 50,000 mt in 2023-24 (per September 2023 Council request) (Table 2; Agenda Item E.5 Attachment 4 Nov 2023). Default 50k mt ACL.**
English Sole	CW	2	0.45	11,192.00	8,819.00	8,819.00	2013	OFL is based on a 30% SPR harvest rate in the 2013 data-moderate assessment, with ACL = ABC (P* = 0.45) in 2019 projections (Table 3 pg 4; Agenda Item H.6 Attachment 2 November 2019).
Lingcod	N of 4010	2	0.45	4,163.00	3,534.00	3,534.00	2021	OFLs projected using a 45% SPR harvest rate in the 2021 full assessment of lingcod North of 40°10' N lat. (Table vii pg xvi).
Lingcod	S of 4010	2	0.45	937.00	795.00	795.00	2021	OFLs projected using a 45% SPR harvest rate in the 2021 full assessment of lingcod South of 40°10' N lat. (Table vii pg xvi).
Longnose Skate	CW	2	0.45	1,895.00	1,579.00	1,579.00	2019	OFLs projected using a 45% SPR harvest rate in the 2019 assessment (Table ES-6 pg 20). ACL = ABC.
Longspine Thornyhead	CW	2	0.40	4,166.00	2,575.00	2,575.00	2013	Coastwide OFL projected using a 50% SPR harvest rate in the 2019 catch-only projection update (Table g pg 13). The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 34°27' N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey.
Longspine Thornyhead	S of 3427	2	0.40			618.00	2013	Coastwide OFL projected using a 50% SPR harvest rate in the 2019 catch-only projection update (Table g pg 13). The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 34°27' N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey. S of 34°27' N lat. 2025 ACL = ABC 2,697.92 * 0.24 = 647.5; 2026 ACL = ABC 2,574.60 * 0.24 = 617.9.

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Longspine Thornyhead	N of 3427	2	0.40			1,957.00	2013	Coastwide OFL projected using a 50% SPR harvest rate in the 2019 catch-only projection update (Table g pg 13). The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 34°27' N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey. N of 34°27' N lat. 2025 ACL = ABC 2,697.92 * 0.76 = 2050.42; 2026 ACL = ABC 2,574.60 * 0.76 = 1956.70.
Pacific Ocean Perch	N of 4010	2	0.45	3,937.00	3,220.00	3,220.00	2017	OFL projected using a 50% SPR harvest rate in the 2019 Pacific Ocean Perch Updated Harvest Specification Projections (Table 7, Agenda Item H.8 Supplemental Attachment 2 September 2019). ACL = ABC (P* = 0.45).
Petrale Sole	**CW**	**1**	**0.45**	**2,424.00**	**2,255.00**	**2,255.00**	**2023**	**OFL projected using a 30% SPR harvest rate in the 2023 full assessment (Table 30, pg 75).**
Sablefish	**CW**	**1**	**0.45**	**37,310.00**	**34,699.00**	**34,699.0**	**2023**	**OFL projected using a 45% SPR harvest rate in the 2023 limited update assessment (Table vii, pg xvi). ACL split N (78.5%) and S (21.5%) of 36° N. Lat. using a 5-yr rolling avg (2017-2022, no survey 2020) of biomass estimates by area from the NWFSC WCGBT survey.**
Sablefish	**S of 36**	**1**	**0.45**			**7460.20**	**2023**	
Sablefish	**N of 36**	**1**	**0.45**			**27238.4**	**2023**	
Shortspine Thornyhead	**CW**	**2**	**0.40**	**962.46**	**718.96**	**713.47**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 data moderate assessment (Table 7, pg 42). ACL split N (68.5%) and S (31.5%) of 34° 27' N. Lat. long term avg (2003-2012) of biomass estimates from WCGBT survey.**
Shortspine Thornyhead	**S of 3427**	**2**	**0.40**			**224.74**	**2023**	
Shortspine Thornyhead	**N of 3427**	**2**	**0.40**			**488.73**	**2023**	

