SUMMARY MINUTES

Scientific and Statistical Committee

Pacific Fishery Management Council
Salon III
DoubleTree Spokane City Center
322 North Spokane Falls Court
Spokane, WA 99201
509-455-9600

September 18-20, 2025

Members in Attendance

Dr. Cheryl Barnes, Oregon State University and Oregon Department of Fish and Wildlife, Newport, OR
Dr. John Budrick, California Department of Fish and Wildlife, San Carlos, CA
Dr. Tim Copeland, Idaho Department of Fish and Game, Boise, ID
Carly Somerset, Idaho Department of Fish and Game, Boise, ID: Alternate
Dr. John Field, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA
Dr. Chris Free, University of California Santa Barbara, Santa Barbara, CA
Dr. Owen Hamel, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Selina Heppell, Oregon State University, Corvallis, OR
Dr. Michael Hinton, San Diego, CA
Dr. Dan Holland, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Galen Johnson, Northwest Indian Fisheries Commission, Olympia, WA
Dr. Tommy Moore, Northwest Indian Fisheries Commission, Forks, WA
Dr. André Punt, University of Washington, Seattle, WA
Dr. Matthew Reimer, University of California Davis, Davis, CA
Dr. Alberto Rovellini, University of Washington, Seattle, WA
Dr. William Satterthwaite, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA
Dr. Jason Schaffler (SSC Chair), Muckleshoot Indian Tribe, Auburn, WA
Dr. Tien-Shui Tsou, Washington Department of Fish and Wildlife, Olympia, WA
Dr. Francisco Werner, Silver Spring, MD

Members Absent

None

SSC Recusals for the September 2025 Meeting		
SSC Member	**Issue**	**Reason**
Dr. Owen Hamel	G.3 Adopt Stock Assessments	Co-author and internal reviewer on assessments
Dr. Alberto Rovellini	G.3 Adopt Stock Assessments (widow rockfish)	Co-author on widow update assessment
Dr. Cheryl Barnes	G.3 Adopt Stock Assessments (sablefish and widow rockfish)	Co-author on sablefish assessment and supervises a widow assessment author
Dr. Tien-Shui Tsou	G.3 Adopt Stock Assessments (yelloweye and rougheye/blackspotted rockfish)	Supervises an assessment author
Dr. John Field	G.3 Adopt Stock Assessments (bocaccio and chilipepper rockfish)	Co-author of bocaccio catch-only projection and chilipepper assessment

SSC Administrative Matters

Dr. Jason Schaffler (SSC Chair) called the meeting to order. Mr. Merrick Burden briefed the Scientific and Statistical Committee (SSC) on their tasks at this meeting and answered questions from SSC members.

The September 2025 SSC agenda was approved, with one modification for Dr. Galen Johnson (Vice-chair) to chair the meeting late Friday afternoon September 19. Several minor edits in italic notes were made prior to June 2025 SSC minutes being adopted as final. The September 2025 briefing book version of the June 2025 SSC Minutes will be updated to reflect SSC approved changes, and the final document will be posted to the SSC minutes archive website.

Subcommittee assignments were reviewed with modifications as follows:

- Dr. Selina Heppell will serve as a member of the Coastal Pelagic Species, Highly Migratory Species, and Ecosystem-Based Management Subcommittees.
- Dr. Francisco Werner will serve as a member of the Coastal Pelagic Species, Highly Migratory Species, and Economics Subcommittees.
- Dr. Alberto Rovellini will serve as a member of the Groundfish and Ecosystem-Based Management Subcommittees.
- Dr. Chris Free will serve as the Chair of the Ecosystem-Based Management Subcommittee and transition off of serving on the Groundfish Subcommittee in November.

Open discussion included the opportunity to discuss representation from the PFMC SSC to participate in the Center for Independent Experts (CIE) review of the Fisheries Integrated Modeling System (FIMS) on November 4-6, 2025 (virtual). Tentative representatives were

identified as Dr. Owen Hamel and pending new SSC member Dr. Aaron Berger. It was noted that other PFMC SSC members will also be participating in various roles or capacities and thus the SSC was striving to identify an additional member as a representative.

Per suggestion in March 2024, a public comment period was conducted at the start of each day's meeting to allow for relevant public comments to be made and considered prior to the SSC taking up an Agenda Item.

H. Administrative Matters

1. Membership Appointments and Council Operating Procedures (SSC Closed Session)

F. Salmon Management

1. Methodology Review – Final Topic Selection

Will Satterthwaite (SWFSC, Sacramento River Fall Chinook [SRFC] Ad-Hoc Workgroup [SRWG] Chair) briefed the Scientific and Statistical Committee (SSC) on two preliminary topics that the SRWG recommended and that were adopted by the Council as preliminary review topics in April. Michael O'Farrell (SWFSC, Salmon Technical Team [STT] Chair) indicated the STT supports review of these two topics. Cassandra Leeman (ODFW/STT) briefed the SSC on another preliminary topic adopted by the Council and an additional topic requested by ODFW. After discussion, the SSC added a fifth topic, which was recommended by the SSC for review in April 2025 and September 2024. The SSC recommends that all five topics be reviewed on October 9-10, 2025, during the scheduled Salmon Methodology Review meeting. Materials should be available to the SSC Salmon Subcommittee for review no later than September 25. The SSC finds two days of meeting time adequate for review of these topics. The SSC requires that the analysts be available to present and answer questions to conduct an adequate review. The items the SSC recommends for review and their proponents are:

1. Derivation of natural-area S_{MSY} for Sacramento River fall Chinook (SRWG); all four methods developed should be considered including the preferred method;
2. Methods for deriving a total (natural areas plus hatchery) escapement objective based on consideration of natural production and hatchery needs (SRWG);
3. The Oregon Production Index Hatchery (OPIH) forecast methodology, including the index exponential-decay-weighting approach adopted for use in 2025 (ODFW/WDFW);
4. Proposed changes to the Oregon Coast Natural coho marine survival index (ODFW); and,
5. Methods for evaluating consequences of changes in allowable exploitation rates, evaluating forecast performance, and potentially adjusting forecasts for bias and/or uncertainty buffers (SSC).

One or two of these items (topic 3 and possibly topic 4) could be characterized simply as data changes and therefore, under COP 15, a formal Methodology Review may not be necessary. However, some data changes are consequential enough to lead to changes to the methodology, and

there may be an algorithm change associated with one variant under consideration for topic 4, which should trigger a review.

For topic 5, this peer-reviewed and published paper has been available for two years and relates to multiple topics in salmon management in the PFMC process. The paper was first proposed by the SRWG for application to specific tasks surrounding SRFC. Additionally, the SSC highlights the need for a consistent and objective way of assessing salmon forecast performance across stocks. Review of this paper during this year's Salmon Methodology Review would allow the SSC to make informed and timely decisions on best scientific information available, especially during the pre-season when process delays have large consequences. Review would also allow analysts working on salmon topics (such as the SRWG) to know whether the SSC supports or can identify improvements to methods before substantial effort is expended incorporating them in a holistic analysis. The SSC also notes that prolonged delays in reviewing available science can mean that analysts move on to other jobs and that scheduling reviews can be more difficult.

SSC Notes

Natural-area S_{MSY} - The analysis uses three approaches on four data sets. The SRWG considered strengths/weaknesses to recommend one approach. The report is still in draft but will be ready for the review. The report has full documentation, including code, so the SSC can do a full review. The SSC discussed the need to do a broad review now, while the analysts were still available to answer questions.

Total escapement objective- The published model can also be used to evaluate probability of achieving natural area S_{msy} rather than a target production level. CDFW staff provided updated hatchery spawner needs consistent with plans to increase production (3-4 page update).

Satterthwaite, W. H. 2023. An approach to defining a Sacramento River Fall Chinook escapement objective considering natural production, hatcheries, and risk tolerance. San Francisco Estuary and Watershed Science 21(3):3. Available: https://escholarship.org/uc/item/17v0z83w.

OPIH - The report will be ready by Sept 25 with more detail than the March supplemental report. Breakdown of the aggregate into stocks won't be ready in time.

Loss of OCN sites – Evaluation of alternative adjustments to survival calculations to compensate for the loss. This change doesn't affect harvest calculations.

Satterthwaite & Shelton 2023- The *SSC discussed this review topic in April 2025. This topic touches on issues SSC is asked to weigh in on, i.e., BSIA in the salmon forecast context, which will inform the Council on risk. This topic provides a way to record forecast uncertainty and compile best practices and rationale. It also relates to the salmon risk tables proposed for the November agenda.*

Satterthwaite, W. H., and A. O. Shelton. 2023. Methods for assessing and responding to bias and uncertainty in U.S. West Coast salmon abundance forecasts. Fisheries Research 257:106502. Available online at https://doi.org/10.1016/j.fishres.2022.106502, or https://repository.library.noaa.gov/view/noaa/48014/noaa_48014_DS1.pdf for public domain version.

There is concern that changes in temporal or spatial data range changes could exceed a threshold and should be evaluated in a methodology review. This could apply to removal of OCN index sites or data weighting changes to OPI-H coho forecasting methodology. COP 15 indicates data range changes do not need methodology review and the SSC should be notified, though the time scale during the salmon pre-season process doesn't allow for sufficient time to determine if review is warranted.

G. Groundfish Management

4. Stock Assessment Methodology Topic Selection – Final Topics

The Scientific and Statistical Committee (SSC) reviewed a proposal for groundfish stock assessment methodology review from the Northwest Fisheries Science Center (NWFSC) for commercial fishery-dependent index standardization using spatio-temporal modeling methods (Agenda Item G.4.a, Supplemental NWFSC Report 1). The primary goal is to develop methods that can account for the nonrandom nature of fishery-dependent information for use in stock assessments. There is concern about using fishery-dependent data for mobile and aggregating species given spatial variability and hyperstability in catchability. A hyperstability term can be developed to address concerns about fishermen being able to change locations to find fish. Effects of regulations on targeting, bycatch avoidance, and other considerations such as markets and impacts of processor locations relative to fishing grounds may also impact commercial catch per unit effort and additional analysis will be needed to address these factors. These methods may complement data from fishery-independent surveys that use gear that does not sample semi-pelagic species effectively, such as the West Coast Groundfish Bottom Trawl Survey.

The SSC supports review of the proposed methods. The SSC recommends validation of the methods using simulations or data for focal species for which there is a reliable index of abundance based on fishery-independent surveys, such as petrale sole. Species proposed for assessment in 2027 should be prioritized to allow application of the methods in the coming biennium. Communication with industry about markets, effort, gear modification, and targeting changes over time would also be beneficial in developing the filters and adjustments to account for changes through time within the analysis.

SSC Notes

- *The potential for a spiny dogfish ageing workshop was discussed by the SSC since it is in the 2027 list of potential assessments. This workshop may help refine ageing methods to reduce uncertainties in a full assessment.*

- *If spiny dogfish is selected for the 2027 assessment cycle, workshops for the ageing methods and HCR for elasmobranchs may become higher priorities and necessitate workshops to be carried out in 2026 to facilitate application.*

- *Supplemental WDFW Report 1 proposes substantial changes in how sector-specific allocations are modeled to roll up into a total ACL and could merit review when fully developed.*

G. Groundfish Management

3. Adopt Stock Assessments

From Supplemental SSC Report 1:

The Scientific and Statistical Committee (SSC) reviewed the benchmark stock assessments, Stock Assessment Review (STAR) Panel reports, and the SSC Groundfish Subcommittee (GFSC) report from the first two STAR panels during a remote meeting on September 3. STAR panel 1 covered yellowtail rockfish north of 40° 10' N. latitude. STAR panel 2 covered chilipepper rockfish and California quillback rockfish. The SSC offers the following recommendations.

Yellowtail rockfish north of 40° 10' N. latitude

The SSC reviewed the 2025 full benchmark assessment for yellowtail rockfish north of 40º10' N. lat., which was last assessed in 2017 as a benchmark assessment. Major changes from the 2017 assessment included correcting the weighting of the commercial fishery composition data, adding a combined OR-WA hook-and-line catch-per-unit-effort (CPUE) index and a Standard Monitoring Units for the Recruitment of Fishes (SMURF) recruitment index, adding foreign trawl catches from 1966 to 1976 that were omitted from the 2017 assessment, and using estimated discards instead of modeling retention curves. The 2025 assessment provides well-informed estimates of sex-specific natural mortality, growth, and unfished recruitment, and exhibits good fits to the composition data with relatively simple selectivity assumptions and fleet structure. The model was very stable, with most sensitivity runs falling within the confidence intervals of the base model. The STAT, STAR Panel, SSC GFSC, and SSC noted that the fishery-independent indices of biomass were fairly uninformative, indicating that bottom trawl surveys may not be the most reliable indices for this (and other) midwater rockfish species. Preliminary exploration showed relatively high biomass estimates (2014-2019) for other midwater rockfish species, suggestive of a possible environmental driver resulting in variable catchability. As a result, the SSC recommends that future assessments consider whether an environmental index could better model time-varying survey catchability. The 2025 estimated stock status is estimated to be 62.6% of unfished spawning output, which is above the management target of 40% of unfished spawning output. The 2025 estimated exploitation rate is 0.043, which is below the 0.051 management target (the exploitation rate that leads to a spawning potential ratio of 0.5).

