

Scientific and Statistical Committee

Pacific Fishery Management Council
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September 17-19, 2024

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
Mr. Alan Byrne, Idaho Department of Fish and Game, Boise, ID
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. 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. Kristin Marshall, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Tommy Moore, Northwest Indian Fisheries Commission, Forks, WA
Dr. Matthew Reimer, University of California Davis, Davis, CA
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. Ole Shelton, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Tien-Shui Tsou, Washington Department of Fish and Wildlife, Olympia, WA

Members Absent

Dr. André Punt, University of Washington, Seattle, WA

SSC Recusals for the September 2024 Meeting		
SSC Member	Issue	Reason
Dr. Galen Johnson	E.3 Queets Spring/Summer Chinook Rebuilding	Dr. Johnson co-authored sections of the work related to Pacific Salmon Commission Chinook Technical Team analysis.
Dr. Tommy Moore	H.1 Fishery Ecosystem Plan Initiative 4: Groundfish and Salmon Risk Tables	Dr. Moore serves as Chair of the Ecosystem Workgroup.
Dr. Kristin Marshall	H.1 Fishery Ecosystem Plan Initiative 4: Groundfish and Salmon Risk Tables	Dr. Marshall is a contributor to the CCIEA report.
Dr. Kristin Marshall	I.8 Phase 2: Stock Definitions	Dr. Marshall's relationship to the survey catch proportion analysis co-author.
Dr. Cheryl Barnes	I.8 Phase 2: Stock Definitions	Dr. Barnes supervised the PFMC contractor conducting the scientific literature review.

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 2024 SSC agenda was approved, with a change in John Field taking the discussion lead role on Agenda Item I.5. The SSC also supported switching the groundfish Agenda Item I.8.a overview presentation of Phase 2 to the time slot on Tuesday Sept 17 at 3:15 pm. In addition, a request for the SSC to confirm technical corrections for groundfish harvest specifications under Agenda Item I.6 was made. Several suggested edits were made to the June 2024 SSC Minutes and adopted as final. Thus, the September 2024 briefing book version of the June 2024 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, and the SSC role on the Salmon Model Evaluation Workgroup (MEW) was noted as a follow-up discussion for a future meeting. Dr. Ole Shelton will serve as the SSC vice-chair in the current term.

Open discussion included feedback from the SSC on their use of the SSC Memo and Agenda provided for each Council meeting. Outcomes from the Council Coordination Committee's (CCC) Scientific Coordination Subcommittee meeting (SCS8) held in August 2024 are scheduled to be discussed by the SSC at the November 2024 meeting.

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

- K. Administrative Matters
- 3. Membership Appointments and Council Operating Procedures
 - a. Membership Appointments (SSC Closed Session)

E. Salmon Management

- 2. 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 the three topics that the SRWG recommends for the Salmon Methodology Review this year. Michael O’Farrell (SWFSC, Salmon Technical Team [STT] Chair) gave a brief overview of the STT discussion on the topics. The SSC recommends that all three topics be reviewed on October 4, 2024. All materials are complete and can be reviewed in one day. The analysts will be available to present and answer questions on that day. The work has the potential to improve the scientific basis for salmon management by the Pacific Fishery Management Council.

1. **Derivation of proxy S_{MSY}/S_{MSP} ratio and F_{MSY} value suitable for use for SRFC.** This work addresses the first topic identified in the SRWG Terms of Reference. The SRWG proposed a review of its completed report that covers criteria for inclusion of analyses, a set of stocks and analyses it identified as appropriate for informing reference points, and the resulting proxy values for S_{MSY}/S_{MSP} and F_{MSY} .
2. **Sacramento River Fall Chinook cohort reconstruction and comparison to the Sacramento Index (SI).** Emily Chen (U.C. Berkeley) has completed a report describing a cohort reconstruction of hatchery- and natural-origin SRFC for recent years, which incorporates new methods for estimating uncertainty from sampling coded wire tags and scales.
3. **Uncertainty metrics and buffering approaches for SRFC forecasts.** A published paper by Satterthwaite and Shelton (2023) documented bias and substantial uncertainty in forecasts for several PFMC-managed salmon stocks. The approach described in that paper has the potential to address the portions of the SRWG Terms of Reference that call for evaluation and possible revisions of forecasts and the harvest control rule. This paper has also informed discussions in the SSC Ecosystem Subcommittee about the development of risk tables for salmon, and it addresses an SSC recommendation that uncertainty be accounted for in salmon forecasts. With proposals for quantifying bias and uncertainty in salmon forecasts, and derivation of buffers based on desired levels of risk tolerance, Satterthwaite and Shelton (2023) present a number of potential pathways for improving salmon management in the Council arena. Considering the uncertainty metrics and buffering approaches specifically for SRFC forecasts provides a tractable scope for the review while serving as a good demonstration of the approach. Satterthwaite and Shelton (2023) include a retrospective analysis of how buffers might have affected historical management outcomes for the SRFC stock, thus informing the potential costs and benefits of this approach in terms of both harvest and conservation metrics. Describing uncertainty and identifying methodologies for developing buffers is a general and longstanding need

for salmon management, and is incorporated into management of groundfish and coastal pelagic species. This need is independent of the current reference points for abundance and harvest control rules.

