

GROUND FISH MANAGEMENT TEAM REPORT ON PHASE 2 STOCK DEFINITIONS:
§600.305(c) 10 FACTOR ANALYSIS OF 40 GROUND FISH SPECIES AND A RANGE OF
ALTERNATIVES TO SUPPORT COUNCIL DECISION-MAKING FOR PPA

Referencing the Pacific Fishery Management Council's (Council) tasks in [Agenda Item E.6, Situation Summary, June 2025](#), the Groundfish Management Team (GMT) provides the following recommendations:

1. *Adopt Final Preferred Alternative (FPA) for the 47 species analyzed in Attachment 1, as appropriate.*
 - a. **The GMT recommends that Council adopt Alternative 1 as FPA for 46 of the 47 species analyzed in Attachment 1; all species except harlequin rockfish.**
2. *Adopt FPA stock definitions for the 28 undefined species in Attachment 1, as appropriate.*
 - a. **The GMT recommends that the Council adopt Option 1 (one stock) for 27 of the 28 undefined species in Attachment 1; all species except harlequin rockfish.**
3. *Adopt revised language to the Fishery Management Plan (FMP) in conjunction with Attachment 1 decision-making and ecosystem component (EC) species, as appropriate.*
 - a. **The GMT recommends that broad skate be removed from the list of EC species in the proposed FMP language, with rationale provided.**
4. *Consider the results of the 10-Factor analysis of 40 species in Attachment 2, and adopt a Preliminary Preferred Alternative (PPA), including stock definitions, where appropriate.*
 - a. **Table 2 of this report lists the GMT's recommendations for the 40 species in Attachment 2, with rationale provided.**
5. *Provide guidance on next steps, as appropriate.*
 - a. The scope of this action does not currently include EC species, and the GMT does not think EC species should be added to the scope at this time, as this would require additional Council staff and GMT workload before and during the FPA decision. However, the team does support more frequently updating the Council on how EC species mortality is tracking and any new information to reconsider EC designation. The GMT requests that Council Staff develop a draft process and plan for this review and provide it for consideration at the September Council meeting.
 - b. The GMT requests that Council staff explore the range of possible management measures that can be utilized for EC species and provide information at the September Council meeting.
 - c. The GMT also requests that more information on the Council's options for delegation of stocks in the FMP and potential impacts/implications be brought forward at the September Council meeting. For example, which management measures (e.g., allocations, trip limits, area closures, etc.) can or must be delegated to the states for stocks in the FMP? Additionally, what are the potential impacts of delegating a stock off one state and not off others?

The GMT has organized this report into four distinct sections. First, we address the 47 species analyzed in [Agenda Item E.6, Attachment 1](#) for which the Council selected a PPA in March 2025 and stock definitions for the 28 undefined species covered in the analysis. Of the 47 species, the GMT developed FPA recommendations for 46 species, with the one remaining species—harlequin rockfish—addressed separately under the 10-Factor analysis. Second, we address the results of the 10-Factor analysis of the 40 species detailed in [Agenda Item E.6, Supplemental Attachment 2](#) and provide PPA recommendations for species-specific Alternatives and stock definition Options as appropriate. Third, the GMT provides some commentary on the list of EC species which currently exists in the FMP. Finally, we address the revised FMP language developed by Council staff in conjunction with Attachment 1, as detailed in [Agenda Item E.6, REVISED Attachment 3](#).

PPA - FPA Species Considered Under Attachment 1

The GMT continues to support the PPA recommendations from March 2025 analyzed under Attachment 1 as FPA, with the exception of harlequin rockfish. The GMT details its recommendations and rationale for harlequin rockfish later in this document. The GMT recommendations for FPA are detailed in Table 1.

Aurora, bank, blackgill, greenstriped, redstripe, rosethorn, shortraker, silvergray, splitnose, starry, stripetail, and yellowmouth rockfishes, along with Pacific ocean perch (POP), arrowtooth flounder, flathead sole, Pacific sanddab, Pacific cod, Pacific hake, big and longnose skates, longspine thornyhead, and California scorpionfish were only considered under Option 1. **The GMT recommends Option 1 for these species, as they have either unknown or homogeneous population structure as indicated in the literature review ([Agenda Item H.6, Attachment 3, March 2025](#)).** For all species except California scorpionfish and starry rockfish, Option 1 is a coastwide stock definition. For California scorpionfish and starry rockfish, Option 1 is a California-only stock definition.

