

GROUND FISH MANAGEMENT TEAM REPORT ON IMPACTS FOR NON-TRAWL RCA PROPOSALS FOR 2021-22

There are proposals to open portions of the non-trawl rockfish conservation area (RCA) off Oregon and California. There is also a proposal to open yelloweye rockfish conservation areas (YCRAs) off Washington. Some of these proposals were signaled at the beginning of the 2021-22 harvest specifications and management measure process and are included within the current package analyzed in [Agenda Item F.1, Attachment 8, June 2020](#). Some of the proposals are new to the 2021-22 package as they were presented to the Council at the April 2020 meeting under the inseason agenda item ([Agenda Item H.8.a, Supplemental ODFW/CDFW Report 1, April 2020](#)); however they were not able to be implemented ([Agenda Item C.1, Supplemental NMFS Report 2, June 2020](#)). The purpose of this report is to provide a comprehensive impact analysis for all the proposals being considered for 2021-22, regardless of which process they were proposed under. This includes physical, biological, and socioeconomic impacts.

As with the changes in [Amendment 28](#), non-trawl area closures designed to reduce and manage catch of overfished species provided incidental habitat protections from fishing gear. Modification of the non-trawl RCA should consider potential impacts on these protected habitat areas. The National Marine Fisheries Service (NMFS) provided helpful guidance at this meeting on the analytical framework that would be needed to support potential adoption of these proposals via the 2021-22 biennial rulemaking. The general guidance was to focus on the qualitative impacts of the proposed action in regards to habitat. There are too many uncertain factors, such as potential fishing effort and gear types, to quantitatively estimate impacts.

There are separate sections for the proposals off Washington, northern California and Oregon (40°10'-46°16' N. lat.), and the remainder of California that are labeled A, B, and C respectively. The general analytical framework in each section is as follows:

- (1) What are the areas proposed for opening?
- (2) What are the economic benefits?
- (3) What are the potential conservation concerns?
- (4) Are these areas being fished by other similar bottom contact gears?
- (5) What are the additional groundfish gear impacts?
- (6) Are there sensitive habitats in the proposed areas?
- (7) What are the habitat implications of additional groundfish effort?

The overall impacts to the physical, biological, or socioeconomic environments of all area management proposals are unlikely to be significant. While there is likely to be some impacts to habitat and target species, areas that are currently protected from bottom contact gear will remain closed and all species impacts are likely to be within allowable limits. Additionally, all areas that are proposed for opening are already open to other fisheries with both similar and dissimilar gears. Opening these areas to other gear groups or sectors is not likely to result in a significant increase in negative impacts to habits or target species.

Section A: Washington

Currently, there is a proposal for the removal of the Westport Offshore YRCA and the South Coast YRCA off the Washington coast ([Agenda Item F.1.a., WDFW Supplemental Report 1, June 2020](#)). The YRCAs account for approximately five square miles of the roughly 11,000 square miles of available fishing area off Westport (i.e. Marine Area 2). The two areas were open to recreational fishing prior to 2007, but were closed that year to protect yelloweye and canary rockfish, yet may have been open in part to commercial trawling and fixed gear (FG). Therefore, the areas may not have been closed to the impactful forms of fishing. The additional impacts expected from allowing recreational hook-and-line fishing in these areas would be minimal. The Washington Department of Fish and Wildlife (WDFW), in their April 2020 statement, note that:

“With canary rockfish rebuilt and higher recreational HGs for yelloweye rockfish in 2021-2022, the additional restrictions of these small closed areas are no longer necessary. Reopening both YRCAs can provide anglers with access to healthy lingcod and canary rockfish stocks.” ([Agenda Item G.6.a, Supplemental WDFW Report 1, April 2020](#))

Based on [Appendix C-1 of the Groundfish FMP](#), the habitat sensitivity level and recovery level associated with hook-and-line gear (Other FG) on all possible substrates is 0.1 where 0 is representative of no detectable impacts and 3 represents major changes in bottom structures. Thus, hook-and-line gear has been shown to have negligible impact on the type of habitat in the area proposed for reopening, although very little research on this has been conducted.

Additionally, the map below (Figure A-1) illustrates that much of the rocky reef habitat in this region is further inshore from the YRCAs; however, considering the uncertainty in the data, and the known presence of yelloweye rockfish and canary rockfish, there are likely rocky reefs within the YRCAs. These rocky reefs are not HAPC’s though and the expected impact to these habitats would still be low, because of the gear type that will be used. Both YRCAs overlap with the Grays Canyon Essential Fish Habitat (EFH) area, but as mentioned before, recreational fishing gear, specifically hook-and-line, have shown to have minimal impacts on habitat ([Appendix C-1 of the Groundfish FMP](#)). Referencing the lower map on page 11 of Attachment 8 (Oceana Proposal) in [Agenda Item F.3.c, Public Comment 2, April 2018](#), the areas proposed for reopening appear to comprise very few to no sponges, corals, or sea pens (pennatulid).

While angler trips are expected to increase following a reopening of both YRCAs, the increase within both YRCAs is projected to comprise a very small amount of the area’s total angler effort, because of the miniscule size of the YRCAs. As discussed in more detail in the Harvest Specifications and Management Measures Analytical Document ([Agenda Item F.1, Attachment 8, June 2020](#)), projected mortality impacts to groundfish stocks, especially those of yelloweye and canary rockfish, are expected to be low and provide merit to reopening these proposed areas. In an unforeseen event, the WDFW may utilize area closures as a routine management tool similar to seasons and bag limit adjustments (Federal regulations at 50 CFR 660.60 (c) (3)), and reinstatement of the closed areas can be implemented rapidly through state emergency regulation followed by inseason action if necessary.

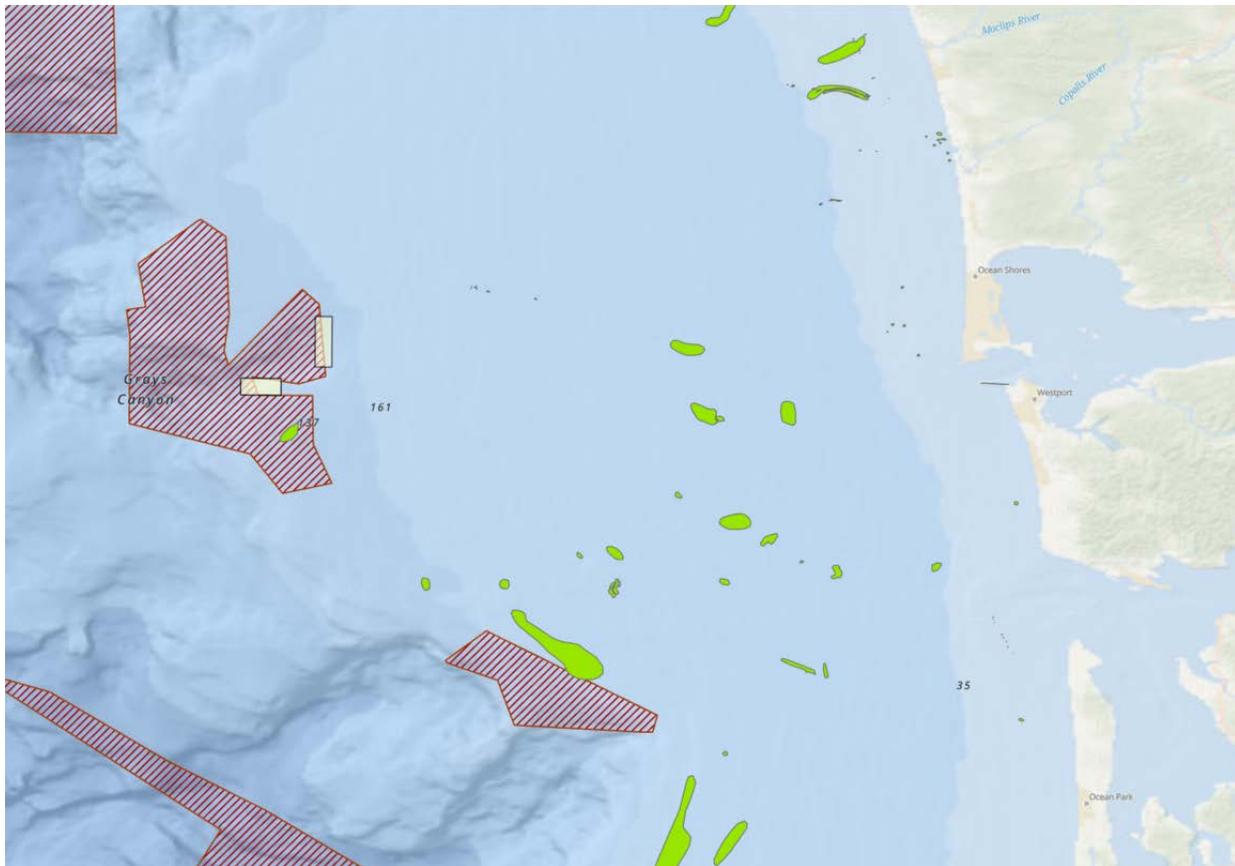


Figure A-1. Yelloweye Rockfish Conservation Areas (YRCA) proposed for opening off of Washington’s coast, along with rocky reef habitat and Essential Fish Habitat in the region. GIS data for the YRCAs and rocky reef habitat were pulled from the [Washington State Marine Spatial Planning Tool](#), and GIS data for Essential Fish Habitat were pulled from the [National Marine Fisheries Service’s Amendment 28 files](#).

