

SCOPING AN AMENDMENT TO THE
PACIFIC COAST GROUND FISH FISHERY MANAGEMENT PLAN
TO DEFINE STOCKS

In November 2021, the Council adopted the new [stock assessment](#) and [rebuilding analysis](#) of quillback rockfish in California. Based on the results of the stock assessment, the Council also recommended quillback rockfish off California be removed from the northern and southern Nearshore Rockfish complexes and the stock be declared overfished. However, the National Marine Fisheries Service (NMFS) did not make an overfished declaration since quillback off California had not been previously identified as a stock or management unit in need of conservation and management. The overarching issue identified by NMFS in their March 2022 [report](#) is that while the stock assessment broke quillback into three new stocks, there has been no determination that quillback should be managed as three separate stocks, taking into account management and policy considerations. NMFS recommended and the Council decided to proceed with an amendment to the Pacific Coast Groundfish Fishery Management Plan (FMP) to define stocks in the FMP. It is anticipated the FMP amendment (Amendment 31) will be adopted in time for implementation in 2025.

General Considerations for Amendment 31

The term “stock” has been used loosely in the West Coast groundfish management process to describe a population of a species within a specific geographic region, a distinct genetic population, a management unit for specifying harvest specifications, an assessment area stratification for a species, etc. and is therefore confusing without proper context. Fish stocks are generically defined as subpopulations of a particular species of fish, for which intrinsic parameters (growth, recruitment, natural mortality, and fishing mortality) are traditionally regarded as the significant factors determining the stock's population dynamics, while extrinsic factors (immigration and emigration) are traditionally ignored.

Appropriately considering what constitutes a “stock” is important for attaining Council objectives. For example, the ability of the Council to attain optimum yield (OY) is conditioned on the ability of Council policy to affect the population trajectory of a stock such that a desired population size can be attained. If stocks and the geographic delineation thereof are ill-defined, Council policies may not be able to attain population sizes that attain desired levels of fishery yield and/or conservation.

Defining stocks in this amendment is driven by the need to define a population of a Federally-managed species for NMFS to make status determinations for actively managed stocks. Stock status determinations may include “overfished/not overfished,” “subject to overfishing/not subject to overfishing,” and others¹. NMFS is mandated to report to Congress the status of all Federally-managed stocks. NMFS requires a definition of a stock for making status determinations codified in the FMP to properly address this mandate.

¹ See NOAA Fisheries website at <https://www.fisheries.noaa.gov/national/population-assessments/fishery-stock-status-updates> for more information.

Amendment 31 considerations include further refining definitions for: actively managed stocks or conversely, those designated as Ecosystem Component Species (ECS); those managed in stock complexes; and the area delineations used for determining stock status and harvest specifications. The lack of a clear definition of stock delineations/definitions in the FMP prevented NMFS from properly reporting the overfished status of stocks assessed in 2021, especially stocks like quillback rockfish currently managed in stock complexes. Further definition may also be necessary in the FMP to properly report overfishing status. Currently, the FMP defines overfishing as exceeding an OFL. For example, NMFS reports the overfishing status of stocks currently managed in stock complexes as “unknown” since the OFL in regulations is at the complex level. Since the West Coast Groundfish Observer Program reports the total mortality of all stocks and species encountered in the West Coast groundfish fishery, overfishing status for stocks managed in complexes could be reported if the language in the FMP specifies a definition of overfishing of such stocks as exceeding the OFL contribution of the stock. The important point is the FMP needs to clearly define the subpopulations of actively managed groundfish species for making status determinations and the Council’s policies for reporting overfished and overfishing status.

This scoping document provides a brief history of how groundfish stocks have been managed on the West Coast, summarizes past considerations and actions for stock complex structuring, summarizes National Standard 1 (NS1) guidelines for determining stock status and stock complexes, and raises questions and considerations for defining stocks in the FMP.

A Brief History of West Coast Groundfish Stock Management

Prior to implementation of the FMP in September 1982, management of domestic groundfish fisheries was under the jurisdiction of the states of Washington, Oregon, and California. State regulations had been in effect on the domestic fishery for about 80 years and each state acted independently in both management and enforcement. However, many fisheries overlapped state boundaries and were participated in by citizens of two or more states. Management and uniformity of regulation became a difficult problem which stimulated the formation of the Pacific States Marine Fisheries Commission (PSMFC) in 1947. PSMFC had no regulatory power but acted as a coordinating entity with authority to submit specific recommendations to states for their adoption. Between the implementation of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in 1977 and the implementation of the FMP in 1982, state agencies worked with the Council to address conservation issues.