For bocaccio, darkblotched, and greenspotted rockfishes, recent scientific assessments and available evidence suggest that a single stock structure is most consistent with current scientific understanding and the existing management framework. **The GMT recommends Option 1 (Coastwide) for bocaccio, darkblotched, and greenspotted rockfishes, which provides the greatest flexibility for future assessments and management actions.** Should new information emerge indicating that a two-stock or three-stock definition is more appropriate for any of these species, the Council retains the ability to revise stock definitions accordingly. For cowcod, there exists genetic evidence for population structure. However, the existing management framework manages cowcod as a single stock, and this framework has proven to be beneficial to the health and productivity of the stock, as evidenced by its recovery from overfished status. **Therefore, the GMT recommends Option 1 (California Only) for cowcod, as it provides the greatest flexibility for future assessments and management actions.**

Cowcod

The GMT had a robust discussion of the relative risks and benefits for the cowcod stock definition options. Strong genetic evidence exists for distinct cowcod stock structure North and South of Point Conception (34° 27' North latitude [N lat.]), with very occasional catch of individuals north of the California border in Oregon; 11 individuals have been caught in the Oregon recreational fishery since 2000, and 85 individuals have been sampled in the Oregon commercial fishery since 2012 (*i.e.*, any cowcod that was seen by staff was sampled). While Option 2 specifies a potential split between California and Oregon, the Attachment 1 analysis and the SSC report also mention

that a North and South of Point Conception division may be preferred if the California-only option is not selected ([Agenda Item E.6.a, Supplemental SSC Report 1, June 2025](#)).

During discussion, the GMT considered a third option not listed in this report: the concept of a cowcod complex for future potential action. While the GMT does not see merit in selecting a new option as FPA at this time, we do consider it beneficial to document our discussion.

If the Council chooses to define cowcod as two stocks (*e.g.*, split North and South of Point Conception [34° 27' N lat.]), the Council could then manage these two distinct stocks under a "cowcod complex". This may be useful, because cowcod was assessed with a Category 2 assessment in the South and a Category 3 assessment in the North. In a cowcod complex, the Council could use the Category 2 assessed stock as the "indicator stock" in the complex and use it to determine the overfished (or not) state for the whole cowcod complex. Indicator stocks are used by National Marine Fisheries Service (NMFS) to make overfished and overfishing status determinations for a complex containing multiple stocks with varying degrees of scientific uncertainty. The logistics of utilizing indicator stocks in stock complex management have not previously been done within the context of the Pacific Coast Groundfish FMP but are commonly used elsewhere in the nation.

Table 1 - Action Item 1 Recommendations - GMT Recommendations Bolded.

Species	Alt 1	Option 1 - 1 Stock	Option 2 - 2 Stocks	Option 3 - 3 Stocks
Arrowtooth Flounder	X	Coastwide		
Aurora Rockfish	X	Coastwide		
Bank Rockfish	X	Coastwide		
Big Skate	X	Coastwide		
Blackgill Rockfish	X	Coastwide		
Bocaccio Rockfish	X	Coastwide	North & South of 40° 10'	
California Scorpionfish	X	California Only		
Canary Rockfish	X	N/A - Stock Already Defined		
Chilipepper Rockfish	X	N/A - Stock Already Defined		
Cowcod Rockfish	X	California Only	CA, OR stocks	
Darkblotched Rockfish	X	Coastwide	North & South of 42°	CA, OR, WA stocks
Dover Sole	X	N/A - Stock Already Defined		
English Sole	X	N/A - Stock Already Defined		
Flathead Sole	X	Coastwide		
Greenspotted Rockfish	X	Coastwide	North & South of 34° 27' (Point Conception)	
Greenstriped Rockfish	X	Coastwide		
Lingcod	X	N/A - Stock Already Defined		
Longnose Skate	X	Coastwide		
Longspine Thornyhead	X	Coastwide		
Pacific Cod	X	Coastwide		
Pacific Hake	X	Coastwide		
Pacific Ocean Perch	X	Coastwide		