SSC Notes

The review of item 1 will probably take slightly less time than the review of items 2 and 3. The SSC estimates about 90 minutes for item 1, and 120 minutes each for items 2 and 3.

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.

<https://www.pcouncil.org/june-2024-decision-summary-document/#salmon-management--toc-94dbc46a-7517-4716-97ec-5eb6e072cb19>

SRWG Terms of Reference (TOR): <https://www.pcouncil.org/documents/2023/06/i-1-supplemental-attachment-3-sacramento-river-fall-chinook-ad-hoc-workgroup-draft-terms-of-reference-and-general-timeline-june-14-2023.pdf/>

STT had concerns about possible redundancies in using Satterthwaite and Shelton methods in combination with other work underway for SRFC. Addressing forecast uncertainty is not redundant with improving the scientific basis of reference points. Additionally, the SSC discussed that careful documentation and review of potential methods that address forecast bias and uncertainty and reference points is necessary.

All materials for methodology review should be submitted no less than two weeks prior to the review, and should be technically sound, comprehensive, clearly documented, and identified by author(s). Will Satterthwaite has confirmed that the documentation has been completed for all three items, and the presenters for each will be available October 4.

According to [COP 15](#), “At the September meeting the SSC will inform the Council of the methodologies ready for review and recommend a review schedule. The SSC also will notify the Council of assistance needed from management entities and the MEW to accomplish the review.”.

E. Salmon Management

3. Queets Spring/Summer Chinook Rebuilding – Range of Alternatives and Preliminary Preferred Alternative

Alexandrea Safiq (Washington Department of Fish and Wildlife), Jon Carey (NMFS West Coast Region), and members of the Salmon Technical Team (STT) briefed the Scientific and Statistical Committee (SSC) on the draft Queets Spring/Summer Chinook rebuilding plan.

The SSC discussed the challenges of integrating age-specific fishing impacts into the non-age-structured simulation model used to calculate minimum rebuilding times (T_{MIN}), and the uncertainty due to a lack of ocean harvest estimates for this stock. Therefore, the T_{MIN} calculation is highly uncertain because we do not have a good understanding of stock productivity or potential escapement in the absence of fishing.

The SSC also discussed S_{MSY} for Queets Spring/Summer Chinook. The stock's geometric mean escapement has not been above S_{MSY} since the early 1990s, and it is unclear how S_{MSY} was originally calculated. The SSC [reiterates](#) its [previous recommendation](#) for a structured, prioritized approach to reviewing reference points for this and other salmon stocks. It may not be possible to estimate well-supported reference points for this stock in the absence of more complete data.

The SSC found that the economic impact analysis presented in Appendix C was incomplete as compared to similar analyses for other salmon stocks, and should be improved. The 2019 rebuilding plans for Queets natural coho and Strait of Juan de Fuca natural coho included socioeconomic impact analyses that evaluated potential regulatory actions similar to the alternatives evaluated in the draft Queets Spring/Summer Chinook rebuilding plan. The SSC recommends that the socioeconomic analysis in the Queets Spring/Summer Chinook rebuilding plan be modeled off the impact analysis done for those stocks.

SSC Notes

In [2009](#), the Salmon Amendment Committee recommended action to “Develop a prioritized list of conservation objectives that should be reviewed and updated, establish associated schedule”. In the [terminology used at the time](#), “FMP treats conservation objectives as MSY or MSY proxy” and “MSY provides a foundation for specifying all reference points”, so this is equivalent to a recommendation to establish a prioritized list and schedule of reference points to review.

SSC previous recommendations for a structured, prioritized approach to reviewing reference points ([Agenda Item E.4.a Supplemental SSC Report 1 April 2024](#); [Agenda Item D.4.a Supplemental SSC Report 1 April 2022](#); [Agenda Item C.10.a Supplemental SSC Report 1 June 2021](#)).

Available information from CWT and genetics suggest that the Queets spr/sum Chinook are very similar to the Queets fall run Chinook, suggesting that overall exploitation rates should be very similar between these two runs. Other Washington Coastal Chinook stocks (e.g. Chehalis, Quinault, Hoko) have similar patterns of CWT recoveries in ocean fisheries (primarily in Alaska

and N. British Columbia). Most maturing spring run individuals will return to the river (April - June) which is before most ocean harvest occurs during their final ocean year. Thus, the harvest on mature individuals should be slightly lower for the spring relative to the fall run stocks, though the magnitude of this difference is not known at present.