The FMP was implemented in September 1982. The Initially, the species managed in the FMP were those most frequently caught in the trawl fishery, whether they were target species or species incidentally caught in that fishery. Dover sole, longspine and shortspine thornyheads, and sablefish were managed together in the “DTS” complex. Most rockfish were managed in the coastwide *Sebastes* complex with species- or area-specific harvest guidelines specified to reduce the risk of localized depletion. Pacific ocean perch, shortbelly rockfish, and widow rockfish were the only rockfish managed with stock-specific harvest specifications. Most flatfish species were managed in the coastwide Other Flatfish complex. The third stock complex created at the inception of the FMP was the Other fish complex, which was an aggregation of disparate species incidentally caught in groundfish fisheries. Some species-specific management was implemented between 1982 and 1999, including black rockfish, Pacific whiting, lingcod, etc.

The *Sebastes* complex was restructured in 2000 to establish the Nearshore, Shelf, and Slope Rockfish complexes north and south of 40°10' N lat. Faced with harvest reductions for various rockfish species, the Council adopted a strategy to separate the major rockfish stocks from the *Sebastes* complex and divide the remaining species into assemblages. This was intended to bring harvest levels more closely in line with the ABCs for individual species and the various rockfish groups. Most of the stocks known to be overfished or depleted were shelf species and, by separating rockfish into species groups according to where and how they are caught, the Council hoped to maintain fishing opportunities for abundant stocks while improving protection for depleted ones. More specifically, the intent was to reduce catch and bycatch of shelf rockfish while allowing continued fishing for other shelf species, as well as nearshore and slope species.

During the period from 1999 to 2002, those rockfish species declared overfished were progressively removed from their respective complexes to be managed with stock-specific harvest specifications under rebuilding plans. Bocaccio south of 40°10' N lat., canary rockfish coastwide, cowcod south of 40°10' N lat., darkblotched rockfish coastwide, Pacific ocean perch north of 40°10' N lat., widow rockfish coastwide, and yelloweye rockfish coastwide were all removed from their respective rockfish complexes and were managed with stock-specific harvest specifications. All of these species except yelloweye rockfish have been successfully rebuilt to a healthy status and are still managed with stock-specific harvest specifications.

FMP Amendment 23, implemented in 2011, added the new harvest specifications framework and the NS1 framework for developing complexes and designating indicator stocks in complexes. These frameworks were recommended to minimize the risk of overfishing, a mandate in the 2007 MSA reauthorization. While no stock complexes were restructured under Amendment 23, there was acknowledgement that restructuring the Other Fish complex should be the next step since it was comprised of species with disparate life histories, different vulnerabilities to overfishing, and varying interactions with the fishery. The Other Fish complex was the least compliant of West Coast Groundfish stock complexes to new NS1 guidelines.

Stock complex restructuring was a major focus in the 2015-16 specifications and FMP Amendment 24 process. Comprehensive analyses on stock complex restructuring were prepared for the November 2013 meeting under [Agenda Item H.4](#), the April 2014 meeting under [Agenda Item C.8](#), and the June 2014 meeting under [Agenda Item F.7](#). The Council ultimately decided to 1) remove spiny dogfish from the Other Fish complex and manage with stock-specific specifications; 2) further restructure the Other Fish complex (to be comprised of kelp greenling coastwide, the Washington substock of cabezon, and leopard shark; 3) bring other species into the FMP; 4) designate the following species as EC Species: finescale codling (aka Pacific flatnose), soupfin shark, spotted ratfish, all endemic skates except longnose skate, and all endemic grenadiers, and 5) establish a sorting requirement for shortraker and roughey/blackspotted rockfishes with a warning to industry to avoid them. The EC designation for big skate was rescinded in the 2017-18 specifications and Amendment 27 process based on the realization most of the unspecified skates landed in Oregon were actually big skate.

Considerations were made to remove blackgill rockfish from the southern Slope Rockfish complex under Amendment 26. In November 2015, the Council decided to remove blackgill and established trawl:non-trawl allocations. That action was rescinded in April 2019.

Further complex restructuring occurred in the 2019-20 specifications process with the establishment of the Oregon black/blue/deacon rockfishes complex, the Oregon cabezon and kelp greenling complex, and the Washington cabezon and kelp greenling complex.

The groundfish stocks and stock complexes described in Federal regulations² are provided in Table 1. Note that the overfished status of stocks by area in Table 1 are based on assessment results and may not align with the status and area delineations used by NMFS to formally report status. NMFS has not made any formal status determinations for the 2021 stock assessments pending an FMP Amendment to define stocks. Stock definitions, which may include area delineations, for formally reporting stock status (overfished and overfishing status) is a fundamental consideration of proposed FMP Amendment 31.

² 50 CFR 660.11 Definition of “groundfish” lists groundfish species and species groups in stock complexes, some with area delineations.

Table 1. Stocks managed in the Pacific Coast Groundfish Fishery Management Plan (stock complexes in bold).