Species	Alt 1	Option 1 - 1 Stock	Option 2 - 2 Stocks	Option 3 - 3 Stocks
Pacific Sanddab	X	Coastwide		
Pacific Spiny Dogfish	X	N/A - Stock Already Defined		
Petrale Sole	X	N/A - Stock Already Defined		
Redbanded Rockfish	X	N/A - Stock Already Defined		
Redstripe Rockfish	X	Coastwide		
Rex Sole	X	N/A - Stock Already Defined		
Rosethorn Rockfish	X	Coastwide		
Rougheye/Blackspotted Rockfish	X	N/A - Stock Already Defined		
Sablefish	X	N/A - Stock Already Defined		
Sharpchin Rockfish	X	Coastwide		
Shortraker Rockfish	X	Coastwide		
Shortspine Thornyhead	X	N/A - Stock Already Defined		
Silvergray Rockfish	X	Coastwide		
Splitnose Rockfish	X	Coastwide		
Squarespot Rockfish	X	N/A - Stock Already Defined		
Starry Rockfish	X	California Only		
Stripetail Rockfish	X	Coastwide		
Vermilion Rockfish (OR/WA)	X	N/A - Stock Already Defined		
Vermilion/Sunset Rockfish (CA)	X	N/A - Stock Already Defined		
Widow Rockfish	X	N/A - Stock Already Defined		
Yelloweye Rockfish	X	N/A - Stock Already Defined		
Yellowmouth Rockfish	X	Coastwide		
Yellowtail Rockfish	X	N/A - Stock Already Defined		

10 Factor Analysis Species - PPA Recommendations for Alternatives and Stock Definition Options

The GMT discussed the 10-Factor analysis detailed in [E.6 Supplemental Attachment 2](#). The GMT recommendations for alternatives by species, and the rationale for those alternatives, are outlined in Table 2 below. Additionally, the species are arranged in the same bins utilized in the 10-Factor analysis to promote ease of discussion for this complex topic.

For those species which have a recommendation of Alternative 1 and do not currently have stocks defined (blue and deacon rockfishes) the GMT does not provide stock definition recommendations. The GMT lacked sufficient time to discuss the stock definition options in detail for these two species, and it is the GMT's understanding that all stock definition options will be explored in greater detail prior to FPA. We specify the state(s) for which Alternative 1 would apply. Recommendations from the GMT may change between PPA and FPA after further review of the results of the 10-Factor analysis for these species or after considering any other new information brought forward for FPA.

Table 2. Action Item 4: 10-Factor Analysis of the 40 Species - GMT Recommendations.

Species	Recommended Alternative	Rationale
<i>Shallow Nearshore</i>		
Black and Yellow Rockfish	Alt 2	Factors (ii) and (iii) are not met, because the species is not principally caught in the groundfish fishery within the Exclusive Economic Zone (EEZ; <i>i.e.</i> , Federal waters), and therefore, it is unlikely that the Groundfish FMP can improve or maintain the condition of the stock. This is the case off of all three states. Factors (iv) through (ix) are also not met. Additionally, factor (x) is met by OR and CA via their commercial state limited entry nearshore permits.
China Rockfish	Alt 2	
Gopher Rockfish	Alt 2	
Grass Rockfish	Alt 2	
Kelp Rockfish	Alt 2	
Cabezon ¹	Alt 2	
Kelp Greenling ¹	Alt 2	
<i>Deeper Nearshore</i>		
Black Rockfish (WA)	Alt 1	Factors (i) through (viii) are met, because the stock is principally caught in the groundfish fishery within the EEZ and is an economically important target species in the WA recreational fishery.
Black Rockfish (OR)	Alt 1	Factors (i) and (iv) through (vii) are met, because the stocks are economically important to the OR and WA fisheries. While the analysis indicates that some of these species are not currently caught >25 percent in the EEZ (blue and deacon rockfishes off both states; black and quillback rockfishes off OR), the economic importance and scale of interaction with directed groundfish fisheries indicates that conservation and management is needed and could improve or maintain the condition of the stock (factor iii). Additionally, there are concerns that the fishery has been restricted by area closures (Rockfish Conservation Areas and recreational depth restrictions) in Federal waters, thus forcing the fishery to exist mainly in state waters. Yelloweye rockfish is trending toward being rebuilt in the very near future, which could provide access to previously unfished grounds in Federal waters, demonstrating that the fishery exists there and that an FMP could actively manage the resource.
Blue Rockfish (OR, WA)	Alt 1	
Deacon Rockfish (OR, WA)	Alt 1	
Copper Rockfish (OR & WA)	Alt 1	
Quillback Rockfish (WA)	Alt 1	
Quillback Rockfish (OR)	Alt 1	
Black Rockfish (CA)	Alt 2	Factors (ii) and (iii) are not met, because the species is not principally caught in the groundfish fishery within the EEZ, and therefore, it is unlikely that the Groundfish FMP can improve or maintain the condition of the stock. This is the case off of all three states. Factor (x) is met via the state issued commercial state limited entry deeper nearshore permit.
Copper Rockfish (CA)	Alt 2	
Blue Rockfish (CA) ²	Alt 2	
Brown Rockfish	Alt 2	Factors (ii) and (iii) are not met, because the species is not principally caught in the groundfish fishery within the

¹The Coastal Treaty Tribes have identified this as a species of high importance, and in need of conservation and management. While the GMT recommends Alt 2 as PPA for cabezon and kelp greenling at this time, it also recognizes that this does not preclude the GMT or the Council choosing a different PPA or FPA which is more in line with Tribal priorities. The GMT encourages the Council to carefully consider the priorities and concerns identified by the Coastal Treaty Tribes as this agenda item progresses.