Section B: Northern California and Oregon (40°10' - 46°16' N. lat.)

Proposed Areas for Opening

There is a proposal to open the 30-40 fathom portion of the non-trawl RCA in this area. The Status Quo (SQ) Option B-1 for the non-trawl RCA is to close the area between 30-100 fathoms, and the proposed Option B-2 would close the area between 40-100 fathoms (Table B-1).

Table B-1. Proposed non-trawl RCA configurations being considered for 2021-22 off northern California and Oregon (40°10' - 46°16' N. lat.).

Option	Closed year-round depths
B-1 (SQ)	30-100 fathoms
B-2	40-100 fathoms

Economic impacts

The purpose of Option B-2 is to provide access to healthy and underutilized target groundfish stocks that occur on the shelf ([Agenda Item H.8.a, Supplemental ODFW/CDFW Report 1, April 2020](#)). Higher trip limits are helpful, but the status quo non-trawl RCA boundaries continue to prevent access to the core depth range of the target species. Previous analyses demonstrate that total catch of target stocks (e.g., lingcod, and canary, widow, yellowtail, and shelf rockfishes) are expected to be within the non-trawl sector allocation, even with higher trip limits and under opening 30-40 fathoms under Option B-2 ([Agenda Item H.8.a, Supplemental ODFW/CDFW Report 1, April 2020](#); [Agenda Item F.1, Attachment 8, June 2020](#)). The projected ex-vessel gains of mixed target stocks for Option B-2 is ~\$135,000-\$150,000 per year.

Species Impacts

This groundfish conservation area was implemented in 2003 to protect yelloweye rockfish. Yelloweye rockfish is now projected to rebuild decades ahead of schedule and is less constraining to all fisheries, so opening the non-trawl RCA can now be considered as a way to provide more opportunity for fisheries ([Agenda Item H.8.a, Supplemental ODFW/CDFW Report 1, April 2020](#)).

There are minimal yelloweye rockfish bycatch concerns with all the proposals to open portions of the non-trawl RCA for 2021-22 (including the proposals to the south of 40°10' N. lat.). The projected yelloweye rockfish bycatch if all non-trawl RCA proposals are opened is 4.5-5.0 mt of the 6.2-6.4 mt annual catch targets (ACTs) for the coastwide commercial non-trawl fisheries, which is the reference point the Council uses to set non-trawl management measures (Table B- 2).

The Council also uses a higher 7.9-8.1 mt HG for yelloweye rockfish that is intended to be more of a bycatch limit for non-trawl fisheries while providing flexibility in case there are unanticipated ACT overages. The projected yelloweye rockfish bycatch is ~3 mt less than the HGs, which provides a buffer for uncertainty in bycatch projections. Commercial non-trawl projections of yelloweye rockfish are uncertain due to high variability in bycatch rates, low observer coverage, and bycatch estimates not being available until August of the following year. Bycatch of yelloweye rockfish could be higher than anticipated, but would need to be almost twice as high as projected to result in an exceedance of the HG.

In the unlikely event that bycatch does exceed the yelloweye rockfish HG, total mortality from all sectors would still only be 30-35 mt of the 50 and 51 mt annual catch limits (ACLs) for 2021 and 2022, respectively ([Agenda Item G.6 Attachment 2, April 2020](#)). There are minimal bycatch concerns for other groundfish or non-groundfish stocks with the opening of this depth bin. Specifically, for salmon, non-trawl gears historically have minimal bycatch of salmon compared to trawl gears and therefore there is no additional risk to the salmon threshold.

Table B- 2. Projected yelloweye rockfish mortality (mt) for all commercial non-trawl RCA openings being considered for 2021-22 in relation to the commercial non-trawl fisheries ACTs and HGs.

Option	Projected mortality	Commercial non-trawl ACT	Commercial non-trawl HG
Baseline: 2019 regulations	3.2		
PPA including all non-trawl RCA proposals being consider for 2021-22 a/	4.5 - 5.0	6.2 = 2021 6.4 = 2022	7.9 = 2021 8.1 = 2022

Habitat impacts

Option B-2 would open habitat that has been closed to commercial non-trawl fisheries since 2003, but that is open to other bottom contact fisheries (described below). Fishermen are likely to mainly fish around rocky reefs for lingcod and mid-water rockfish (e.g., canary, yellowtail, widow, and vermilion rockfishes). Figure B-1, Figure B-2, and Figure B-3 show the proposed 30-40 fathom opening of the non-trawl RCA (blue dashes), non-trawl RCA that would remain closed (purple checkering), Bottom Contact Closure Areas (BCCAs; yellow polygons), Bottom Trawl Closure Area (BTCAs; purple polygons), overlapping closure areas (orange polygons), hard substrate (pink polygons), and deep sea corals (pink dots). Option B-2 would not open any areas closed to recreational fishing, such as YRCAs. Option B-2 would however open two essential fish habitat conservation areas (EFHCAs) that are closed to bottom trawling off southern Oregon and a minor portion of an EFHCA closed to bottom trawl off Cape Mendocino. These EFHCA areas are however currently open to recreational fisheries that use bottom contact gears similar to those used by commercial non-trawl fisheries, as will be discussed more below.

This analysis focuses on potential impacts to rocky reef habitats, a particularly vulnerable type of HAPC. Deep sea corals occur, but at relatively low abundance, in the shallow 30-40 fathom proposed opening. Further, little commercial non-trawl fishing occurs in these depths, except off Newport/Depoe Bay. These ports are mainly recreational non-trawl ports that are currently able to fish the 30-40 fathoms depths in that area year-round. However, commercial non-trawl fisheries are allowed to use higher impact bottom longlines which will be described more below.

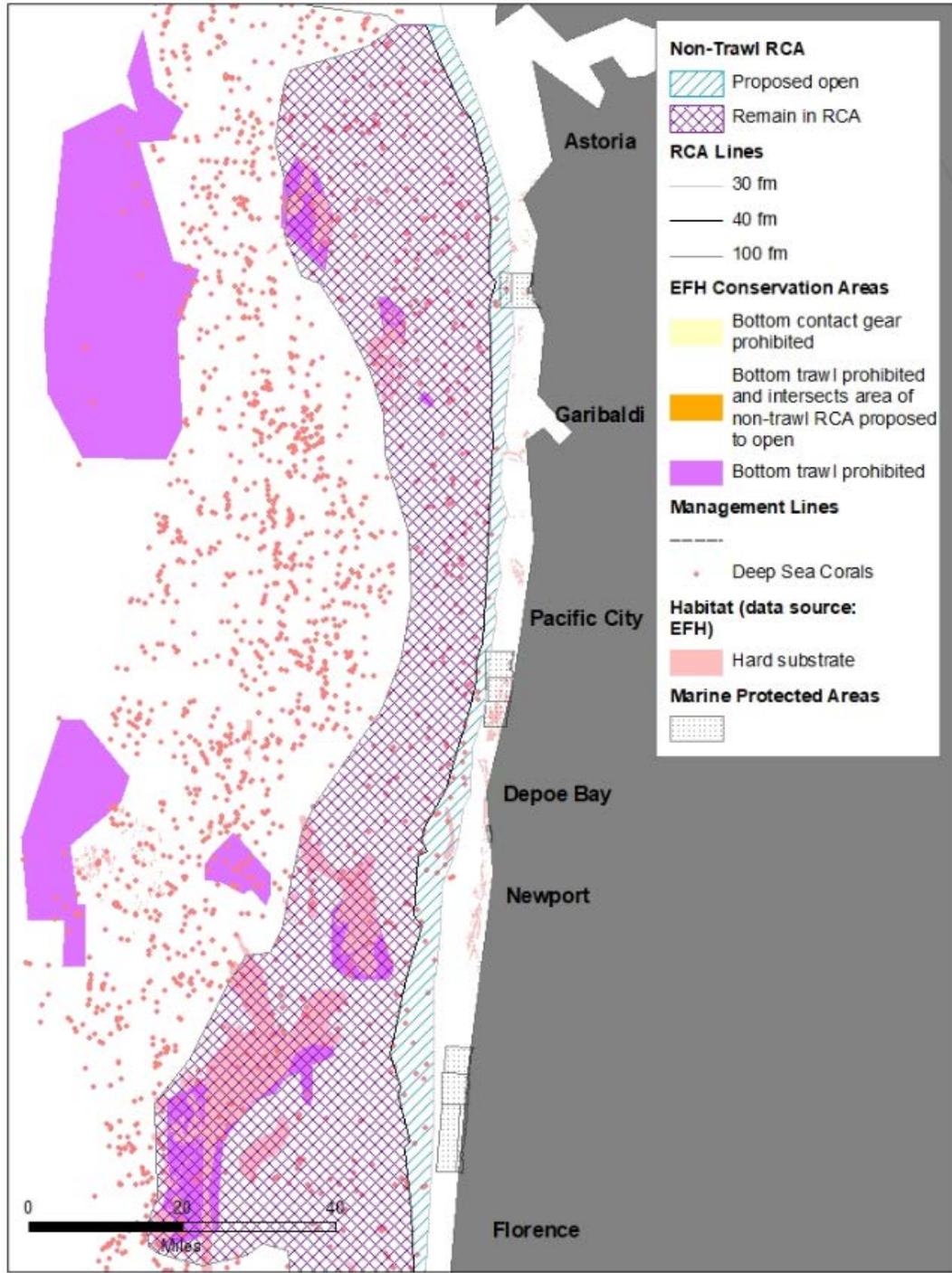


Figure B-1. Option B-2 for non-trawl RCAs that would open 30-40 fathoms off northern California and Oregon.