Stocks Managed with Stock-Specific Harvest Specifications	Area	Overfished Status	Stocks Managed in Stock Complexes	Area	Overfished Status	Ecosystem Component Species	Area
Yelloweye Rockfish	CW	Rebuilding	Cabazon/Kelp Greenling	WA		Aleutian Skate	CW
Arrowtooth Flounder	CW	Non-Overfished	Cabazon	WA	Non-Overfished	All Other Grenadiers	CW
Big Skate	CW	Non-Overfished	Kelp Greenling	WA	Unknown	All Other Skates	CW
Black Rockfish	WA	Non-Overfished	Cabazon/Kelp Greenling	OR		Bering/Sandpaper Skate	CW
Black Rockfish	CA	Non-Overfished	Cabazon	OR	Non-Overfished	Black Skate	CW
Bocaccio	S of 4010	Non-Overfished	Kelp Greenling	OR	Non-Overfished	California Skate	CW
Cabazon	CA	Non-Overfished	Blue/Deacon/Black Rockfish	OR		Finescale Codling (aka Pacific Flatnose)	CW
Cabazon	3427 - 42	Non-Overfished	Black Rockfish	OR	Non-Overfished	Giant Grenadier	CW
Cabazon	S of 3427	Non-Overfished	Blue	OR	Non-Overfished	Pacific Grenadier/Rattail	CW
California Scorpionfish	CW	Non-Overfished	Other Fish	CW		Roughtail	CW
Canary Rockfish	CW	Non-Overfished	Kelp Greenling	CA	Unknown	Shortbelly Rockfish	CW
Chilipepper	S of 4010	Non-Overfished	Leopard Shark	CW	Unknown	Soupfin Shark	CW
Cowcod	S of 4010	Non-Overfished	Other Flatfish	CW		Spotted Ratfish	CW
Cowcod	4010 - 3427	Unknown	Butter Sole	CW	Unknown		
Cowcod	S of 3427	Non-Overfished	Curlfin Sole	CW	Unknown		
Darkblotched Rockfish	CW	Non-Overfished	Flathead Sole	CW	Unknown		
Dover Sole	CW	Non-Overfished	Pacific Sanddab	CW	Non-Overfished		
English Sole	CW	Non-Overfished	Rex Sole	CW	Non-Overfished		
Lingcod	N of 4010	Non-Overfished	Rock Sole	CW	Unknown		
Lingcod	S of 4010	Non-Overfished	Sand Sole	CW	Unknown		
Longnose Skate	CW	Non-Overfished	Nearshore Rockfish North	N of 4010			
Longspine Thornyhead	CW	Non-Overfished	Black and Yellow	N of 4010	Unknown		
Longspine Thornyhead	S of 3427	Non-Overfished	Blue	42 - 4010	Non-Overfished		
Longspine Thornyhead	N of 3427	Non-Overfished	Blue	WA	Unknown		
Pacific Cod	CW	Unknown	Brown	N of 4010	Non-Overfished		

Stocks Managed with Stock-Specific Harvest Specifications	Area	Overfished Status	Stocks Managed in Stock Complexes	Area	Overfished Status	Ecosystem Component Species	Area
Pacific Ocean Perch	N of 4010	Non-Overfished	Calico	N of 4010	Unknown		
Pacific Whiting	CW	Non-Overfished	China	4010 - 4616	Non-Overfished		
Petrale Sole	CW	Non-Overfished	China	WA	Non-Overfished		
Sablefish	CW	Non-Overfished	Copper	WA	Non-Overfished		
Sablefish	S of 36	Non-Overfished	Copper	OR	Non-Overfished		
Sablefish	N of 36	Non-Overfished	Copper	42 - 4010	Non-Overfished		
Shortspine Thornyhead	CW	Non-Overfished	Gopher	N of 4010	Unknown		
Shortspine Thornyhead	N of 3427	Non-Overfished	Grass	N of 4010	Unknown		
Shortspine Thornyhead	S of 3427	Non-Overfished	Kelp	N of 4010	Unknown		
Spiny Dogfish	CW	Non-Overfished	Olive	N of 4010	Unknown		
Splitnose	S of 4010	Non-Overfished	Quillback	WA	Non-Overfished		
Starry Flounder	CW	Unknown	Quillback	OR	Non-Overfished		
Widow Rockfish	CW	Non-Overfished	Quillback	42 - 4010	Unknown		
Yellowtail Rockfish	N of 4010	Non-Overfished	Treefish	N of 4010	Unknown		
			Nearshore Rockfish South	S of 4010			
			Blue	4010 - 3427	Non-Overfished		
			Blue	S of 3427	Unknown		
			Brown	S of 4010	Non-Overfished		
			Calico	S of 4010	Unknown		
			China	S of 4010	Non-Overfished (Precautionary)		
			Copper	4010 - 3427	Non-Overfished (Precautionary)		
			Copper	S of 3427	Overfished		
			Gopher	S of 4010	Non-Overfished		