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Spiny Dogfish	CW	2	0.40	1,833.00	1,318.00	1,318.00	2021	OFL is based on a 50% SPR harvest rate projected in the 2021 assessment, with a category 2 sigma, P* = 0.4, ACL=ABC in 2019 projections (Table 4 pg 5; Agenda Item E.3 Supp Revised Attachment 4 November 2021).
Splitnose	S of 4010	1	0.45	1,686.00	1,469.00	1,469.00	2009	Projections based on the 2009 assessment using the sigmas for 2020 and beyond (Table 2 pg 3; Agenda Item G.2 Attachment 2 September 2023).
Widow Rockfish	**CW**	**1**	**0.45**	**11,382.00**	**10,392.00**	**10,392.00**	**2019**	**OFL based on the 2023 catch-only update of the 2019 update assessment (Table 2; Agenda Item G.2 Attachment 14 Sept 2023).**
Yellowtail Rockfish	**N of 4010**	**1**	**0.45**	**6,662.14**	**6,022.57**	**6,022.57**	**2017**	**OFL based on the 2023 catch-only update of the 2017 update assessment (Table 1; Agenda Item E.2 Attachment 3 Nov 2023).**
Pacific Cod	CW	3	0.40	3,200.00	1,926.00	1,600.00		OFL is based on the highest historical catch (in 1985). ACL = 50% of the OFL.
Starry Flounder	CW	3	0.40	652.00	392.00	392.00	2017	OFL based on the 2017 DB-SRA assessment of starry flounder (Agenda Item F.6.a Supp SSC Rpt1 November 2017).
Blue/Deacon/Black Rockfish	OR		0.45	471.95	428.07	428.07		Sum of harvest specification contributions of component stocks in the complex.
Black Rockfish	**OR**	**1**	**0.45**	**377.12**	**350.50**	**350.50**	**2023**	**OFL projected using a 50% SPR harvest rate in the 2023 full assessment (Table vii pg xix).**
Blue	OR	2	0.45	94.83	77.57	77.57	2017	OFL projected using a 50% SPR from the 2021 updated harvest specification projections for blue and deacon rockfishes (Table 3; Agenda Item C.8 Attachment 2 September 2021). HG = ABC/ACL for managing OR fisheries.
Nearshore Rockfish North	N of 4010			104.64	86.16	86.06		Sum of harvest specification contributions of component stocks in the complex.
Black and Yellow	N of 4010	3	0.45					

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Blue	42 - 4010	2	0.45	33.51	27.41	27.41	2017	OFL from the 2019 catch-only projection update (Table g pg 16; Agenda Item H.5 Supp Revised Attachment 17 September 2019). 10% of the CA OFL is apportioned North of 40°10' N lat. (see Appendix D of the 2017 Assessment, pg 361).N of 40°10' N lat. 2025 OFL = 335.61 * 0.10 = 33.561; 2026 OFL = 335.08 * 0.10 = 33.508.
Blue	WA	3	0.45	7.00	5.45	5.45	2017	Inferred Washington OFL provided in Appendix F (Table F2 pg 373) of the 2017 Blue and Deacon Rockfishes assessment.
Brown	N of 4010	2	0.45	2.11	1.66	1.66	2013	OFL from the 2019 harvest projection update (Table 1 pg 3; Agenda Item H.6 Attachment 2 November 2019). The portion of the coastwide stock North of 40`10 N lat. based on the proportion of cumulative removals by area during 1916-2012 (~1.15%).N of 40°10' N lat. 2025 OFL = 181.9 * 0.0115 = 2.1; 2026 OFL = 182.5 * 0.0115 = 2.11.
Calico	N of 4010	3	0.45					
China	WA	2	0.45	9.19	7.38	7.38	2015	OFLs projected from the North Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).
China	4010 - 4616	2	0.45	19.58	15.72	15.72	2015	OFLs projected from the Central Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).
Copper	**N of 42**	**2**	**0.45**	**18.63**	**15.82**	**15.82**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of OR and WA (N of 42) (Table 5 pg 4; Agenda Item G.6 Supp Revised Attachment 2 September 2023).**

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Copper	**42 - 4010**	**1**	**0.45**	**7.37**	**6.85**	**6.75**	**2023**	**OFL projected from the 2023 full assessment; stock defined as CA (S of 42), apportioned to complex (N 4010 = 5.86%) based on estimates of rocky habitat and density of copper rockfish in the area (Table xv, pg xxvii, version Sept2023).**
Gopher	N of 4010	3	0.45				2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Grass	N of 4010	3	0.45	0.66	0.51	0.51	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Kelp	N of 4010	3	0.45	0.01	0.01	0.01	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Olive	N of 4010	3	0.45	0.32	0.25	0.25	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Quillback	**42 - 4010**	**2**	**0.45**				**2021**	**Harvest specifications not yet available. Stock defined as CA (S of 42), apportioned to complex.**
Quillback	WA	3	0.45	2.86	2.23	2.23	2021	OFL projected using a 50% SPR harvest rate MSY proxy from the 2021 assessment of quillback rockfish in WA (November 2021 version Section 4.2 pg 20, per SSC recommendation as constant OFL = 2.86 mt, Category 3, P*=0.45, ABC = 2.22 mt).
Quillback	OR	2	0.45	3.18	2.70	2.70	2021	OFL projected using a 50% SPR harvest rate from the 2021 assessment of quillback rockfish in Oregon (December 2021 version, Table 14 pg 51, per Section 4.1 pg 23).