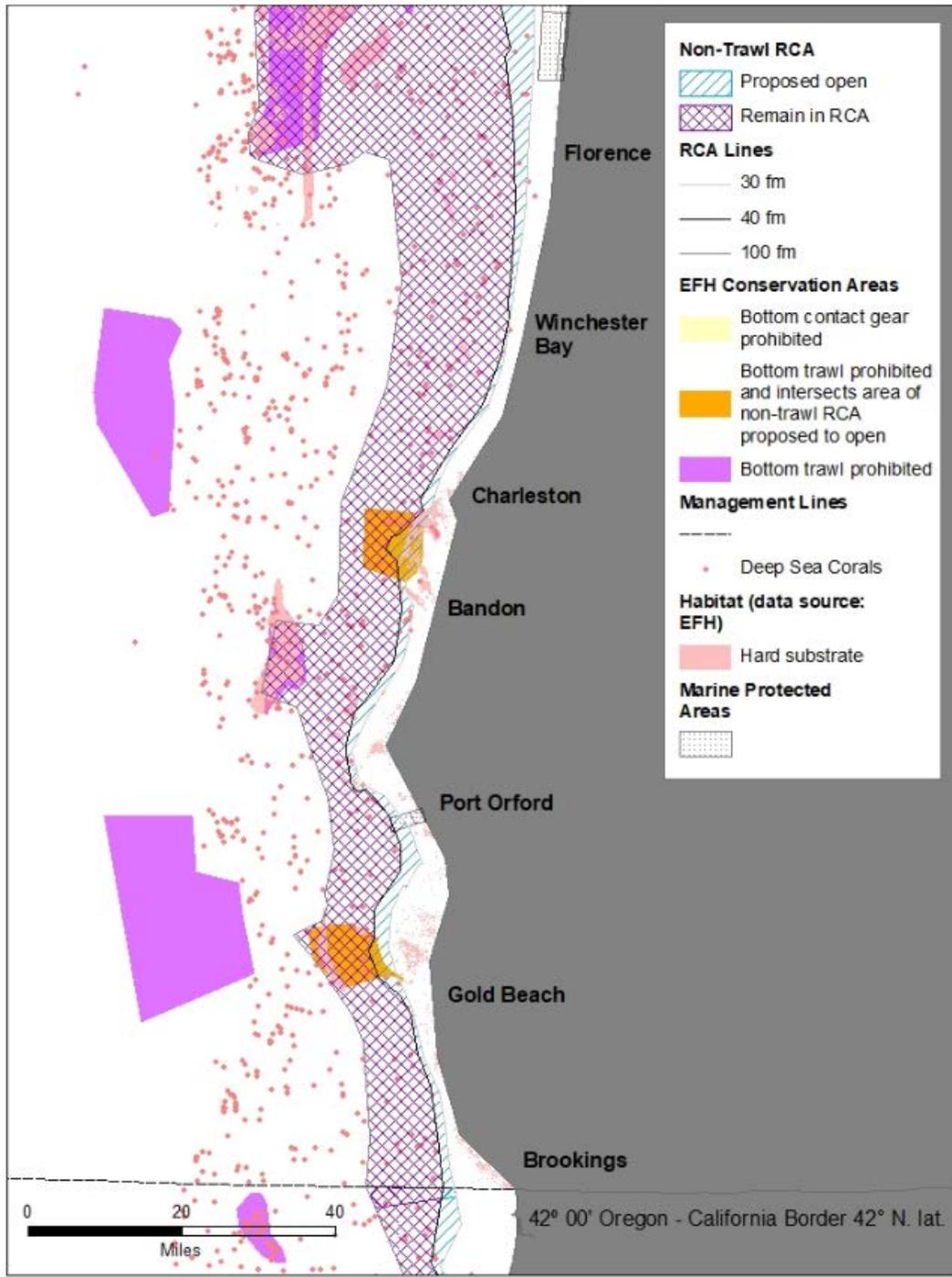


Figure B- 2. Option 2 for non-trawl RCAs that would open 30-40 fathoms off northern California and Oregon.

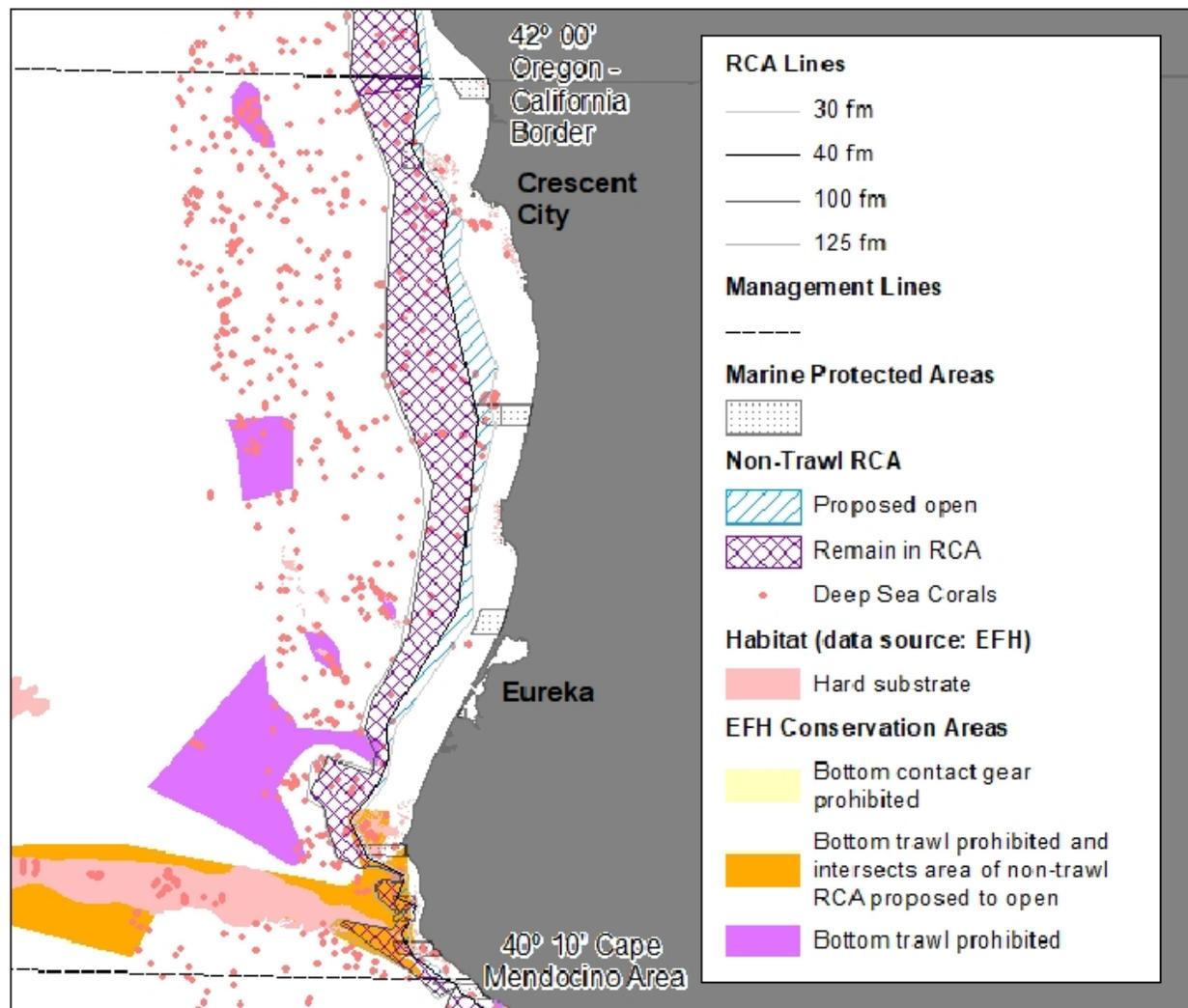


Figure B-3. Option B-2 for non-trawl RCAs that would open 30-40 fathoms off northern California and Oregon.

The commercial non-trawl fishery utilizes a variety of gear types to target lingcod and mid-water rockfishes, and some gear types have higher impacts to habitats than others. This analysis uses the same three non-trawl gear categories described in [Appendix C-1 of the Groundfish FMP](#): (1) hook-and-line gears (e.g., rod-and-reel); (2) fish pots; and (3) bottom longline. Pots and longlines have higher habitat impacts, because they can drag on bottom, while hook-and-line gears can use sinkers striking bottom or be lifted off bottom. Lifted gear types, such as trolled horizontal longlines, have the least impacts because they only occasionally hit bottom and purposely avoid doing so to prevent gear loss and more efficiently target schools of mid-water rockfishes.

Based on conversations with industry and historical knowledge of the fishery prior to closing of the RCAs, the Groundfish Management Team (GMT) expects that fishermen would mainly target lingcod and mid-water rockfishes on or above rocky reefs if Option B-2 were implemented. Industry also informed the GMT that they expect to mainly target these species using hook-and-line gears, and potentially with bottom longline gears, but not with pot gears. The GMT verified

this will likely be the case based on how these species have been taken in the nearshore fishery (Table B-3). The GMT does however note that bottom longline gear may not be used as frequently as suggested by Table B-3, because industry stated that these species can be more effectively targeted with active hook-and-line gear types.

Table B- 3. Commercial non-trawl landings from 2017-2019, in shore-30 fathom depths adjacent to proposed openings under Option B-2, for the stocks that are expected to be targeted in 30-40 fathoms.