Stocks Managed with Stock-Specific Harvest Specifications	Area	Overfished Status	Stocks Managed in Stock Complexes	Area	Overfished Status	Ecosystem Component Species	Area
			Grass	S of 4010	Unknown		
			Kelp	S of 4010	Unknown		
			Olive	S of 4010	Unknown		
			Quillback	S of 4010	Overfished		
			Treefish	S of 4010	Unknown		
			Shelf Rockfish North	N of 4010			
			Bocaccio	N of 4010	Unknown		
			Bronzespotted	N of 4010	Unknown		
			Chameleon	N of 4010	Unknown		
			Chilipepper	N of 4010	Non-Overfished		
			Cowcod	N of 4010	Unknown		
			Flag	N of 4010	Unknown		
			Freckled	N of 4010	Unknown		
			Greenblotched	N of 4010	Unknown		
			Greenspotted	42 - 4010	Non-Overfished (Precautionary)		
			Greenspotted	WA - OR	Unknown		
			Greenstriped	N of 4010	Non-Overfished		
			Halfbanded	N of 4010	Unknown		
			Harlequin	N of 4010	Unknown		
			Honeycomb	N of 4010	Unknown		
			Mexican	N of 4010	Unknown		
			Pink	N of 4010	Unknown		
			Pinkrose	N of 4010	Unknown		
			Puget Sound	N of 4010	Unknown		
			Pygmy	N of 4010	Unknown		

Stocks Managed with Stock-Specific Harvest Specifications	Area	Overfished Status	Stocks Managed in Stock Complexes	Area	Overfished Status	Ecosystem Component Species	Area
			Redstripe	N of 4010	Unknown		
			Rosethorn	N of 4010	Unknown		
			Rosy	N of 4010	Unknown		
			Silvergray	N of 4010	Unknown		
			Speckled	N of 4010	Unknown		
			Squarespot	42 - 4010	Non-Overfished (Precautionary)		
			Starry	N of 4010	Unknown		
			Stripetail	N of 4010	Non-Overfished		
			Swordspine	N of 4010	Unknown		
			Tiger	N of 4010	Unknown		
			Vermilion	WA	Non-Overfished		
			Vermilion	OR	Non-Overfished		
			Vermilion	42 - 4010	Non-Overfished		
			Shelf Rockfish South	S of 4010			
			Bronzespotted	S of 4010	Unknown		
			Chameleon	S of 4010	Unknown		
			Flag	S of 4010	Unknown		
			Freckled	S of 4010	Unknown		
			Greenblotched	S of 4010	Unknown		
			Greenspotted	4010 - 3427	Non-Overfished (Precautionary)		
			Greenspotted	S of 3427	Non-Overfished		
			Greenstriped	S of 4010	Non-Overfished		
			Halfbanded	S of 4010	Unknown		
			Harlequin	S of 4010	Unknown		
			Honeycomb	S of 4010	Unknown		

Stocks Managed with Stock-Specific Harvest Specifications	Area	Overfished Status	Stocks Managed in Stock Complexes	Area	Overfished Status	Ecosystem Component Species	Area
			Mexican	S of 4010	Unknown		
			Pink	S of 4010	Unknown		
			Pinkrose	S of 4010	Unknown		
			Pygmy	S of 4010	Unknown		
			Redstripe	S of 4010	Unknown		
			Rosethorn	S of 4010	Unknown		
			Rosy	S of 4010	Unknown		
			Silvergray	S of 4010	Unknown		
			Speckled	S of 4010	Unknown		
			Squarespot	S of 4010	Non-Overfished (Precautionary)		
			Starry	S of 4010	Unknown		
			Stripetail	S of 4010	Non-Overfished		
			Swordspine	S of 4010	Unknown		
			Tiger	S of 4010	Unknown		
			Vermilion	4010 - 3427	Non-Overfished		
			Vermilion	S of 3427	Non-Overfished		
			Yellowtail Rockfish	S of 4010	Unknown		
			Slope Rockfish North	N of 4010			
			Aurora	N of 4010	Non-Overfished		
			Bank	N of 4010	Unknown		
			Blackgill Rockfish	N of 4010	Unknown		
			Redbanded	N of 4010	Unknown		
			Rougeye/Blackspotted	N of 4010	Non-Overfished		
			Sharpchin	N of 4010	Non-Overfished		
			Shortraker	N of 4010	Unknown		