² Deacon rockfish are not defined off California.

Species	Recommended Alternative	Rationale
		EEZ, and therefore, it is unlikely that the Groundfish FMP can improve or maintain the condition of the stock. This is the case off of all three states.
Olive Rockfish	Alt 2	Factors (ii) and (iii) are not met, because the species is not principally caught in the groundfish fishery within the EEZ, and therefore, it is unlikely that the Groundfish FMP can improve or maintain the condition of the stock. This is the case off of all three states. Factor (x) is met by OR and CA via their commercial state limited entry nearshore permits. This species' range is primarily off of CA.
Treefish Rockfish	Alt 2	The range of treefish only extends into waters off of California. Additionally, factors (ii) and (iii) are not met, because the species is not principally caught in the groundfish fishery within the EEZ, and therefore, it is unlikely that the Groundfish FMP can improve or maintain the condition of the stock. Factors (iv) through (ix) are also not met. Additionally, factor (x) is met by OR and CA via their commercial state limited entry nearshore permits.
Quillback Rockfish (CA)	Alt 2	Factors (ii) and (iii) are not met, because the species is not principally caught in the groundfish fishery within the EEZ, and therefore, it is unlikely that the Groundfish FMP can improve or maintain the condition of the stock. Factors (iv) through (ix) are also not met. Additionally, factor (x) is met by the state issued commercial limited entry deeper nearshore permit.
<i>Shallow Shelf</i>		
Calico Rockfish	Alt 2	Factors (ii) and (iii) are not met because the species is not principally caught in the groundfish fishery within the EEZ and therefore, it is unlikely that the Groundfish FMP can improve or maintain the condition of the stock. Additionally, factor (x) is met by the state issued commercial limited entry deeper nearshore permit.
Flag Rockfish	Alt 3	Factors (iii) and (vi) through (x) are not met. However, this species is principally caught in the EEZ (factor ii), and while mortality is low, high opportunistic value by recreational fisheries can lead to regular retention (factor iv), and therefore, continued monitoring in the EEZ is recommended.
Freckled Rockfish	Alt 2	Factors (iv) through (vi) are not met, because these stocks are not a target to the fishery, nor important to the commercial and recreational fishery, nor important to the regional economy. These species are not harvested off of OR or WA, and mortality off of CA is very low.
Halfbanded Rockfish	Alt 2	
Honeycomb Rockfish	Alt 2	Factors (iv) through (vi) are not met, because this stock is not a target to the fishery, nor important to the commercial and recreational fishery, nor important to the regional economy. Additionally, southern California is the northern extent of their range.

Species	Recommended Alternative	Rationale
Pygmy Rockfish	Alt 2	Factors (iv) through (vi) are not met, because these stocks are not a target to the fishery, nor important to the commercial and recreational fishery, nor important to the regional economy.
Rosy Rockfish	Alt 3	Factors (iii) and (vi) through (x) are not met. However, this species is principally caught in the EEZ (factor ii). While mortality is low, Rosy rockfish is commonly confused with rosethorn and should be kept as an EC species for continued monitoring.
Speckled Rockfish	Alt 3	Factors (iii) and (vi) through (x) are not met. However, this species is principally caught in the EEZ (factor ii). While mortality is low, high opportunistic value by recreational fisheries can lead to regular retention (factor iv) - continued monitoring in EEZ is recommended.
Swordspine Rockfish	Alt 2	Factors (iv) through (vi) are not met, because these stocks are not a target to the fishery, nor important to the commercial and recreational fishery, nor important to the regional economy.
<i>Deep Shelf</i>		
Bronzespotted Rockfish	Alt 3	Factors (iv) through (ix) are not met, but the stock is being actively managed suggesting management is working to improve the stock health. Mortality is low, but may be due to prohibition, and within the EEZ (factor ii) - continued monitoring in EEZ is recommended.
Mexican Rockfish	Alt 3	Factors (ii) and (iii) are met, but the available scientific evidence indicates that this species' range is primarily in Mexican waters. Factors (iv) through (ix) are not met, but a new fishery could develop (factor ix) with the opening of the Cowcod Conservation Area and a spike in 2023 may suggest importance to users (factor v) - continued monitoring as EC species is recommended.
Greenblotched Rockfish	Alt 3	
Tiger Rockfish	Alt 3	This species is principally caught in the EEZ (factor ii) and while mortality is low since it is rarely caught, it is sometimes retained in the recreational fishery and commercial live fish fishery; opportunistic value by recreational fisheries can lead to retention when encountered (factor iv) - continued monitoring in EEZ is recommended.
Chameleon Rockfish	Alt 2	Recommended to be removed from the FMP as the mortality of these species is low in the EEZ (factor ii), and Federal management likely will not improve the stock (factor iii) and they have no importance to commercial or recreational fisheries.
Harlequin Rockfish	Alt 2	
Pink Rockfish	Alt 2	
Pinkrose Rockfish	Alt 2	
<i>No Mortality Species</i>		