Recommendations

The SSC endorses the 2025 benchmark assessment for yellowtail rockfish north of 40º 10' N. lat. as best scientific information available and suitable for informing management decisions. The SSC recommends that the assessment be assigned a Category 1b designation with the default sigma value of 0.5 for calculating the scientific uncertainty buffer. The SSC recommends that the next assessment be an update, unless the next assessment can be conducted as a transboundary assessment in collaboration with Canada, in which case a full assessment would be preferred.

Risk Table

The pilot application of the risk table to yellowtail rockfish north of 40º 10' N. lat. yielded a Level 2 (neutral) designation, which means that the default sigma would be retained if the risk tables were applied. As a reminder, the Council recommended that risk tables be developed as a demonstration project for the 2025 stock assessment cycle, thus they are included for demonstration purposes only.

Chilipepper rockfish

The SSC reviewed the 2025 full benchmark assessment for chilipepper rockfish (*Sebastes goodei*), which was last assessed in 2007 as a benchmark assessment, along with an update assessment in 2015 and catch-only updates in 2017 and 2023. The STAT re-analyzed all data sources used in the previous assessment and updated the model structure to reflect current best practices. The major changes in data sources included removing fishery-dependent indices of relative abundance and adding a CalCOFI ichthyoplankton index, a trawl discard fleet, and bycatch from the at-sea hake fishery. Estimated stock status was 83.2% of unfished spawning output in 2025. Long-term equilibrium yield based on Spawning Potential Ratio (SPR) proxy harvest rates is 2,114 mt coastwide, compared to 2,230 mt based on the $SB_{40\%}$ proxy. The STAR Panel report summarized unresolved issues and challenges in estimating steepness, outliers in age data, modeling time-varying growth and selectivity, a strong retrospective pattern, poor fit to early years of West Coast Groundfish Bottom Trawl Survey (WCGBTS) index (2004-2007), and catchability (q) values greater than 1 for both the WCGBTS and Triennial survey.

Recommendations

The SSC endorses the 2025 assessment of chilipepper rockfish in U.S. waters off California, Oregon, and Washington as providing the best scientific information available and suitable for informing management decisions. The SSC recommends that the chilipepper rockfish stock be assigned a Category 1b designation with the default sigma value of 0.5 for calculating the scientific uncertainty buffer, which is consistent with the STAR Panel and GFSC recommendations. The next assessment is recommended to be an update assessment if there is no new information available to resolve issues related to time-varying growth, catchability (q) greater than 1, and applying a sum-to-zero constraint on recruitment deviations.

Risk Table

The ecosystem and environmental conditions and assessment data input categories were rated as Level 1 (favorable), whereas the assessment model fits and structural uncertainty category was rated as Level 2 (neutral). The SSC concluded an overall Level 1 (favorable) designation for the

risk table, which means that the default sigma would be reduced to 0.25, if the risk tables were applied.

Quillback rockfish off California

The 2025 benchmark assessment of quillback rockfish (*Sebastes maliger*) off California is considerably more informed by data than the 2021 data-moderate assessment. In addition to including data through 2024, the new benchmark assessment included two fishery-independent indices of abundance (California Collaborative Fisheries Research Program [CCFRP] and remotely operated vehicle), a recreational fishery-dependent index, the inclusion of pre-existing and new age data as part of a unified growth fleet, and updated biological relationships. These updates produced an assessment with a similar trajectory as the data-moderate assessment, though stock status never fell below the minimum stock size threshold and the 2025 fraction of unfished spawning biomass was estimated at 43.5% (above the management target, $B_{40\%}$). Bridging analyses indicated that growth and natural mortality (*M*) were key differences. Several major uncertainties remain in the benchmark assessment, including strong retrospective patterns across the most recent five years, the determination of the most appropriate maximum age used to inform natural mortality, higher model sensitivity to age and length data than to the abundance indices, and uncertainty regarding best practices for informing growth relative to recruitment variability when including age data derived from multiple collection sources with different sampling schemes and coverage (the "growth fleet"). The influence of the growth fleet on recruitment dynamics was the focus of the majority of STAR Panel requests, and led to a single disagreement between the STAT and STAR Panel. Ultimately, the base model was modified to include only Abrams (2014) age data in the growth fleet and treated the age data from CCFRP as conditional age-at-length associated with the CCFRP fleet.

Recommendations

The SSC endorses the 2025 benchmark assessment for California quillback rockfish as best scientific information available and suitable for informing management decisions. The SSC recommends that the assessment be assigned a Category 1b designation with a sigma of 0.75. There was extensive discussion among the full SSC and during the August SSC GFSC meeting regarding the merits of Category 1b versus Category 2d. This assessment was identified as intermediate on this spectrum of assessment categories and fit best as Category 1b with a larger than default sigma. The next assessment should be a benchmark to address many of the current uncertainties.

Risk Table

The STAT determined that there is too limited information on environmental factors affecting California quillback rockfish recruitment, habitat, prey, predators, or competitors to assign a level for the ecosystem and environmental conditions column of the risk table. Assessment data inputs were categorized as Level 3 (unfavorable) due to uncertainties in the historical catch reconstructions, lack of a signal from the available indices, and limited age data. The assessment model fits and structural uncertainty were rated a Level 2 (neutral) due to pre-specified natural mortality and steepness, strong retrospective patterns, and uncertainty in recruitment patterns.

The SSC concluded an overall Level 3 (unfavorable) designation for the risk table, which means that the default sigma would be increased to 0.75, if the risk tables were applied.

Table 1. Summary of SSC Recommendations: stock category and sigmas, future assessment type, and risk table category. Note that the "next stock assessment type" column does not reflect numerous and varied caveats that are reflected in this report, as well as the SSC GFSC and STAR Panel reports, which should be considered when future decisions are being made. Risk table categories are denoted for Category 1 stocks only.

Species	Stock	2025 Stock Assessment Type	Category	Sigma	Next Stock Assessment Type	Risk Table Category
Yellowtail rockfish	North of 40º 10` N. Latitude	Benchmark	1b	0.50	Update	2 - Neutral
Chilipepper rockfish	Coastwide	Benchmark	1b	0.50	Update	1 - Favorable
Quillback rockfish	California only	Benchmark	1b	0.75	Benchmark	3 - Unfavorable

SSC Notes

Yellowtail rockfish north of 40° 10' N. latitude

- *We wanted to add some notes to explain that the 55% attainment assumption used to generate the alternative harvest specifications table was requested by the GMT.*

Chilipepper rockfish

- *The pilot application of the risk table yielded a Level 1 (favorable) designation, which means that the default sigma would be reduced to 0.25, if the risk tables were applied. If model estimated uncertainty is higher than 0.25, the SSC would recommend the higher value estimated by the assessment.*
- *TOR question - can the recdev sum-to-zero constraint be changed in an update?*
- *More discussion on what factors to be included in the risk table and how to weight them.*

California quillback rockfish

Risk tables provide important perspectives and should be developed for category 2 stocks. Had this assessment been designated a category 2 assessment, criteria would not have been available to evaluate.

With respect to the sigma value being intermediate between category 1 and 2 default values, it might be handy to have the FMP notes on this, which clearly state that the SSC has the latitude to adopt alternative values. Specifically, page 27 of the FMP reads "Approaches to quantifying the variability on biomass estimates include using the standard error about the estimated biomass of a stock in the most recently approved assessment and estimating the between-

assessment variance in biomass estimates for a stock with multiple assessments or for all Category 1 stocks with multiple assessments in the meta-analysis. A proxy variability (sigma) can be calculated using this latter approach for all or some Category 1 species. These approaches are not exclusive and the SSC may recommend additional approaches to quantifying scientific uncertainty for Category 1 species… including approaches that are specific to individual stocks."

From Supplemental SSC Report 2:

The Scientific and Statistical Committee (SSC) discussed stock assessment, Stock Assessment Review (STAR) Panel, and SSC Groundfish Subcommittee (GFSC) reports for the following stocks assessed in 2025:

- sablefish (benchmark assessment)
- rougheye/blackspotted rockfish (benchmark assessment)
- yelloweye rockfish (update assessment)
- widow rockfish (update assessment)
- petrale sole (catch-only projections)
- canary rockfish (catch-only projections)
- shortspine thornyhead (catch-only projections)
- darkblotched rockfish (catch-only projections)
- black rockfish (Oregon only; catch-only projections)
- bocaccio (catch-only projections)

The SSC concurs with GFSC recommendations and endorses the 2025 benchmark assessment for sablefish as the best scientific information available (BSIA). The SSC agrees with the Stock Assessment Team (STAT) that the resulting model was considerably more stable and robust to sensitivity analyses than the 2019 model (and update assessments in 2021 and 2023). The SSC recommends that the sablefish assessment be designated as a Category 1 stock with default sigma of 0.5 and that the next assessment be an update.

The SSC also concurs with GFSC recommendations and endorses the 2025 benchmark assessment for rougheye/blackspotted rockfish as BSIA. This model estimated only modest declines in spawning output from the 1980s to the present and concluded that the stock is well above target levels, representing a fairly substantial divergence from the 2013 assessment. The assessment is highly sensitive to model assumptions and data treatment. Although the SSC recommends that the rougheye/blackspotted rockfish assessment be designated as a Category 2, which has a default sigma of 1.0, the various sources of uncertainty and lack of a clear method for modifying the default sigma may warrant consideration of a more risk averse P* by the Council.

The SSC endorses the 2025 update assessment for yelloweye rockfish as BSIA. Although this stock could be considered rebuilt following this update assessment (fraction unfished = 0.401), yelloweye rockfish exhibit life history traits (e.g., slow growing, long-lived) that make the stock highly vulnerable to fishing (Cope et al. 2011). The SSC recommends that the yelloweye rockfish

stock assessment be assigned as a Category 1, with the default sigma value of 0.5 for calculating the scientific uncertainty buffer. The SSC recommends that the next assessment be a benchmark, which will provide additional flexibility for the STAT to refine model structure, add new data sources, and make other revisions not consistent with the Terms of Reference for an update assessment. A benchmark assessment would increase the degree of confidence in current stock status for yelloweye rockfish.

The SSC reviewed GFSC recommendations for the 2025 update assessment for widow rockfish, and concurs with the recommendation for supplemental review given the unexpected results of that assessment relative to the most recent 2015 benchmark assessment and 2019 update. The SSC will provide recommendations about the category designation, sigma value, and next assessment type following the Supplemental Review meeting and at the November 2025 Council meeting.

The SSC endorses the catch-only projections for petrale sole, canary rockfish, shortspine thornyhead, and darkblotched rockfish (Agenda Item G.3 Attachments 13-16). The catch-only projections for black rockfish off Oregon and bocaccio did not account for a modification to the formula used to estimate time-varying sigma for stocks with natural mortality (M) greater than 0.15 yr^{-1} (Wetzel and Hamel 2023). The approach developed in Wetzel and Hamel (2023) uses the proportional rate of change in sigma = 0.52 * M. The base sigma for category 1 and 2 stocks should be multiplied by 1 + this rate for determining the first year of management. The M estimate is 0.180 yr^{-1} for black rockfish off Oregon and 0.178 yr^{-1} for bocaccio. The SSC endorses the revised catch-only projections for black rockfish off Oregon and bocaccio, which account for $M > 0.15$ yr^{-1} (Agenda Item G.3 Revised Attachments 17 and 18). Chilipepper rockfish also has a natural mortality estimate greater than 0.15 yr^{-1} (M = 0.189 yr^{-1}). The SSC endorses the revised decision table for chilipepper rockfish found in Table 4 of Agenda Item G.6 Supplemental Attachment 2.

The SSC appreciates the "at-a-glance" summaries of the 2025 groundfish stock assessments (Agenda Item G.3.a Supplemental NWFSC-SWFSC Report 1). The SSC encourages their continued development for communicating key results to reviewers, PFMC advisory bodies, and other interested parties. It would be beneficial to distribute drafts of these summaries when pre-review materials are made available. The SSC also appreciates the OFL-based decision tables (Agenda Item G.3.a Supplemental NWFSC-SWFSC Report 2) that include comparisons of near-term catch limits to equilibrium MSY values, and recommends incorporation of these tables into the final stock assessment reports for all 2025 benchmark assessments.