Stocks Managed with Stock-Specific Harvest Specifications	Area	Overfished Status	Stocks Managed in Stock Complexes	Area	Overfished Status	Ecosystem Component Species	Area
			Splitnose	N of 4010	Non-Overfished		
			Yellowmouth	N of 4010	Unknown		
			Slope Rockfish South	S of 4010			
			Aurora	S of 4010	Non-Overfished		
			Bank	S of 4010	Unknown		
			Blackgill Rockfish	S of 4010	Non-Overfished		
			Pacific Ocean Perch	S of 4010	Unknown		
			Redbanded	S of 4010	Unknown		
			Rougheye/Blackspotted	S of 4010	Non-Overfished		
			Sharpchin	S of 4010	Non-Overfished		
			Shortraker	S of 4010	Unknown		
			Yellowmouth	S of 4010	Unknown		

National Standard 1 Guidelines for Determining Stocks that Require Conservation and Management

This section describes the NS1 guidelines as amended with the 2007 reauthorization of the MSA pertinent to the stock definition FMP amendment considerations.

50 CFR 600.305(c)

(c) Stocks that require conservation and management.

(1) Magnuson-Stevens Act section 302(h)(1) requires a Council to prepare an FMP for each fishery under its authority that requires (or in other words, is in need of) conservation and management. [16 U.S.C. 1852\(h\)\(1\)](#). Not every fishery requires Federal management. Any stocks that are predominately caught in Federal waters and are overfished or subject to overfishing, or likely to become overfished or subject to overfishing, are considered to require conservation and management. Beyond such stocks, Councils may determine that additional stocks require “conservation and management.” (See Magnuson-Stevens Act definition at [16 U.S.C. 1802\(5\)](#)). Based on this definition of conservation and management, and other relevant provisions of the Magnuson-Stevens Act, a Council should consider the following non-exhaustive list of factors when deciding whether additional stocks require conservation and management:

- (i) The stock is an important component of the marine environment.
- (ii) The stock is caught by the fishery.
- (iii) Whether an FMP can improve or maintain the condition of the stock.
- (iv) The stock is a target of a fishery.
- (v) The stock is important to commercial, recreational, or subsistence users.
- (vi) The fishery is important to the Nation or to the regional economy.
- (vii) The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.
- (viii) The economic condition of a fishery and whether an FMP can produce more efficient utilization.
- (ix) The needs of a developing fishery, and whether an FMP can foster orderly growth.
- (x) The extent to which the fishery is already adequately managed by states, by state/Federal programs, or by Federal regulations pursuant to other FMPs or international commissions, or by industry self-regulation, consistent with the requirements of the Magnuson-Stevens Act and other applicable law.

(2) In evaluating factors in [paragraphs \(c\)\(1\)\(i\)](#) through [\(x\)](#) of this section, a Council should consider the specific circumstances of a fishery, based on the best scientific information available, to determine whether there are biological, economic, social and/or operational concerns that can and should be addressed by Federal management.

(3) When considering adding a stock to an FMP, no single factor is dispositive or required. One or more of the above factors, and any additional considerations that may be relevant to the particular stock, may provide the basis for determining that a stock requires conservation and management. Based on the factor in [paragraph \(c\)\(1\)\(iii\)](#) of this section, if the amount and/or type of catch that occurs in Federal waters is a significant contributing factor to the stock's status, such information would weigh heavily in favor of adding a stock to an FMP. However, Councils should consider the factor in [paragraph \(c\)\(1\)\(x\)](#) of this section before deciding to include a stock in an FMP. In many circumstances, adequate management of a fishery by states, state/Federal programs, or another Federal FMP would weigh heavily against a Federal FMP action. See, e.g., [16 U.S.C. 1851\(a\)\(7\)](#) and [1856\(a\)\(3\)](#).

(4) When considering removing a stock from, or continuing to include a stock in, an FMP, Councils should prepare a thorough analysis of factors in [paragraphs \(c\)\(1\)\(i\) through \(x\)](#) of this section, and any additional considerations that may be relevant to the particular stock. As mentioned in [paragraph \(c\)\(3\)](#) of this section, if the amount and/or type of catch that occurs in Federal waters is a significant contributing factor to the stock's status, such information would weigh heavily in favor of continuing to include a stock in an FMP. Councils should consider weighting the factors as follows. Factors in [paragraphs \(c\)\(1\)\(i\) through \(iii\)](#) of this section should be considered first, as they address maintaining a fishery resource and the marine environment. *See* [16 U.S.C. 1802\(5\)\(A\)](#). These factors weigh in favor of continuing to include a stock in an FMP. Councils should next consider factors in [paragraphs \(c\)\(1\)\(iv\) through \(ix\)](#) of this section, which set forth key economic, social, and other reasons contained within the MSA for an FMP action. *See* [16 U.S.C. 1802\(5\)\(B\)](#). Finally, a Council should consider the factor in [paragraph \(c\)\(1\)\(x\)](#) of this section before deciding to remove a stock from, or continue to include a stock in, an FMP. In many circumstances, adequate management of a fishery by states, state/Federal programs, or another Federal FMP would weigh in favor of removing a stock from an FMP. *See e.g.*, [16 U.S.C. 1851\(a\)\(7\)](#) and [1856\(a\)\(3\)](#).

