

MINUTES
Scientific and Statistical Committee

Pacific Fishery Management Council
Doubletree by Hilton Sonoma
Vineyard Room
One Doubletree Drive
Rohnert Park, CA 94928
Telephone: 707-584-5466
March 8-9, 2018

Members in Attendance

Dr. Aaron Berger, National Marine Fisheries Service Northwest Fisheries Science Center, Newport, OR
Dr. Evelyn Brown, Lummi Nation, Bellingham, WA
Dr. John Budrick, California Department of Fish and Wildlife, Belmont, 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. Owen Hamel, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Michael Harte, Oregon State University, Corvallis, OR
Dr. Dan Holland, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Galen Johnson, Northwest Indian Fisheries Commission, Olympia, WA
Ms. Meisha Key, Key Coaching and Development, Lake Oswego, OR
Dr. David Sampson, Oregon Department of Fish and Wildlife, Newport, OR
Dr. William Satterthwaite, SSC Chair, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA
Dr. Rishi Sharma, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Ole Shelton, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Cameron Speir, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA

Members Absent

Dr. André Punt, University of Washington, Seattle, WA
Dr. Tien-Shui Tsou, Washington Department of Fish and Wildlife, Olympia, WA

SSC Recusals for the March 2018 Meeting		
SSC Member	Issue	Reason
Dr. Owen Hamel	F.3 Sablefish Ecosystem Indicators: Management Strategy Evaluation	Dr. Hamel supervises Dr. Melissa Haltuch, one of the lead analysts for the sablefish MSE
Dr. Owen Hamel	F.7 Update on 2019-2020 Harvest Specifications and Management Measures	Dr. Hamel supervises Dr. Melissa Haltuch, the lead STAT for the lingcod assessment
Dr. John Field	F.7 Update on 2019-2020 Harvest Specifications and Management Measures	Dr. Field contributed to the bocaccio assessment

A. Call to Order-SSC Administrative Matters

Dr. Will Satterthwaite called the meeting to order at 0800. Mr. Michael Burner provided the agenda overview in Mr. Chuck Tracy’s stead. He thanked Scientific and Statistical Committee (SSC) members for helping to conduct a very good Sixth National meeting of the Scientific Coordination Subcommittee of the Council Coordination Committee (CCC). The draft proceedings will be provided to the May CCC meeting. He gave a brief budget update. He also thanked the SSC for making progress on the draft Five-Year Research and Data Needs document. Mike then provided the agenda overview and the tasks for the SSC this week.

Dr. John Field was elected as the new SSC chair and Dr. Galen Johnson was elected as vice chair for the April 2018 to March 2020 term.

E. Salmon Management

2. Review of 2017 Fisheries and Summary of 2018 Stock Forecasts

Dr. Mike O’Farrell (Southwest Fisheries Science Center, Chair of the Salmon Technical Team [STT]) presented an overview of the Review of 2017 Ocean Salmon Fisheries and the 2018 Preseason Report I to the Scientific and Statistical Committee (SSC), and with the help of the other members of the STT, responded to questions from the SSC.

Two Chinook stocks (Sacramento River Fall Chinook [SRFC] and Klamath River Fall Chinook [KRFC]) and three natural coho stocks (Queets, Juan de Fuca, and Snohomish) are overfished, defined as when the most recent three year geometric mean of escapement is below the Minimum Stock Size Threshold (MSST). The three year escapement geometric means for the overfished Chinook stocks are well below the MSSTs, whereas the three year escapement geometric means for the overfished coho stocks are quite close to the MSSTs.

The STT identifies stocks at risk of approaching an overfished condition when the geometric mean of the most recent two years of spawning escapement and the most recent forecast of spawning escapement (assuming last year’s fishing regulations) is less than the MSST. The SRFC and

KRFC and the Queets natural and Juan de Fuca natural coho were identified as at risk of approaching an overfished condition.

The most recent available total annual exploitation rate (for 2015) for Upper Columbia River Summer Chinook exceeded the maximum fishing rate threshold established for the stock, meaning that it experienced overfishing. However the escapement for this stock exceeded the maximum sustainable yield spawning escapement (S_{MSY}) by more than sevenfold in 2015.

The SSC endorses the 2018 forecasts and the acceptable biological catches and overfishing limits (2018 line in Table V-5) in [Preseason Report I](#) as the best available science for use in 2018 salmon management.

SSC Notes:

The SSC discussed with Dr. O'Farrell possible impacts of trucking fish on straying and forecasting; research is needed to determine whether the increased straying is constant across ages.

Uncertainty in forecasting remains a question of interest to the SSC, especially when large jack returns lead to large forecasts with a lot of uncertainty. The STT noted that they share these concerns, but have seen errors in both directions—under- and over-forecasting due to large jack return years.