The pilot application of risk tables during the 2025 stock assessment cycle demonstrated their utility for critically and collaboratively synthesizing the quality of information, data inputs, and model structure for each stock. The pilot risk table for sablefish resulted in a Level 1 (favorable) designation. If the risk table was applied, the default sigma would have been reduced to 0.25. The lack of formal risk table rubrics for Category 2 stocks prevented application to rougheye/blackspotted rockfish. The SSC encourages future use of risk tables for all groundfish benchmark assessments.

SSC Notes

The SSC reiterates the need for risk table rubrics that apply to Category 2 stocks. The STAT and STAR Panel completed a risk table for rougheye/blackspotted rockfish based on a Category 1 rubric during this pilot application. The process of doing so was useful for critically evaluating the quality of different data sources and identifying the category for rougheye/blackspotted rockfish.

Chilipepper rockfish (at-a-glance, key takeaways):
"Annual catch limits (ACLs) will temporarily exceed long-term maximum sustainable yield (estimated at roughly 2,100 mt per year) and are expected to decline as the stock is fished down to the target level.".

*The M-based approach for determining the rate of change in sigma has been adopted within the CPS process. The Accepted Practices Guidelines for Coastal Pelagic Species Stock Assessments in 2025 states "The approach developed in Wetzel and Hamel (2023) uses the proportional rate of change in sigma = 0.52*M. The base sigma for category 1 and 2 stocks should be multiplied by 1 + this rate for determining the first year of management based on CPS assessments."*

Language from the Terms of Reference for the Groundfish Stock Assessment Review Process for 2025-26 - for an update assessment:
"The review of update assessments is not expected to require additional model runs or extensive analytical requests during the meeting, although changes in assessment outputs may necessitate some model exploration. The review focuses on two main questions:
1) Does the assessment meet the criteria of a stock assessment update?
2) Can the results of the update assessment form the basis of Council decision making?

If the answer to either of these questions is negative, a full stock assessment for the species would typically be recommended for the next assessment cycle. If the subcommittee agrees that the update assessment results require additional, but limited exploration before being endorsed for management use, further review at the mop-up meeting [now referred to as the supplemental review] could be recommended. In cases like this, the subcommittee needs to develop a list of requests for the STAT to address before the mop-up meeting."

G. Groundfish Management

7. Inseason Adjustments – Final Action

The Scientific and Statistical Committee (SSC) reviewed standard and alternative catch-only projections for petrale sole, canary rockfish, and shortspine thornyhead. For each species, the standard projection is provided in the first table of Agenda Item G.7 Attachments 1-3, where actual catches for 2023 and 2024 are listed and anticipated 2025 and 2026 removals are provided by the Groundfish Management Team. For 2027 and subsequent years, removals in the standard

and alternative catch-only projections are set to those specified by the adopted sigma and P*, and the 40-10 or 25-5 harvest control rules.

The alternative runs also calculate Annual Catch Limits (ACLs) and catch assumptions for 2026. For petrale sole, one alternative catch-only projection is provided where 2026 removals are set equal to 92% of the ACL. For canary rockfish, two alternative catch-only projections are provided. Because canary rockfish stock status is below the B_{MSY} reference point, a 40-10 control rule is applied to an assumed 88% attainment of the ACL for 2026. In the second alternative catch-only projection, the effect of the 40-10 control rule is removed and an assumed 88% attainment of the ABC for 2026 is assumed. For shortspine thornyhead, two alternative catch-only projections are provided. In the first alternative, a new ACL for 2026 is calculated based on the standard approach and the new projection. In the second alternative catch-only projection an ad hoc ACL of 897 mt is assumed. In both scenarios, modeled catches in 2026 are based on 67% attainment of the ACL.

These alternative catch-only projections are unusual in that they are taking place mid-biennium. One projection does not use the adopted approach for calculating the scientific uncertainty buffer in setting the Acceptable Biological Catch (ABC) (shortspine thornyhead; Table 3 in Agenda Item G.7 Attachment 3). Such changes to the ABC setting process are expected to occur infrequently; however, they fall within the National Standard 1 guidelines for phasing in changes to ABCs. The projections are required to enable an increase in the ABC in 2026 relative to the default harvest control rules to accommodate the proposed ACL. Impacts on stock status are less than 1% throughout the period of projection, and the revised ABCs remain below the Overfishing Limits (OFLs).

The SSC finds these catch-only projections were conducted correctly and endorses the OFLs and ABCs for use in 2026.

SSC Notes

This approach was utilized during 2019 for Oregon black rockfish.
https://www.pcouncil.org/documents/2019/11/agenda-item-h-6-a-supplemental-ssc-report-1.pdf/

The SSC does not recommend that these more atypical projections be utilized as intensively as the "more typical" catch only projections that have been developed in recent assessment cycles.

G. Groundfish Management

6. Initial Harvest Specifications and Management Measures Actions for 2027-28

The SSC reviewed 1) the proposed overfishing limits (OFLs) for 2027 and 2028 under the default harvest control rules, 2) the recommended category designation for each stock, which are

reported within Agenda Item G.6 Supplemental Attachment 1, and 3) the constant or time-varying sigma values used to calculate annual acceptable biological catch (ABC) buffers.

The SSC discussed the following issues:

A. Errors in the sigma values used to calculate ABC values. Two types of errors were found during an initial review of the sigmas for calculating ABC values.
    a. Cases where the standard calculation of the time-varying sigma led to sigma values greater than 2.0, whereas the SSC has set a cap of 2.0 (the constant value associated with Category 3 stocks) for sigma.
    b. Cases where the assessment was conducted well before the time-varying sigma rules were applied, and the ABC values from the assessment or projection relied on old, constant values of sigma.
B. Apportionment of OFL, ABC, and ACL values to latitudinally defined areas. These numbers are sometimes available from stock assessment tables, and other times are calculated manually for the specifications using status quo proportions (see Notes/Description in Table 1 Agenda Item G.6 Supplemental Attachment 1).
C. Accounting for the natural mortality rate *M* in calculating the time-varying component of sigma for scientific uncertainty buffer calculations. Wetzel and Hamel (2023) proposed an approach to calculate the time-varying multiplier of the base sigma for stocks with larger values of *M* (greater than 0.15 yr^{-1}). The approach developed in Wetzel and Hamel (2023) uses the proportional rate of change in sigma = 0.52 * M. The base sigma for category 1 and 2 stocks should be multiplied by 1 + this rate for determining the first year of management. This approach has been used in Coastal Pelagic Species assessments to calculate ABC values since 2023, but was not applied to groundfish assessments in that year. For the 2027-2028 biennium, the adjustment for species with *M* greater than 0.15 yr^{-1} is applied only for assessments and catch-only projections conducted in 2025 (chilipepper rockfish (Table 4 in Agenda Item G.6 Supplemental Attachment 2), Oregon black rockfish (Agenda Item G.3 Revised Attachment 17), bocaccio (Agenda Item G.3 Revised Attachment 18). During 2026, the SSC will evaluate adopting this approach for all stocks with *M* greater than 0.15 yr^{-1}, for the 2029-2030 specifications process. The impact of this change on expected ABC values should be considered during stock assessment prioritization for the next cycle.
D. Using proxy MSY values for OFLs for management years where assessments are greater than 15 years old, and applying the Category 3 sigma value for buffer calculations. The SSC considers assessments greater than 15 years old to be highly uncertain, and intends to treat them as data poor assessments (Category 3) for years 16 and beyond (i.e., assessments conducted in 2011 or earlier for this cycle), using the appropriate proxy MSY values as OFL values, except in cases where the stock is predicted to be below the target stock size. The SSC also recommends this approach for a small set of other assessments approaching 16 years old, where appropriate OFL values are not available

and the MSY values would not be constraining. The SSC notes that the impact of this change on OFL and ABC values for 2029 and 2030 from stocks last assessed in 2013 should be considered during stock assessment prioritization for the next cycle.

The SSC has the following specific updates and recommendations for the following situations:

Specifications for 2027-2028 that are not yet available:

- English sole: Projections from the 2013 data-moderate assessment provided information on OFLs through 2026. Recent catch is about 5% of the MSY of 4,072 mt. The SSC suggests using the MSY as the OFL, with a default ABC of 3,168 mt based upon a Category 3 sigma for both 2027 and 2028 rather than requesting a new projection.
- Splitnose rockfish: The last assessment for this stock was conducted in 2009. Therefore, the OFL is the SPR proxy MSY of 1,244 mt, with a default ABC of 968 mt for both 2027 and 2028 based upon a category 3 sigma.
- Kelp greenling off Oregon: Updated projections of the 2015 benchmark assessment ended in 2026. The SSC suggests requesting a new projection to provide specifications for this cycle.
- Aurora rockfish: A projection in 2023 based on the 2013 benchmark assessment provided information on OFL values through 2026. The SSC suggests requesting new projection to provide specifications for this cycle.
- Cowcod north of Point Conception (34° 27' N, lat.): In the last cycle, the OFLs were rolled over from the previous cycle. The OFL values for the two years differed. The SSC will continue to roll over the OFLs, but set the OFL for both years at 19.2 mt, the value for 2026, noting that 3% of this is apportioned to the area north of 40° 10′ N.
- For canary rockfish, petrale sole, and shortpine thornyhead: OFL and ABC values for 2027 and 2028 will depend on whether any changes to the 2026 OFL, ABC and ACLs are adopted by the Council at this meeting. If 2026 harvest specifications are modified by the Council, revised 2027-28 OFL and ABC values would be recommended by the SSC at the November 2025 Council meeting.
- Greenspotted rockfish: The last benchmark assessment was conducted in 2011. The combined northern and southern models estimated stock status to be at or above 40% of the unfished level at the end of the projection period (2022), and the SSC recommends adopting the SPR proxy MSY of 95.6 mt as the OFL with a default ABC of 74.4 based on a Category 3 sigma for both 2027 and 2028. Apportionment should be based on the same relative amounts as in 2026.

Incorrect sigma values and buffers in default harvest control rule specifications:

- For longspine thornyhead, brown rockfish, and sharpchin rockfish, for which data-moderate (Category 2) assessments were conducted in 2019, the time-varying sigma

value used for the 2028 buffer calculation was greater than 2.0, which is the cap set by the SSC. Thus, the ABCs values for 2028 are incorrect in the draft default specifications.
    - Longspine thornyhead: The correct ABC for 2028 is 2413 mt. The associated ACLs in 2028 for north and south of 34°27' would then be 1833.74 and 579.08 mt respectively.
    - Brown rockfish: The correct 2028 ABC contributions for north and south of 40°10' are 1.64 and 140.89 mt respectively.
    - Sharpchin rockfish: The correct 2028 ABC contributions for north and south of 40°10' are 212.24 and 53.06 mt respectively
- Vermilion (OR and WA): Based on the June 2025 SSC recommendation (Agenda Item E.6.a Supplemental SSC Report 1, June 2025), OFL and ABC projections from each area assessment should be summed to calculate OFLs and ABCs. For 2027 and 2028, the OFL values are 13.13 mt and 12.83 mt respectively, and the ABC values are 11.99 mt and 11.66 mt, respectively.

SSC Notes

Regarding the buffer calculation for species with large M values, for species with M values lower than 0.15 yr^{-1} other factors influencing uncertainty in future status are assumed to dominate and thus the constant previously adopted rate is retained. The GFSC will discuss the revisions to the buffer specification in more detail during the January 2026 process review, and discuss whether additional evaluation or analysis is necessary at that time.

If the revised assessment for widow rockfish had a natural mortality rate greater than 0.15 yr^{-1}, the SSC anticipates applying this adjustment to the time varying buffer for that stock as well.

*The M-based approach for determining the rate of change in sigma has been adopted within the CPS process. The Accepted Practices Guidelines for Coastal Pelagic Species Stock Assessments in 2025 states "The approach developed in Wetzel and Hamel (2023) uses the proportional rate of change in sigma = 0.52*M. The base sigma for category 1 and 2 stocks should be multiplied by 1 + this rate for determining the first year of management based on CPS assessments."*

Blank values for complex contributions denote cases where OFLs are "unknown" and thus have no contributions to the total OFL, ABC and ACL values for the complex.

Blue rockfish off Washington – The blue rockfish off Washington OFL is dynamic and proportional to OR model, 6.9 and 6.8 for 2027 and 2028 is correct.