I. Groundfish Management

4. Final Stock Assessment Plan and Terms of Reference

The SSC received a presentation from Owen Hamel (NMFS Northwest Fisheries Science Center) explaining the Science Center's recommendation to remove the full assessment of redbanded rockfish from the 2025 assessment cycle (Agenda Item I.4.a NMFS NWFSC/SWFSC Report 1).

The SSC supports the recommendation to remove redbanded rockfish from the list of species to be assessed in 2025 and does not recommend replacing it with another assessment given current assessment staffing. The SSC is supportive of adding redbanded rockfish to the preliminary 2027 assessment list, but notes that a decision to assess it in 2027 will be subject to availability of age data, assessment capacity, and other prioritization concerns.

Preliminary discussions about Stock Assessment Review (STAR) panels paired the assessments for yellowtail rockfish north of 40° 10' N. latitude and redbanded rockfish into the first panel. If an assessment for redbanded rockfish is postponed, the SSC recommends that the first panel include only yellowtail rockfish north of 40° 10' N. latitude, and the schedule for the panel be adjusted to cover half-days only.

SSC Notes

There are 16,000 redbanded rockfish otoliths available for ageing. It would be possible to undertake an assessment with ageing of only 6,000 otoliths, but ageing even this number does not appear feasible.

It would be possible to do a data moderate assessment of redbanded rockfish, but waiting until the 2027 cycle will enable a full assessment with additional age data which is preferable given this will be the first assessment for this stock. It was also noted that the workload for a data moderate assessment is nearly equal to that for a full assessment and NWFSC assessment capacity is constrained.

Given the potential for assessing this stock in 2027, the SSC recommends that redbanded rockfish remain on the list of stocks for which stock definitions are finalized under the current amendment process.

The SSC does not recommend removing more assessments from the 2025 schedule given previous discussions on the need to avoid falling further behind on the timeliness and quality of scientific information.

I. Groundfish Management

5. Stock Definitions for Species Assessed in 2025 & 2027 – Preliminary Preferred Alternative

The Scientific and Statistical Committee (SSC) reviewed a report entitled “Range of Alternatives Analysis for Proposed Amendment to the Pacific Groundfish Fishery Management Plan” (Agenda Item I.5, Attachment 1). The report outlines a range of alternative stock definitions and includes a literature review of the groundfish species under consideration.

The SSC finds the analysis to be robust and recommends it for use by the Council. The SSC appreciates that report authors took into account its previous recommendations by adding: indicators of the quality of information available, updated information about yelloweye rockfish movement, and information about trends in survey abundance where available. Also, the new summary of literature on best scientific practices for stock delineation in Appendix 1 provides a good basis for the Phase II process that the Council is undertaking in Agenda Item I.8.

Yelloweye rockfish is the only species for which there is more than one alternative presented in the report. The SSC agrees with the report’s summary of the information available for yelloweye rockfish. There is insufficient scientific support to warrant stock structure finer than coastwide at this time. Relatively long larval durations and preliminary evidence for broad-scale movements of adults promote population connectivity.

The SSC supports the only alternative proposed for yellowtail rockfish, delineating two stocks separated at Cape Mendocino, California. Genetic differences and different habitat preferences north and south of Cape Mendocino and evidence of spatial variation in life history traits provide scientific support for stock structure consistent with Alternative 3.

Scientific information supports the coastwide alternative for widow rockfish and chilipepper rockfish, though densities of chilipepper rockfish are negligible off Washington. Widow rockfish may exhibit spatial variation in life history traits, but long larval durations and spatially synchronous recruitment may promote a high degree of population connectivity.

There is insufficient scientific information to assess stock structure for English sole, redbanded rockfish, and roughey/blackspotted rockfish at this time. As the SSC has previously stated, the lack of scientific evidence for stock structure does not necessarily reflect evidence for a single coastwide stock. Stock definitions should be revisited as new information becomes available.

Given the potential for assessing redbanded rockfish in 2027, the SSC recommends it remain on the list of stocks for which stock definitions are finalized under this proposed amendment.

SSC Notes

The SSC discussed whether to suggest holding off on delineating stocks for species that will no longer be assessed in 2025 (e.g., redbanded), and decided to move forward now because new

information is unlikely to become available between now and 2027 and if it is, stock definitions can be revisited at the time it is assessed.

Yelloweye rockfish

- There would be substantial workload implications of managing yelloweye rockfish at a scale finer than coastwide. There is not sufficient evidence to support that at this point, but if there were, then multiple new full assessments would be needed, and may or may not require a rebuilding plan. The existing rebuilding plan would need to change if the stock definition changed. Looking to get more information to better inform the degree of stock structure, and tracking trends abundance in the two subareas should be priorities.