Stock	Landings (lbs)			% of landings		
	Pot	Bottom longline	Hook-and-line	Pot	Bottom Longline	Hook-and-line
Lingcod	3,821	102,915	391,069	0.8%	20.7%	78.6%
Mid-water shelf rockfishes*	0	25,354	42,593	0.0%	37.3%	62.7%

* Yellowtail, canary, widow, vermilion and other rockfishes that occur on the shelf

While Option B-2 will result in additional habitat impacts, the importance should be gauged relative to the effects of other bottom contact fisheries already occurring in the area. Specifically, the 30-40 fathoms that would be opened with Option B-2 are already open to recreational non-trawl fisheries (Table B- 4) that also fish over rocky reefs using similar hook-and-line gear types in terms of habitat impact (i.e., a weight striking bottom). Commercial hook-and-line gear can use more hooks than recreational hook-and-line gear. Cumulatively, the additional gear could increase the impact to bottom habitat; however, the type and extent of impacts would be dependent on the areas targeted and relative susceptibility of the habitat. Areas could experience localized impacts to habitat that are greater than the regional impacts, as commercial and recreational fisherman may target the same area. Comparisons of commercial and recreational hook-and-line fishery impacts must be qualitative, because recreational fisheries lack spatial information as they do not use logbooks, have limited observer coverage, and do not use depth as a sampling domain in catch estimation procedures.

Table B- 4. Recreational (hook-and-line) seasons in the 30-40 fathom depths being considered for opening to commercial non-trawl gears with Option B-2.

Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
OR Recreational	Open											
CA Recreational	Closed										Open	

*Focus was recreational fisheries since they use hook-and-line gears near rocky reefs as is expected for commercial non-trawl; 30-40 fathoms is also open to bottom trawl and crab pot fisheries but these mainly contact soft substrates

Option B-2 is expected to increase hook-and-line impacts to rocky reefs, but at relatively low amounts to what is already occurring. That is because the recreational hook-and-line fishery occurs at higher volumes with more participants than the commercial hook-and-line fishery in the nearshore depths that would be opened with Option B-2. For instance, the total 2017-2019 recreational hook-and-line landings (~5.3 million lbs) has been ~2.3 times higher than commercial hook-and-line landings (~2.1 million lbs).

While the additional Option B-2 hook-and-line impacts are expected to be minor relative to what is already occurring throughout the entire 30-40 fathom zone that could be opened, there would be

regional differences since some areas (e.g., Port Orford) are more heavily fished by commercial hook-and-line fisheries than recreational fisheries. Option B-2 could therefore open rocky reefs that have therefore only been lightly fished by recreational hook-and-line gears, and this could be a potential concern. While other bottom contact fisheries such as bottom trawl and crab pot are able to fish 30-40 fathoms near these lighted fished reefs, these fisheries mainly occur over soft substrates.

Another potential concern with Option B-2 is there could be bottom longline impacts in 30-40 fathoms, which is a gear type other fisheries cannot use in this area. As described above and listed below, bottom longlines have higher relative habitat impacts than hook-and-line gear. Bottom longline impacts could also occur on rocky reefs that have been lightly fished by recreational hook-and-lines. On the other hand, the GMT does not expect much additional longline activity with Option B-2 since the target species can be more effectively targeted with active hook-and-line gears (see above), but it is uncertain how much additional bottom longlining would occur.

Longline Habitat Impacts from [Appendix C-1 of the Groundfish FMP](#)

“Pelagic and bottom longline fishing in the marine environment is prevalent on the Pacific Coast. Pelagic longlining targets chiefly tuna and swordfish, while bottom longlining targets halibut, sablefish, and other species and can be fished on both soft and hard bottom seafloors. Both types of longlining can incidentally harvest managed species as well as prey species. Components of the gear that are in contact with the seafloor include anchors or weights, hooks, and the mainline. During retrieval, bottom longlines can sweep laterally several meters and overturn or undercut emergent organisms such as corals and sponges (Baer et al. 2010, Heifetz et al. 2009, Stone 2006). Habitat damage from longline gear is linked to the number of hooks, weights, line type, and gear configuration and the impact to habitat is further associated with haul speed (Fuller et al, 2008)”

One additional gear type that may be of potential concern is the dinglebar, which is where a weight is dragged along the bottom with trailing hooks. While there is no direct mention of habitat impacts of dinglebar technique in Appendix C-1, the habitat impacts of dinglebar are presumably higher than other hook-and-line types that less periodically strike bottom such as vertical longline, trolled horizontal longline lifted off bottom, and jig-and-pole gears. Dinglebar is a technique that could be used in the recreational fisheries to target lingcod and halibut across all habitat types in the Option B-2 area that is proposed to be opened. Additional dinglebar impacts can be expected, but they are not likely to be significant. Dinglebar use is uncertain in both recreational and commercial fisheries since there is not much, if any, data on how often it is used. Overall, there is a lack of information on the effects and impacts of recreational fishing gear on habitat. We surmise there will be impacts, but they are, at present, unquantifiable. Based on the effects of commercial gear studies, dinglebar may impact habitat forming invertebrates (e.g., corals, sponges, etc) through such potential mechanisms as crushing, snagging, displacement by hooking, and breaking of coral arms. However, the extent of these impacts and their relative detrimental effects are highly uncertain at present.

Option B-2 Conclusion

There are potential trade-offs for the Council to consider in regards to Option B-2 that could open the area between 30-40 fathoms of the non-trawl RCA off Oregon and northern California. This would open important fishing grounds to provide additional opportunity of healthy and

underutilized stocks while staying within conservation objectives for yelloweye rockfish. The Council can now however consider opening these areas because of yelloweye rockfish rebuilding faster than expected and due to all the hard work associated with revising the rebuilding plan in 2018 to provide more opportunities for fisheries while not delaying rebuilding by more than a year. Option B-2 would give fishermen the opportunity to target healthy and underutilized target stocks and reduce their dependence on nearshore stocks.

There are however some potential habitat concerns for the Council to consider that include: (1) higher hook-and-line impacts in areas lightly fished by recreational hook-and-line; (2) additional bottom longline impacts; and (3) additional dinglebar impacts.

If the Council has concerns with habitat impacts from bottom longline and dinglebar gear types, they could consider prohibiting these gears in the 30-40 fathom portion of the non-trawl RCA that could be opened with Option B-2. The federal regulations that define these gear types are as follows:

Bottom longline means a stationary, buoyed, and anchored groundline with hooks attached, so as to fish along the seabed. It does not include pelagic hook-and-line or troll gear.

Dinglebar gear means one or more lines retrieved and set with a troll gurdy or hand troll gurdy, with a terminally attached weight from which one or more leaders with one or more lures or baited hooks are pulled through the water while a vessel is making way.

Section C: California (south of 40° 10' N. lat.)

Proposed Areas for Opening

Multiple RCA adjustments have been proposed for both the commercial and recreational fisheries south of 40°10' N. lat. which are intended to provide more access to healthy and under attained groundfish stocks found on the shelf. For the area between 40°10' and 34°27' N. lat., Commercial Option C-2 proposes to: (1) move the seaward boundary line from 125 fathoms in to 100 fathoms, (2) implement a new management line at 38°57.5' N. lat., and (3) move the shoreward boundary line in the area between 38°57.5' and 34°27' N. lat. from 40 fathoms to 50 fathoms; proposals 2 and 3 were signaled in the 2021-2022 package last November 2019. For the area south of 34°27' N. lat., Commercial Option C-2a proposes to move the shoreward boundary line from 75 fathoms out to 100 fathoms (also signaled since November 2019), and Commercial Option C-2b proposes to move the seaward boundary line from 150 fathoms into 100 fathoms (Table C- 1), which was proposed in April 2020. Commercial Options C-2a and C-2b are intended to be mutually exclusive in that choosing both would eliminate the RCA completely. The intent of these two proposals is to make minor adjustments to one of the existing boundary lines while maximizing fishery opportunities, therefore the GMT analyzed the full suite of impacts to these RCA changes for the Council to consider.

Table C- 1. Status quo, and proposed RCA boundary lines for the commercial fishery south of 40°10' N. lat. Changes are highlighted in italics.

Sector/ Option	Management Area	J	F	M	A	M	J	J	A	S	O	N	D
Commercial	40°10' – 38° 57.5' N. lat.	40 fm – 125 fm											
FG Option	38° 57.5' – 34° 27' N. lat.	40 fm – 125 fm											
C-1 (SQ)	South of 34° 27' N. lat.	75 fm – 150 fm											
Commercial FG Option C-2	40°10' – 38° 57.5' N. lat.	40 fm – <i>100 fm</i>											
	38° 57.5' – 34° 27' N. lat.	<i>50 fm – 100 fm</i>											
	South of 34° 27' N. lat. (a)	<i>100 fm – 150 fm</i>											
	South of 34° 27' N. lat. (b)	<i>75 fm – 100 fm</i>											

Additionally, RCA adjustments have also been proposed for the recreational fishery. Recreational Option C-2 proposes to (1) move the Mendocino Management Area (MA) from 20 fathoms out to 30 fathoms, (2) the San Francisco MA from 40 fathoms out to 50 fathoms, and (3) the Southern MA from 75 fathoms out to 100 fathoms (Table C- 2). All recreational proposals were signaled in November 2019.

Table C- 2. Status quo, and proposed RCA boundary lines for the California recreational fishery. Changes are highlighted in italics.

