

2023-24 HARVEST SPECIFICATIONS AND ACCOUNTABILITY MEASURES FOR QUILLBACK ROCKFISH AND COPPER ROCKFISH OFF CALIFORNIA

At their April meeting, the Pacific Fishery Management Council (Council) requested the Groundfish Management Team (GMT) provide information on several possible annual catch targets (ACTs) for quillback and copper rockfishes off California. This report contains that information as well as some information on accountability measures to keep total mortality below the annual catch limit (ACL). Additionally, the GMT provides information on a correction to the apportionment calculations for the portion of the California copper rockfish stock between 40° 10' N. lat. and the OR/CA border.

As part of this action item, the Council is also considering alternative ACL contributions¹ for quillback and copper rockfishes. The selection of those ACL values will determine the values adopted for the ACTs, depending on the Council's preferred option for setting the ACTs, as outlined below. Thus, the Council is tasked with three steps under this action item related to quillback and copper rockfishes:

- Step 1 - select ACL values
- Step 2 - select preferred option for setting ACTs
- Step 3 - determine potential accountability measures triggered by reaching the ACT

[50 CFR 660.11](#) defines an ACT as:

“...a management target set below the annual catch limit [which] may be used as an accountability measure in cases where there is great uncertainty in inseason catch monitoring to ensure against exceeding an annual catch limit. Since the annual catch target is a target and not a limit it can be used in lieu of harvest guidelines or strategically to accomplish other management objectives. Sector-specific annual catch targets can also be specified to accomplish management objectives.”

ACTs and ACT control rules are also similarly defined at [50 CFR 600.310\(g\)\(4\)](#).

An ACT is a precautionary management measure set below or equal to the ACL (or species-specific ACL contribution to a complex). There are fewer biological consequences if an ACT is exceeded, compared to if an ACL is exceeded ([Pacific Coast Groundfish Fishery Management Plan](#), Section 4.7). An ACT may be important to consider for a stock or stock complex that is of concern to the Council and/or may be subject to highly uncertain inseason catch monitoring. ACTs are one of the first management thresholds that can trigger additional management actions (e.g., trip limit reductions, bag limit reductions, etc.). The GMT described some possible management actions in [Agenda Item F.4.a, Supplemental GMT Report 3, April 2022](#), and which of the options is used in response to an ACT trigger would be situationally specific to the stock in question.

¹ The California ABCs will have the preferred harvest control rule applied to calculate ACLs, which will then be apportioned into ACL contributions for the nearshore rockfish complex north and south of 40° 10' N. lat.

For stocks not in a complex, an ACT threshold provides a second management trigger in addition to the management trigger established by the ACL, and therefore, can serve to prevent the ACL from being exceeded by allowing the Council to take action when the ACT is met or exceeded. For stocks managed in a complex (as is the case with quillback and copper rockfishes), an ACT threshold provides a management trigger where one would otherwise not exist. Although the federal definition of an ACT is a value set below the ACL, setting an ACT equal to the species-specific ACL contributions for quillback and/or copper rockfish would still be setting a species-specific ACT below the complex ACL and, thus, consistent with the federal definition.

Quillback Rockfish

ACL Alternatives (statewide and complex contributions)

The Council did not adopt final harvest specifications for quillback rockfish off California during the April Council meeting. However, the Council did adopt a range of alternative statewide ACL values, and tasked the GMT with considering options for setting statewide ACTs based on that statewide ACL range, which would then provide the basis for the area-specific ACL contributions and ACTs:

- No Action: $ACL < ABC$ (acceptable biological catch) with the 40-10 adjustment off CA only; $P^* 0.45$; 2023 statewide ACL = 0.11 mt; 2024 statewide ACL = 0.42 mt
- Alternative 1: $ACL < ABC$; SPR 0.55; $P^* 0.45$; 2023 statewide ACL = 1.76 mt; 2024 statewide ACL = 1.93 mt
- Alternative 2: $ACL < ABC$; SPR 0.60; $P^* 0.45$; 2023 statewide ACL = 1.46 mt; 2024 statewide ACL = 1.61 mt

The GMT notes that even though there is no official declaration of an overfished status for quillback rockfish, it is the GMT's understanding that the Council's intention is to set the statewide ACL below the statewide ABC to allow the spawning output to increase toward the management target. All three statewide ACL alternatives in the range adopted by the Council for quillback rockfish off California are lower than the statewide ABC. The statewide harvest specifications would then be apportioned to create the overfishing limit (OFL), ABC, and ACL contributions to the nearshore rockfish complexes north and south of 40° 10' N. lat. The apportionment was determined by the proportion of catch between 2005 and 2020 north and south of 40° 10' N. lat. in California where 49.6 percent of the statewide OFL, ABC, ACL, and ACT is apportioned to the area between 42° and 40° 10' N. lat. for the California contribution to the northern complex, and 50.4 percent to the area south of 40° 10' N. lat. for the contribution to the southern complex.