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Treefish	N of 4010	3	0.45	0.22	0.17	0.17	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Nearshore Rockfish South	S of 4010			1,142.50	932.56	930.58		Sum of harvest specification contributions of component stocks in the complex.
Black and Yellow	S of 4010	2	0.45				2019	Gopher and black-and-yellow rockfishes are now combined in the 2019 assessment and resulting harvest specifications (documented in the gopher specifications). OFL based on a 50% SPR harvest rate projected in the 2019 assessment (Table g pg xix).
Blue	4010 - 3427	2	0.45	301.57	246.69	246.69	2017	OFL from the 2019 catch-only projection update (Table g pg 16; Agenda Item H.5 Supp Revised Attachment 17 September 2019). 90% of the CA OFL is apportioned South of 40°10' N lat. (see Appendix D of the 2017 Assessment, pg 361).S of 40°10' N lat. 2025 OFL = 335.61 * 0.90 = 302.049; 2026 OFL = 335.08 * 0.90 = 301.572.
Blue	S of 3427	3	0.45	21.80	16.96	16.96	2017	Appendix G of the 2017 blue and deacon assessment describes calculation of the OFL proxy (pg 376).
Brown	S of 4010	2	0.45	180.39	142.15	142.15	2013	OFL from the 2019 harvest projection update (Table 1 pg 3; Agenda Item H.6 Attachment 2 November 2019). The portion of the coastwide stock South of 40`10 N lat. based on the proportion of cumulative removals by area during 1916-2012 (~98.8%).S of 40°10' N lat. 2025 OFL = 181.9 * 0.988 = 179.8; 2026 OFL = 182.5 * 0.988 = 180.39.
Calico	S of 4010	3	0.45					
China	S of 4010	2	0.45	17.61	14.14	14.14	2015	OFLs projected from the South Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Copper	**S of 4010**	**1**	**0.45**	**137.97**	**128.31**	**126.33**	**2023**	**OFL projected from the 2023 full assessment; stock defined as CA (S of 42), apportioned to complex (N 4010 = 5.86%) based on estimates of rocky habitat and density of copper rockfish in the area (Table xv, pg xxvii, version Sept2023).**
Gopher	S of 4010	2	0.45	158.00	131.61	131.61	2019	Gopher and black-and-yellow rockfishes are now combined in the 2019 assessment and resulting harvest specifications (documented in the gopher specifications). OFL based on a 50% SPR harvest rate projected in the 2019 assessment (Table g pg xix).
Grass	S of 4010	3	0.45	59.63	46.39	46.39	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Kelp	S of 4010	3	0.45	27.66	21.52	21.52	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Olive	S of 4010	3	0.45	224.64	174.77	174.77	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Quillback	**S of 4010**	**2**	**0.45**				**2021**	**Harvest specifications not yet available. Stock defined as CA (S of 42), apportioned to complex.**
Treefish	S of 4010	3	0.45	13.23	10.29	10.29	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Other Fish	CW			286.00	222.50	222.50		Sum of harvest specification contributions of component stocks in the complex.
Kelp Greenling	CA	3	0.45	118.90	92.50	92.50	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Leopard Shark	CW	3	0.45	167.10	130.00	130.00	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Other Flatfish	CW			10,119.37	6,734.30	6,734.30		Sum of harvest specification contributions of component stocks in the complex.
Butter Sole	CW	3	0.40	4.63	2.79	2.79		Based on the average catch during 1994-1998 + a 60% discard rate estimated from the EDCP study (2020 SAFE; Table 2-19 pg 260).
Curlfin Sole	CW	3	0.40	8.24	4.96	4.96		Based on the average catch during 1994-1998 + a 60% discard rate estimated from the EDCP study (2020 SAFE; Table 2-19 pg 260).
Flathead Sole	CW	3	0.40	35.00	21.07	21.07		Max. catch = 35 mt in 2005 (2020 SAFE; Table 2-19 pg 260).
Pacific Sanddab	CW	3	0.40	4,801.00	2,890.20	2,890.20	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rex Sole	**CW**	**2**	**0.40**	**4430.60**	**3309.66**	**3309.66**	**2023**	**OFL projected using a 30% SPR harvest rate in the 2023 data moderate assessment, with revised projections per Council September 2023 request (Table 4; Agenda Item E.2 Attachment 4 Nov 2023).**
Rock Sole	CW	3	0.40	66.70	40.15	40.15	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Sand Sole	CW	3	0.40	773.20	465.47	465.47	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Pacific Whiting	CW						2021	
Shelf Rockfish North	N of 4010			1,733.53	1,378.55	1,378.12		Sum of harvest specification contributions of component stocks in the complex.

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Bocaccio	N of 4010	3	0.45	284.01	220.96	220.96	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Bronzespotted	N of 4010	3	0.45					
Chameleon	N of 4010	3	0.45					
Chilipepper	**N of 4010**	**1**	**0.45**	**221.98**	**198.9**	**198.9**	**2015**	**OFL from a 2023 catch-only projection update of the 2015 assessment, based on the corrected 2017 catch-only update to the assessment to correct errors in historical catch estimates between 1916-2016 (based on the 2017 model with time-varying buffers starting in 2015). (Table 1 pg 2; Agenda Item E.2 Attachment 2 Nov 2023). OFLs are apportioned to the North (7%) and South (93%) of 40°10' N lat. based on average historical landings. N of 40°10' N lat. 2025 OFL = 3363.5 * 0.07 = 235.45; 2026 OFL = 3171.2 * 0.07 = 221.98.**
Cowcod	N of 4010	3	0.45	0.58	0.45	0.45	2019	OFL is based on the 2019 DB-SRA estimate in Appendix B of the 2019 cowcod assessment (Table F2 pg 179; Percentile 50% (Median)). OFLs are apportioned to the north of 40°10' N lat. (3%) and 40°10' - 34°27' N lat. (97%) based on cumulative historical catch (Table F3 pg 179; 1916-2018).
Flag	N of 4010	3	0.45	0.07	0.06	0.06	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Freckled	N of 4010	3	0.45					
Greenblotched	N of 4010	3	0.45	1.28	0.99	0.99	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Greenspotted	**42 - 4010**	**2**	**0.45**	**88.44**	**69.70**	**69.27**	**2011**	**2024 OFL and ABC values.**