Sector/ Option	Management Area	J	F	M	A	M	J	J	A	S	O	N	D
CA Rec. (FG) Option 1 (SQ)	Northern	Closed				<30 fm						All Depth	
	Mendocino	Closed				<20 fm						All Depth	
	San Francisco	Closed				<40 fm							
	Central	Closed				<50 fm							
	Southern	Closed		<75 fm									
CA Rec. (FG) Option 2	Northern	Closed				<30 fm						All Depth	
	Mendocino	Closed				<i><30 fm</i>						All Depth	
	San Francisco	Closed				<i><50 fm</i>							
	Central	Closed				<50 fm							
	Southern	Closed		<i><100 fm</i>									

Figures C- 1, C- 2, C- 3, and C- 4 identify the location of the proposed openings (blue) in relation to Bottom Contact Closure Areas (BCCAs; yellow polygons), Bottom Trawl Closure Area (BTCAs; purple polygons), overlapping closure areas (orange/light orange polygons), Marine Protected Areas (MPAs; dotted polygons); hard substrate (pink polygons), and deep sea corals (pink dots).

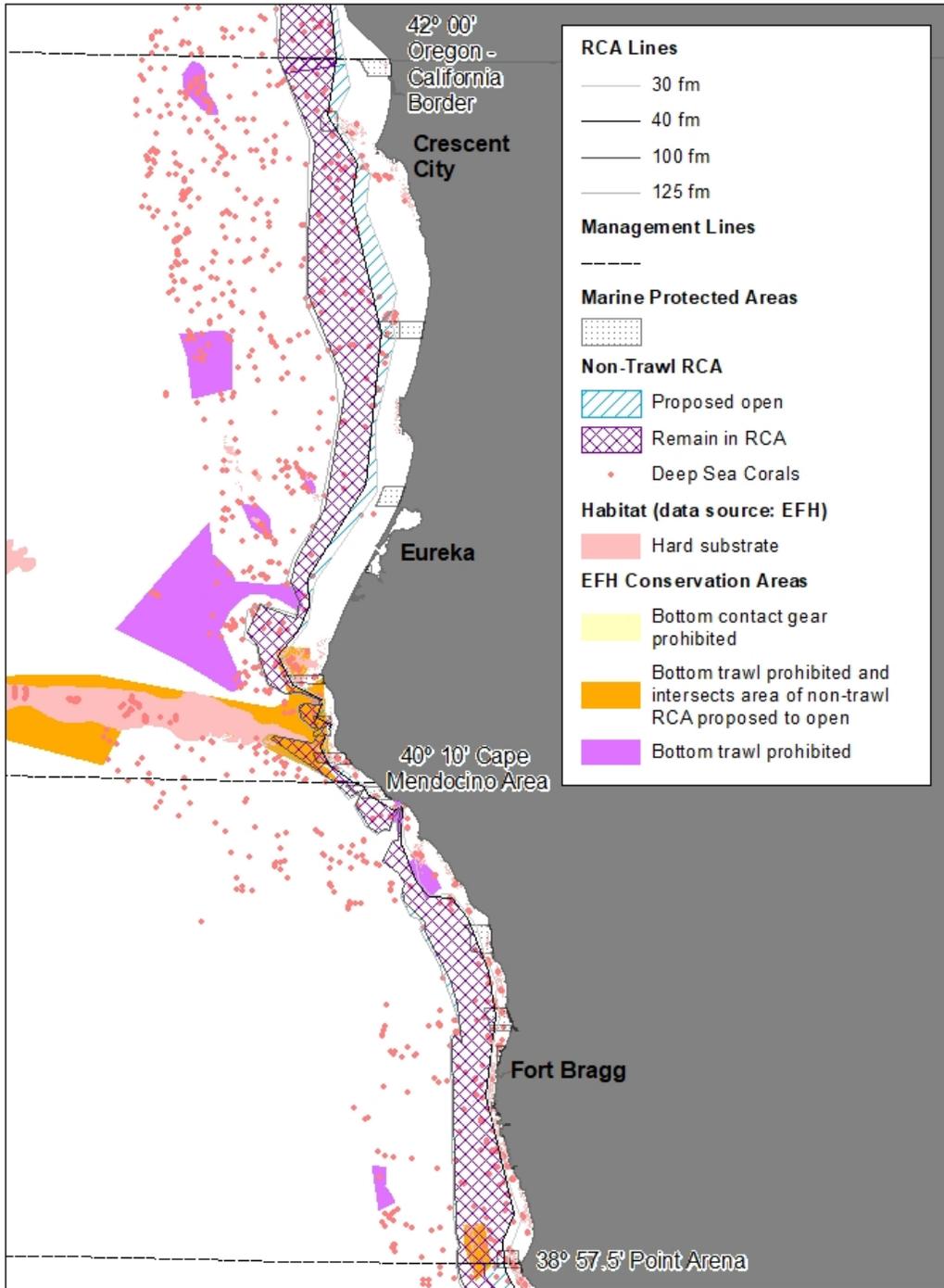


Figure C- 1. Commercial and Recreational Option C-2 non-trawl RCA (40 fm to 100 fm) from Cape Mendocino south to Point Arena south in relation to EFH Conservation Areas, other Conservation and Protected Areas, hard substrate and deep sea corals.

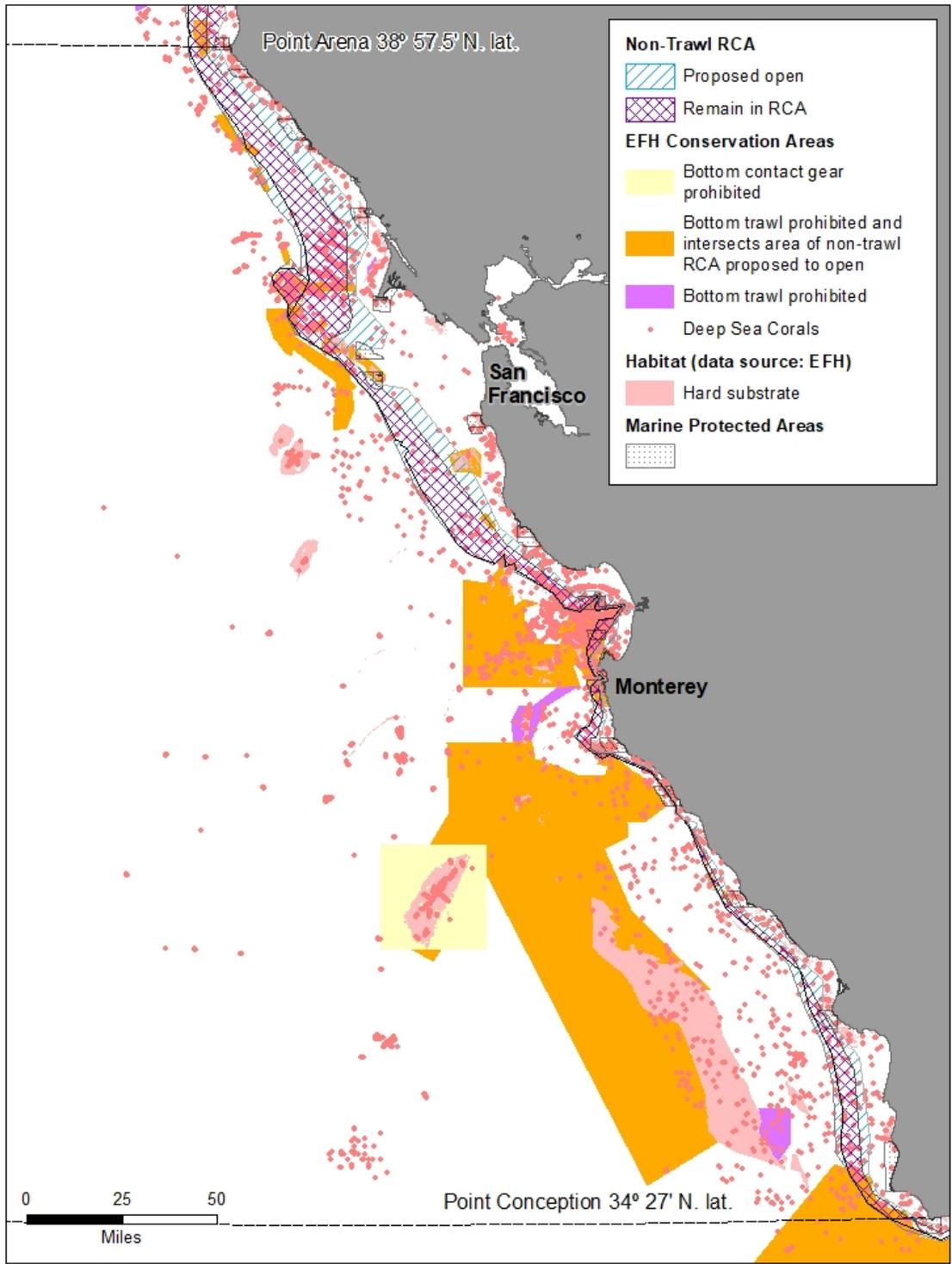


Figure C- 2. Commercial and Recreational Option C-2 non-trawl RCA (50 fm to 100 fm) from Point Arena south to Point Conception in relation to EFH Conservation Areas, other Conservation and Protected Areas, hard substrate and deep sea corals.