Should reference points be revisited, either by the STT alone or in a methodology review? One example given of a possible mismatch is the Upriver Summers, where the MSST may have been set by the CTC for wild stock but management is of the hatchery/wild aggregate.

For calculation of 3 year geometric means for overfished and at risk of over fishing, the 2017 escapement was available for SRFC and KRFC. However for the coho stocks 2017 data was not available so 2016 was the final year in the geometric mean calculations.

The SSC notes that this is the first year that a forecast has been made for Sacramento River Winter Chinook, and that the forecasted abundance of KRFC is dominated by age-3 fish.

F. Ecosystem Management

1. California Current Ecosystem and Integrated Ecosystem Assessment Report and Science Review Topics

The Scientific and Statistical Committee (SSC) received a presentation by Drs. Chris Harvey (Northwest Fisheries Science Center) and Toby Garfield (Southwest Fisheries Science Center) on the 2018 California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem Status Report ([Agenda Item F.1.a, NMFS Report 1, March 2018](#)). This is the sixth CCIEA Status Report prepared for the Council. The report is a concise source of information on trends in climate and oceanographic, biological, social, and economic indicators. The report is an important contribution to the Council process that provides an ecosystem perspective on West Coast fish stocks, fisheries, and coastal communities.

The SSC appreciates the CCIEA team's continued responsiveness to suggestions by the Council and SSC on previous reports and continuing efforts to augment and improve the Status Report with additional information useful to the Council. The 2018 Status Report includes new indicators of biomass and recruitment trends for highly migratory species. It also includes new community-level indices of recreational fishery engagement and reliance that had been requested by the SSC Ecosystem-based Management Subcommittee (SSCES) to complement commercial fishery reliance and engagement indices.

The 2018 Status Report indicates that the California Current Ecosystem returned to more neutral or average oceanographic and ecological conditions. However there are apparent lingering effects of unfavorable conditions in and before 2017. Most notably low catches of juvenile salmon from surface trawl transects off Washington and Oregon designed to sample salmon in their first year at sea, and other information on the stream and ocean conditions experienced by salmon in recent years, suggest poor returns of Columbia River basin Coho and Chinook salmon in 2018 are likely.

The SSC emphasizes that interpretation of many of the indicators in the report requires an understanding of the uncertainty and natural variability that is associated with the indicator. Without that context, there is a risk of overconfidence in the predictive power of the indicators. Interpretation of indicators also requires that the broader context of the indicators be considered.

The SSCES has regularly met with members of the CCIEA at the September Council meeting to review selected indicators proposed for inclusion in the annual ecosystem Status Report. Last year, the SSC recommended that science topics to be reviewed at the September SSCES be proposed each year at the March Council meeting, which would allow for input from advisory bodies and management entities and Council guidance on the list of topics to be reviewed by the SSCES. The SSC discussed proposals from the CCIEA team of five topics for potential review ([Agenda Item F.1.a, NMFS Report 3, March 2018](#)) and recommends that three of the five proposed topics be reviewed at the September meeting. The SSC also identified a fourth topic (recreational engagement and reliance indices) that was not included in the original list. The four topics recommended for review in September are:

1. Using the J-SCOPE approach for short-term forecasts of ocean conditions and species distribution.
2. Developing effective indicators of shifts in groundfish distributions.
3. Development of a new forage community composition indicator.
4. Community-level recreational fishery engagement and reliance indices.

The new recreational fishery engagement and reliance indices included in the 2018 Status Report have not yet been reviewed by the SSC, and the SSC recommends they be reviewed at the September SSCES meeting.

The SSC does not have the expertise in physical oceanography necessary to undertake a technical review of the proposed new upwelling index. However, once the new upwelling index has been peer reviewed, the SSCES would be interested in reviewing applications of the index that provide information about the relationship between the new finer-scale upwelling index and ecological outcomes of interest to the Council, for example effects on rockfish recruitment.

The final topic included in the list of topics for review at the September meeting was an analysis of drivers of albacore distribution and availability to fisheries in the California Current. While this information may be useful to include in future status reports, the SSC recommends that these methods be reviewed by the SSC highly migratory species (HMS) subcommittee rather than the SSCES.

The SSCES recommends holding a one-day meeting in September prior to the SSC meeting which will allow 1.5 to 2 hours to review each of the four topics. The reviews by the SSCES are high level reviews focused on determining whether and how new indices and analyses should be included in future Status Reports. They do not constitute in-depth technical reviews that would lead to an endorsement by the SSC that these indices or methods constitute best available science to support specific management decisions.

SSC Notes:

There were questions posed about how the error bars for maximum and minimum stream flow for salmon ESUs are calculated. Chris Harvey was unable to speak to this at the time.