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Greenspotted	WA - OR	3	0.45	6.10	4.75	4.75	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Greenstriped	N of 4010	3	0.45	623.61	485.17	485.17	2009	OFL based on the MSY associated with the FMSY proxy in the 2009 assessment (Table d pg vii; Yield with SPR50% at SBSPR). The portion of the coastwide stock North (84.5%) and South (15.5%) of 40°10' N lat. is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.
Halfbanded	N of 4010	3	0.45					
Harlequin	N of 4010	3	0.45					
Honeycomb	N of 4010	3	0.45					
Mexican	N of 4010	3	0.45					
Pink	N of 4010	3	0.45	0.004	0.003	0.003	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Pinkrose	N of 4010	3	0.45					
Puget Sound	N of 4010	3	0.45					
Pygmy	N of 4010	3	0.45					
Redstripe	N of 4010	3	0.45	269.91	209.99	209.99	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rosethorn	N of 4010	3	0.45	12.90	10.03	10.03	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rosy	N of 4010	3	0.45	3.03	2.36	2.36	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Silvergray	N of 4010	3	0.45	159.42	124.03	124.03	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Speckled	N of 4010	3	0.45	0.17	0.13	0.13	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Squarespot	42 - 4010	2	0.45				2021	An OFL is not provided in this geographic area, per Section 4.3 (pg 21) of the 2021 squarespot rockfish data-moderate assessment in California, as after 2000 it is assumed that 100% of removals are from South of 40°10' N lat. and thus no apportionment of the overall OFL was made to this area.
Starry	N of 4010	3	0.45	0.004	0.003	0.003	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Stripetail	N of 4010	3	0.45	40.40	31.43	31.43	2011	
Swordspine	N of 4010	3	0.45	0.0001	0.0001	0.0001	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Tiger	N of 4010	3	0.45	0.97	0.75	0.75	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Vermilion	**N of 42**	**1 and 2**	**0.45**	**13.65**	**12.64**	**12.64**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of OR and WA (N of 42) (Table 6 pg 4; Agenda Item G.6 Supp Revised Attachment 2 September 2023).**

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Vermilion	**42 - 4010**	**1 and 2**	**0.45**	**7.0**	**6.2**	**6.2**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of CA (S of 42) (Table 3; Agenda Item E.2 Supp Revised Attachment 5 November 2023). Stock apportioned to complex based on yield from the northern assessment model (4.4%) and southern complex is the remainder (95.6%) of the northern model yields plus the southern model yields.**
Shelf Rockfish South	S of 4010			1,836.57	1,462.83	1,462.26		Sum of harvest specification contributions of component stocks in the complex.
Bronzespotted	S of 4010	3	0.45	3.65	2.84	2.84	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Chameleon	S of 4010	3	0.45					
Flag	S of 4010	3	0.45	23.42	18.22	18.22	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Freckled	S of 4010	3	0.45					
Greenblotched	S of 4010	3	0.45	23.13	18.00	18.00	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Greenspotted	**4010 - 3427**	**2**	**0.45**	**42.58**	**33.55**	**33.12**	**2011**	**2024 OFL and ABC values.**
Greenspotted	**S of 3427**	**2**	**0.45**	**45.86**	**36.14**	**36.14**	**2011**	**2024 OFL and ABC values.**
Greenstriped	S of 4010	3	0.45	114.39	89.00	89.00	2009	OFL based on the MSY associated with the FMSY proxy in the 2009 assessment (Table d pg vii; Yield with SPR50% at SBSPR). The portion of the coastwide stock North (84.5%) and South (15.5%) of 40°10' N lat. is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Halfbanded	S of 4010	3	0.45					
Harlequin	S of 4010	3	0.45					
Honeycomb	S of 4010	3	0.45	9.87	7.68	7.68	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Mexican	S of 4010	3	0.45	5.05	3.93	3.93	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Pink	S of 4010	3	0.45	2.50	1.95	1.95	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Pinkrose	S of 4010	3	0.45					
Pygmy	S of 4010	3	0.45					
Redstripe	S of 4010	3	0.45	0.49	0.38	0.38	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rosethorn	S of 4010	3	0.45	2.13	1.66	1.66	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rosy	S of 4010	3	0.45	44.51	34.63	34.63	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Silvergray	S of 4010	3	0.45	0.54	0.42	0.42	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Speckled	S of 4010	3	0.45	39.38	30.64	30.64	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Squarespot	S of 4010	2	0.45	7.12	6.04	5.90	2021	OFL projected using a 50% SPR harvest rate from the 2021 squarespot rockfish data-moderate assessment in CA (Table 17 pg 47 – table incorrectly labeled ACL as ABC and buffer calculations were corrected in final projection values Agenda Item G.6 Attachment 2 September 2023).
Starry	S of 4010	3	0.45	62.57	48.68	48.68	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Stripetail	S of 4010	3	0.45	23.62	18.38	18.38	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Swordspine	S of 4010	3	0.45	14.22	11.06	11.06	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Tiger	S of 4010	3	0.45	0.04	0.03	0.03	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Vermilion	**S of 4010**	**1 and 2**	**0.45**	**307.1**	**271.5**	**271.5**	**2021**	**OFL from the 2023 projection update of the 2021 assessments, based on a stock definition of CA (S of 42) (Table 3; Agenda Item E.2 Supp Revised Attachment 5 November 2023). Stock apportioned to complex based on yield from the northern assessment model (4.4%) and southern complex is the remainder (95.6%) of the northern model yields plus the southern model yields.**
Yellowtail Rockfish	S of 4010	3	0.45	1,064.40	828.10	828.10	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011).
Slope Rockfish North	N of 4010			1,754.23	1,460.22	1,460.22		Sum of harvest specification contributions of component stocks in the complex.