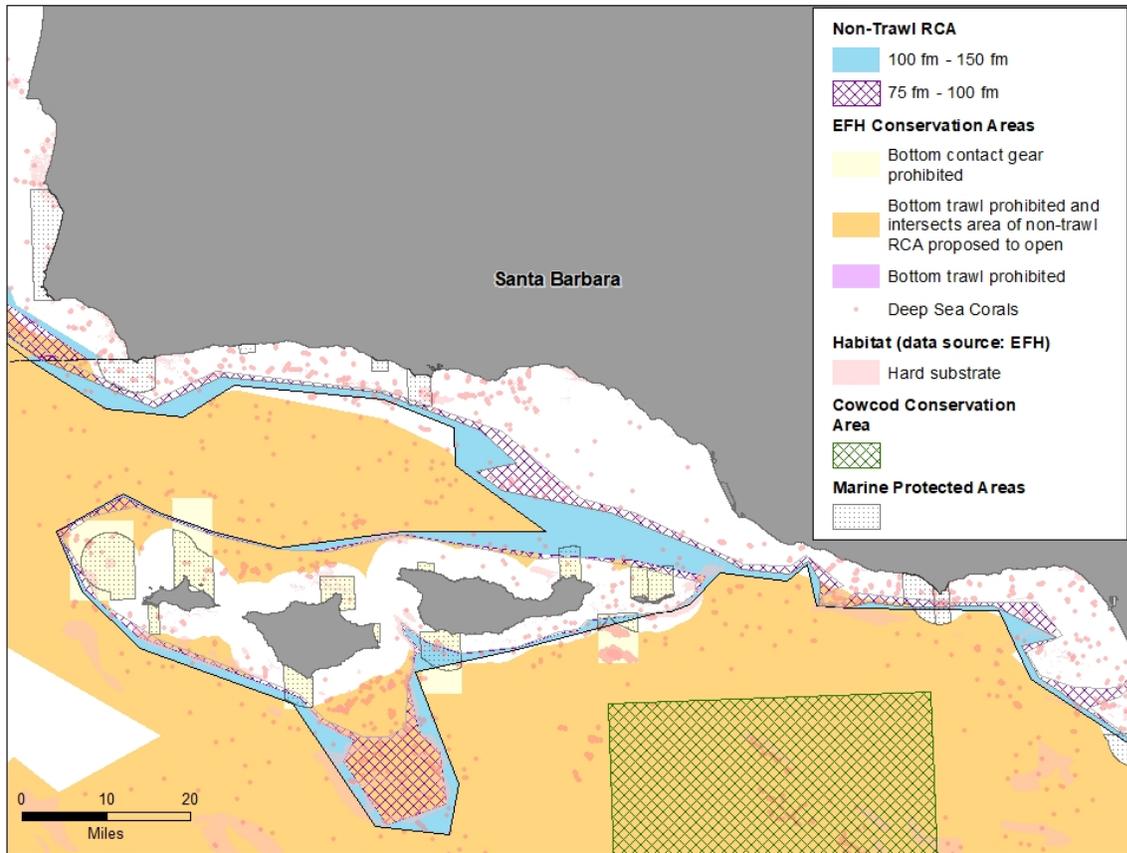


Figure C- 3. Option C-2a non-trawl RCA (100 fathoms to 150 fathoms; solid blue), and Option C-2b non-trawl RCA (75 - 100 fathoms; purple lines), off Santa Barbara, CA in relation to EFH Conservation Areas, other Conservation and Protected Areas, hard substrate and deep sea corals.

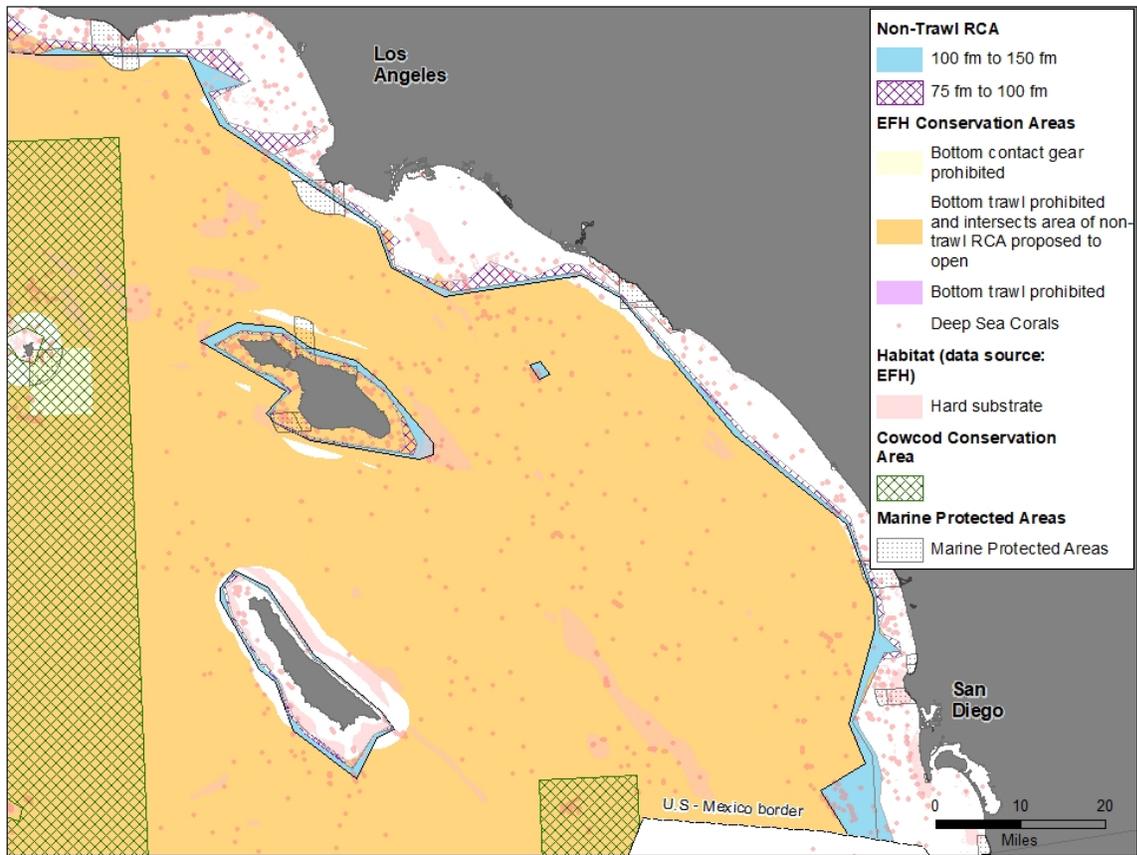


Figure C- 4. Option 2a non-trawl RCA (100 fathoms to 150 fathoms; solid blue), and Option 2b non-trawl RCA (75 - 100 fathoms; purple lines), off Los Angeles, CA in relation to EFH Conservation Areas, other Conservation and Protected Areas, hard substrate and deep sea corals.

Economic Impacts

As stated in the Appendix of the draft environmental assessment (EA; [Agenda Item F.1, Attachment 8, June 2020](#)), these RCA adjustments will have positive economic impacts by restoring portions of historical fishing grounds that were eliminated in the early 2000s due to the implementation of the RCAs. Due to a lack of recent fishing activity in the proposed areas, it is difficult to quantify the economic impacts of the RCA adjustments; however, the projected ex-vessel revenue gains from increasing trip limits, removal of the flatfish gear restriction within RCAs, and year round fishing south of 40° 10' N. lat. for 2021 are approximately \$1.5-2.3 million (see summaries in [Agenda Item G.6.a, Supplemental GMT Report 1, April 2020](#); [Agenda Item G.6.a, Supplemental GMT Report 2, April 2020](#)). These ex-vessel revenue gains are more likely to be achieved with the adoption of the RCA adjustments.

Commercial vessels that fish in these opened areas in federal waters will need to comply with current vessel monitoring system (VMS) requirements. VMS presents an economic cost to the industry; however, established participants in the groundfish fishery are likely to already have this cost accounted for as this cost is largely fixed and based on the ping rate. Increased effort or fishing in opened areas will not increase VMS monthly fees however, new entrants would need to purchase

a VMS. While VMS cost does impact the industry, access to these opened areas may offer additional opportunity to the industry to increase under-attained species that may offset VMS costs.

Species Impacts

All proposed RCA adjustments are consistent with the following National Standards: (1) result in more optimal yield without overfishing; (2) based on the best scientific information; and (8) take into account/benefit fishing communities. This action is consistent with National Standard 1 by providing the greatest overall benefit to the nation by allowing harvest of healthy stocks which are currently being underutilized (e.g., shelf rockfish stocks).

As of 2019, all groundfish have been declared rebuilt, except yelloweye rockfish which is projected to be rebuilt by 2027. Greater access to shelf will provide more opportunity to the fixed gear fleet to achieve allowable harvest limits of the rebuilt stocks, which have mostly been under attained in recent biennium, yet would continue to provide protection to yelloweye rockfish. Impacts to yelloweye rockfish are discussed above in Section B (see Table B-2). Beginning in 2021, cowcod will be managed as a healthy and rebuilt stock with harvest limits being much higher than in previous biennia. While impacts to cowcod are likely to increase as more cowcod habitat would become accessible under either Option (100-150 fathom or 75-100 fathom commercial non-trawl RCA) they are expected to remain within the 2021-22 non-trawl commercial HG of 16 mt the following reasons: (1) no adjustments to the boundaries of the Cowcod Conservation Areas (CCAs) are proposed in the 2021-22 management measures, and this area encompasses a significant portion of the Southern California Bight; (2) vessel operators are expected to continue to avoid areas known to have high likelihood of cowcod, since the prohibition on retention of cowcod in the non-trawl sector will remain, and (3) Vessel Monitoring System (VMS) requirements in federal waters¹ will remain in place for commercial groundfish fisheries, which will continue to aid enforceability of the RCAs and CCAs in southern California.