In numerous figures (e.g., Figure G.2.1 on S-20), the y-axis is labeled as CPUE or Catch (e.g., Figure 4.3.2 on page 12) when these are actually log-transformed. Having an asterisk on those with footnote, at least, to clarify y-axis transformation would be good. Also some of the associated figure captions are confusing (e.g., "...CPUEs (mean(ln catch +1))..." when this should be catch per sampling effort) and inconsistent across plots (e.g., CPUE on y axis described in caption as representing $\log_{10}(\text{no. km}^{-1} + 1)$, $\ln(\text{catch} + 1)$, and $\ln(\text{abundance} + 1)$ on p S19-21) which makes comparisons difficult. In addition, some plots have y axis going below zero when values cannot. Other y-axes do not go down to zero when they should.

It was noted last year that the indices of sea lion pup counts and growth should be complemented with information on trends in adult abundance to provide context about how population size relative to carrying capacity might be affecting these indicators and their relationship to availability of forage. Chris Harvey noted the report does cite studies that indicate a reduction in the adult female population over the last several years that indicate the population is below carrying capacity. There was also concern expressed that the pup number and growth indices might reflect access to fishery discards and waste rather than natural foraging, but Chris Harvey noted that scat samples suggest the sea lions are relying mostly on natural forage.

The SSC discussed whether there was sufficient information on number of crab pots deployed to understand the information on whale entanglements. It was noted that the number Dungeness crab fish tickets mirror trends of entanglements but there is limited information on number of crab traps deployed, particularly in California. Toby Garfield noted that what populations have increased and/or distributions have changed which may also have affected the number of whale entanglements.

The Status Report now has charts showing recent trends in biomass and recruitment for tuna and swordfish stocks. It would be useful to point out the life cycle of these stocks and so how relevant this recruitment and biomass information is to availability of these stocks in the California Current. There is a risk that people look at this as an indicator of availability of these stocks in

CC waters, so there should be caveats to explain that these reflect overall population status but not necessarily availability to fishers in the CC.

The Status Report includes an index of trawl bottom contact based on distance towed calculated as distance from tow start and end points. These measures are likely to be biased in areas where tows are highly nonlinear or turn around. An indicator based on tow duration might provide a less biased alternative. While these may also include bias if tow speeds differ across areas or over time, it would be useful to see how they compared to the present index. There may be less variation in trawl tow speed than distance.

Community recreational engagement and reliance is in the report for first time. The SSCES has not yet reviewed these and the inputs are quite different from the commercial indices. It was suggested that this should be put on the agenda to look at in September.

It was noted that VAST has been reviewed by the SSC as a tool for integrating information to support overall abundance indices rather than spatial distribution. A wide variety of applications of VAST have been proposed by not fully reviewed by the SSC. More specificity of what applications of VAST will be reviewed at the SSCES should be provided before the meeting and the review should have a narrow scope.

As noted at previous SSCES reviews of Ecosystem Indicators, the social and economic value, engagement and resilience for tribal communities may vary from commercial or recreational communities and fisheries. There have been efforts to estimate indicators for tribal fisheries and communities but it has been difficult because the data are not readily available.

3. Sablefish Ecosystem Indicators: Management Strategy Evaluation

Dr. Melissa Haltuch (Northwest Fisheries Science Center) presented a draft management strategy evaluation (MSE) for sablefish. Decadal scale recruitment forecasts that were developed using sea level predictions from global climate models were used to inform future sablefish population scenarios in the MSE. The Scientific and Statistical Committee (SSC) expresses appreciation to the sablefish MSE team for continued progress on this topic.

Current Iteration of the Sablefish MSE

The sablefish MSE is a tool that can be used for long-term strategic planning, not for informing near-term assessments or management options. Although significant progress has been made developing the MSE framework, it currently incorporates a limited representation of uncertainty associated with the assessment and management system, which limits the applicability of the framework to broader questions of interest. A step to make this MSE more useful would be adding the ability to evaluate transboundary stock structure and connectivity. The SSC recommends continued development of the sablefish MSE and receiving periodic updates from MSE analysts, as progress dictates, through either the SSC Ecosystem or the SSC Groundfish Subcommittee.

Results provided by Dr. Haltuch indicate that the long-term use of the 40-10 harvest policy leads to the stock being, on average, in the precautionary zone rather than at the target level. This

suggests that the spawning biomass per recruit (SPR) fishing mortality rate policy ($F_{SPR45\%}$) and the target biomass ($B_{40\%}$) reference point are internally inconsistent, although this type of inconsistency is not a sablefish-specific issue ([Agenda Item I.2, Attachment 2, March 2017](#)). MSE is an appropriate analytical tool to explore the broader implications of such inconsistencies.