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Aurora	N of 4010	1	0.45	17.22	15.27	15.27	2013	OFL is based on the 2013 assessment, with a category 1 sigma, P* = 0.45, ACL=ABC in projections provided in 2023 (Table 2 pg 3; Agenda Item G.2 Attachment 2 September 2023). The portion of the coastwide stock north (19%) and south (81%) of 40°10' N lat. is based on average survey biomass.
Bank	N of 4010	3	0.45	17.24	13.41	13.41	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Blackgill Rockfish	N of 4010	3	0.45	4.70	3.66	3.66	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Redbanded	N of 4010	3	0.45	45.26	35.21	35.21	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Rougheye/Blackspotted	N of 4010	2	0.45	232.26	183.02	183.02	2013	OFL based on the 2019 catch-only update of the 2013 assessment (Table f pg xi; Agenda Item H.5 Supp Revised Attachment 24 Sept 2019). The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012.N of 40°10' N. lat. 2025 OFL = 238 * 0.98 = 233.24; 2026 OFL = 237 * 0.98 = 232.26.
Sharpchin	N of 4010	2	0.45	278.40	219.38	219.38	2013	OFL from the 2019 projection update of the 2013 assessment (Table 15 pg 8; Agenda Item H.8 Supp Attachment 2 September 2019). OFLs are apportioned to the North (80%) and South (20%) of 4010 N lat. based on average swept area biomass estimates from the triennial survey.N of 40°10' N lat. 2025 OFL = 350 * 0.8 = 280; 2026 OFL = 348 * 0.8 = 278.4.

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Shortraker	N of 4010	3	0.45	18.70	14.55	14.55	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Splitnose	N of 4010	1	0.45	948.00	826.00	826.00	2009	Projections based on the 2009 assessment using the sigmas for 2020 and beyond (Table 3 pg 3; Agenda Item G.2 Attachment 2 September 2023).
Yellowmouth	N of 4010	3	0.45	192.45	149.72	149.72	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Slope Rockfish South	S of 4010			865.32	690.08	690.08		Sum of harvest specification contributions of component stocks in the complex.
Aurora	S of 4010	1	0.45	73.40	65.11	65.11	2013	OFL is based on the 2013 assessment, with a category 1 sigma, P* = 0.45, ACL=ABC in projections provided in 2023 (Table 2 pg 3; Agenda Item G.2 Attachment 2 September 2023). The portion of the coastwide stock north (19%) and south (81%) of 40°10' N. lat. is based on average survey biomass.
Bank	S of 4010	3	0.45	503.22	391.50	391.50	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Blackgill Rockfish	S of 4010	2	0.45	203.00	166.05	166.05	2017	Values from a 2019 catch-only update/projection from the 2017 assessment update of blackgill rockfish in the Conception and Monterey INPFC areas (Table f pg x; Agenda Item H.5 Attachment 16 September 2019).
Pacific Ocean Perch	S of 4010	3	0.45					
Redbanded	S of 4010	3	0.45	10.41	8.10	8.10	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

Stock/Complex	Area	Category	P*	2026 OFL	2026 ABC	2026 ACL	Assess Year	Notes
Rougheye/Blackspotted	S of 4010	2	0.45	4.74	3.74	3.74	2013	OFL based on the 2019 catch-only update of the 2013 assessment (Table f pg xi; Agenda Item H.5 Supp Revised Attachment 24 Sept 2019). The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012.S of 40°10' N. lat. 2025 OFL = 238 * 0.02 = 4.76; 2026 OFL = 237 * 0.02 = 4.74.
Sharpchin	S of 4010	2	0.45	69.60	54.84	54.84	2013	OFL from the 2019 projection update of the 2013 assessment (Table 15 pg 8; Agenda Item H.8 Supp Attachment 2 September 2019). OFLs are apportioned to the North (80%) and South (20%) of 40°10' N lat. based on average swept area biomass estimates from the triennial survey.S of 40°10' N lat. 2025 OFL = 350 * 0.2 = 70; 2026 OFL = 348 * 0.2 = 69.6.
Shortraker	S of 4010	3	0.45	0.10	0.08	0.08	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Yellowmouth	S of 4010	3	0.45	0.85	0.66	0.66	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Technical Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).