For longspine thornyhead, there may be a drop in OFL based on SPR proxy MSY starting in 2029, which would occur unless a new assessment is conducted in 2027. This should be considered during assessment prioritization.

Apportionments among management areas have been rolled over from the previous cycle. For example, for Aurora rockfish, the portion of the coastwide stock north (19%) and south (81%) of 40º 10' N latitude is based on average survey biomass at the time of the 2013 assessment. The SSC is not aware of updated information for this or other apportionments.

Cowcod north of Conception OFLs are not technically available in the sense that we did not have projections for 2027 and 2028. Rather we are choosing to roll over, thus finding a number to use that we previously used, rather than having numbers specific to the management years, similar to using MSY in other cases here.

Table 1. Overview of SSC September 2025 recommendations which modify those published in G.6 Supplemental Attachment 1 with **SSC recommendations or technical corrections for 2027 and 2028 harvest specifications** (mt) for west coast groundfish stocks and stock complexes under default harvest control rules. See statement narrative above for more detail; Blue highlighted stock/complex = changes. Stock complexes with any modification to component species were retained to display the entire complex. This table does not include all stocks/complexes in Attachment 1.

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Bocaccio	*S of 4010*	*2027*	*1*	*0.45*	***2542***	***2265***	***2265***	*2017*	*OFL from 2025 catch only projections based on the 2017 assessment; 7.4% reduction to subtract the portion of the assessed stock north of 4010 N. lat. (Table 1 pg 1;* ***Agenda Item G.3 Revised Attachment 18 Sept 2025) with M >0.15 varying buffer****, pending Council adoption. S of 4010 N. lat. 2027 OFL 2745 - (2745*0.074) = 2541.87; 2028 OFL 2634 - (2634*0.074) = 2439.084; 2027 ABC 2446 - (2446*0.074) = 2264.996; 2028 ABC 2334 - (2334*0.074) = 2161.284*
Bocaccio	*S of 4010*	*2028*	*1*	*0.45*	***2439***	***2161***	***2161***	*2017*	
Canary Rockfish	*CW*	*2027*	*1*	*0.45*	*696*	*644*	*608*	*2023*	*OFL from the 2025 catch only projections based on the 2023 full assessment. P*=0.45 and assumed full attainment of ACL (Table 1,* ***Agenda Item G.3 Attachment 14 Sept 2025****), pending Council adoption. Precautionary, ACL<ABC.*
Canary Rockfish	*CW*	*2028*	*1*	*0.45*	*723*	*667*	*625*	*2023*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Chilipepper	*S of 4010*	*2027*	*1*	*0.45*	***3194***	***2980***	***2980***	*2025*	*OFL from the 2025 full assessment, P* = 0.45, pending Council adoption (Table 4;* ***Agenda Item G.6 Supp Attachment 2 Sept 2025), with M >0.15 varying buffer****. OFLs are apportioned to the North (7%) and South (93%) of 4010 N lat. based on average historical landings. S of 4010 N lat. 2027 OFL = 3434.3 * 0.93 = 3193.89; 2028 OFL = 3318.7 * 0.93 = 3086.391. 2027 ABC = 3204.2 * 0.93 = 2979.906; 2028 ABC = 3079.7 * 0.93 = 2864.121*
Chilipepper	*S of 4010*	*2028*	*1*	*0.45*	***3086***	***2864***	***2864***	*2025*	
Cowcod	*S of 4010*	*2027*						*2019*	*Harvest specifications are the sum of assessed area projections (South of Pt Conception 3427 N. lat.) and DBSRA estimates (4010 to 3427 N. lat.).*
Cowcod	*S of 4010*	*2028*						*2019*	
Cowcod	S of 3427	2027	2	0.40	92.1	62.628	62.628	2019	OFL is based on a 50% SPR harvest rate projected in the 2019 assessment, with a time varying category 2 sigma, P* = 0.4. in 2019 projections (Table 6 pg 5; error in caption as correction is South of 3427 N. lat.; Agenda Item H.6 Attachment 2 November 2019).
Cowcod	S of 3427	2028	2	0.40	91.9	61.2973	61.2973	2019	
Cowcod	4010 - 3427	2027	3	0.40	**18.624**	**11.2116**	**11.2116**	2019	OFL is based on the 2019 DB-SRA estimate in Appendix B of the 2019 cowcod assessment (Table F2 pg 179; Percentile 50% (Median), **2022 OFL value = 19.2**) ***(Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025).*** OFLs are apportioned to the north of 4010 N lat. (3%) and 4010 - 3427 N lat. (97%) based on cumulative historical catch (Table F3 pg 179; 1916-2018).

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Cowcod	4010 - 3427	2028	3	0.40	18.624	11.2116	11.2116	2019	
Darkblotched Rockfish	*CW*	*2027*	*1*	*0.45*	*859*	*773*	*773*	*2017*	*OFL from the 2025 catch-only projections based on the 2017 assessment (Table 1,* ***Agenda Item G.3 Attachment 16 Sept 2025****), pending Council adoption.*
Darkblotched Rockfish	*CW*	*2028*	*1*	*0.45*	*842*	*754*	*754*	*2017*	
English Sole	*CW*	*2027*	*2*	*0.45*	***4072***	***3168***	***3168***	*2013*	*OFL is the MSY from the 2013 data-moderate assessment, with the default ABC calculated using a Category 3 sigma buffer (****Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025****).*
English Sole	*CW*	*2028*	*2*	*0.45*	***4072***	***3168***	***3168***	*2013*	
Longspine Thornyhead	*CW*	*2027*	*2*	*0.40*	*4076*	*2471*		*2013*	*Coastwide OFL projected using a 50% SPR harvest rate in 2019 catch-only projections of the 2013 assessment.* ***Sigma is capped at 2.0 for buffer calculation - with P* = 0.4, buffer fraction multiplier = 0.602*** *(****Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025****). The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 3427 N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey.*
Longspine Thornyhead	*CW*	*2028*	*2*	*0.40*	***4008***	***2413***		*2013*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Longspine Thornyhead	*S of 3427*	*2027*	*2*	*0.40*			*593.13*	*2013*	*Coastwide OFL projected using a 50% SPR harvest rate in 2019 catch-only projections of the 2013 assessment.* ***Sigma is capped at 2.0 for buffer calculation - with P* = 0.4, buffer fraction multiplier = 0.602*** *(**Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025**). (The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 3427 N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey. S of 3427 N lat. 2027 ACL = ABC 2,471.39 * 0.24 = 593.13;* ***2028 ACL = ABC 2,412.82* 0.24 = 579.08.***
Longspine Thornyhead	*S of 3427*	*2028*	*2*	*0.40*			***579.08***	*2013*	
Longspine Thornyhead	*N of 3427*	*2027*	*2*	*0.40*			*1878.26*	*2013*	*Coastwide OFL projected using a 50% SPR harvest rate in 2019 catch-only projections of the 2013 assessment.* ***Sigma is capped at 2.0 for buffer calculation - with P* = 0.4, buffer fraction multiplier = 0.602*** *(**Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025**).The coastwide ABC (P* = 0.4) is apportioned N (76%) and S (24%) of 3427 N lat. to determine ACLs based on the 2003-2012 average swept area biomass from the NMFS trawl survey. N of 3427 N lat. 2027 ACL = ABC 2,471.39 * 0.76 = 1878.26;* ***2028 ACL = ABC 2,412.82 * 0.76 = 1833.74.***
Longspine Thornyhead	*N of 3427*	*2028*	*2*	*0.40*			***1833.74***	*2013*	
Petrale Sole	*CW*	*2027*	*1*	*0.45*	*2701*	*2501*	*2501*	*2023*	*OFL from the 2025 catch-only projections based on the 2023 full assessment, P*=0.45 and assumed full attainment of ACL (Table 1,* ***Agenda Item G.3 Attachment 13 Sept 2025****), pending Council adoption.*
Petrale Sole	*CW*	*2028*	*1*	*0.45*	*2670*	*2462*	*2462*	*2023*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Quillback	*CA*	*2027*			*13*	*12*	*12*	*2025*	*Harvest specifications for 2027-2028 based on 2025 full assessment, default HCR P*=0.45 based on Category 1b with sigma = 0.75 (**Agenda Item G.6 Attachment 2 September 2025**), Council adoption. Stock defined as CA (S of 42).*
Quillback	*CA*	*2028*			*13*	*12*	*12*	*2025*	
Sablefish	*CW*	*2027*	*1*	*0.45*	*14935*	*13964*		*2025*	*OFL based on the 2025 full assessment, P* = 0.45, pending Council adoption (Table ix, pg xvi, **Agenda Item G.3 Attachment 5 Sept 2025**). ACL split N (78.5%) and S (21.5%) of 36 degrees N. latitude using a 5-year rolling avg (2019-2024, no survey 2020) of biomass estimates by area from the NWFSC WCGBT survey.*
Sablefish	*CW*	*2028*	*1*	*0.45*	*16240*	*15103*		*2025*	
Sablefish	*S of 36*	*2027*	*1*	*0.45*			*3002*	*2025*	*OFL based on the 2025 full assessment, P* = 0.45, pending Council adoption (Table ix, pg xvi, **Agenda Item G.3 Attachment 5 Sept 2025**). ACL split N (78.5%) and S (21.5%) of 36 degrees N. latitude using a 5-year rolling avg (2019-2024, no survey 2020) of biomass estimates by area from the NWFSC WCGBT survey. S of 36 N lat. 2027 ACL = ABC 13964 * 0.215 = 3002.26; 2028 ACL = ABC 15103 * 0.215 = 3247.145.*
Sablefish	*S of 36*	*2028*	*1*	*0.45*			*3247*	*2025*	
Sablefish	*N of 36*	*2027*	*1*	*0.45*			*10962*	*2025*	*OFL based on the 2025 full assessment, P* = 0.45, pending Council adoption (Table ix, pg xvi, **Agenda Item G.3 Attachment 5 Sept 2025**). ACL split N (78.5%) and S (21.5%) of 36 degrees N. latitude using a 5-year rolling avg (2019-2024, no survey 2020) of biomass estimates by area from the NWFSC WCGBT survey. N of 36 N lat. 2027 ACL = ABC 13964 * 0.785 = 10961.74; 2028 ACL = ABC 15103 * 0.785 = 11855.855.*

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Sablefish	*N of 36*	*2028*	*1*	*0.45*			*11856*	*2025*	
Shortspine Thornyhead	*CW*	*2027*	*2*	*0.45*	*995*	*853*	*848*	*2023*	*OFL from the 2025 catch only projections based on the 2023 data-moderate assessment (Table 1, **Agenda Item G.3 Attachment 15 Sept 2025**), pending Council adoption. Precautionary ACL < ABC, 40-10 rule, P*=0.45 with assumed full attainment of ACL. Shortspine Thornyhead has a commercial ACT North of 34 27'N. Lat.*
Shortspine Thornyhead	*CW*	*2028*	*2*	*0.45*	*1015*	*861*	*857*	*2023*	
Splitnose	*S of 4010*	*2027*	*1*	*0.45*	***796***	***620***	***620***	*2009*	*The OFL is the SPR proxy MSY of 1,244 mt based on the 2009 assessment (Table 23), with a default ABC of 968 mt calculated using a category 3 sigma (**Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025**). Status quo apportionment is 36% N of 4010 and 64% S of 4010. S of 4010 OFL 1244 * 0.64 = 796.16, ABC 968 * 0.64 = 619.52*
Splitnose	*S of 4010*	*2028*	*1*	*0.45*	***796***	***620***	***620***	*2009*	
Widow Rockfish	*CW*	*2027*							*2027-2028 harvest specifications are not yet provided, as the SSC recommends further review of the 2025 Assessment.*
Widow Rockfish	*CW*	*2028*							
Yelloweye Rockfish	*CW*	*2027*	*1*	*0.40*	*129*	*113*	*113*	*2025*	*OFL based on the 2025 update of the 2017 assessment (Table vii pg xvi, **Agenda Item G.3 Attachment 6 Sept 2025**), pending Council adoption. Stock presumed to be rebuilt pending BSIA determination.*
Yelloweye Rockfish	*CW*	*2028*	*1*	*0.40*	*131*	*113*	*113*	*2025*	
Yellowtail Rockfish	*N of 4010*	*2027*	*1*	*0.45*	*5051*	*4723*	*4723*	*2025*	*OFL is based on the 2025 full assessment (Table vii pg xvi; **Agenda Item G.3 Attachment 1 Sept 2025**), pending Council adoption.*