Future Iterations of the Sablefish MSE

Dr. Haltuch indicated a general plan, pending funding, to advance the sablefish MSE by creating a spatially-structured operating model for the northeast Pacific. Such a spatially-structured operating model would provide a basis for evaluating U.S./Canada straddling stock issues, as well as spatial stock structure, gear, and allocation scenarios. The SSC recommends that the Council solicit input from advisory bodies and the public for guidance to the MSE team on:

- the objectives for the next iteration of the MSE;
- management strategies to consider;
- performance metrics of interest;
- alternative population dynamic and fishery operating models to consider (hypotheses about alternative states of nature); and
- a process for engaging and soliciting feedback from stakeholders.

Potential Application to Sablefish Assessments in the Near Term

The SSC continues to encourage the exploration of Regional Ocean Modelling Systems (ROMS) data for developing near-term forecasts of recruitment (1 to 4 years) based on environmental covariates ([Agenda Item F.2.a, Supplemental SSC Report, March 2017](#)). As mentioned in 2017, the sablefish modelling group is also encouraged to continue working with Canadian and Alaskan colleagues in understanding sablefish stock structure and developing a population model consistent with that understanding. This would not only contribute to long-term MSE, but also could inform the next assessment for sablefish. The next assessment should consider revisiting the tide gauge sea-level analysis, because observations in central and southern California indicate different trends and the previous analysis is now dated.

SSC Notes:

Focus of the work presented is on sablefish in the California Current Ecosystem.

Study looks at climate variability, but future iterations could look at the implications of directional climate change.

To be consistent, the sablefish F_{SPR} rate would need to be closer to 50% (rather than 45% as it is currently) to achieve a target biomass of $B_{40\%}$ on average.

The operating model and the estimation model used in the MSE are very similar, the difference associated with one variable, which can limit the utility of the general operating-estimation model framework to address broader questions and limits the inclusion of realistic levels of uncertainty.

Notes Relevant to MSE Analysts:

The selection of the time window from which to calculate dynamic B_0 is likely a sensitive aspect to the results and remains an area for more research.

Observational data could be used to serve as proxies for environmental covariates identified in the ROMS work as acquiring ROMS data can be time consuming and difficult.

Next iterations of MSE should incorporate important aspects of implementation uncertainty and variability associated with allocations to gear type.

It would be useful to conduct a reference model projection run to provide a baseline unfished condition for comparison to alternative models.

It would be informative to compare implied values for steepness under alternative sea level informed recruitment to the fixed values of steepness used in the MSE operating model and the assessment models. The estimate of M declines when adding the sea-level recruitment index.

Areas noted for future research include how best to incorporate recruitment bias corrections during forecast periods, and incorporating the variance associated with the sea level and recruitment relationship into the population dynamics model rather than using the mean estimate as strict 'data' input.

The presented MSE simulates conducting a stock assessment every year, which is probably not realistic, and could act to reduce error in the management process that would otherwise be present.

Figure on page 10 in the presentation is not in the draft publication provided but is a very nice summary for future action/review with the Council and GMT.

The interpretation of both the draft publication and any review report for the GMT/Council could be improved by including a table that defines the basic components and describes the differences among the suite of models compared.

Use consistent and defined acronyms in models. SL is used in the publication for Sea Level but not SSH. The presentation used SL and SSH the latter which was never defined but assumed to be Sea Surface Height.

H. Groundfish Management

4. Initial Stock Assessment Plan and Terms of Reference

Dr. Jim Hastie and Ms. Stacey Miller of the Northwest Fisheries Science Center briefed the Scientific and Statistical Committee (SSC) on stock assessment prioritization for Pacific Coast groundfish and the resultant list of stocks that could potentially be assessed in the 2019 and 2021 assessment cycles.

There were several changes made to the factors and factor score calculations from those used for the prioritization process prior to the 2017 assessment cycle. Many of these changes were made in an attempt to improve how well relative factor scores reflect differences in the underlying metrics. An ecosystem importance factor was developed for inclusion for this cycle, whereas non-catch value, which remained difficult to quantify, was removed.

The SSC found that the updated framework continues to provide a useful way to identify factors to consider in developing stock assessment priorities. The scoping of available data continues to be useful in understanding the data gaps that constrain the ability to assess some highly ranked species.

Initial Stock Assessment Plans for the 2019 and 2021 Assessment Cycles

The SSC and Dr. Hastie agreed that the maximum possible number of assessment units for the 2019 assessment cycle is likely to be eight (four Stock Assessment Review [STAR] panels). However, some assessments of nearshore species could require the development of multiple models, and thus could need more than one “unit” of assessment and review effort.