ACT options

At the April meeting, the Council requested that the GMT analyze two additional ACT options for quillback rockfish off California. Those options are:

- Option 1: set the statewide ACT equal to the statewide ACL value associated with an SPR harvest rate of 0.6 from the rebuilding analysis for quillback rockfish off California²
- Option 2: set the statewide ACT equal to the statewide ACL

² [DRAFT Rebuilding analysis for quillback rockfish \(*Sebastes maliger*\) in U.S. waters off the coast of California based on the 2021 stock assessment, incorporating November 2021 Council meeting requests](#)

For both ACT options, the values were also apportioned using the same percentages noted above to create area-specific ACTs within California.

For the ACL No Action Alternative, the statewide ACL values would be less than the ACT values for Option 1 and, therefore, are not included in the analysis, because the purpose of an ACT is to set a precautionary management measure at or below an ACL or ACL contribution. While, technically, the ACT would be below the ACL of the nearshore rockfish complex, the intent of analyzing an ACT for quillback rockfish off California is to stay at or below the area- and species-specific ACL contributions. The analysis does, however, include an ACT Option 2 for the ACL No Action Alternative, as it would set the statewide ACT equal to the statewide ACL, and the associated values are in Table 1. For ACL Alternative 1, both ACT options were analyzed, as the two options fit the criteria for setting ACTs, and those values are shown in Table 2 and Table 3. For ACL Alternative 2, both ACT options resulted in the same values that also fit the criteria for setting ACTs; therefore, those values are presented in a single table, Table 4.

Table 1. 2023 and 2024 statewide and area-specific quillback rockfish off CA harvest specifications under No Action (i.e., statewide ACL < statewide ABC with the 40-10 adjustment off CA only) and ACTs under Option 2 (ACT = ACL). The area-specific OFLs, ABCs, and ACLs represent the contributions to the nearshore rockfish complexes.

No Action + Option 2						
Specification	2023			2024		
	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)
OFL	2.11	1.05	1.06	2.33	1.16	1.17
ABC	1.85	0.92	0.93	2.01	1.00	1.01
ACL w/ 40-10 adj.	0.11	0.05	0.06	0.42	0.21	0.21
ACT	0.11	0.05	0.06	0.42	0.21	0.21

Table 2. 2023 and 2024 statewide and area-specific quillback rockfish off CA harvest specifications under Alternative 1 (i.e., ACL contribution < ABC, SPR 0.55) and ACTs under Option 1 (i.e., ACT = SPR 0.6). The area-specific OFLs, ABCs, and ACLs represent the contributions to the nearshore rockfish complexes.

Alternative 1 + Option 1						
Specification	2023			2024		
	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)
OFL	2.11	1.05	1.06	2.33	1.16	1.17
ABC	1.85	0.92	0.93	2.01	1.00	1.01
ACL (SPR 0.55)	1.76	0.87	0.89	1.93	0.96	0.97
ACT (SPR 0.6)	1.46	0.72	0.74	1.61	0.80	0.81

Table 3. 2023 and 2024 statewide and area-specific quillback rockfish off CA harvest specifications under Alternative 1 (i.e., ACL contribution < ABC, SPR 0.55) and ACTs under Option 2 (i.e., ACT = ACL contribution). The area-specific OFLs, ABCs, and ACLs represent the contributions to the nearshore rockfish complexes.

Alternative 1 + Option 2						
Specification	2023			2024		
	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)
OFL	2.11	1.05	1.06	2.33	1.16	1.17
ABC	1.85	0.92	0.93	2.01	1.00	1.01
ACL (SPR 0.55)	1.76	0.87	0.89	1.93	0.96	0.97
ACT	1.76	0.87	0.89	1.93	0.96	0.97

Table 4. 2023 and 2024 statewide and area-specific quillback rockfish off CA harvest specifications under Alternative 2 (i.e., ACL contribution < ABC, SPR 0.6) and the ACTs under both Option 1 & 2, which resulted in the same value. The area-specific OFLs, ABCs, and ACLs represent the contributions to the nearshore rockfish complexes.