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Yellowtail Rockfish	*N of 4010*	*2028*	*1*	*0.45*	*4882*	*4540*	*4540*	*2025*	
Blue/Deacon/Black Rockfish	*OR*	*2027*		*0.45*					*Sum of harvest specification contributions of component stocks in the complex.*
Blue/Deacon/Black Rockfish	*OR*	*2028*		*0.45*					
Black Rockfish	*OR*	*2027*	*1*	*0.45*	***402***	***371***	***371***	*2023*	*OFL from the 2025 catch only projections based on the 2023 full assessment (Table 1,* ***Agenda Item G.3 Revised Attachment 17 Sept 2025) with M >0.15 varying buffer****, pending Council adoption.*
Black Rockfish	*OR*	*2028*	*1*	*0.45*	***410***	***376***	***376***	*2023*	
Blue	OR	2027	2	0.45	93.473	75.7131	75.7131	2017	OFL projected using a 50% SPR from the 2021 catch-only projections for blue and deacon rockfishes based on 2017 assessment (Table 3; Agenda Item C.8 Attachment 2 September 2021). HG = ABC/ACL for managing OR fisheries.
Blue	OR	2028	2	0.45	92.33	74.141	74.141	2017	
Cabezon/Kelp Greenling	*OR*	*2027*							*Sum of harvest specification contributions of component stocks in the complex.*
Cabezon/Kelp Greenling	*OR*	*2028*							
Cabezon	OR	2027	1	0.45	51.5	46.8135	46.8135	2019	OFL projected using a 45% SPR from the 2019 assessment, Oregon model (Table ES20 pg 43).
Cabezon	OR	2028	1	0.45	51.1	46.1944	46.1944	2019	
Kelp Greenling	*OR*	*2027*	*1*	*0.45*				*2015*	***A request for extended projections is recommended by the SSC to utilize for default harvest specifications for 2027-28.***
Kelp Greenling	*OR*	*2028*	*1*	*0.45*				*2015*	
Nearshore Rockfish North	*N of 4010*	*2027*							*Sum of harvest specification contributions of component stocks in the complex.*
Nearshore Rockfish North	*N of 4010*	*2028*							
Black and Yellow	N of 4010	2027	3	0.45					

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Black and Yellow	N of 4010	2028	3	0.45					
Blue	42 - 4010	2027	2	0.45	33.466	27.1075	27.1075	2017	OFL from 2019 catch-only projections (Table g pg 16; Agenda Item H.5 Supp Revised Attachment 17 September 2019). 10% of the CA OFL is apportioned North of 4010 N lat. (see Appendix D of the 2017 Assessment, pg 361). N of 4010 N lat. 2027 OFL = 334.66 * 0.10 = 33.466; 2028 OFL = 334.42 * 0.10 = 33.442.
Blue	42 - 4010	2028	2	0.45	33.442	26.8539	26.8539	2017	
Blue	WA	2027	3	0.45	6.9	5.3682	5.3682	2017	Inferred Washington OFL provided in Appendix F (Table F2 pg 373) of the 2017 Blue and Deacon Rockfishes assessment. ABC=ACL
Blue	WA	2028	3	0.45	6.8	5.2904	5.2904	2017	
Brown	*N of 4010*	*2027*	*2*	*0.45*	2.11	1.65	1.65	*2013*	OFL from the 2019 harvest projection update of the 2013 assessment (Table 1 pg 3; Agenda Item H.6 Attachment 2 November 2019). ***Sigma is capped at 2.0 for buffer calculation - with P* = 0.45, buffer fraction multiplier = 0.778 (Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025)***. The portion of the coastwide stock South (~98.8%) and North of 40`10 N lat. (~1.2%) based on the proportion of cumulative removals by area during 1916-2012.
Brown	*N of 4010*	*2028*	*2*	*0.45*	2.11	***1.64***	***1.64***	*2013*	
Calico	N of 4010	2027	3	0.45					
Calico	N of 4010	2028	3	0.45					

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
China	WA	2027	2	0.45	8.96	7.13	7.13	2015	OFLs projected from the North Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).
China	WA	2028	2	0.45	8.75	6.9	6.9	2015	
China	4010 - 4616	2027	2	0.45	19.3	15.35	15.35	2015	OFLs projected from the Central Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).
China	4010 - 4616	2028	2	0.45	19.06	15.03	15.03	2015	
Copper	WA - OR	2027	2	0.45	18.27	15.3651	15.3651	2021	OFL from 2023 catch-only projections of the 2021 assessments, based on a stock definition of N of 42 (WA+OR)) (Table 5 pg 4; Agenda Item G.6 Supp Revised Attachment 2 Sept 2023).
Copper	WA - OR	2028	2	0.45	17.97	14.969	14.969	2021	
Copper	42 - 4010	2027	1	0.45	7.34	6.8	6.7	2023	OFL projected from the 2023 full assessment; stock defined as CA (S of 42), apportioned to complex (N 4010 = 5.86%) based on estimates of rocky habitat and density of copper rockfish in the area (Table xiv pg xxviii and (North) Table xv pg xxix, March 2024 version). Precautionary, ACL<ABC.
Copper	42 - 4010	2028	1	0.45	7.32	6.74	6.67	2023	
Gopher	N of 4010	2027	3	0.45				2011	
Gopher	N of 4010	2028	3	0.45				2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Grass	N of 4010	2027	3	0.45	0.6567	0.5109	0.5109	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Grass	N of 4010	2028	3	0.45	0.6567	0.5109	0.5109	2011	
Kelp	N of 4010	2027	3	0.45	0.0092	0.0072	0.0072	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Kelp	N of 4010	2028	3	0.45	0.0092	0.0072	0.0072	2011	
Olive	N of 4010	2027	3	0.45	0.3152	0.2452	0.2452	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Olive	N of 4010	2028	3	0.45	0.3152	0.2452	0.2452	2011	
Quillback	WA	2027	3	0.45	2.86	2.2251	2.2251	2021	OFL projected using a 50% SPR harvest rate MSY proxy from the 2021 assessment of quillback rockfish in WA (November 2021 version Section 4.2 pg 20, per SSC recommendation as constant OFL = 2.86 mt, Category 3, P*=0.45, ABC = 2.22 mt).

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Quillback	WA	2028	3	0.45	2.86	2.2251	2.2251	2021	
Quillback	OR	2027	2	0.45	3.19	2.69	2.69	2021	OFL projected using a 50% SPR harvest rate from the 2021 assessment of quillback rockfish in Oregon (December 2021 version, Table 14 pg 51, per Section 4.1 pg 23).
Quillback	OR	2028	2	0.45	3.21	2.6739	2.6739	2021	
Treefish	N of 4010	2027	3	0.45	0.2165	0.1684	0.1684	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Treefish	N of 4010	2028	3	0.45	0.2165	0.1684	0.1684	2011	
Nearshore Rockfish South	*S of 4010*	*2027*							*Sum of harvest specification contributions of component stocks in the complex.*
Nearshore Rockfish South	*S of 4010*	*2028*							
Black and Yellow	S of 4010	2027	2	0.45				2019	Gopher and black-and-yellow rockfishes are now combined in the 2019 assessment and resulting harvest specifications (documented in the gopher specifications). OFL based on a 50% SPR harvest rate projected in the 2019 assessment (Table g pg xix).
Black and Yellow	S of 4010	2028	2	0.45				2019	
Blue	4010 - 3427	2027	2	0.45	301.194	243.9671	243.9671	2017	OFL from 2019 catch-only projections (Table g pg 16; Agenda Item H.5 Supp Revised Attachment 17 September 2019). 90% of the CA OFL is apportioned South of 4010 N lat. (see Appendix D of the 2017 Assessment, pg 361). S of 4010 N lat. 2027 OFL = 334.66 * 0.90 = 301.194; 2028 OFL = 334.42 * 0.90 = 300.978.

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Blue	4010 - 3427	2028	2	0.45	300.978	241.6853	241.6853	2017	
Blue	S of 3427	2027	3	0.45	21.8	16.9604	16.9604	2017	Appendix G of the 2017 blue and deacon assessment describes calculation of the OFL proxy (pg 376).
Blue	S of 3427	2028	3	0.45	21.8	16.9604	16.9604	2017	
Brown	*S of 4010*	*2027*	*2*	*0.45*	*180.79*	*141.03*	*141.03*	*2013*	***O****FL from 2019 catch-only projections of the 2013 assessment (Table 1 pg 3; Agenda Item H.6 Attachment 2 November 2019).* ***Sigma is capped at 2.0 for buffer calculation - with P* = 0.45, buffer fraction multiplier = 0.778 (Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025****). The portion of the coastwide stock South (~98.8%) and North of 4010 N lat. (~1.2%) based on the proportion of cumulative removals by area during 1916-2012.*
Brown	*S of 4010*	*2028*	*2*	*0.45*	*181.09*	***140.89***	***140.89***	*2013*	
Calico	S of 4010	2027	3	0.45					
Calico	S of 4010	2028	3	0.45					
China	S of 4010	2027	2	0.45	17.97	14.2862	14.2862	2015	OFLs projected from the South Model in the 2015 assessment updated with 2019 catch-only projections (Table r pg 34; Agenda Item H.5 Supp Revised Attachment 19 September 2019).
China	S of 4010	2028	2	0.45	18.3	14.4204	14.4204	2015	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Copper	S of 4010	2027	1	0.45	139.91	129.55	127.79	2023	OFL projected from the 2023 full assessment; stock defined as CA (S of 42), apportioned to complex (N 4010 = 5.86%) based on estimates of rocky habitat and density of copper rockfish in the area (Table xiv pg xxviii and Table xv pg xxix, March 2024 version N Pt Conception and Nov 2023 version S Pt Conception). Precautionary, ACL<ABC. Values placed in GF FMP Amend 31 stock definition record for Area S of 4010. ACL values split by designated areas (S 3427 - 2027 = 20.1, 2028 = 22) (4010 to 3427 - 2027 = 107.7, 2028 = 107.1).
Copper	S of 4010	2028	1	0.45	141.63	130.58	129.11	2023	
Gopher	S of 4010	2027	2	0.45	158	130.508	130.508	2019	Gopher and black-and-yellow rockfishes are now combined in the 2019 assessment and resulting harvest specifications (documented in the gopher specifications). OFL based on a 50% SPR harvest rate projected in the 2019 assessment (Table g pg xix).
Gopher	S of 4010	2028	2	0.45	156	127.608	127.608	2019	
Grass	S of 4010	2027	3	0.45	59.6267	46.3896	46.3896	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Grass	S of 4010	2028	3	0.45	59.6267	46.3896	46.3896	2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Kelp	S of 4010	2027	3	0.45	27.6594	21.519	21.519	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Kelp	S of 4010	2028	3	0.45	27.6594	21.519	21.519	2011	
Olive	S of 4010	2027	3	0.45	224.6426	174.7719	174.7719	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Olive	S of 4010	2028	3	0.45	224.6426	174.7719	174.7719	2011	
Treefish	S of 4010	2027	3	0.45	13.2295	10.2926	10.2926	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Treefish	S of 4010	2028	3	0.45	13.2295	10.2926	10.2926	2011	
Shelf Rockfish North	*N of 4010*	*2027*							*Sum of harvest specification contributions of component stocks in the complex.*
Shelf Rockfish North	*N of 4010*	*2028*							