(5) Councils may choose to identify stocks within their FMPs as ecosystem component (EC) species (*see* § [600.305\(d\)\(13\)](#) and [600.310\(d\)\(1\)](#)) if a Council determines that the stocks do not require conservation and management based on the considerations and factors in [paragraph \(c\)\(1\)](#) of this section. EC species may be identified at the species or stock level, and may be grouped into complexes. Consistent with National Standard 9, MSA section 303(b)(12), and other applicable MSA sections, management measures can be adopted in order to, for example, collect data on the EC species, minimize bycatch or bycatch mortality of EC species, protect the associated role of EC species in the ecosystem, and/or to address other ecosystem issues.

(6) A stock or stock complex may be identified in more than one FMP. In this situation, the relevant Councils should choose which FMP will be the primary FMP in which reference points for the stock or stock complex will be established. In other FMPs, the stock or stock complex may be identified as “other managed stocks” and management measures that are consistent with the objectives of the primary FMP can be established.

(7) Councils should periodically review their FMPs and the best scientific information available and determine if the stocks are appropriately identified. As appropriate, stocks should be reclassified within an FMP, added to or removed from an existing FMP, or added to a new FMP, through an FMP amendment that documents the rationale for the decision.

National Standard 1 Guidelines for Stock Complexes

50 CFR 600.310

(d) *Stocks and stock complexes* -

(1) **Introduction.** As described in [§ 600.305\(c\)](#), Councils should identify in their FMPs the stocks that require conservation and management. Such stocks must have ACLs, other reference points, and accountability measures. Other stocks that are identified in an FMP (*i.e.*, EC species or stocks that the fishery interacts with but are managed primarily under another FMP, *see* [§ 600.305\(c\)\(5\)](#) through [\(6\)](#)) do not require ACLs, other reference points, or accountability measures.

(2) **Stock complex.** Stocks that require conservation and management can be grouped into stock complexes. A “stock complex” is a tool to manage a group of stocks within a FMP.

(i) At the time a stock complex is established, the FMP should provide, to the extent practicable, a full and explicit description of the proportional composition of each stock in the stock complex. Stocks may be grouped into complexes for various reasons, including where stocks in a multispecies fishery cannot be targeted independent of one another; where there is insufficient data to measure a stock's status relative to SDC; or when it is not feasible for fishermen to distinguish individual stocks among their catch. Where practicable, the group of stocks should have a similar geographic distribution, life history characteristics, and vulnerabilities to fishing pressure such that the impact of management actions on the stocks is similar. The vulnerability of individual stocks should be considered when determining if a particular stock complex should be established or reorganized, or if a particular stock should be included in a complex.

(ii) **Indicator stocks.**

(A) An indicator stock is a stock with measurable and objective SDC that can be used to help manage and evaluate more poorly known stocks that are in a stock complex.

(B) Where practicable, stock complexes should include one or more indicator stocks (each of which has SDC and ACLs). Otherwise, stock complexes may be comprised of: Several stocks without an indicator stock (with SDC and an ACL for the complex as a whole), or one or more indicator stocks (each of which has SDC and management objectives) with an ACL for the complex as a whole (this situation might be applicable to some salmon species). Councils should review the available quantitative or qualitative information (*e.g.*, catch trends, changes in vulnerability, fish health indices, etc.) of stocks within a complex on a regular basis to determine if they are being sustainably managed.

(C) If an indicator stock is used to evaluate the status of a complex, it should be representative of the typical vulnerability of stocks within the complex. If the stocks within a stock complex have a wide range of vulnerability, they should be reorganized into different stock complexes that have similar vulnerabilities; otherwise the indicator stock should be chosen to represent the more vulnerable stocks within the complex. In instances where an indicator stock is less vulnerable than other members of the complex, management measures should be more conservative so that the more vulnerable members of the complex are not at risk from the fishery.

(D) More than one indicator stock can be selected to provide more information about the status of the complex.

(E) When indicator stocks are used, the stock complex's MSY could be listed as “unknown,” while noting that the complex is managed on the basis of one or more indicator stocks that do have known stock-specific MSYs, or suitable proxies.

Scoping Questions/Considerations

The Council requested feedback from the SSC in September 2021 on how to delineate stocks of copper, quillback, and vermilion/sunset rockfishes for purposes of status determination. The SSC provided guidance on the biological attributes that inform stock definitions in their [November 2021 report](#) to the Council. The SSC had extensive discussions about when to aggregate assessments across stock delineation boundaries for status determination. During these discussions, at least three tiers of biological attributes to consider were evaluated. The highest tier of these attributes is a genetic difference among meaningful markers which has not been demonstrated for quillback or copper rockfish. The next highest tier of information is exchange or movement of adults, followed by larval dispersal between areas.