Alternative 2 + Options 1 & 2						
Specification	2023			2024		
	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)	Statewide (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)
OFL	2.11	1.05	1.06	2.33	1.16	1.17
ABC	1.85	0.92	0.93	2.01	1.00	1.01
ACL (SPR 0.6)	1.46	0.72	0.74	1.61	0.80	0.81
ACT	1.46	0.72	0.74	1.61	0.80	0.81

In general, setting an ACT below a species-specific ACL contribution to a complex can provide an additional layer of precaution by creating more of a stepwise tracking or check-in system to ensure mortality levels stay below certain specified management targets. Whereas setting an ACT equal to a species-specific ACL contribution within a complex allows the Council to take more specific management action if that value is approached, projected to be exceeded, or exceeded, compared to not having a specified management target in place. In the case of Alternative 1, Option 1, the difference between the ACT set below the ACL contribution and the ACL contribution itself is miniscule enough (a difference as little as 0.15 mt or 330.7 lbs.) that any benefit of added precaution is not likely to be realized given the difficulty of managing to such small differences. The GMT mentioned some concerns over managing ACTs at such low values in [Agenda Item F.4.a, Supplemental GMT Report 3, April 2022](#).

Copper Rockfish

At the April meeting, the Council also requested the GMT analyze two additional options for copper rockfish ACTs off California. Those options are:

- Option 1: set the ACT equal to the ACL contributions for each management area
- Option 2: set the ACT equal to the ACL contribution with the default harvest control rule (DHRC) 40-10 adjustment applied in each management area in California

Through the ACT analysis process, the GMT confirmed that the 40-10 adjustment was correctly applied in both assessment areas; however, the values provided to the Council in April ([Agenda Item F.3, Supplemental REVISED Attachment 1, April 2022](#)) did not reflect the Science and Statistical Committee's (SSC) recommendation to combine the two copper rockfish off California assessments for stock status determination ([Agenda Item E.3.a, Supplemental SSC Report 1, November 2021](#)). Therefore, the GMT presents those statewide harvest specifications and ACTs in this report. Additionally, an error in the percentages used to apportion the harvest specifications north and south of 40° 10' N. lat. was detected, as noted in [Agenda Item F.6, Attachment 3](#). The corrected apportionment values were used in this report as well.

The GMT notes that while the Council selected their final preferred alternative for copper rockfish harvest specifications in April, the omission of the statewide harvest specification alternative that aligns with an SSC recommendation may prompt the Council to revisit their choice of preferred alternative. The two alternatives are described below.

ACL Alternatives (statewide and complex contributions)

- No Action: apply DHCR 40-10 adjustment to each assessment area ABC
- Alternative 1 (new): apply the DHCR 40-10 adjustment to a statewide ABC

Under No Action, the DHCR 40-10 adjustment was applied to each assessment area ABC, because each assessment indicated a stock spawning biomass below the management target of 40 percent. The harvest specifications from the northern assessment area were then apportioned by the historical catch from the area between 42° and 40° 10' N. lat. (8.56 percent) and between 40° 10' and 34° 27' N. lat. (91.44 percent) to create the area-specific OFL, ABC, and ACL contributions between the OR/CA border and Point Conception. The OFLs, ABCs, and ACLs for the area between 42° and 40° 10' N. lat. became the California contribution to the OFL, ABC, and ACL

contributions to the nearshore rockfish complex north of 40° 10' N. lat. The OFLs, ABCs, and ACLs from 40° 10' – 34° 27' N. lat. and south of 34° 27' N. lat. were summed to create the OFLs, ABCs, and ACLs contributions to the nearshore rockfish complex south of 40° 10' N. lat. Figure 1 provides a schematic of converting the harvest specifications provided from northern and southern assessments into the contributions to the northern and southern nearshore rockfish complexes.