Table C- 3 provides the assumed cumulative cowcod impact projections. These cowcod projections are based on historical estimated mortality for all fishing activity south of 40° 10' N. lat. as reported in the West Coast Groundfish Observer Program (WCGOP) Groundfish Expanded Mortality Multiyear (GEMM) and [2019 cowcod stock assessment](#), which has remained less than 8 mt (approximately 16 percent of the 2021 50 mt ACT) since 2000 when cowcod was declared overfished, and less than or equal to 5 mt since retention was prohibited (Table C- 4). During the 1990's, when the stock was in decline, commercial (trawl and fixed gear) catches ranged from 1.21 mt to 24.58 mt, averaging 12.3 mt per year.

¹ As per [CFR§660.14](#) VMS is required (1) Any vessel registered for use with a limited entry "A" endorsed permit (*i.e.*, not an MS permit) that fishes in state or Federal waters seaward of the baseline from which the territorial sea is measured off the States of Washington, Oregon or California (0-200 nm offshore). (2) Any vessel that uses non-groundfish trawl gear to fish in the EEZ. (3) Any vessel that uses open access gear to take and retain, or possess groundfish in the EEZ or land groundfish taken in the EEZ.

Table C- 3. Projected mortality of cowcod south of 40°10' N. lat. associated with the two non-trawl RCA proposals in relation to the 2021-22 non-trawl commercial HG (which is based off of the 50 mt ACT).

Option	Projected mortality per year (mt)	Non-Trawl Allocation (mt)	Non-trawl Commercial HG (mt)
No Action: 2019 regulations	1	32	16
Preliminary 2021-22 management measures (PPA) preferred alternative a/	1-3		
PPA + the year-round RCA proposals for the 2021-22 biennium	3-5		

a/ See general impacts section for description and links to the Council's PPA for 2021-22

Table C- 4. Historical estimated mortality for cowcod in all fisheries south of 40° 10' N. lat.

Year	Off-the-top (mt) a/	Commercial Trawl (mt)	Commercial Non-trawl (mt)	Recreational (mt)	Annual Total (mt)
2000 b/	< 0.1	1.4		6.2	7.6
2001 b/	< 0.1	3.5		0.5	4.0
2002	< 0.1	2.6	< 0.1	0.6	3.2
2003	< 0.1	0.2	--	0.5	0.7
2004	< 0.1	0.7	< 0.1	--	0.7
2005	0.1	0.6	< 0.1	0.4	1.1
2006	0.1	0.9	--	0.2	1.2
2007	0.1	1	< 0.1	0.5	1.6
2008	0.1	0.2	--	0.3	0.6
2009	0.1	0.4	0.1	0.3	0.9
2010	< 0.1	0.3	--	0.4	0.7
2011	0.1	< 0.1	--	1.3	1.4
2012	0.2	0.1	--	0.7	1.0
2013	0.2	0.2	--	1.4	1.8
2014	0.2	0.2	< 0.1	0.7	1.1
2015	0.5	0.4	--	0.5	1.4
2016	0.3	0.3	--	0.7	1.3
2017	0.5	0.4	--	0.8	1.7
2018	0.8	0.4	1	1	3.2
2019 c/	0.8	0.8	1	2.4	5.0

Data source: WCGOP GEMM data product, unless noted otherwise.

a/ Sourced from Tables 5 and F1 of the 2019 cowcod stock assessment where trawl and non-trawl commercial removals were combined.

b/ Off-the-top includes research, incidental open access fisheries, and exempted fishing permits

c/ 2019 WCGOP Mortality estimates for research and commercial non-trawl are expected to be provided in September 2020. 2018 estimates were used as a proxy for 2019.

As noted in Table C- 4, the estimated mortality for cowcod in the commercial non-trawl fishery has been less than 0.1 mt, or zero, in past years; however, in 2018, the estimated mortality increased

from 0 mt to 1 mt. As per the [2018 WCGOP estimated mortality report](#), the LE fleet using hook and line gear south of 36° N. lat. was the only source of mortality as no other LE or open access (OA) fishery were observed retaining or discarding cowcod. The reported 1 mt was derived from the expansion of observations from 9 vessels to the fleet's groundfish landings of 523 mt. The number of vessels observed and expansion factors varied greatly in the other fixed gear fisheries and can be compared to the LE fleet south of 36° N. lat. in Table C- 5.

It is possible that the increase from 0 mt to 1 mt may be due to moving the shoreward boundary of the commercial non-trawl RCA from 60 fathoms to 75 fathoms south of 34° 27' N. lat. at the start of the 2017-2018 biennium. However, the WCGOP estimated mortality reports do not provide the fishing depth of the observed discards; therefore, it is difficult to determine where the fleet has been encountering cowcod. Notably, the larger population size may result in increased cowcod encounters at all open fishing depths. In totality, the trawl sector has 100 percent accountability monitoring within the IFQ program and the recreational sector conducts regular inseason monitoring leaving the non-trawl commercial sector the only component that does not have real-time bycatch monitoring. In the rare event of a high catch event in the non-trawl commercial sector, it is highly unlikely that the 74 mt ACL would be attained or exceeded between all sectors.

Table C- 5. Number of observed vessels, trips and expansion fact for each commercial fixed gear fishery as reported in the 2018 WCGOP estimated mortality report.

Fishery	Area	No. of observed vessels	No. of Observed trips	Expansion factor: Fleet landings of groundfish (mt)	Est. mortality (mt)
LE (H&L)	N of 36° N. lat.	4	5	254	1
LE (H&L)	S of 36° N. lat.	9	24	523	--
LE (Pot) a/	N of 36° N. lat.	--	--	9	--
OA (H&L)	N of 36° N. lat.	40	78	262	--
OA (H&L)	S of 36° N. lat.	3	4	52	--
OA (Pot) b/	N of 36° N. lat.	33	57	167	--
OA (Pot) b/	S of 36° N. lat.			7	--

a/ No LE vessels using pot gear north of 36° N. lat. were observed, therefore OA discard estimates were applied.

b/ Due to confidentiality rules, the number of vessels and trips are shown in coastwide numbers.

For the recreational fishery, the Southern Management Area is predominately constrained by cowcod harvest limits (yelloweye rockfish is rarely encountered and contributes trace amounts to projected impacts compared to more northern areas). As retention of cowcod will remain prohibited, allowing additional depth would provide access to other healthy and abundant shelf species with minimum risk to cowcod impacts. The California Department of Fish and Wildlife (CDFW) actively monitors recreational cowcod mortality inseason, and can make changes to season, depth or bag limits as appropriate, which will help mitigate against any increases in mortality resulting from this management measure and can make changes to season, depth or bag limits as appropriate. Catch of shelf rockfish is likely to increase with this management measure. Attainment of the shelf rockfish complex ACL south of 40° 10' N. lat. has been low. Option C-2ermilion rockfish mortality has exceeded its contribution to the shelf rockfish complex ACL south of 40° 10' N. lat., sub-bag limits are being considered to reduce catch which will mitigate increased mortality which may result from this proposed management measure. As a result, there is little risk

of overfishing to shelf rockfish, including vermilion rockfish. Mortality of cowcod is also likely to increase with this management measure, however, harvest specifications are expected to increase, and mortality is anticipated to remain within allowable limits.

Other Fisheries and Impacts to Sensitive Habitats

Several non-trawl RCA adjustments have been made to the seaward and shoreward boundary lines through previous biennial harvest specifications and management measures, as well as inseason processes resulting in the current (i.e. status quo) RCAs for commercial and recreational. Previous adjustments to the non-trawl RCA were one of the depth-based management tools the Council utilized to achieve or stay within allowable harvest limits. The proposed non-trawl adjustments for 2021-22 are intended to do the same; however, there are portions of previously designated BCCAs and BTCAs, MPAs, HAPCs, and deep sea coral locations that would be exposed to the non-trawl fishery should all the RCA adjustments be adopted. For these previously designated BCCAs and MPAs, the rules and regulations would remain in place. However, similar to the depth changes proposed in the north, if the Council has concerns with bottom longline or other gear types, they could consider prohibiting specific gears in the portions of the non-trawl RCA that could be opened.

Of note, the Council should take into consideration that within the context of groundfish management areas the specific depth ranges being proposed for opening, many other state-managed fisheries using similar bottom contact gear are routinely operating continuously throughout the year, indicating these groundfish proposals are not opening currently untouched pristine habitat (Tables C- 5, C- 6, C- 7, C- 8, C- 9, C- 10, C- 11, and C- 12). These fisheries have been identified as most likely to be operating in these areas that are currently closed to non-trawl groundfish fishing. The fishery sectors are not exhaustive, as there are some fisheries (ex: state-managed lobster) that would not be precluded from setting gear in the proposed water depths, but are unlikely to be there as it falls outside either its depth and/or geographic range. The impacts associated with non-trawl groundfish are expected to incrementally increase as fixed-gear fishing returns to these areas. As mentioned above, bottom longlines have higher relative habitat impacts than hook-and-line gear, and such higher impacts from bottom longline could occur on rocky reefs that have been lightly fished by recreational hook-and-lines or from other fisheries. The section below describes the distribution of gear use from historical landings indicating that longline gear is the predominant gear type used for a majority of groundfish targets.