Species	Recommended Alternative	Rationale
Dwarf-red Rockfish	Alt 2	With no recorded mortality in the fishery within the last 21 years, these species did not meet any of the 10 factors and thus do not require conservation and management in the EEZ. The FMP does not appear to be able to improve or maintain the condition of these species (factor iii).
Light Dusky Rockfish	Alt 2	
<i>Flatfish</i>		
Butter Sole	Alt 3	Factor (ii) is met, because the species are principally caught in the EEZ. While there was a historical fishery for these species, they are not currently targeted (factor iv) but are incidentally retained in the groundfish fishery and have the potential to be targeted in the future. EC species designation would provide the Council with a clear avenue to monitor any new information or emerging fisheries to determine if they are in need of conservation and management. Additionally, some management measures may be available under EC designation, as needed (<i>e.g.</i> , shortbelly), as indicated 600.305(c)(5). All species are currently allocated to some extent.
Curlfin Sole	Alt 3	
Rock Sole	Alt 3	
Sand Sole	Alt 3	
Starry Flounder	Alt 3	
<i>Elasmobranch</i>		
Leopard Shark	Alt 2	Factors (ii) and (iii) are not met. While there is some targeting and limited catch of this species, the targeting and catch almost exclusively occurs in bays and estuaries which fall under state jurisdiction. For these reasons, the GMT recommends its removal from the FMP.

EC Species

Attachment 5 states that the Council should, “consider the GMT’s analysis on EC species and determine if they need further evaluation.” More specifically, the Council should examine the mortality trends provided in [Agenda Item E.6.a, GMT Report 1, June 2025](#) and determine if any of the current EC species should be further evaluated under the 10 factors in § 600.305(c). The scope of this action does not currently include EC species, and the GMT does not think EC species should be added to the scope at this time, as this would require additional Council staff and GMT workload before and during the FPA decision. While the question of whether a species is in need of conservation and management requires review of the 10 factors, in our analysis the GMT did not identify any current EC species for which mortality trends strongly suggested a need for conservation and management at this time. The GMT does, however, see merit in more frequently updating the Council on how EC species mortality is tracking and whether, at any time, recent changes warrant considering whether EC designation is no longer appropriate for any species, per the FMP guidance on EC species. This review should occur in conjunction with the biennial harvest specifications and management measure process, which would allow the Council to reintegrate it into active management in a coordinated manner with other harvest specifications. We request that Council Staff develop a draft process and plan for this review and provide it for consideration at the September Council meeting.

Proposed FMP Language Revisions

The GMT recommends that broad skate be removed from the list of EC species in the proposed FMP language. Table 3-3 of the FMP lists “all other skates” but specifies that as “endemic species in the family Arhynchobatidae”. Broad skate (*Amblyraja badia*, also known as “roughshoulder skate”) is in the Rajidae family and therefore would not fall under the category of “endemic species in the family Arhynchobatidae.” However, the GMT recognizes that the original intent of the EC designation may have been to include skate species outside of the Arhynchobatidae family. Given the lack of clarity at this time and the scope of this action, the GMT suggests the Council re-consider exploring the original intent and potentially adding EC species not in the scope of this action separate from the Stock Definitions Phase 2 process.

The GMT did not have the time for an in-depth review of the remainder of the proposed FMP language revisions. However, the GMT supports Council staff reviewing all relevant reports and Council motions to adequately reflect necessary FMP language changes.

PFGC

06/14/25