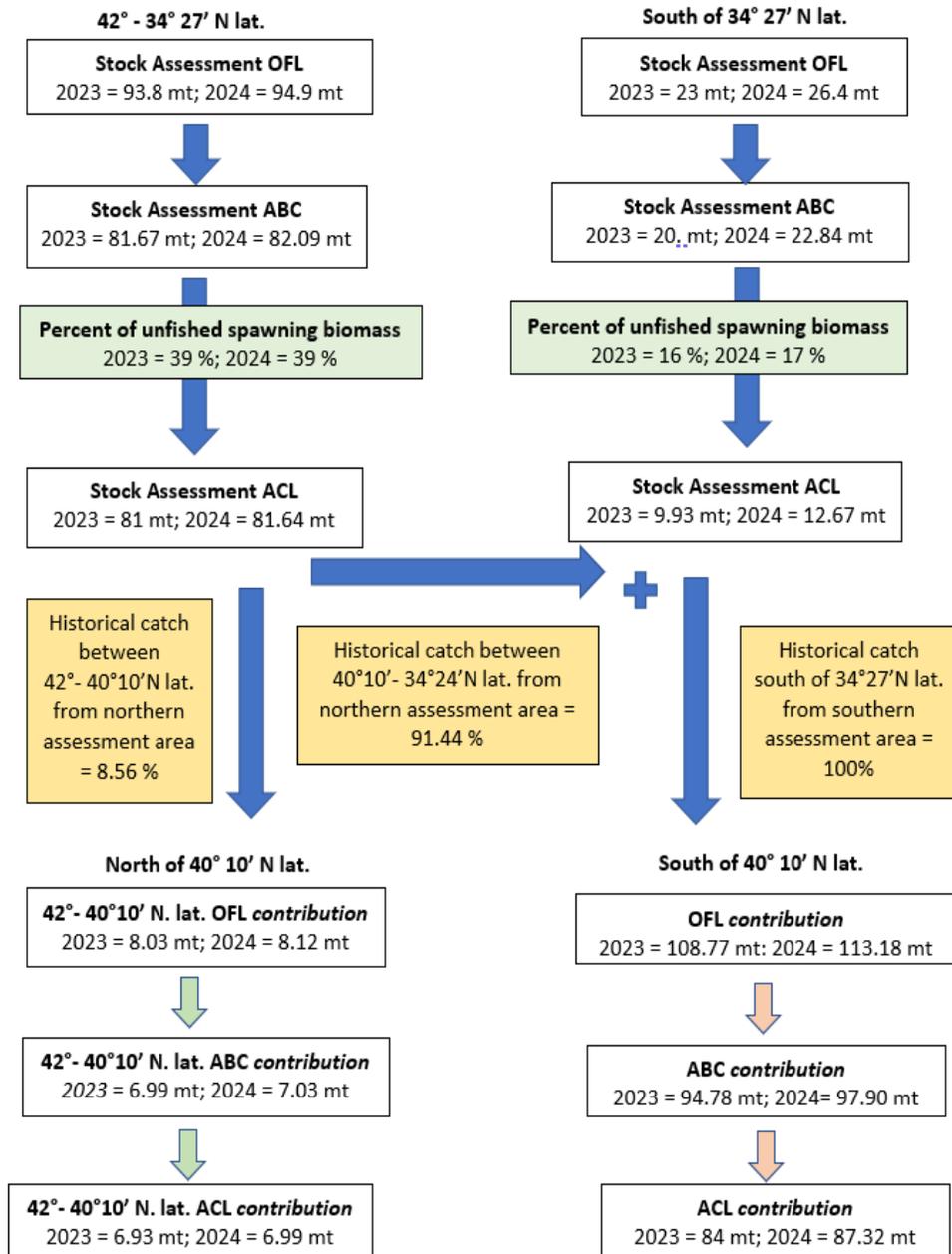


Figure 1. Schematic of converting copper rockfish off California stock assessment harvest specifications into area-specific contributions to the nearshore rockfish complexes north and south of 40° 10' N. lat. under the ACL No Action Alternative.

Under Alternative 1, which follows the SSC recommendation to combine the two area assessments for stock status determination, the DHCR 40-10 adjustment would be applied to a statewide ABC. Then, the statewide OFLs, ABCs, and ACLs are apportioned by historical catch to the area between 42° and 40° 10' N. lat. (8.96 percent) and south of 40° 10' N lat. (91.04 percent). These area apportionments then determine the OFL, ABC, and ACL contributions to the nearshore rockfish complexes north and south of 40° 10' N. lat. Figure 2 shows a schematic of converting the statewide harvest specifications, summed from northern and southern assessments, into the contributions to the northern and southern nearshore rockfish complexes.