- Additional information on the yelloweye rockfish movement study (Rasmuson, in prep) was provided during the meeting. This is from adult-sized fish tagged with pop-up satellite tags; 19 fish were tagged, 13 tags returned data.

-The SSC discussed genetic stock structure identified between yelloweye populations in Puget Sound (outside PFMC jurisdiction) and the U.S. West Coast (Andrews et al. 2018). Because we are only considering the U.S. West Coast, the Puget Sound yelloweye population is less relevant.

While there is scientific support for Alternative 3 for yellowtail rockfish, the SSC discussed that long larval durations and spatially synchronous recruitment suggests higher population connectivity.

Past SSC statements (e.g., [March 2023, Agenda Item F.7 statement and notes](#)) have generally been consistent with the recognition that nearshore rockfish are more likely to have finer-scale population structure compared to shelf or slope groundfish species.

References

*Andrews, K.S., Nichols, K.M., Elz, A., Tolimieri, N., Harvey, C.J., Pacunski, R., Lowry, D., Yamanaka, K.L. and Tonnes, D.M., 2018. Cooperative research sheds light on population structure and listing status of threatened and endangered rockfish species. *Conservation genetics*, 19, pp.865-878.*

I. Groundfish Management

6. Stock Definitions for Species Assessed in 2025 & 2027 – Preliminary Preferred Alternative

The Scientific and Statistical Committee (SSC) reviewed Agenda Item I.6 Supplemental Attachment 1: Correction to 2025-26 Harvest Specification for Greenspotted Rockfish. The SSC finds the proposed corrections for greenspotted rockfish OFL, ABC, and ACL values to be technically accurate and reflective of previous SSC guidance, and recommends that these corrections be implemented for 2025-2026 harvest specifications.

Corrected harvest specifications for 2025 and 2026 component contributions of greenspotted rockfish; values in metric tons.

Stock	Area	2025 OFL	2025 ABC	2025 ACL
Greenspotted Rockfish	42° to 40° 10' N. lat.	9.45 mt	7.45 mt	7.35 mt
Greenspotted Rockfish	40° 10' to 34° 27' N. lat.	33.13 mt	26.10 mt	25.77 mt

Stock	Area	2026 OFL	2026 ABC	2026 ACL
Greenspotted Rockfish	42° to 40° 10' N. lat.	9.45 mt	7.45 mt	7.35 mt
Greenspotted Rockfish	40° 10' to 34° 27' N. lat.	33.13 mt	26.10 mt	25.77 mt

I. Groundfish Management

8. Phase 2: Stock Definitions – Scoping

Scientific Literature Review

The Scientific and Statistical Committee (SSC) reviewed the following reports: Phase 2: stock definitions scoping document (Attachment 1), Updated schedule for developing the Phase 2 stock definitions (Attachment 2), and Literature review of life history aspects of 64 groundfish species managed by the Pacific Fishery Management Council (PFMC) (Attachment 3). These reports describe the process for defining federally-managed stocks and provide literature review results to inform stock definitions for species listed in the Pacific Coast Groundfish Fishery Management Plan (FMP). The literature review excluded stocks that were defined as part of Amendment 31.

The SSC appreciates the comprehensive review of information on genetics, larval dispersal, adult movement, and life history traits to inform stock structure for 67 species and 3 cryptic species complexes. Apart from minor suggested revisions, the SSC endorses the literature review as the best scientific information available (BSIA) to inform stock definitions for use in management. Additional useful information on stock structure was often included in past stock assessments, and a more thorough review of historical assessment documents could provide additional information to inform stock structure decisions. Digitizing and uploading historical stock assessment reports to the Council website would facilitate full review of these documents for the purpose of stock definitions.

Minor grammatical corrections and additional references were identified internally and made available for incorporation into the next iteration of the literature review.

The SSC notes the following inconsistencies between the literature review and the Pacific Coast Groundfish FMP:

- 1) Dark dusky rockfish (*Sebastes ciliatus*) and light dusky rockfish (*S. variabilis*) are cryptic species with disparate distributions. Dark dusky rockfish are not found in PFMC managed waters. The distribution for light dusky rockfish extends southward into central

Oregon, occupying PFMC managed waters. Thus, “Dusky rockfish (*S. ciliatus*)” should be revised to “Light dusky rockfish (*S. variabilis*)” in the FMP.