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Bocaccio	N of 4010	2027	3	0.45	284.0136	220.9626	220.9626	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010). Estimate only provided for North of 4010' N. Lat.
Bocaccio	N of 4010	2028	3	0.45	284.0136	220.9626	220.9626	2011	
Bronzespotted	N of 4010	2027	3	0.45					Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined. North = value is zero.
Bronzespotted	N of 4010	2028	3	0.45					
Chameleon	N of 4010	2027	3	0.45					
Chameleon	N of 4010	2028	3	0.45					
Chilipepper	*N of 4010*	*2027*	*1*	*0.45*	***240.401***	***224.294***	***224.294***	*2025*	*OFL from the 2025 full assessment, P* = 0.45, pending Council adoption (Table 4;* ***Agenda Item G.6 Supp Attachment 2 Sept 2025****), with M >0.15 varying buffer. OFLs are apportioned to the North (7%) and South (93%) of 4010 N lat. based on average historical landings.* ***N of 4010 N lat. 2027 OFL = 3434.3 * 0.07 = 240.401; 2028 OFL = 3318.7 * 0.07 = 232.309; 2027 ABC = 3204.2 * 0.07 = 224.294; 2028 ABC = 3079.7 * 0.07 = 215.579***
Chilipepper	*N of 4010*	*2028*	*1*	*0.45*	***232.309***	***215.579***	***215.579***	*2025*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Cowcod	*N of 4010*	*2027*	*3*	*0.45*	***0.576***	***0.4481***	***0.4481***	*2019*	OFL is based on the 2019 DB-SRA estimate in Appendix B of the 2019 cowcod assessment (Table F2 pg 179; Percentile 50% (Median), **2022 OFL value = 19.2**) ***(Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025)***. OFLs are apportioned to the north of 4010 N lat. (3%) and 4010 - 3427 N lat. (97%) based on cumulative historical catch (Table F3 pg 179; 1916-2018).
Cowcod	*N of 4010*	*2028*	*3*	*0.45*	***0.576***	***0.4481***	***0.4481***	*2019*	
Flag	N of 4010	2027	3	0.45	0.0724	0.0563	0.0563	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Flag	N of 4010	2028	3	0.45	0.0724	0.0563	0.0563	2011	
Freckled	N of 4010	2027	3	0.45					
Freckled	N of 4010	2028	3	0.45					
Greenblotched	N of 4010	2027	3	0.45	1.2774	0.9938	0.9938	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Greenblotched	N of 4010	2028	3	0.45	1.2774	0.9938	0.9938	2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Greenspotted	*42 - 4010*	*2027*	*2*	*0.45*	***10.23***	***7.96***	***7.96***	*2011*	*The OFL is the SPR proxy MSY of 95.6 mt based on the 2011 assessment (northern and southern models), with a default ABC of 74.4 mt calculated using a category 3 sigma for both 2027 and 2028. Apportionment should be based on the same relative amounts as in 2026; 10.7% 42-4010, 37.5% 4010-3427, 51.9% S 3427 (**Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025**).*
Greenspotted	*42 - 4010*	*2028*	*2*	*0.45*	***10.23***	***7.96***	***7.96***	*2011*	
Greenspotted	WA - OR	2027	3	0.45	6.1	4.7458	4.7458	2011	DCAC median value (Table 2; Appendix L: Catch-based allocation of the OFL for Greenspotted rockfish in northern California, and a yield estimate for U.S. water off Washington and Oregon, Agenda Item G.5.a. Supplemental Attachment 7, September 2011).
Greenspotted	WA - OR	2028	3	0.45	6.1	4.7458	4.7458	2011	
Greenstriped	N of 4010	2027	3	0.45	623.61	485.1686	485.1686	2009	OFL based on the MSY associated with the FMSY proxy in the 2009 assessment (Table d pg vii; Yield with SPR50% at SBSPR) per SSC recommendation (Agenda Item C.8.a Supp SSC Rpt 1 Sept 2021).The portion of the coastwide stock (738 mt total) North (84.5%) and South (15.5%) of 4010 N lat. is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.
Greenstriped	N of 4010	2028	3	0.45	623.61	485.1686	485.1686	2009	
Halfbanded	N of 4010	2027	3	0.45					
Halfbanded	N of 4010	2028	3	0.45					

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Harlequin	N of 4010	2027	3	0.45					
Harlequin	N of 4010	2028	3	0.45					
Honeycomb	N of 4010	2027	3	0.45					
Honeycomb	N of 4010	2028	3	0.45					
Mexican	N of 4010	2027	3	0.45					
Mexican	N of 4010	2028	3	0.45					
Pink	N of 4010	2027	3	0.45	0.0037	0.0029	0.0029	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Pink	N of 4010	2028	3	0.45	0.0037	0.0029	0.0029	2011	
Pinkrose	N of 4010	2027	3	0.45					
Pinkrose	N of 4010	2028	3	0.45					
Puget Sound	N of 4010	2027	3	0.45					
Puget Sound	N of 4010	2028	3	0.45					
Pygmy	N of 4010	2027	3	0.45					
Pygmy	N of 4010	2028	3	0.45					

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Redstripe	N of 4010	2027	3	0.45	269.9106	209.9904	209.9904	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Redstripe	N of 4010	2028	3	0.45	269.9106	209.9904	209.9904	2011	
Rosethorn	N of 4010	2027	3	0.45	12.8971	10.0339	10.0339	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Rosethorn	N of 4010	2028	3	0.45	12.8971	10.0339	10.0339	2011	
Rosy	N of 4010	2027	3	0.45	3.034	2.3605	2.3605	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Rosy	N of 4010	2028	3	0.45	3.034	2.3605	2.3605	2011	
Silvergray	N of 4010	2027	3	0.45	159.4204	124.0291	124.0291	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Silvergray	N of 4010	2028	3	0.45	159.4204	124.0291	124.0291	2011	
Speckled	N of 4010	2027	3	0.45	0.1711	0.1331	0.1331	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Speckled	N of 4010	2028	3	0.45	0.1711	0.1331	0.1331	2011	
Squarespot	42 - 4010	2027	2	0.45				2021	An OFL is not provided in this geographic area, per Section 4.3 (pg 21) of the 2021 squarespot rockfish data-moderate assessment in California, as after 2000 it is assumed that 100% of removals are from South of 4010 N lat. and thus no apportionment of the overall OFL was made to this area.
Squarespot	42 - 4010	2028	2	0.45				2021	
Starry	N of 4010	2027	3	0.45	0.0037	0.0029	0.0029	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Starry	N of 4010	2028	3	0.45	0.0037	0.0029	0.0029	2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Stripetail	N of 4010	2027	3	0.45	40.3954	31.4276	31.4276	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Stripetail	N of 4010	2028	3	0.45	40.3954	31.4276	31.4276	2011	
Swordspine	N of 4010	2027	3	0.45	0.0001	0.0001	0.0001	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Swordspine	N of 4010	2028	3	0.45	0.0001	0.0001	0.0001	2011	
Tiger	N of 4010	2027	3	0.45	0.9689	0.7538	0.7538	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Tiger	N of 4010	2028	3	0.45	0.9689	0.7538	0.7538	2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Vermilion	42 - 4010	2027	1	0.45	7	6.1	6.1	2021	OFL from 2023 projections of the 2021 assessments, based on a stock definition of California (S of 42) (Table 3; Agenda Item E.2 Supp Revised Attachment 5 November 2023). Stock apportionment to complex based on yield from the northern assessment model (4.4%) and southern complex is the remainder (95.6%) of the northern model yields plus the southern model yields.
Vermilion	42 - 4010	2028	1	0.45	6.9	6	6	2021	
Vermilion	*WA - OR*	*2027*			***13.13***	***11.99***	***11.99***	*2021*	*Based on the June 2025 SSC recommendation (Agenda Item E.6.a Supplemental SSC Report 1, June 2025), OFL and ABC projections from each area assessment should be summed to calculate OFLs and ABCs for the stock definition (N of 42). For 2027 and 2028, the OFL values are 13.13 mt and 12.83 mt respectively, and the ABC values are 11.99 mt and 11.66 mt, respectively. P* = 0.45* ***(Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025)****.*
Vermilion	*WA - OR*	*2028*			***12.83***	***11.66***	***11.66***	*2021*	
Shelf Rockfish South	*S of 4010*	*2027*							Sum of harvest specification contributions of component stocks in the complex.
Shelf Rockfish South	*S of 4010*	*2028*							
Bronzespotted	S of 4010	2027	3	0.45	3.6465	2.837	2.837	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Bronzespotted	S of 4010	2028	3	0.45	3.6465	2.837	2.837	2011	
Chameleon	S of 4010	2027	3	0.45					
Chameleon	S of 4010	2028	3	0.45					
Flag	S of 4010	2027	3	0.45	23.4239	18.2238	18.2238	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Flag	S of 4010	2028	3	0.45	23.4239	18.2238	18.2238	2011	
Freckled	S of 4010	2027	3	0.45					
Freckled	S of 4010	2028	3	0.45					
Greenblotched	S of 4010	2027	3	0.45	23.1305	17.9955	17.9955	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Greenblotched	S of 4010	2028	3	0.45	23.1305	17.9955	17.9955	2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Greenspotted	*4010 - 3427*	*2027*	*2*	*0.45*	***35.85***	***27.9***	***27.9***	*2011*	*The OFL is the SPR proxy MSY of 95.6 mt based on the 2011 assessment (northern and southern models), with a default ABC of 74.4 mt calculated using a category 3 sigma for both 2027 and 2028. Apportionment should be based on the same relative amounts as in 2026; 10.7% 42-4010, 37.5% 4010-3427, 51.9% S 3427 (**Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025**).*
Greenspotted	*4010 - 3427*	*2028*	*2*	*0.45*	***35.85***	***27.9***	***27.9***	*2011*	
Greenspotted	*S of 3427*	*2027*	*2*	*0.45*	***49.62***	***38.60***	***38.60***	*2011*	*The OFL is the SPR proxy MSY of 95.6 mt based on the 2011 assessment (northern and southern models), with a default ABC of 74.4 mt calculated using a category 3 sigma for both 2027 and 2028. Apportionment should be based on the same relative amounts as in 2026; 10.7% 42-4010, 37.5% 4010-3427, 51.9% S 3427 (**Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025**).*
Greenspotted	*S of 3427*	*2028*	*2*	*0.45*	***49.62***	***38.60***	***38.60***	*2011*	
Greenstriped	S of 4010	2027	3	0.45	114.39	88.9954	88.9954	2009	OFL based on the MSY associated with the FMSY proxy in the 2009 assessment (Table d pg vii; Yield with SPR50% at SBSPR) per SSC recommendation (Agenda Item C.8.a Supp SSC Rpt 1 Sept 2021). The portion of the coastwide stock (738 mt total) North (84.5%) and South (15.5%) of 4010 N lat. is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.
Greenstriped	S of 4010	2028	3	0.45	114.39	88.9954	88.9954	2009	
Halfbanded	S of 4010	2027	3	0.45					