Scoping Considerations

The Council should consider giving a preliminary preference soon for the stock definitions/area delineations for reporting status of stocks assessed in 2021 and 2023. Stock assessment priorities will be decided in June and stock assessment teams begin compiling data and structuring assessments this fall. Ideally, such a decision should be made by the end of the year so next year's assessments report status for the areas delineated for these stocks.

Stock complexes should be composed of stocks with similar vulnerabilities and interactions with the fishery (see the vulnerability rankings in the [Productivity and Susceptibility Assessment](#)).

Stock complex restructuring should consider the presence of inflator stocks, which are underutilized stocks managed in a complex that contribute a large yield (i.e., an ACL contribution to the complex) that can be used to take too much of a high attainment stock managed in the complex. This can be problematic since management action to prevent overfishing is at the complex level unless precautionary management measures are specified for component stocks, such as harvest guidelines with specified actions to reduce “overexploitation” of component stocks of concern.

Consider designating some species as Ecosystem Component Species if they meet the criteria for such designations in the NS1 guidelines (e.g., the species is not targeted, not at risk of overfishing or approaching an overfished status, etc.). For example, some species have such a negligible historical harvest, there is not an ABC contribution from that species in the complex (Table 2).

Scoping Questions

How does the identification and delineation of a stock affect our ability to attain OY, meet NS1 requirements, and other MSA requirements for stock management?

How should we consider transboundary stocks that straddle borders with Canada or Mexico, and for which PFMC jurisdiction covers only a portion of their overall distribution?

What other policy considerations should the Council consider in their Amendment 31 deliberations?

Population simulations and other statistical analyses have been used to evaluate area management strategies and the effect on stock structure of marine fish populations (Cope and Punt 2009; Drinan, *et al.* 2018; Spies, *et al.* 2015). Would such analyses benefit the Council in their Amendment 31 deliberations?

Should the FMP be amended in phases? If so, what are the priorities for phase 1?

Presuming the objective is to implement Amendment 31 by January 1, 2025, should final Council action be scheduled no later than June 2024?

Should assessments be stratified at the area delineations defined in the FMP amendment? If not, how should status be reported for the defined stock delineation? For example, if assessments are stratified at a finer scale than the area delineations defined in this amendment, should they be stratified such that assessment results can be aggregated to the defined area delineation?

What other biological attributes beyond those identified by the SSC should be considered in defining stock delineations? Differential management history? Differential fishery removal histories by area? Political boundaries? Differential management objectives by area? Data availability?

Should all nearshore stocks be managed consistently? Should nearshore stocks be managed by state area? If so, should this be the stock definition for deeper nearshore species or those found primarily in state waters?

Should China, copper, and quillback rockfishes be managed in complexes? They are all co-occurring nearshore rockfish with high vulnerabilities to overfishing. If so, should these be state-specific complexes or complexes north and south of 40°10' N lat.?

Likewise, should rougheye, blackspotted, and shorttraker rockfishes be managed in one or more complexes? Since they are all distributed primarily north of 40°10' N lat., should these three species be managed in one coastwide complex?

Should soupfin shark continue to be designated an EC species? The Center for Biological Diversity recently filed a [petition](#) to list soupfin shark as an endangered or threatened species and to designate critical habitat under the Endangered Species Act. This may compel reconsideration of an EC species designation for soupfin shark. The GMT recommended soupfin shark be designated an EC species in November 2013. At that time, they pointed out, “The catch of this species averaged 8 mt per year over 2007-2011; however, less than 1 mt on average was caught by Groundfish FMP sectors”. Table 3 shows the annual total mortality of soupfin shark by West Coast fishing sectors. The annual total mortality of soupfin shark has increased since 2013 with most of the mortality from non-groundfish sectors (i.e., Incidental).

Should Pacific ocean perch be managed coastwide with stock-specific harvest specifications? They are managed outside of a complex and are a minor species in the south with a negligible harvest contribution to the southern Slope Rockfish complex (Table 2).

Table 2. West Coast groundfish species with a negligible harvest contribution (in mt) to the complexes (in bold) in which they are currently managed.