As the maps above show, there are several areas in which deep sea coral reside within the area proposed to be opened, which could be impacted due to the increase in the flatfish trip limits as historically longline gear is the primary gear to target such stocks. Additionally, the map off San Francisco (Figure C- 2) shows hard substrate areas, south east of Point Reyes and south east of Half moon Bay, that would become available with moving the shoreward line from 40 fathoms to 50 fathoms. These areas are likely to incur more impacts from hook-and-line than the soft bottom areas as lingcod and shelf rockfish are the primary interests over rocky habitat. Off Santa Barbara (Figure C- 4), with the 100-150 fathoms RCA (Commercial Option C-2a), a large area of deep sea coral south east of Santa Rosa Island would be opened that could be impacted by both longline gears from vessels targeting flatfish and hook-and-line gears from vessels targeting rockfish around the rocky area around the 100 fathom RCA line. However, under proposal Commercial Option C-2b (75-100 fathom RCA), hard substrate would become available around the northern

Channel Islands, primarily just west of Anacapa Island and southeast of Santa Rosa Island. These areas would also likely incur more impacts from vessels using hook-and line gear to target rockfish, and possible sablefish and deeper flatfish.

Table C- 6. Fisheries using bottom contact gear in the Mendocino Management Area from 30 - 40 fathoms.

Sector	J	F	M	A	M	J	J	A	S	O	N	D
Commercial Groundfish (Hook-and-Line)	Open		Closed		Open							
Commercial Groundfish (Pot)	Open		Closed		Open							
Recreational Groundfish (Hook-and-Line)	Closed										Open	
Recreational Groundfish-Other Flat Fish (Hook-and-Line)	Open											
Recreational Non-Groundfish (Hook-and-Line)	Open											
Commercial Pacific Halibut (Hook-and-Line) a/	Closed				26	10 & 24	Closed					
Commercial Dungeness Crab (Pots)	Open						Closed				Open	
Recreational Dungeness Crab (Pots)	Open						Closed				Open	
Commercial California Halibut (Hook-and-Line)	Open											
Commercial California Halibut (Bottom Trawl)	Open in Federal Waters											
Commercial Hagfish (Trap)	Open											

a/ Open June 26, July 10 and July 24, 2019.

Table C- 7. Fisheries using bottom contact gear in the San Francisco Management Area from 40 - 50 fathoms.

Sector	J	F	M	A	M	J	J	A	S	O	N	D
Recreational Non-Groundfish (Hook-and-Line)	Open											
Recreational Groundfish- Other Flat Fish (Hook-and-Line)	Open											
Commercial Dungeness Crab (Pot)	Open						Closed				Open	
Commercial California Halibut (Bottom Trawl)	Open in Federal Waters											
Commercial Pink Shrimp (Bottom Trawl)	Closed			Open						Closed		
Commercial Hagfish (Pot)	Open											

Table C- 8. Fisheries using bottom contact gear in the San Francisco Management Area from 100 - 150 fathoms.

Sector	J	F	M	A	M	J	J	A	S	O	N	D
Commercial Dungeness Crab (Pot)	Open						Closed				Open	
Commercial Hagfish (Pot)	Open											
Commercial Spot prawn (Pot)	Closed	Open						Closed				
Commercial White Sea Bass (Set Net)	Open				Closed			Open				

Table C- 9. Fisheries using bottom contact gear in the Central Management Area from 40 - 50 fathoms.

Sector	J	F	M	A	M	J	J	A	S	O	N	D
Recreational Groundfish (Hook-and-Line)	Closed			Open								
Recreational Groundfish- Other Flat Fish (Hook-and-Line)	Open											
Commercial Dungeness Crab (Pot)	Open						Closed				Open	
Commercial California Halibut (Bottom Trawl)	Open in Federal Waters											
Commercial Pink Shrimp (Bottom Trawl)	Closed			Open						Closed		
Commercial Hagfish (Pot)	Open											

Table C- 10. Fisheries using bottom contact gear in the Central Management Area from 100 - 150 fathoms.

Sector	J	F	M	A	M	J	J	A	S	O	N	D
Commercial Dungeness Crab (Pot)	Open						Closed				Open	
Commercial Hagfish (Pot)	Open											
Commercial Spot prawn (Pot)	Closed	Open								Closed		
Commercial White Sea Bass (Set Net)	Open		Closed			Open						

Table C- 11. Fisheries using bottom contact gear in the Southern Management Area from 100 - 150 fathoms.

Sector	J	F	M	A	M	J	J	A	S	O	N	D
Commercial Spot Prawn (Pot)	Closed	Open								Closed		
Commercial Hagfish (Pot)	Open											
Commercial White Sea Bass (Set Net)	Open			Closed			Open					

Table C- 12. Fisheries using bottom contact gear in the Southern Management Area from 75 - 100 fathoms.

Sector	J	F	M	A	M	J	J	A	S	O	N	D
Recreational Groundfish- Other Flat Fish (Hook-and-Line)	Open											
Commercial Spot prawn (Pot)	Closed	Open								Closed		
Commercial California Halibut (Bottom Trawl) Federal Waters	Open in Federal Waters											
Commercial California Halibut (Bottom Trawl) State Trawl Grounds	Open			Closed			Open					
Commercial Pink Shrimp (Bottom Trawl)	Closed			Open						Closed		
Commercial Hagfish (Pot)	Open											
Commercial Ridgeback Prawn (Bottom Trawl)	Open					Closed				Open		
Commercial White Sea Bass (Set Net)	Open			Closed			Open					

Additional Groundfish Gear Impacts

As noted in Section B, the commercial non-trawl fishery utilizes a variety of gear types to target lingcod, mid-water rockfishes, and flatfish. Table C- 13 lists the total amount pounds caught over the past three years (2017-2019) by the same three fixed gear categories of which habitat impacts are described in [Appendix C-1 of the Groundfish FMP](#): (1) hook-and-line gears (e.g., rod-and-reel); (2) fish pots; and (3) bottom longline. A majority (60 percent) of commercial non-trawl groundfish was landed with longline gear, indicating this gear type would likely continue to be the most frequently used in the future in the area proposed to be opened. Table C- 14 provides distribution of gear types used to target specific stocks. Longline gear would likely continue to be the preferred gear for most stocks; however, hook-and-line gear to target lingcod, petrale sole, and semi-pelagic shelf rockfishes (e.g. yellowtail, canary, widow, chilipepper, vermilion, and bocaccio rockfishes). Given impacts from pot/trap gear, historically has been minimal (less than 0.3 percent), the GMT anticipates minimal increases in impact from pot/trap gear in the future (Table C- 14). Based on feedback from industry from south of 40° 10' N. lat., the GMT expects that vessel operators would mainly target mid-water rockfishes on or above rocky reefs with the commercial RCA options.

Table C- 13. Total pounds of groundfish landed south of 40° 10' N. lat. and percent of total catch by gear type from the commercial and recreational fisheries from 2017-2019.

Gear	Commercial FG		Recreational FG	
	Total lbs	% of total	Total lbs	% of total
Longline	6,358,194	60.02%	0	0%
Pot	25,229	0.24%	0	0%
Hook-and-line	4,210,389	39.74%	12,765,595	100%
Total	10,593,813		12,765,595	

Table C- 14. Total historical and projected commercial landings by gear type for expected targets south of 40° 10' N. lat.

Expected target	% of Historical landings (2017-2019)			Historical landings (2017-2019, lbs)			Projected landings for 2021 (lbs)		
	Pot	Longline	Hook-And-line	Pot	Longline	Hook-And-line	Pot	Longline	Hook-And-line
Blackgill rockfish	0.0%	72.8%	27.2%	32	112,813	42,210	12	41,399	15,490
Dover sole	--	93.3%	6.7%	--	7,100	509	--	3,291	236
Lingcod	0.2%	13.2%	86.6%	827	45,365	297,409	412	22,598	148,149
Other flatfish a/	--	76.2%	22.0%	--	27,741	8,294	--	20,504	5,928
Petrale sole	--	8.2%	91.8%	--	334	3,721	--	617	6,879
Sablefish N of 36° N. lat.	0.4%	51.3%	48.3%	17,127	2,207,272	2,077,362	7,391-8,075	952,470-1,040,704	896,412-979,453
Sablefish S of 36° N. lat. b/	0.1%	80.2%	19.7%	3,475	2,347,019	575,955	1,158	782,340	191,985
Semi-pelagic shelf rockfishes c/	0.0%	27.9%	72.1%	14	164,484	425,772	40	149,437	319,999
Shortspine thornyhead N of 34° 27' N. lat. b/	0.3%	98.8%	0.9%	736	247,552	2,278	262	88,270	812
Shortspine thornyhead S of 34° 27' N. lat. b/	--	99.8%	0.2%	--	756,502	1,849	--	176,184	139

a/ Other flatfish include butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, and sand sole

b/ Projection based on 2017-2019 average landings

c/ Yellowtail, canary, widow, chilipepper, vermilion, and bocaccio rockfishes

Option C-2 Conclusion

There are potential trade-offs for the Council to consider regarding the suite of proposals for south of 40° 10' N lat. All of which would open important fishing grounds that had been closed to protect yelloweye rockfish, canary rockfish, bocaccio, and petrale sole. Now that all but yelloweye rockfish are rebuilt, Council can consider opening these areas. Both the Commercial Option C-2 and Recreational Option C-2 would give fishermen the opportunity to target healthy and underutilized target stocks and reduce their dependence on nearshore stocks.

However, due to some potential habitat concerns, the Council may want to consider the following: (1) higher hook-and-line impacts in areas lightly fished by recreational hook-and-line and other fisheries; (2) additional bottom longline impacts in area fished by other fisheries; and (3) additional potential impacts from pot and traps.