- 2) “Rock sole” refers to two cryptic species, northern (*Lepidopsetta polyxystra*) and southern (*L. bilineata*) rock sole. Based on their distributions, southern rock sole should be specified in the FMP. Apart from relatively low abundances in Puget Sound, northern rock sole is not present in PFMC managed waters.
- 3) Puget Sound rockfish (*S. emphaeus*) was included in the literature review but not listed specifically in the FMP.
- 4) On page 16 of the FMP there is a footnote that reads "The category ‘rockfish’ includes all genera and species of the family Scorpaenidae, even if not listed, that occur in the Washington, Oregon, and California area. The Scorpaenidae genera are *Sebastes*, *Scorpaena*, *Sebastolobus*, and *Scorpaenodes*." This language may need to be removed as part of the stock definition process. The classification of shortspine thornyhead (*Sebastolobus alascanus*) and longspine thornyhead (*Sebastolobus altivelis*) as “rockfish” should be revised to “thornyheads”.

A large number of species lack sufficient information with which to assess spatial population structure. For these, the Council may consider borrowing information from closely related species with similar distributions and/or life history traits. The general tendency for nearshore species to have greater population structure, combined with state-based differences in exploitation histories (as highlighted in past SSC statements), could be justification to define finer scale stock structure for nearshore species when additional information is unavailable.

For completeness, the SSC recommends combining results from the literature review that was previously conducted for the Amendment 31 stocks assessed in 2021 and 2023 with all remaining groundfish species in the FMP, for a single reference document. Another useful improvement would be a table that provides high level summaries for each species and synthesizes information hierarchically (i.e., organizing species based on evidence for or against stock structure). Such a table would promote among-species comparisons. It would also promote an evaluation of potential relationships between species-habitat associations and the presence of stock structure (e.g., if nearshore stocks are more likely to exhibit stock structure along the U.S. West Coast).

The SSC reiterates the need to periodically revisit the literature in search of new information related to stock structure. Doing so will be particularly important for stocks with conflicting or insufficient information. The SSC encourages use of the literature review for other Council-related purposes, including the identification of ecosystem component (EC) species and state vs. federal discussions.

State vs. Federal Water Analyses

The SSC also reviewed the Estimation of recent groundfish catch distribution between federal and state waters off the U.S. West Coast (NMFS Report 1), Estimating groundfish catch distribution across state and federal waters in recreational fisheries (NMFS Report 2), and Exploration of two fishery-independent surveys to inform groundfish stock distribution between federal and state jurisdictional waters off the U.S. West Coast (Supplemental NMFS Report 3).

The SSC received presentations from Sean Matson and Keeley Kent from the NMFS West Coast Region on the above topics. Eric Ward (NMFS NWFSC) was available and provided additional information on some analytical aspects of these reports. The SSC appreciates the considerable amount of work done on this topic, and has the following comments and recommendations.

Commercial Data

The SSC finds the approach of stratifying by sector and summing to be appropriate given different levels of observer coverage across sectors. For sectors with incomplete observer coverage, an evaluation of potential bias between observed and unobserved trips would be helpful to ensure that the data used are representative. Logbook data could be helpful in this analysis. The nearshore live fish fixed-gear fishery was not separated from the rest of the nearshore fixed gear fishery in this analysis, and a potential for differences between these fleets should be explored. The sdmTMB modeling package, which was used for survey data, could be used to model catch location using location-specific observer data. Washington closed state water to all commercial groundfish gears in 1999, so small amounts of fishing identified as occurring in state waters likely reflect reporting errors.

Recreational Data

The analysis of recreational data is still very much in progress. The information most readily available to assign recreational catch to federal vs. state waters varies greatly among the states. California has a grid system for assigning location used by the Commercial Passenger Fishing Vessels (CPFV), as well as angler reported fishing areas for private boat fisheries, which allows for estimating the relative distribution of fishing activity in state and federal waters in most cases. Oregon has bottom depth information, and the 3 nm line is adequately approximated by the 30 fathom line. Washington does not have similar information to easily apportion catch between federal and state waters. The SSC recommends that analysis should include alternatives removing 2020 data that may not be representative of surrounding years, and including 2023 data, which, in California, is different from previous years due to changes in where recreational fishing took place.

Both California and Oregon have data from on-board observer programs for the CPFV sectors of recreational fisheries that can provide more robust information for future analyses using data that is more reliable than angler self-reported data. These datasets have been linked to habitat data layers and used to develop relative abundance estimates to inform stock assessments. The SSC recommends that these data be considered for future analyses to better refine distribution estimates, particularly for stocks that have high catch in recreational fisheries (relative to commercial catch) and for which more simplistic analyses do not lead to clear conclusions regarding their distribution.

Surveys

The SSC reviewed analyses of catch in federal vs. state waters for the West Coast Bottom Trawl Survey and for the Southern California Bight Hook and Line Survey. Neither survey covers all habitats and depths, and therefore auxiliary information is needed. The trawl survey does not cover areas shallower than 30 fathoms, and does not sample rocky habitat. The analysis could be

expanded to consider habitat information, commercial catch-per-unit-effort, and/or additional state and federal surveys that were not considered. Several recommendations for additional surveys that could be helpful were provided to the analysts.