1.2.2 Alternative Harvest Specifications

The four stocks with alternative harvest specifications considered for 2025 and beyond are rex sole, shortspine thornyhead, canary rockfish, sablefish (Table 1-3). In addition, the default HCR for Dover sole will need to be modified as the ACL cannot be greater than the ABC. In September 2023, the Council requested projections for these alternative HCRs to inform adoption of a range of alternative harvest control rules for detailed analysis. The Council is scheduled to select their preliminary preferred alternatives in November 2023 and are scheduled to select their final preferred alternatives in April 2024.

Table 1-3. Alternative 2025 and 2026 harvest specifications (mt) for select U.S. West Coast groundfish stocks; no Action is the default harvest control rule.

Stock	Alternative	2025			2026			Harvest Control Rule
		OFL	ABC	ACL	OFL	ABC	ACL	
Rex Sole	No Action	5205.59	3966.66	3966.66	4430.60	3309.66	3309.66	ABC = ACL (P* = 0.40)
	Alternative 1	5205.59	4549.68	4549.68	4299.66	3719.21	3719.21	ABC = ACL (P* = 0.45)
Shortspine Thornyhead	No Action	939.75	716.09	486.93 *N 34°27';* 223.91 *S 34°27'*	962.46	718.96	488.73 *N 34°27';* 224.74 *S 34°27'*	Precautionary; ACL < ABC, 40-10 rule ACL split N (68.5%) and S (31.5%) of 34° 27' N. Lat. long term avg (2003-2012) of biomass estimates from WCGBT survey (P* = 0.40)
	Alternative 1	939.75	821.34	575.62 *N 34°27';* 239.70 *S 34°27'*	961.08	831.33	582.29 *N 34°27';* 242.48 *S 34°27'*	Precautionary; ACL < ABC, 40-10 rule ACL split N (70.6%) and S (29.4%) of 34° 27' N. Lat. 5-yr rolling avg of biomass estimates from WCGBT survey (P* = 0.45)
Canary Rockfish	No Action	646.93	604.88	571.28	654.71	608.88	572.51	Precautionary; ACL < ABC, 40-10 rule (P*=0.45)
	Alternative 1	646.93	564.77	533.39	656.02	566.80	533.26	Precautionary; ACL < ABC, 40-10 rule (P*=0.40)
Sablefish	No Action	39085.30	36544.70	28687.59 *N 36°;* 7857.11 *S 36°*	37310.40	34698.60	27238.4 *N 36°;* 7460.20 *S 36°*	ABC = ACL = split N (78.5%) and S (21.5%) of 36° N. Lat. 5-yr rolling avg (2017-2022, no survey 2020) of biomass estimates from WCGBT survey (P*=0.45)
	Alternative 1	39085.30	34121.40	26785.30 *N 36°;* 7336.10 *S 36°*	37503.00	32402.60	25436.04 *N 36°;* 6966.56 *S 36°*	ABC = ACL = split N (78.5%) and S (21.5%) of 36° N. Lat. 5-yr rolling avg (2017-2022, no survey 2020) of biomass estimates from WCGBT survey (P*=0.40)
Dover Sole	No Action	51214.00	47424.00	50000.00	46049.00	42457.00	50000.00	Default ACL = 50,000 mt
	Alternative 1	51214.00	47424.00	47424.00	46049.00	42457.00	42457.00	ABC = ACL (P* = 0.45)

1.2.2.1 Alternative Harvest Specifications for Rex Sole

The 2023 rex sole assessment was a length-based data-moderate assessment (Min, *et al.* 2023). Rex sole was last assessed in 2015 using an index-based data-moderate approach. The current assessment estimates the stock is 76.1% of unfished spawning output in 2023, above the 25% management target level, indicating the stock is healthy. The SSC endorsed the 2023 stock assessment and recommended a category 2 designation with a default sigma of 1.0.

The default HCR informing the No Action Alternative for rex sole is to apply a P* of 0.40 and set the ACL equal to the ABC. The Council also wanted to explore a less precautionary harvest control rule of ACL = ABC with a P* of 0.45, which would provide the trawl fleet greater flexibility in the event of future expansion (Agenda Item G.6.a Supp GMT Rpt 1 Sept 2023).

Table 1-4. Projected rex sole harvest specifications under the base model in the 2023 assessment under P* harvest control rules of 0.40 (No Action) and 0.45 (Alternative 1).