Stock/Complex	Area	Cat.	OFL	ABC	ACL
Nearshore Rockfish North	N of 4010		102	85	85
Calico	N of 4010	3 (Year Based)	-	-	-
Gopher	N of 4010	3 (Year Based)	-	-	-
Kelp	N of 4010	3 (Year Based)	0.01	0.01	0.01
Nearshore Rockfish South	S of 4010		980	801	801
Calico	S of 4010	3 (Year Based)	-	-	-
Shelf Rockfish North	N of 4010		983	790	790
Bronzespotted	N of 4010	3 (Year Based)	-	-	-
Chameleon	N of 4010	3 (Year Based)	-	-	-
Flag	N of 4010	3 (Year Based)	0.10	0.08	0.08
Freckled	N of 4010	3 (Year Based)	-	-	-
Halfbanded	N of 4010	3 (Year Based)	-	-	-
Harlequin	N of 4010	3 (Year Based)	-	-	-
Honeycomb	N of 4010	3 (Year Based)	-	-	-
Mexican	N of 4010	3 (Year Based)	-	-	-
Pink	N of 4010	3 (Year Based)	0.00	0.00	0.00
Pinkrose	N of 4010	3 (Year Based)	-	-	-
Puget Sound	N of 4010	3 (Year Based)	-	-	-
Pygmy	N of 4010	3 (Year Based)	-	-	-
Starry	N of 4010	3 (Year Based)	0.00	0.00	0.00
Swordspine	N of 4010	3 (Year Based)	0.00	0.00	0.00
Shelf Rockfish South	S of 4010		1901	1515	1515
Chameleon	S of 4010	3 (Year Based)	-	-	-
Freckled	S of 4010	3 (Year Based)	-	-	-
Halfbanded	S of 4010	3 (Year Based)	-	-	-
Harlequin	S of 4010	3 (Year Based)	-	-	-
Pinkrose	S of 4010	3 (Year Based)	-	-	-
Pygmy	S of 4010	3 (Year Based)	-	-	-
Tiger	S of 4010	3 (Year Based)	0.04	0.03	0.03
Slope Rockfish South	S of 4010		870	701	701
Pacific Ocean Perch	S of 4010	3 (Year Based)	-	-	-
Shortraker	S of 4010	3 (Year Based)	0.10	0.08	0.08

Table 3. Total mortality of soupfin shark by West Coast fishing sector, 2007-2020.

Fishing Sector	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
At-Sea Hake CP	0.21	0.02		0.14	0.12	0.02		0.49		0.13	0.97	0.63	0.30	0.18
At-Sea Hake MSCV	0.32	0.10		0.06		0.07	0.23		0.19	1.16	0.91	1.06	0.47	0.52
California Recreational	0.43	0.50	2.10	2.73	0.32	0.92	1.31							
Combined LE & OA CA Halibut				0.34										
CS - Bottom and Midwater Trawl					0.43									
CS - Bottom Trawl						0.62	0.33	1.76	1.51	0.41	0.87	0.47	0.53	0.92
CS - Hook & Line					0.00		0.00		0.06					
CS EM - Bottom Trawl									0.06		0.04	2.23	0.45	5.11
Incidental	16.47	6.97	3.52	1.83	1.97	0.86	0.24	0.55	0.87	3.22	4.69	6.05	6.57	9.16
LE CA Halibut	0.15	0.60	0.29		0.07									
LE Fixed Gear DTL - Hook & Line		0.08		0.15		0.11		0.11	11.90	6.84	0.06	0.03		0.02
LE Sablefish - Hook & Line	0.00	0.02						1.11		0.22	0.46	0.29		0.00
Limited Entry Trawl	0.29	0.20	0.24	0.19										
Midwater Hake										0.03	0.09	0.01	0.59	0.85
Midwater Hake EM									0.08	0.64	0.45	0.76		
Midwater Rockfish									0.03			0.03	0.08	
Midwater Rockfish EM											0.02	0.02		0.14
Nearshore	0.09	0.24	0.38	0.32	0.05	0.22	0.78	0.63	1.68	1.31	0.81	0.85	2.49	4.43
OA CA Halibut		0.03	0.02		1.70	0.05	0.09	0.23	0.14	0.15	1.06	1.46	1.77	1.73
OA Fixed Gear - Hook & Line	0.34	0.15	0.08		0.25	0.06	0.07	0.05	0.10	0.07	0.26	0.85	2.77	0.17
OA Fixed Gear - Pot								0.05		0.07				
Oregon Recreational		0.00		0.01	0.01			0.01		0.01	0.02	0.01		0.01
Pink Shrimp											0.00			
Research			2.57	0.12	3.71	1.64	1.30	0.01	3.81	0.55	1.00	0.64	0.11	
Ridgeback Prawn Trawl						0.01				0.01	0.05			
Sea Cucumber Trawl							0.04							
Shoreside Hake	0.14	0.04	0.16	0.59	0.51	0.64	0.03	0.31						
Tribal At-Sea Hake			0.09											
Tribal Shoreside											0.02			
Grand Total	18.45	8.94	9.45	6.48	9.15	5.22	4.42	5.30	20.44	14.82	11.78	15.40	16.14	23.25

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