Seafloor Mapping

In California, the efforts of the California Seafloor Mapping Project and separate efforts to support analysis of Essential Fish Habitat (EFH) combined with the bathyline for the primary depth distribution of nearshore species from visual surveys or recreational fishing data can be used to provide an estimate of the proportion of habitat in state and federal waters for comparison to catch. This can be beneficial to consider as catch is dependent on fishing regulations, which have become more liberal since 2018, but still do not allow access to all depths year round.

General Conclusions

As suggested by the SSC in November of 2023, habitat information could help inform many of these analyses, given the strong habitat associations of many species ([SSC Minutes November 2023](#)). Habitat information can inform where the fish are likely to occur, which can inform to what extent surveys are encountering fish in federal vs. state waters, as well as where fishing is occurring, particularly for recreational sectors. The Habitat Committee is likely to have insights for the use of habitat data as model covariates.

It would be helpful to simplify the overall process (e.g., prioritize list of 10 guidelines; select example species to work through and develop a process similar to Fishery Ecosystem Plan Initiative 4).

A helpful revision to the next iteration would be organizing all recreational and commercial tables by proportion of catch in federal waters, which would provide more clear information regarding which species and stocks are predominant in either state or federal waters.

Additional data and analytical approaches are available to inform proportional estimates in federal and state waters. Exploring these for all species would be a large amount of work and thus a hierarchical approach to identifying where each stock falls is appropriate. This could start by identifying EC species based upon retention rates estimated from onboard observer programs and other information. The next step would be to assign those stocks where the data clearly shows a predominant catch or presence in either state or federal waters. For the remaining stocks, additional analyses may be necessary.

SSC Notes

Previous SSC Statements

June 2024 (Agenda Item F.4.a Supp SSC Rpt 1): “The SSC reiterates the need for a holistic process of defining stocks that follows best scientific practices. The SSC has not had conclusive discussions regarding the biological attributes to consider when providing guidance on stock

definitions. The SSC continues to support the establishment of a working group to align the Council process for defining stocks with processes recommended by other expert working groups, such as the [ICES Stock Identification Methods Working Group](#).

March 2023 (Agenda Item F.7.a Supp SSC Rpt 1) - the SSC notes (can be found [here](#)) include a comprehensive list of previous SSC statements in which the theme of both conducting assessments and defining stock boundaries at finer geographic scales when stock structure is uncertain. One example, from November 2022, “The SSC recommends examining the evidence for stock structure on a species-specific basis for nearshore stocks. Past SSC recommendations for stock definitions have generally been consistent with the recognition that nearshore rockfish are more likely to have finer-scale population structure compared to shelf or slope groundfish species. Typically, management of nearshore stocks is not based on coastwide overfishing limits, acceptable biological catches, and status determinations because the evidence supports population structure at a finer scale than coastwide. In cases where there is a lack of data on spatial structure, the SSC recommends stock definitions and stock assessments at finer spatial scales, based on scientific evidence for similar species and data availability.”

The Council may want to reconsider stock definitions periodically, as new scientific information becomes available. This is particularly important given that the lack of evidence for multiple stocks does not necessarily reflect evidence for a single coastwide stock. The Council should consider adopting FMP language so that it is relatively straightforward to change stock definitions as new information becomes available.”

The literature review included a review of the most recent assessments, but did not include a review of all historical assessments, and many of these analyses were developed in historical assessments.

As one example of a stock structure issue discussed in a historical assessment but not captured in the review of the most recent assessment, the 2009 bocaccio assessment included a reanalysis of the Matala et al. (2004) data that was described in the review, and came up with a contrasting interpretation of the data than the Matala et al. analysis. The 2009 cabezon stock assessment also includes a comparison of growth among areas that might be helpful to describe.

Adding covariates within sdmTMB analysis of survey data would simply soak up variation currently attributed to spatial field, so would not change results, but would explain results to some extent, and therefore could be useful in that sense. Spatial fields depend a great deal on the number of occurrences within a survey.

One could consider using sdmTMB with the West Coast Groundfish Observer Program (WCGOP) data and expanding based on the Groundfish Expanded Mortality Multi-year (GEMM) data product. This could be challenging due to preferential sampling data, but working with the observer program to develop joint survey commercial data, starting with a small subset of species could be a possibility.

The proportion of catch in the nearshore sector vs. in federal waters were correlated, as expected, and species-specific results are generally in agreement with literature. Washington lacks a nearshore sector, and therefore catch is almost entirely in federal waters.

Uncertainty in commercial catch analysis includes among year, observer coverage, uncertainty in landings, trace transboundary WA to OR, etc.

Preferred habitat models could be explored as a means to show where we would expect to see species based on depth/habitat. There are lots of sources for data including other surveys. Curry Cunningham and others are working on comparing different surveys/data for these sorts of information in Alaska.