Management decision	Year	OFL (mt)	ABC Catch (mt)	Spawning output (millions)	Fraction unfished
P*=0.4	2023	5173.05	447.17	912.72	0.76
	2024	5188.27	447.17	915.43	0.76
	2025	5205.59	3966.66	919.55	0.77
	2026	4430.60	3309.66	782.80	0.65
	2027	3887.61	2849.62	683.62	0.57
	2028	3515.28	2527.49	612.74	0.51
	2029	3265.15	2305.19	563.00	0.47
	2030	3098.63	2147.35	528.39	0.44
	2031	2987.50	2031.50	504.32	0.42
	2032	2911.74	1942.13	487.41	0.41
	2033	2858.29	1869.32	475.40	0.40
	2034	2819.35	1810.02	466.84	0.39
P*=0.45	2023	5173.06	447.17	912.72	0.76
	2024	5188.27	447.17	915.43	0.76
	2025	5205.59	4549.68	919.55	0.77
	2026	4299.66	3719.21	759.25	0.63
	2027	3678.62	3152.58	645.20	0.54
	2028	3260.91	2768.52	565.09	0.47
	2029	2984.23	2509.73	509.63	0.43
	2030	2801.39	2333.56	471.40	0.39
	2031	2678.03	2212.06	444.69	0.37
	2032	2590.04	2118.65	425.38	0.35
	2033	2523.30	2043.88	410.96	0.34
	2034	2469.55	1983.05	399.85	0.33

1.2.2.2 Alternative Harvest Specifications for Shortspine Thornyhead

The 2023 shortspine thornyhead assessment was a length-based data-moderate assessment (Zahner, *et al.* 2023). The assessment estimates that the relative spawning output of the stock is in the precautionary zone, below the management target of 40% of unfished levels, at 39.4% in 2023. Although recruitment has been relatively stable, spawning output declined considerably from the 1970s to the late 2010s. The SSC endorsed the 2023 stock assessment and recommended a category 2 designation with a default sigma of 1.0.

The default HCR informing the No Action Alternative for shortspine thornyhead is to apply a P* of 0.40, with the ACL set below the ABC due to application of the 40-10 rule (i.e. because the stock is below the biomass target of 40%). The coastwide ABC is split into two-area based ACLs north (70.6%) and south (29.4%) of 34° 27′ N. lat. using a 5-yr rolling average for biomass estimates from the NWFSC WCGBT by area. In Alternative 1, a P* of 0.45 was requested as a possible management option, as projected ABCs are comparable to the GMT predicted catch projections for 2023 and 2024. Thus, shortspine thornyhead may become a constraining species to the trawl fleet. Additionally, anticipated increases in sablefish ACLs, the trawl fleet that targets Dover sole, thornyheads, and sablefish (DTS) may expand effort. Given these expected constraints, the GMT proposed the higher P* of 0.45 to analyze whether the Council can minimize impacts to the trawl fishery while still preventing overfishing of the stock.

Table 1-5. Projected shortspine thornyhead harvest specifications under the base model in the 2023 assessment under P* harvest control rules of 0.40 (No Action) and 0.45 (Alternative 1).

Management decision	Year	OFL (mt)	ABC (mt)	ACL (mt)	Spawning output	Fraction unfished
P*=0.4	2023	NA		NA	8,716.84	0.39
	2024	NA		NA	8,686.69	0.39
	2025	939.75	716.09	710.84	8,666.24	0.39
	2026	962.46	718.96	713.47	8,658.74	0.39
	2027	984.52	721.65	716.19	8,660.12	0.39
	2028	1005.90	723.24	718.04	8,669.87	0.39
	2029	1026.58	724.77	720.05	8,687.53	0.39
	2030	1046.56	725.27	721.25	8,712.50	0.39
	2031	1065.88	724.80	721.67	8,744.22	0.40
	2032	1084.54	723.39	721.32	8,782.10	0.40
	2033	1102.57	721.08	720.20	8,825.59	0.40
	2034	1119.95	719.01	719.01	8,874.11	0.40
P*=0.45	2023	NA		NA	8716.84	0.39
	2024	NA		NA	8686.69	0.39
	2025	939.75	821.34	815.32	8666.24	0.39
	2026	961.08	831.33	824.77	8651.73	0.39
	2027	981.63	841.26	834.40	8645.37	0.39
	2028	1001.34	850.14	843.25	8646.64	0.39
	2029	1020.21	858.00	851.33	8655.00	0.39
	2030	1038.26	864.87	858.65	8669.87	0.39
	2031	1055.52	871.86	866.29	8690.66	0.39
	2032	1071.99	876.89	872.17	8716.67	0.39
	2033	1087.70	881.04	877.35	8747.37	0.40
	2034	1102.67	885.44	882.91	8782.19	0.40

1.2.2.3 Alternative Harvest Specifications for Canary Rockfish

The 2023 benchmark assessment for canary rockfish encompassed a single area along the U.S. West Coast (Langseth*, et al.* 2023). This is a modification from the stock assessment conducted in 2015, which was spatially-explicit and reflected distinct areas for CA, OR, and WA. A comprehensive bridging analysis

showed only minor changes to the fraction unfished after shifting back to a coastwide model. Relative spawning output was high from 1892 through the 1930s before declining to a depletion level that was well below the minimum stock size threshold in the late 1990s. Since then, relative spawning output has increased, and is estimated to be 35.1%, placing it in the precautionary zone between the management target of 40% and the MSST of 25%. This assessment estimates a lower ratio of current to unfished biomass (depletion) than the 2015 assessment and suggests that the stock never achieved the rebuilding target. Sensitivity analyses indicate that differences between the 2015 and 2023 assessment models were primarily due to how natural mortality and selectivity were parameterized. The SSC supported the modeling approach and agreed that the model fit the data well. The SSC endorsed the 2023 stock assessment and supported a category 1 designation for canary rockfish with a default sigma of 0.5.