The SSC discussed the ranked list of species for assessment, focusing on the top sixteen. The SSC agreed that sablefish, cabezon, longnose skate, big skate, cowcod, and gopher rockfish (potentially assessed as a complex with black and yellow rockfish) are all good candidates for full assessments in 2019. The SSC did not identify any species as high priority for update assessments in 2019, though the petrale sole assessment is appropriate for updating if desired.

Cabezon would presumably be assessed in multiple areas, and therefore would likely require an entire STAR panel to itself for adequate review. This would leave one spot open in a STAR panel should the above list of six species be adopted.

Other potential species to be assessed include 1) Dover sole, for which the SSC did not see a critical need at this time; 2) Pacific cod, for which delaying until 2021 would provide more lead time for developing data, particularly ages, and to consider a transboundary assessment with Canada; and 3) vermilion rockfish across two areas (presumably as a complex with sunset rockfish south of Point Conception, and as a single species to the north).

Brown, copper, quillback and bank rockfish were all considered good candidates for assessment in 2021 as more lead time for age reading, data mining and analysis would provide a better basis for those assessments. Black rockfish has been assessed recently (2015) and is not seen as a high priority for assessment in 2019. More information for these and certain other nearshore species could potentially be available in future cycles pending the results of the remotely operated vehicle (ROV) methodology review scheduled for later this year.

One limitation of the prioritization process is that it is conducted at the species level rather than by assessment unit. In 2017, an assessment of yellowtail rockfish north of 40°10' N. latitude was endorsed for management use, but the southern assessment was not. Yellowtail rockfish south is considered a good candidate for a full assessment in 2021, which will provide more time to address the backlog of otoliths for ageing and to develop a longer index time series.

Revisions to the Terms of Reference

The SSC also discussed revisions to the terms of reference (TOR) for stock assessments ([Agenda Item H.4, Attachment 3, March 2018](#)), rebuilding analyses ([Agenda Item H.4, Attachment 4, March 2018](#)), and methodology reviews ([Agenda Item H.4, Attachment 5, March 2018](#)). The SSC endorses the recommendations in the bulleted list on pages 10-11 of the SSC Groundfish Subcommittee report on the December 2017 Groundfish Stock Assessment Process Review Workshop ([Agenda Item H.4, Attachment 6, March 2018](#)), and the recommendations will be incorporated into the revised draft stock assessment TORs (for the June Briefing Book) or the SSC's accepted practices document, as appropriate. The SSC discussed approaches and rules to improve and ensure the timeliness of various steps within the stock assessment and review process. These include having a written request from the Groundfish Management Team for deviations from default removal assumptions during projections, to be finalized at the STAR panel; final assessment documents (for those not included in the mop-up) posted on the Pacific Fishery Management Council (PFMC) website by the beginning of the November meeting; and the list of catch-only updates finalized by September in even years, among others. The SSC also discussed the need to maintain flexibility in the SSC's ability to request post-STAR analyses and changes in order to arrive at an assessment that is acceptable to the SSC. Various other minor edits will be included as track changes in the TORs for June.

For the rebuilding analysis TOR, the SSC agreed to add language requiring that authors include parameter uncertainty in rebuilding analyses, as has been done in various ways in the majority of rebuilding analyses performed for the PFMC. Additionally, new language will require that all quantities for all runs needed for management decisions, including OFLs, be presented in tabular form.

SSC Notes:

Assessment Prioritization

Some changes were made to certain transformations to provide improved relative factor scores to better reflect untransformed values. In particular, switched to exponential from logarithmic approach.

Ecosystem importance factor is a combination of each species' predation on protected and managed species and its use as prey by other species. An issue is that this effectively ignores species that are of relatively small biomass but have substantial impact on local communities (e.g., cowcod).

Would looking at catch impacts/value at target biomass be useful for prioritization to ascertain the potential importance of each species?

"New Data" – one change is to include factor values for stocks that have not been assessed for which any information is new information.

The PSA scores are rather dated and should be updated. If they are not updated, thought should be given to whether or not they should still be used.

The SSC recommends the following 6 species for full assessments within 4 STAR panels in 2019 (note that the order listed does not reflect either priority or proposed STAR panel order):

- *STAR panel A: Sablefish, +1 other*
- *STAR panel B: Cabezon (2+ areas, so its own STAR panel)*
- *STAR panel C: Longnose skate, Big Skate*
- *STAR panel D: Gopher rockfish (perhaps with black and yellow rockfish as a complex), Cowcod.*

While there are a number of areas of ongoing research for sablefish (stock structure, environment-productivity relationship), the potential progress between the 2019 and 2021 cycles is not enough to justify putting off the assessment until 2021.