Data from visual surveys led by Mary Yoklavich does cross the state/federal boundary. This data will soon be posted online. The 2014-2015 EFH process used this data as well as some drop camera data.

The existing recreational data from Washington does not contain a field that would allow for proportional analysis, and fishing depth rather than bottom depth was reported, so not as useful. There is perhaps a bit of information from salmon ride along where they encounter groundfish. Most of the anecdotal information for groundfish catch is likely near some known fishing locations, however.

Need drift specific data in order to determine location. Discard data from specific locations, but catch may be across several locations.

Habitat information could be folded into recreational data analysis as well. Future analyses should include habitat and Habitat Committee members in the discussion. Joe Bizarro put together a database of habitat data which could be useful for Northern California, whereas the information is not as good for Southern California.

In California, onboard CPFV sampling data from 1998-2000 prior to implementation of severe depth restrictions can be used to provide perspective on the distribution of fishing effort and catch prior to the Groundfish Fishery Disaster declaration in 2000. This would better reflect the full distribution of each species, prior to the implementation of depth restrictions.

If a species with somewhat low proportions in federal waters co-occurs often with a species that is clearly federal, that could affect designation. All 10 factors will be considered.

Observed zeroes (lack of encounters) on a trip could be used to develop Catch-Per-Unit-Effort or presence absence information.

Years analyzed for recreational data are 2018-2022. In California during that period, more and more deeper areas have been available to fishing across the state. In 2023, changes in regulations led to even greater changes in where fishing occurred.

California CPFV observer data is confidential – so have to get a data sharing agreement from CDFW, but data have been vetted and organized by Melissa Monk, SWFSC, to support stock assessments, so with a data sharing agreement the data and guidance on the use of the data could be provided to analysts fairly quickly and easily. Although the most robust data is from the early 2000s to the present, it is worth noting that a historical database that focused on central California CPFV fisheries exists from the late 1980s through the late 1990s, for which data have been robustly QA/QC'd and also used in several stock assessments (the “Deb Wilson-Vandenberg” database).

Ten species are currently designated as EC species. These should be added to the literature review for completeness, since we are looking at EC designations and consistency is important, as well as ensuring that none of these should be removed from EC designation. There are many small rockfish – pygmy, Puget sound, etc. that could be designated EC species. WCGOP data can provide retention vs. discard data.

Council should be more specific as to which of the 10 guidelines are most important.

Data sources for commercial included GEMM, Pacific Fisheries Information Network (PacFIN), OB_{proc} (WCGOP – gives precise location data, haul level catch estimates (but not all sectors have 100% coverage), Electronic Monitoring (EM).

Calculate proportion in federal waters and uncertainty (bootstrapped confidence intervals) 2017-2021. Proportions calculated in each year.

There was an error in Equation on page 5 equation b – no averaging done at that step.

Uncertainty calculated using leave one year out bootstrap, not looking at other uncertainty.

Assume that port of landing is adequate for state identification, but that is not necessarily the case, especially near the Washington/Oregon border.

Examination of the percent of yield at Bmsy in each complex from contributing stocks can be undertaken to provide additional perspective on which species contribute very low proportions of aggregate yield, as a criterion for selection as EC species.

K. 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 2024 statement under this agenda item.

The SSC plans to conduct a Groundfish Methodology Review to consider the use of the Fourier Transformed Near-Infrared Spectroscopy (FT-NIRS) method for estimating groundfish ages to be utilized in future stock assessments on October 1 and 2, 2024, with half day morning meetings in a virtual format.

The Council adopted two topics, 1) derivation of proxy S_{MSY}/S_{MSP} ratio and F_{MSY} value suitable for use for Sacramento River Fall Chinook (SRFC) and 2) SRFC cohort reconstruction and comparison to the Sacramento Index (SI), for methodology review at the September 2024 meeting. The SSC Salmon Subcommittee will hold a Salmon Methodology Review with participation from the Salmon Technical Team (STT) on October 4, 2024, in a virtual meeting format. This review date will allow for a completed post-meeting report that meets the November Advanced Briefing Book deadline.

The SSC Ecosystem-Based Management Subcommittee plans to hold a virtual meeting November 5, 2024 to review forage indicators in the California Current Integrated Ecosystem Assessment Team's Ecosystem Status Report, as supported by the Council in March 2024.