The default HCR informing the No Action Alternative for canary rockfish is to apply a P* of 0.45, with the ACL set below the ABC due to application of the 40-10 rule (i.e. because the stock is below the biomass target of 40%). In Alternative 1, projections with a P* of 0.40 were requested as a possible management option. Alternative 1 will allow for the Council to consider the trade-offs between the risk to the canary rockfish stock and the impacts to the fisheries.

Table 1-6. Projected Canary Rockfish harvest specifications under the base model in the 2023 assessment under P* harvest control rules of 0.45 (No Action) and 0.40 (Alternative 1).

Management decision	Year	OFL (mt)	ABC Catch (mt)	ACL (mt)	Spawning output (millions)	Fraction unfished
P*=0.4	2023				2,808.87	0.35
	2024				2,782.56	0.35
	2025	646.93	564.77	533.39	2,739.40	0.34
	2026	656.02	566.80	533.26	2,713.76	0.34
	2027	677.00	579.51	542.25	2,678.11	0.33
	2028	707.29	599.78	557.64	2,637.77	0.33
	2029	743.20	624.29	576.93	2,601.05	0.32
	2030	781.39	650.12	598.45	2,577.72	0.32
	2031	819.19	675.01	621.13	2,575.43	0.32
	2032	854.49	698.12	644.73	2,596.64	0.32
	2033	885.95	716.73	666.53	2,638.56	0.33
	2034	913.01	731.32	686.28	2,695.91	0.34
P*=0.45	2023				2808.87	0.35
	2024				2782.56	0.35
	2025	646.93	604.88	571.28	2739.40	0.34
	2026	654.71	608.88	572.51	2709.94	0.34
	2027	674.29	624.39	583.52	2670.26	0.33
	2028	703.06	648.22	601.48	2625.73	0.33
	2029	737.31	676.11	623.09	2584.62	0.32
	2030	773.77	706.45	647.92	2556.58	0.32
	2031	809.71	736.03	674.16	2548.98	0.32
	2032	843.09	762.15	699.96	2564.13	0.32
	2033	872.65	785.38	725.64	2599.27	0.32
	2034	897.79	804.42	749.34	2649.08	0.33

1.2.2.4 Alternative Harvest Specifications for Sablefish

The 2023 stock assessment update for sablefish (Johnson*, et al.* 2023) is the second update of the 2019 benchmark stock assessment, following the 2021 update. This stock was updated again due to observations of high recruitment in 2020 and 2021 and concerns that these large year classes could constrain targeted and non-targeted fisheries if unaccounted for. The assessment estimates the stock is 63% of unfished biomass in 2023, above the 40% management target. Fishery information and anecdotal accounts regarding high bycatch of small sablefish support the existence of one or more strong cohorts entering the population. However, there is greater uncertainty in the strength of these recent year-classes than for older year-classes with more years of observations to verify the year-class strength. The SSC endorsed the 2023 sablefish update assessment and recommended a category 1 designation with a default sigma of 0.5.

The default HCR informing the No Action Alternative for sablefish is to apply a P* of 0.45 with the ACL set equal to the ABC. In Alternative 1, the Council requested to explore a more precautionary harvest control rule with a P* of 0.40, given the limited information available to inform the magnitude of the year classes that are largely driving the projected increase in spawning biomass.

Table 1-7. Projected Sablefish harvest specifications under the base model in the 2023 assessment under P* harvest control rules of 0.45 (No Action) and 0.40 (Alternative 1).

Management decision	Year	OFL (mt)	ABC (mt)	Spawning biomass	Fraction unfished
P*=0.45	2023		*9,118.00*	*117,519*	*0.63*
	2024		*8,359.00*	*141,875*	*0.76*
	2025	39,085.30	36,544.70	183,592	0.98
	2026	37,310.40	34,698.60	207,142	1.11
	2027	34,160.00	31,632.20	214,059	1.15
	2028	29,701.30	27,384.60	210,719	1.13
	2029	25,318.50	23,217.10	203,091	1.09
	2030	21,811.90	19,914.30	194,403	1.04
	2031	19,379.70	17,616.10	185,924	1.00
	2032	17,842.70	16,129.80	177,993	0.95
	2033	16,898.00	15,208.20	170,621	0.91
	2034	16,280.60	14,587.40	163,747	0.88
P*=0.40	2023		*9,118.00*	*117,519*	*0.63*
	2024		*8,359.00*	*141,875*	*0.76*
	2025	39,085.30	34,121.40	183,592	0.98
	2026	37,503.00	32,402.60	208,215	1.12
	2027	34,510.70	29,541.20	216,375	1.16
	2028	30,141.90	25,560.40	214,180	1.15
	2029	25,783.20	21,657.80	207,470	1.11
	2030	22,264.50	18,524.00	199,462	1.07
	2031	19,815.80	16,328.20	191,492	1.03
	2032	18,273.10	14,929.10	183,955	0.99
	2033	17,333.20	14,022.60	176,892	0.95
	2034	16,729.40	13,283.10	170,287	0.91

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