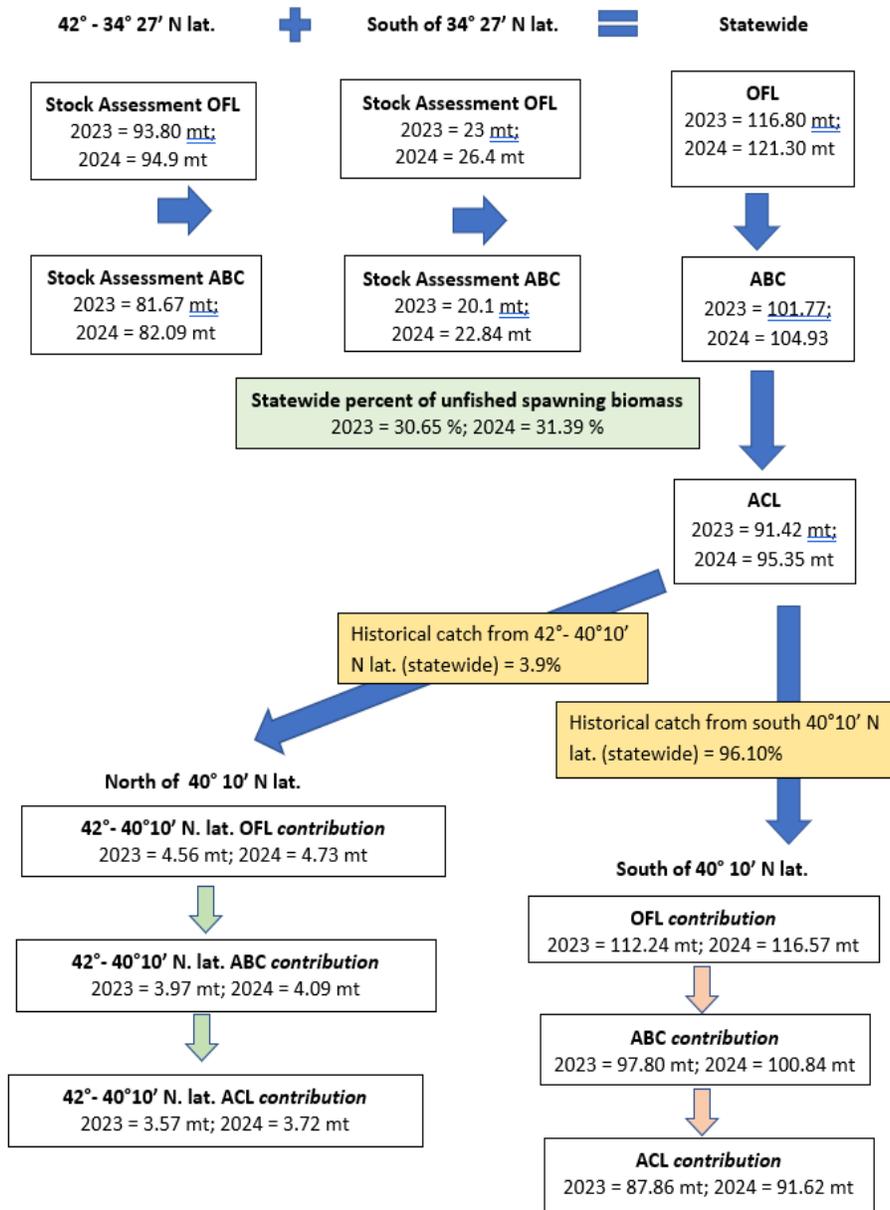


Figure 2. Schematic of converting copper rockfish off California statewide harvest specifications into area-specific contributions to the nearshore rockfish complexes north and south of 40° 10' N. lat. under ACL Alternative 1.

ACT options

Given the findings regarding the application of the DHCR 40-10 adjustment, the only ACT option is setting the ACT equal to the ACL contribution under either ACL alternative, No Action or Alternative 1. The area-specific ACTs under each alternative are in Table 5.

Table 5. 2023 and 2024 ACTs for copper rockfish off California under both ACL alternatives, No Action and Alternative 1, apportioned into the areas north and south of 40° 10' N. lat.

Year	No Action		Alternative 1	
	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)	42° - 40° 10' N. lat. (mt)	South of 40° 10' N. lat. (mt)
2023	6.93	84	3.57	87.86
2024	6.99	87.32	3.72	91.62

The GMT reminds the Council that along with the SSC’s recommendation to combine the two copper rockfish assessments off California, they also stated, “...that harvest should be spatially allocated proportional to relative biomass to reduce risk owing to stock structure uncertainty, particularly for the copper rockfish off California” ([Agenda Item E.3.a, Supplemental SSC Report 1, November 2021](#)). While the use of an ACT set equal to the ACL contributions would help keep harvest well below overfishing limits (a proxy for biomass) for the areas between 42° and 40° 10' N. lat. and south of 40° 10' N. lat., the use of management measures that are designed to specifically reduce impacts on copper rockfish in the different state-managed areas (e.g., California recreational Southern Management Area [Pt. Conception to U.S./Mex. border]; see [Supplement CDFW Report 1, April 2022](#) for preliminary preferred range of alternatives) are the management tools that will likely be more effective in keeping harvest proportional to relative biomass.

Recommendations

The GMT will provide recommendations in an additional supplemental report under this agenda item; however, with regard to setting ACTs for quillback and copper rockfishes off California, the GMT believes this is more a policy decision than a management decision.

PFMC
05/31/22