Cowcod - XDBSRA last time and note that there is time to check on rebuilding and try SS.

Pacific cod – transboundary? + spectroscopy work for ageing for P. cod in Alaska could translate to the West Coast. Thus the recommendation for 2021.

Shortraker is not a good candidate for assessment – not caught in survey, not sorted in fishery

Gopher rockfish does have the issue of genetic similarity with Black and Yellow rockfish, might need to be assessed as a unit; the need for doing this could likely be assessed by June.

Bank rockfish is a good candidate for 2021 – ideally need more time for aging.

For vermilion (and sunset) rockfish, given the two areas, need to consider whether this can be combined with another assessment in a STAR panel or if it should be on its own. Potentially could be paired with a species considered unlikely to be problematic.

Black rockfish was recently assessed, need progress on hide vs kill question before progress is made.

TORs

When a STAR panel approves an assessment and the SSC does/has not, how should the process for more requests be undertaken? GF Subcommittee could have a webinar with the STAT in August to review and make requests for work for the mop-up panel. This would be the same subcommittee meeting to prioritize assessments for mop-ups, expanded to look at all STAR panel recommendations and assessments.

Need to finalize assessments – all assessments not reviewed at mop-up ready for the September SSC/Council Meeting and posted soon after, depending on the SSC review. November meeting final meeting for OFLs, all non-mop-up assessments thoroughly reviewed and posted prior to November meeting. Mop-up assessments thoroughly reviewed prior to November meeting and posted soon after adoption at the November meeting depending on the SSC review.

At STAR panel, catch assumptions during next cycle and the future should be finalized for projections. GMT could be responsible for requesting any deviations from the default catch

streams for projections and to check that those catch streams in the assessment match those agreed upon at the STAR panel.

Catch only updates: If we are going to increasingly use and rely on catch-only updates, they need to be requested earlier in the process with the plan finalized in September of even number years. In June, should list consequences of not selecting a species for full – such as catch-only update, etc.

Accepted practices – recommend a partial list in November (to have as much info out as possible) and finalize by March.

There should be a substantial review of the data at the pre-assessment workshop. The two-cycle prioritization approach should help with getting data sets identified earlier in the process.

ODFW came up with ways to track dissemination of data, and plan to put out documents early with details of the data, etc. – need these stand-alone documents on a number of data sources including old and current status. Notation in the TORs should include our expectation that there be a common documentation for common data sources – entities that collect these data should provide documentation or information necessary for the documentation.

Rebuilding TOR should mandate the information needed for management (e.g., OFLs and ACLs) in a single table as was done in the 2011 POP rebuilding analysis (Hamel, 2011), which would be good to include in the TOR as a template. Assumption of full ACL removals in the next cycle after rebuilding. Application of the HCRs after that. Add NSI criteria language for reviewing adequacy of rebuilding.

Rebuilding analyses should include at least a minimal amount of parameter uncertainty – many examples from previous rebuilding analyses. Any of those approaches are acceptable, or can undertake a different approach (with the risk of it not being approved).

Minor edits from CPS committees to be included in TOR revisions for June.

7. Update on 2019-2020 Harvest Specifications and Management Measures

The Scientific and Statistical Committee (SSC) received a report from the SSC Groundfish Subcommittee (GFSC) Chair Dr. David Sampson regarding a Webinar held on February 8, 2018 to review corrections to overfishing limit (OFL) projections for lingcod and bocaccio for the 2019-2020 biennium and beyond. In addition, the SSC reviewed the attachments provided in the briefing book and the appended GFSC report. Six different sets of lingcod OFL projections under different removal assumptions for 2017-2018, different buffers between the OFL and acceptable biological catch (ABC) based on P* values assumed for the southern stock (0.40 versus 0.45), and full versus partial attainment of removals in 2019 and beyond are described in Attachment 2 and the resulting values provided in Attachment 3.

The SSC endorses the OFLs associated with Options 3 or 4 referred to in Table 1 of Attachment 1 as No Action and Alternative 1, respectively. These options assume partial attainment in 2017-2018 and full attainment thereafter, and if annual catch limits (ACLs) are not attained in the future,

a catch-only update assessment could be conducted during the next biennial harvest specification process to replace assumed ACLs with realized catches. While partial attainment under the status quo regulations in 2017 and 2018 appears likely, and the Groundfish Management Team's (GMT's) recommended values for 2017-2018 are well supported, potential changes in future regulations and allocations make attainment assumptions increasingly uncertain with time.