The SSC proposes the Groundfish Subcommittee hold a meeting to discuss and prepare the Accepted Practices Guidelines for Groundfish Stock Assessments in 2025 and 2026 document in December 2024 or early 2025 to prepare the final draft document for the Council Agenda Item scheduled for March 2025. The SSC had also previously proposed an additional workshop in 2024 on use of remotely operated vehicle (ROV) data in stock assessments, to facilitate potential inclusion in future groundfish assessments. Based on guidance of ongoing progress on this effort from the California Department of Fish and Wildlife (CDFW), the SSC recommends that discussion of improvements to the ROV database and data products be incorporated into the Accepted Practices Guidelines meeting. Similarly, rather than hold a separate workshop on "Approaches to Deal with Large Closed Areas," the Accepted Practices Guidelines meeting could include discussion of an ongoing literature review of methods addressing large area closures within stock assessments. This meeting should also include discussion of additional guidance on the inclusion of risk tables in 2025 groundfish stock assessment reports. To provide adequate time to address this suite of topics, a two day in-person/hybrid meeting would be preferred.

The SSC proposes the Coastal Pelagic Species (CPS) Subcommittee conduct a review of the new SWFSC/NWFSC integrated survey in late 2025 in order to identify any issues or any additional analyses to be conducted prior to the use of the results from the survey in CPS stock assessments.

Proposed Workshops and SSC Subcommittee Meetings for 2024 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	Groundfish Methodology Review of FT-NIRS Method for Estimating Fish Ages Utilized in Stock Assessments	October 1 and 2, 2024	NWFSC/Virtual	Groundfish Subcommittee Members	CARE O. Shelton	NA	Bellman
2	Salmon Methodology Review	October 4, 2024	Council/Virtual	Salmon Subcommittee	NA	STT	Bellman/ Forristall
3	Ecosystem-Based Management (EBM) Subcommittee Review of forage indicators	November 5, 2024	Council/Virtual	EBM Subcommittee	NA	EWG EAS	Bellman
4	Groundfish Stock Assessment Accepted Practices Guidelines for 2025-2026, including topics: ROV data in stock assessments and approaches to deal with large closed areas	December 2024 or January 2025	Council/Hybrid	Groundfish Subcommittee	NA	GMT GAP Advisors	Bellman
5	<i>SWFSC/NWFSC Integrated Survey</i>	<i>Late 2025</i>	<i>TBD</i>	<i>CPS Subcommittee Members</i>	<i>TBD</i>	<i>CPSMT CPSAS</i>	<i>Bellman/ Bernaus</i>

SSC Notes

The SSC has previously pointed out the challenges posed by the extremely short review time provided for salmon documents like the Review of Ocean Fisheries and especially Preseason Report 1 associated with the March meeting (e.g., [Agenda Item C.10.a Supplemental SSC Report 1, November 2021](#)). It recently came to the SSC's attention that reports informing overfishing status determinations for Grays Harbor Fall Chinook have been prepared incorrectly, comparing exploitation rates to the proxy Maximum Fishing Mortality Threshold (MFMT) value of 0.78 (see for example page 49 of [Amended Review of 2023 Ocean Salmon Fisheries](#) and Table V-4 on page 94 of [Preseason Report 1 \(2024\)](#)) rather than the value of 0.63 adopted for Grays Harbor Fall Chinook in the FMP (page 22 of [the salmon FMP](#)). This led to incorrectly stating that exploitation rates exceeding the MFMT had not occurred in 2021, 2019, 2018 and some earlier years¹, even though exploitation rate estimates had exceeded the MFMT adopted for the stock in the FMP. This potential error might have been caught earlier if adequate review time had been provided. The SSC reiterates its request for process improvements to allow more thorough review of these documents. Council staff requested that the SSC wait until November 2024 to report discovery of this potential error, so it could be investigated and confirmed, in coordination with the STT, which had adjourned before the SSC met.

¹ It is not entirely clear from the FMP when the F_{MSY} value for Grays Harbor Fall Chinook was adopted or what its basis is, but it may be linked to the 2014 document cited for the Grays Harbor Fall Chinook conservation objective. If so, it may have been appropriate to use the proxy prior to 2014, but the SSC has not investigated this.

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	Kristin Marshall
John Budrick	Cheryl Barnes (Vice-Chair)	John Budrick	Cheryl Barnes	Chris Free	Cheryl Barnes
Alan Byrne	John Budrick	Alan Byrne	John Field	Michael Hinton	John Field
Owen Hamel	Chris Free	John Field	Dan Holland	André Punt	Chris Free
Tommy Moore	Owen Hamel	Owen Hamel	Kristin Marshall	Matthew Reimer	Dan Holland
Will Satterthwaite	Kristin Marshall	Michael Hinton	André Punt		Galen Johnson
Jason Schaffler	Tommy Moore	Will Satterthwaite	Matthew Reimer		Tommy Moore
Ole Shelton	André Punt	Tien-Shui Tsou			André Punt
Tien-Shui Tsou	Jason Schaffler				Matthew Reimer
	Tien-Shui Tsou				Will Satterthwaite
					Ole Shelton

Bold denotes Subcommittee Chairperson

ADJOURN

PFMC
10/22/24