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Halfbanded	S of 4010	2028	3	0.45					
Harlequin	S of 4010	2027	3	0.45					
Harlequin	S of 4010	2028	3	0.45					
Honeycomb	S of 4010	2027	3	0.45	9.8668	7.6764	7.6764	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Honeycomb	S of 4010	2028	3	0.45	9.8668	7.6764	7.6764	2011	
Mexican	S of 4010	2027	3	0.45	5.0532	3.9314	3.9314	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Mexican	S of 4010	2028	3	0.45	5.0532	3.9314	3.9314	2011	
Pink	S of 4010	2027	3	0.45	2.5335	1.9711	1.9711	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Pink	S of 4010	2028	3	0.45	2.5335	1.9711	1.9711	2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Pinkrose	S of 4010	2027	3	0.45					
Pinkrose	S of 4010	2028	3	0.45					
Pygmy	S of 4010	2027	3	0.45					
Pygmy	S of 4010	2028	3	0.45					
Redstripe	S of 4010	2027	3	0.45	0.4926	0.3832	0.3832	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Redstripe	S of 4010	2028	3	0.45	0.4926	0.3832	0.3832	2011	
Rosethorn	S of 4010	2027	3	0.45	2.1305	1.6575	1.6575	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Rosethorn	S of 4010	2028	3	0.45	2.1305	1.6575	1.6575	2011	
Rosy	S of 4010	2027	3	0.45	44.5082	34.6274	34.6274	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Rosy	S of 4010	2028	3	0.45	44.5082	34.6274	34.6274	2011	
Silvergray	S of 4010	2027	3	0.45	0.5376	0.4183	0.4183	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Silvergray	S of 4010	2028	3	0.45	0.5376	0.4183	0.4183	2011	
Speckled	S of 4010	2027	3	0.45	39.3813	30.6387	30.6387	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Speckled	S of 4010	2028	3	0.45	39.3813	30.6387	30.6387	2011	
Squarespot	S of 4010	2027	2	0.45	7.5732	6.3691	6.3215	2021	OFL projected using a 50% SPR harvest rate from the 2021 squarespot rockfish data-moderate assessment in CA .Note buffer calculations and labels were later updated for Table 17 pg 47 in the assessment (Table 4, Agenda Item G.6 Revised Supp Attachment 2 Sept 2023). Precautionary in 2027 with ACL<ABC, and in 2028 above management target (40% unfished) with ACL=ABC.
Squarespot	S of 4010	2028	2	0.45	7.9485	6.6211	6.6211	2021	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Starry	S of 4010	2027	3	0.45	62.5716	48.6807	48.6807	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Starry	S of 4010	2028	3	0.45	62.5716	48.6807	48.6807	2011	
Stripetail	S of 4010	2027	3	0.45	23.6233	18.3789	18.3789	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Stripetail	S of 4010	2028	3	0.45	23.6233	18.3789	18.3789	2011	
Swordspine	S of 4010	2027	3	0.45	14.2159	11.06	11.06	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Swordspine	S of 4010	2028	3	0.45	14.2159	11.06	11.06	2011	
Tiger	S of 4010	2027	3	0.45	0.0399	0.031	0.031	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Tiger	S of 4010	2028	3	0.45	0.0399	0.031	0.031	2011	
Vermilion	S of 4010	2027			305.3	268	268	2021	OFL from 2023 catch-only projections of the 2021 assessments, based on a stock definition of California (S of 42) (Table 3; Agenda Item E.2 Supp Revised Attachment 5 November 2023). Stock apportionment to N and S 4010 complexes based on yield from the northern assessment model (4.4%) and southern complex is the remainder (95.6%) of the northern model yields plus the southern model yields.
Vermilion	S of 4010	2028			303.3	264.4	264.4	2021	
Yellowtail Rockfish	S of 4010	2027	3	0.45	1064.439	828.1337	828.1337	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Yellowtail Rockfish	S of 4010	2028	3	0.45	1064.439	828.1337	828.1337	2011	
Slope Rockfish North	*N of 4010*	*2027*							*Sum of harvest specification contributions of component stocks in the complex.*
Slope Rockfish North	*N of 4010*	*2028*							
Aurora	*N of 4010*	*2027*	*1*	*0.45*				*2013*	***A request for extended projections is recommended by the SSC to utilize for default harvest specifications for 2027-28.*** *The portion of the coastwide stock north (19%) and south (81%) of 4010 N lat. is based on average survey biomass.*
Aurora	*N of 4010*	*2028*	*1*	*0.45*				*2013*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Bank	N of 4010	2027	3	0.45	17.2375	13.4108	13.4108	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Bank	N of 4010	2028	3	0.45	17.2375	13.4108	13.4108	2011	
Blackgill Rockfish	N of 4010	2027	3	0.45	4.7	3.6566	3.6566	2011	Revisions to OFL Contributions for Category 3 Stocks (Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010).
Blackgill Rockfish	N of 4010	2028	3	0.45	4.7	3.6566	3.6566	2011	
Redbanded	N of 4010	2027	3	0.45	45.2618	35.2137	35.2137	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Redbanded	N of 4010	2028	3	0.45	45.2618	35.2137	35.2137	2011	
Rougheye/Blackspotted	*N of 4010*	*2027*	*2*	*0.45*	*946.68*	*827.3983*	*827.3983*	*2025*	*OFL based on the 2025 full assessment, P* = 0.45, pending Council adoption (Table ix pg xviii; **Agenda Item G.3 Attachment 4 Sept 2025**). The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012. N of 4010 2027 OFL = 966 * 0.98 = 946.68; 2028 OFL = 954 * 0.98 = 934.92.*
Rougheye/Blackspotted	*N of 4010*	*2028*	*2*	*0.45*	*934.92*	*808.7058*	*808.7058*	*2025*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Sharpchin	*N of 4010*	*2027*	*2*	*0.45*	*276*	*215.28*	*215.28*	*2013*	*OFL from 2019 catch-only projections of the 2013 assessment (Table 15 pg 8; Agenda Item H.8 Supp Attachment 2 September 2019).* ***Sigma is capped at 2.0 for buffer calculation - with P* = 0.45, buffer fraction multiplier = 0.778 (Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025****). OFLs are apportioned to the North (80%) and South (20%) of 4010 N lat. based on average swept area biomass estimates from the triennial survey. N of 4010 N lat. 2027 OFL = 345 * 0.8 = 276; 2028 OFL = 341 * 0.8 = 272.8.*
Sharpchin	*N of 4010*	*2028*	*2*	*0.45*	*272.8*	***212.24***	***212.24***	*2013*	
Shortraker	N of 4010	2027	3	0.45	18.7038	14.5516	14.5516	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Shortraker	N of 4010	2028	3	0.45	18.7038	14.5516	14.5516	2011	
Splitnose	*N of 4010*	*2027*	*1*	*0.45*	***448***	***349***	***349***	*2009*	*The OFL is the SPR proxy MSY of 1,244 mt based on the 2009 assessment (Table 23), with a default ABC of 968 mt calculated using a category 3 sigma. Status quo apportionment is 36% N of 4010 and 64% S of 4010. S of 4010 OFL 1244 * 0.36 = 447.84, ABC 968 * 0.36 = 348.48 (****Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025****).*
Splitnose	*N of 4010*	*2028*	*1*	*0.45*	***448***	***349***	***349***	*2009*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Yellowmouth	N of 4010	2027	3	0.45	192.4467	149.7235	149.7235	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Yellowmouth	N of 4010	2028	3	0.45	192.4467	149.7235	149.7235	2011	
Slope Rockfish South	*S of 4010*	*2027*							*Sum of harvest specification contributions of component stocks in the complex.*
Slope Rockfish South	*S of 4010*	*2028*							
Aurora	*S of 4010*	*2027*	*1*	*0.45*				*2013*	***A request for extended projections is recommended by the SSC to utilize for default harvest specifications for 2027-28.*** *The portion of the coastwide stock north (19%) and south (81%) of 4010 N lat. is based on average survey biomass.*
Aurora	*S of 4010*	*2028*	*1*	*0.45*				*2013*	
Bank	S of 4010	2027	3	0.45	503.215	391.5013	391.5013	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Bank	S of 4010	2028	3	0.45	503.215	391.5013	391.5013	2011	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Blackgill Rockfish	S of 4010	2027	2	0.45	202	163.62	163.62	2017	Values from a 2019 catch-only update/projection from the 2017 assessment update of blackgill rockfish in the Conception and Monterey INPFC areas (Table f pg x; Agenda Item H.5 Attachment 16 September 2019).
Blackgill Rockfish	S of 4010	2028	2	0.45	202	162.206	162.206	2017	
Pacific Ocean Perch	S of 4010	2027	3	0.45					
Pacific Ocean Perch	S of 4010	2028	3	0.45					
Redbanded	S of 4010	2027	3	0.45	10.4057	8.0956	8.0956	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Redbanded	S of 4010	2028	3	0.45	10.4057	8.0956	8.0956	2011	
Rougheye/Blackspotted	*S of 4010*	*2027*	*2*	*0.45*	*19.32*	*16.8857*	*16.8857*	*2025*	*OFL based on the 2025 full assessment, P* = 0.45, pending Council adoption (Table ix pg xviii; **Agenda Item G.3 Attachment 4 Sept 2025**). The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012. S of 4010 2027 OFL = 966 * 0.02 = 19.32; 2028 OFL = 954 * 0.02 = 19.08.*
Rougheye/Blackspotted	*S of 4010*	*2028*	*2*	*0.45*	*19.08*	*16.5042*	*16.5042*	*2025*	

Stock/Complex	Area	Year	Category	P*	OFL	ABC	ACL	Assess Year	Notes/Description
Sharpchin	*S of 4010*	*2027*	*2*	*0.45*	69	*53.82*	*53.82*	*2013*	*OFL from 2019 catch-only projections of the 2013 assessment (Table 15 pg 8; Agenda Item H.8 Supp Attachment 2 September 2019).* ***Sigma is capped at 2.0 for buffer calculation - with P* = 0.45, buffer fraction multiplier = 0.778 (Agenda Item G.6.a Supplemental SSC Report 1 Sept 2025)****. OFLs are apportioned to the North (80%) and South (20%) of 4010 N lat. based on average swept area biomass estimates from the triennial survey. S of 4010 N lat. 2027 OFL = 345 * 0.2 = 69; 2028 OFL = 341 * 0.2 = 68.2.*
Sharpchin	*S of 4010*	*2028*	*2*	*0.45*	68.2	***53.06***	***53.06***	*2013*	
Shortraker	S of 4010	2027	3	0.45	0.1049	0.0816	0.0816	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Shortraker	S of 4010	2028	3	0.45	0.1049	0.0816	0.0816	2011	
Yellowmouth	S of 4010	2027	3	0.45	0.8483	0.66	0.66	2011	Revisions to OFL Contributions for Category 3 Stocks (Table 2, Dick 2011). Original NOAA Tech Memo NOAA-TM-NMFS-SWFSC-460 (Dick and MacCall 2010), Table 65 apportionment % to North and South complexes based on cumulative catch data 1983-1989 and 1993-1999, all sources combined.
Yellowmouth	S of 4010	2028	3	0.45	0.8483	0.66	0.66	2011	

G. Groundfish Management

2. Phase 2 Stock Definitions – Final Action

The Scientific and Statistical Committee (SSC) reviewed the Council's preliminary preferred alternatives (PPAs) for the stock definition options for five species (Table 5 of Agenda Item G.2, Attachment 3), the PPAs for ecosystem component species (Table 3 of Agenda Item G.2, Attachment 3), and the process for evaluating stocks in terms of whether they should be included in the Groundfish Fishery Management Plan based on their need for conservation and management within the US Exclusive Economic Zone (EEZ). The focus for SSC discussion was on spatial population structure and the consequences of stock definitions for monitoring and stock assessment, whereas the 10-factor analysis is focused on defining "management stocks". Katrina Bernaus (PFMC staff) and Keeley Kent (NOAA) provided clarifications on the Phase 2 process and the analyses conducted to support Council decision making.

The SSC reiterates that the current evidence for stock structure remains uncertain but that considerable evidence for connectivity among the currently defined stocks exists for some species. Even when there is evidence of stock structure, the boundaries are generally difficult to identify and unlikely to coincide with political borders. Moreover, the SSC continues to assert that removal of a subset of the spatial components of a species from the FMP will adversely affect the ability to design monitoring and assessment strategies and define essential fish habitat at the species level. Thus, removing a spatial component from the FMP will reduce the ability to manage stocks of fish throughout the depth and latitudinal ranges of their populations. Consequently, the SSC maintains its recommendation that if some spatial component (e.g., the part of a species offshore of one or more states) is to be retained in the FMP based on the 10-factor analysis, all of its spatial components should be retained in the FMP. This recommendation is supported by National Standard 3, which states "To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination".

For example, the 2023 stock assessment for black rockfish off California synthesized information related to stock structure for black rockfish off the West Coast, highlighting considerable uncertainty and northward movement that suggests substantial connectivity between populations found off California and Oregon (Dick et al. 2023). Tagging information also confirms movement from Washington to Oregon and California (Wallace et al. 2010). Retaining black rockfish off Oregon and Washington in the FMP but excluding black rockfish off California is not in accordance with the new information about population connectivity from the 2023 assessment. The SSC is willing to review an updated analysis for black rockfish, or any other species for which some spatial components are considered as being in need of conservation and management in the EEZ and others not, if this new information is to be considered prior to a final decision on stock definitions.

The SSC agrees that the stock delineations in Table 5 of Agenda Item G.2, Attachment 3 are consistent with the best available information on stock structure. However, this table does not reflect the SSC recommendation that if some spatial component is to be retained in the FMP, all

of its spatial components should be retained in the FMP. The SSC also notes that a mtDNA study (Villablanca and Nakamura 2008) found seven distinct cabezon subpopulations in the California Current: one in southern Oregon, three north of Point Conception, and three south of Point Conception. The SSC recommends an alternative Table 5 of Agenda Item G.2, Attachment 3, which includes additional stocks in italic underline that reflect the recommendation about species with multiple spatial components should be treated as one unit and the new information on cabezon stock structure:

Species	**Opt.**	**Potential Stock Delineations**
Blue / Deacon Rockfish	3	*California,* Oregon, Washington
Cabezon	*3*	*California, Oregon,* Washington
Kelp Greenling	*3*	*California, Oregon,* Washington
Rosethorn Rockfish	1	Coastwide
Stripetail Rockfish	1	Coastwide

The vulnerability assessment (the Productivity/Susceptibility Analysis, PSA) documented in Patrick et al. (2010) does not appear to have influenced the outcomes related to Ecosystem Component (EC) species. This PSA was developed to evaluate the vulnerability of stocks to overfishing, such that stocks with high vulnerability are generally in need of conservation and management measures. Consequently, the SSC continues to have concerns over the designation of EC species for large-bodied species likely to be retained and desired by the fishery, particularly those with high vulnerability due to their life history characteristics (slow growth, large size, greater longevity). The SSC recommends that the EC designation be reserved for species with low (or at most moderate) vulnerability to fisheries impacts and those most likely to be discarded due to small size or poor marketability, generally the 'diminutive' species referred to within Agenda Item G.2 Attachment 1. The shallow and deep shelf species proposed for EC status with high vulnerability (Alternative 3 in Table 3 of Agenda Item G.2, Attachment 3) include bronzespotted, speckled, and tiger rockfish (Cope et al. 2011). Shallow and deep shelf species proposed for EC status with medium vulnerability include flag, rosy, greenblotched and Mexican rockfishes. While not primary fisheries targets, greenblotched, speckled, flag, bronzespotted, and rosy have historical (1916 to 2009) catches between 1,000 and 2,500 tons coastwide and most others have historical landings of several to many hundred tons (Dick and MacCall 2010; Table 4). Although current catches are low, this is partially a consequence of past area closures, particularly the Cowcod Conservation Area closures that have constrained southern California fisheries for well over two decades. Therefore, the SSC recommends that these species be retained in the FMP, and that they are considered species "in the fishery", with stock definitions.