The No Action Alternative and Alternative 1 differ from each other in their assumed P^* values and associated buffers with Alternative 1 applying a P^* of 0.45 in both management areas and the No Action Alternative applying a P^* of 0.45 in the north and 0.40 in the south. The preliminary preferred alternative P^* adopted at the November Council meeting was 0.45 consistent with Alternative 1. The OFL for 2019 (5110 mt north of $40^{\circ}10'$ N latitude and 1143 mt south of $40^{\circ}10'$ N latitude) do not differ between alternatives though the ABC and ACL do vary across options as a result of the difference in P^* values. Under Alternative 1, the recommended OFL is 4768 mt north of $40^{\circ}10'$ N latitude in 2020 vs. 4770 mt under the No Action Alternative. The OFL south of $40^{\circ}10'$ N latitude under Alternative 1 would be 977 mt in 2020 vs. 983 mt under the No Action Alternative. A decision table will be created on the basis of the alternatives selected by the Council.

The preliminary preferred OFL for bocaccio adopted at the November Council meeting was subject to an error in the application of the P^* buffer in Stock Synthesis. Updated projections of OFL values and depletion from revisions to the bocaccio assessment are reflected in Table 2 of Attachment 1. Though the 2019 OFL of 2194 mt did not change, the 2020 OFL decreased by 21 mt, from 2125 to 2104 mt. The SSC endorses these OFL projections for use in management in 2019 and beyond.

SSC GROUND FISH SUBCOMMITTEE REPORT ON WEBINAR MEETING HELD ON 08 FEBRUARY 2018

The Scientific and Statistical Committee's (SSC) Groundfish Subcommittee (GFSC) met via Webinar on 8th February 2018, primarily to review revised overfishing limits (OFLs) for two stocks assessed during 2017 for which projections had been revised. The revised OFLs will be reviewed by the full SSC at its March 2018 meeting. There were also discussions during the webinar of the process for identifying research and data needs relating to groundfish for the Council's *2018 Research and Data Needs* document.

The draft agenda from the webinar is attached as Appendix A; a list of participants is attached as Appendix B.

Revised Overfishing Limits for Lingcod

Dr. Melissa Haltuch of the National Marine Fisheries Service (NMFS) Northwest Fisheries Science Center (NWFSC) presented results of corrections to the lingcod OFL projections originally presented to the Council at its September meeting. The revised OFLs address an incorrect model forecast included in the assessment results that informed the 2019 and 2020 groundfish harvest specifications considered at the November Council meeting. Dr. Haltuch presented tabular comparisons of six different sets of OFL projections under different removal assumptions for 2017-2018, different buffers between the OFL and ABC based on P* values assumed for the southern stock (0.40 versus 0.45), and full versus partial attainment of removals in 2019-2028. She also provided text descriptions corresponding to each of the six resulting options.

Options 1 and 2 (which correct a cut-and-paste error in the September version of the assessment document) assumed full attainment for the entire time series and apportioned 2017-2018 catches to the assessment areas based on 8% of the coast-wide lingcod survey biomass being between the 40°10' and 42° N Latitude region. Catches from 2019 forward are allocated between stock assessment model areas and management areas based on 21.31% of the lingcod survey biomass off California being between the 40°10' and 42° region and both options assume full ACL attainment. These options differ from each other in their P* buffers with Option 1 having a buffer of 0.45 in the north and 0.40 in the south and Option 2 having buffers of 0.45 in both management areas. Options 3 to 6 differ from Options 1 and 2 in that catches for all years are apportioned to the assessment areas based on 21.31% of the biomass off California being between the 40°10' and 42° region. Options 3 and 4 assume partial attainment of the ACL in 2017 and 2018, but full attainment thereafter. These options differ from each other in their P* buffers with Option 3 having a buffer of 0.45 in both management areas and Option 4 having buffers of 0.45 in the north and 0.40 in the south. Options 5 and 6 assumed partial attainment during the entire time series given expected attainment as judged by the GMT. These options differ from each other in their P* buffers with Option 5 having a buffer of 0.45 in both management areas and Option 6 having buffers of 0.45 in the north and 0.40 in the south.

Note: The Excel workbook provided by Dr. Haltuch used a value of 21.31% of the survey biomass off California being between the 40°10' and 42° region to apportion catches to the assessment areas. The supporting text description of the options incorrectly states that a value of 20.31% was used.

None of the six options presented by Dr. Haltuch exactly matches the Council's preliminary preferred option adopted at the November Council meeting. Options 1 and 2, while assuming full ACL attainment in 2017 and 2018, assume a different apportionment to determine the portion of the stock occurring between 40°10' N latitude and 42° N latitude (8% of coastwide biomass based on recent average biomass in the NWFSC trawl survey). The apportionment in Options 3-6

(21.31% of the biomass off California based on recent average biomass in the NWFSC trawl survey) is the basis for the preliminary preferred option adopted in November. However, unlike Options 3-6, the preliminary preferred alternative assumed full ACL attainment from 2017 on. In March the full SSC will need to decide the apportionment and ACL attainment assumptions to recommend the new 2019 and 2020 lingcod OFLs; the Council will need to confirm its P* choice. A decision table will be created on the basis of the option selected by the Council in March.