The potential PPA stock definitions in Table 7 of Agenda Item G.2, Attachment 3 places leopard shark in stock definitions options 1 and 2 that would combine states, though leopard sharks have fine-scale spatial genetic structure at the level of bays and estuaries used for pupping, with natal homing (Lewallen et al. 2007). Although most of its mortality is in state waters and they are likely to be removed from the FMP, if they are retained, the spatial structure would indicate option 2

would be the most appropriate definition with separate stocks in California, Oregon/Washington.

The SSC raises three additional issues related to stock definitions:

- The 10-factor analysis does not identify how various factors were weighted for making decisions, other than specifying that factors 1-3 are more heavily weighted.
- Many of the stocks in Table 3 of Agenda Item G.2, Attachment 3 tend to be considerably more data poor relative to many co-occurring species, and the SSC recognizes that the next phase of this process relates to defining stock complexes. The SSC recommends that highly vulnerable species be considered for management as part of a complex with co-occurring species.
- New information could lead to changes to the best available scientific information regarding spatial population structure and the level of mortality in the EEZ. In addition, climate change is likely to change stock distributions. The process of changing stock definitions and adding/removing species or spatial components from the FMP is unclear and guidance should be developed for the Council and stock assessment scientists that effectively describes this process.

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SSC Notes

- *Many of the species under consideration are found in Mexico and Canada. However, the analysis and SSC discussion focused on stock structure in US waters.*
- *Eliminating stocks from the FMP will increase the burden on the states in terms of stock assessments and monitoring. This will be greatest for California given the large number of nearshore stocks in that state.*
- *On several occasions, the SSC recommended a workshop to identify the best possible methods for identifying stock structure and boundaries, but this was never conducted.*
- *From the scientific literature review: There are two genetically distinct populations of stripetail rockfish off California, with a north-south barrier between the northern Channel Islands and Point Conception (Berntson et al. 2004; Hyde and Vetter 2007).*

Information from previous statements:

- *March 2025 – "The SSC recommends against state-specific inclusion or exclusion of species in the FMP due to considerable uncertainty in the information used to define stock structure."*
- *March 2025 - "The SSC notes that Attachment 1 recognizes that the "mixed mortality" between state and federal waters "present a unique challenge". This statement is particularly true with respect to the successful implementation of monitoring, management, and assessment. It is not likely that the consequences and challenges to monitoring and assessment of removal from the FMP can be adequately evaluated or meaningfully predicted."*
- *June 2025 - The SSC (Agenda Item E.6.a Supplemental SSC Report 1, June 2025) did recommend that the Council: "… keep all spatial components of a species in the FMP if at least one component qualifies for inclusion. Doing so would account for considerable uncertainty in stock structure and maintain data collection and research coordination for the would-be-excluded spatial components. Consistent data collection and research on these components will be vital to increase confidence in stock boundaries, now and under changing ecological conditions."*

From Dick et al. (2023), black rockfish:

- *"There is conflicting evidence and limited information with which to evaluate black rockfish stock structure, especially off California."*
- *"Although most black rockfish show moderate to high site fidelity and some degree of homing, a notable proportion of fish appear to cross stock boundaries."*
- *"There are numerous reports that most black rockfish display small home ranges. A sizable percentage (approximately 10 to 30%, depending on the study), however, have moved considerable distances. A small number of black rockfish have also been documented as having undergone considerable migrations (e.g., up to 400 km southward from Puget*

Sound [Mathews and Barker 1983], approximately 600 km northward from central Oregon [Coombs 1979], and over 900 km northward from central California [Starr et al. 2015]).”

- *“Directional movement between areas (south to north, as observed in the CCFRP movement data) may partially explain sustained differences in size and age composition throughout the state.”*
- *“Of the 65 fish recaptured from 2007 to 2022, the maximum Euclidean distance traveled was 918 km” (Starr et al. 2015).*
- *“The overall mean distance traveled was 180 ± 316 km, with 26.2% of recaptured fish (n = 16) moving greater than 250 km (CCFRP unpublished data). Long-distance travelers were subadults (30.9 ± 4.5 cm fork length) and tended to migrate northward into Oregon waters”.*

From the Groundfish FMP:

“Ecosystem Component Species are FMP species that are not actively managed in the fishery (i.e., no harvest specifications are specified for these species). Ecosystem component species are not targeted, are not generally retained for sale or personal use, are not subject to overfishing, and are not overfished or approaching an overfished condition (see section 4.4.4 for more detail). This FMP includes both EC species that are specific to the Groundfish FMP and EC species that are shared between all four of the Council’s FMPs (referred to as “Shared EC Species”).”

I. Administrative Matters

4. Future Council Meeting Agenda and Workload Planning

The Scientific and Statistical Committee (SSC) discussed workload planning and has the following updates to its June 2025 statement under this agenda item.

The SSC Ecosystem Subcommittee anticipates conducting its annual review of Ecosystem Status Report Science Topics in the fall of 2025 (virtual), based on the proposals adopted by the Council in March 2025. The tentative date proposed in the June 2025 SSC workload planning statement is no longer optimal for the Subcommittee.

The Salmon Methodology Review meeting is scheduled for October 9-10, 2025 as a virtual meeting. The SSC Salmon Subcommittee requests that it be scheduled as a half day beginning at 8AM on October 9, 2025. The SSC Salmon Subcommittee also notes this meeting will occur again in October of 2026, if needed, and that an in-person meeting would be preferable.

The SSC has recommended that the SSC Groundfish Subcommittee convene a Supplemental Review of the widow rockfish stock assessment. This meeting is tentatively planned for October 14-17, 2025, at the Watertown Hotel in Seattle, WA. The meeting would start at 1 pm on Tuesday October 14, include two full days on October 15 and 16, and conclude on Friday, October 17. The anticipated degree of complexity for review materials and discussion warrants an in-person meeting, with a broadcast for listening and remote public comment.

A PFMC SSC member plans to participate in the Center for Independent Experts (CIE) review of the Fisheries Integrated Modeling System (FIMS) on November 4-6, 2025 (virtual).

The SSC Economics Subcommittee will hold a virtual meeting, November 7, 2025 from 12-4 p.m. (PT) to review the 5-Year Groundfish Trawl Catch Share Review and will prepare a report for the full SSC to review during its November 2025 meeting.

The SSC notes that, in the YAG (Agenda Item I.4 Attachment 1), risk table items are grayed out (November 2025 and March 2026 meetings). The SSC has repeatedly found risk tables to be useful and recommends these items be added to the agenda for those meetings if items are completed.

The SSC recommends that the SSC Groundfish Subcommittee hold a Groundfish Stock Assessment Process Review meeting in mid- or late- January 2026, as a two-day virtual meeting with participation from the Groundfish Management Team (GMT), Groundfish Advisory Subpanel (GAP), and other stock assessment participants to discuss and provide feedback from the 2025 stock assessment cycle.

The SSC proposes the SSC Coastal Pelagic Species (CPS) Subcommittee conduct a review of new SWFSC/NWFSC Integrated West Coast Pelagics survey methods for generating biomass estimates to be used in CPS stock assessments, pending Council decision in November 2025. This review meeting is anticipated to be conducted in February or March 2026, and is currently proposed for the week of February 23-27, 2026 at the SWFSC in La Jolla, California.

The SSC GFSC anticipates conducting a Groundfish Stock Assessment Methodology Review meeting during 2026 for any topic adopted under Agenda Item G.4 at the September 2025 meeting. The review meeting is anticipated as an in-person meeting, with a web broadcast for remote listening and public comment.

The SSC Ecosystem-Based Management Subcommittee anticipates conducting a review meeting, should the Council adopt any science topics from the March 2026 meeting. This meeting would be anticipated in the late fall of 2026.

In the event of a government shutdown during October 2025, the Salmon Methodology Review and Supplemental Review of the 2025 widow rockfish update assessment could be impacted. For the Salmon Methodology Review, there are no federal proponents. However, two members of the SSC and multiple members of the STT are federal employees. Salmon Methodology Review material will be available prior to a potential government shutdown, though participation would be uncertain depending on the length of the potential closure. For the Supplemental Review of the 2025 widow rockfish update assessment, review materials are expected to be available prior to a potential shutdown, the two-week deadline for submission of materials would occur prior to October 1, 2025. All analysts working on responses to requests from the SSC Groundfish

Subcommittee are federal employees. Depending on the length of a shutdown, their potential lack of participation would result in a very different structure to this review. Several members of the SSC Groundfish Subcommittee who would participate in the Supplemental Review are also federal employees. A lack of NOAA employees on both sides of the review would limit the detailed, back-and-forth nature that is typical of stock assessment review meetings.

Proposed Workshops and SSC Subcommittee Meetings for 2025 and Beyond *Italic items are noted as potential or preliminary* *Shaded rows indicate newly added items since the prior statement*							
	Workshop/Meeting	**Potential Dates**	**Sponsor/ Tentative Location**	**SSC Reps.**	**Additional Reviewers**	**AB Reps.**	**Council Staff**
1	Ecosystem Status Report Science Topics Review	Postponed until later in 2025	Council/Virtual	Ecosystem Subcommittee	TBD	EWG EAS	Lyons/ Bellman
2	Salmon Methodology Review	October 9-10, 2025	Council/Virtual	Salmon Subcommittee	TBD	STT	Forristall /Bellman
3	Supplemental Review: 2025 update assessment for widow rockfish	Oct 14-17, 2025	Council/ Seattle/ Broadcast	Groundfish Subcommittee	CIE	GMT GAP	Bellman
4	CIE Review of Fisheries Integrated Modeling System	November 4-6, 2025	NOAA/Virtual	PFMC SSC rep.	*NA*	*NA*	*NA*
5	Economic Subcommittee Meeting: Trawl Catch Share Program Review	November 7, 2025	Council/ Virtual	Economics Subcommittee	NA	GMT GAP	Waller/ Bellman
6	*Process Review of 2025 groundfish stock assessment cycle*	*January 2026*	*Council/ Virtual*	*Groundfish Subcommittee*	*TBD*	*GMT GAP*	*Bellman*
7	*CPS Methodology Review: SWFSC/NWFSC Integrated Survey*	*February 23-27, 2026*	*Council/ SWFSC La Jolla/ Broadcast*	*CPS Subcommittee*	*TBD*	*CPSMT CPSAS*	*Bernaus/ Bellman*
8	*Groundfish Methodology Review*	*Summer 2026*	*Council/TBD*	*Groundfish Subcommittee*	*TBD*	*GMT GAP*	*Bellman*
9	*Salmon Methodology Review*	*October 2026*	*Council/TBD*	*Salmon Subcommittee*	*TBD*	*STT*	*Forristall /Bellman*
10	*Ecosystem Status Report Science Topics Review*	*Fall 2026*	*Council/TBD*	*Ecosystem Subcommittee*	*TBD*	*EWG EAS*	*Lyons/ Bellman*

SSC Subcommittee Assignments

Salmon	Groundfish	Coastal Pelagic Species	Highly Migratory Species	Economics	Ecosystem-Based Management
Galen Johnson	**John Field** (Chair)	**André Punt**	**Michael Hinton**	**Dan Holland**	**Chris Free**
John Budrick	**Cheryl Barnes** (Vice-Chair)	John Budrick	Cheryl Barnes	Chris Free	Cheryl Barnes
Tim Copeland	John Budrick	John Field	John Field	Michael Hinton	Tim Copeland
Owen Hamel	Chris Free	Owen Hamel	Selina Heppell	André Punt	John Field
Will Satterthwaite	Owen Hamel	Selina Heppell	Dan Holland	Matthew Reimer	Selina Heppell
Jason Schaffler	André Punt	Michael Hinton	André Punt	Francisco Werner	Dan Holland
Tien-Shui Tsou	Alberto Rovellini	Will Satterthwaite	Matthew Reimer		Galen Johnson
	Jason Schaffler	Tien-Shui Tsou	Francisco Werner		André Punt
	Tien-Shui Tsou	Francisco Werner			Matthew Reimer
					Alberto Rovellini
					Will Satterthwaite

Bold denotes Subcommittee Chairperson

ADJOURN

PFMC
12/08/25