The GFSC and GMT members participating in the webinar discussed the likelihood of partial attainment assumptions in 2017 and 2018 and into the future. While partial attainment under the status quo regulations in 2017 and 2018 appears likely, and the GMT's recommended values are well supported, potential changes in future regulations and allocations make attainment assumptions increasingly uncertain with time. At present, the GMT has projections (unavailable for consideration in November 2017) of impacts from the alternatives analyzed in conjunction with the regulatory specifications for 2019 and 2020. After 2020, numerous changes could occur that would influence lingcod harvests (e.g., access to the RCA, changed allocations, and gear switching in the IFQ fishery). These would result in changes that are unanticipated under the assumed attainment values put forward under Options 5 and 6. Members of the GMT indicated their intent was to assume partial attainment into the future as the preferred method of addressing likely under-attainment, even beyond 2018.

Members of the SSC voiced concerns regarding the potential for exceeding the values anticipated given the level of uncertainty beyond 2017 and 2018, noting that if ACLs are not attained in the future, a catch-only update assessment could be conducted during the next biennial harvest specification process to replace assumed ACLs with realized catches. Alternatively, assumptions regarding partial attainment in 2019 and beyond could be made and the catch-only updates undertaken to address catch that exceeds the assumed partial attainment in the future. This catch-updating process may not be possible mid-biennium given process considerations. Further, lags in the availability of catch data would hamper adjustments for the most recent year in any case.

There is some limited precedent for assuming partial attainment of the ACL in projections. This was done for Dover sole in the past, but the assumed partial attainment of Dover sole was due to a lack of market demand rather than limited access to the stock or allocations, which is the logic underlying the notion of future partial attainment of lingcod ACLs. In addition, the decision to apply partial attainment in the forecast for Dover sole was made prior to the use of catch-only update assessments in the Council process, which may have affected the decision had catch-only update assessments been available for consideration. This discussion brought to light the need for clarity in the Terms of Reference for stock assessments regarding attainment assumptions in constructing projections and decision tables. Updates to the Terms of Reference should specify (a) when the GMT should provide advice, (b) the starting year of projections, (c) how attainment is specified for the two years prior to the first year of the projection period, (d) the level of attainment to assume for the remainder of the projection period, and (e) the process for deciding what values are most appropriate. This should reduce the need to make changes to assessments late in the harvest specification process, as occurred for lingcod during the current harvest specification process. It was also noted that using complicated removal assumptions increases the risk of errors or miscommunications between advisory bodies and assessment analysts.

Without additional information from the GMT regarding the justification for partial attainment after 2018, the GFSC endorses using Options 3 or 4, which assume partial attainment in 2017-2018 and full attainment thereafter. Given the demands of the regulatory specification development process, the GMT indicated they may not be able to provide additional information prior to the March Council meeting. If the GMT provides additional information in

March, it could inform the choice between Options 3-4 (full attainment from 2019 on) versus 5-6 (partial attainment from 2019 on). Assumptions regarding future attainment could also be revisited through conducting a catch-only update assessment as early as the 2021-2022 biennial specification process.

Revised 2020 Overfishing Limit for Bocaccio

Dr. Xi He of the NMFS Southwest Fisheries Science Center presented updated projections of OFL values and depletion from revisions to the bocaccio assessment that used an assumed P^* of 0.45, applied an updated catch stream, and extended the projections in the decision table through 2028. These updates, which were made after the Council's November 2017 review of 2019 and 2020 groundfish harvest specifications, were included in a revised stock assessment document (He and Field, 2017). Projected depletion in 2026 (the last year in the projection reported in the June 2017 version of the assessment document) was 46.4 % in the revised assessment document compared to the 46.0% reported in the June 2017 version. In addition, the 2020 OFL decreased by 21 mt metric tons, from 2125 to 2104 mt. The 2019 OFL did not change.

Groundfish Items for 2018 Research and Data Needs Document

Dr. David Sampson (SSC Groundfish Subcommittee Chair) briefed the group on draft text for groundfish research and data needs that will be reviewed by the full SSC. Revised text will be included in the draft *2018 Research and Data Needs* document that the Council's advisory bodies will receive in advance of the April Council meeting. A revised draft *2018 Research and Data Needs* document will be considered by the Council at its June meeting and distributed for public comment, with final adoption by the Council in September.

To produce the draft text on groundfish research and data needs (RDN) David compiled a list of 544 RDN items from the stock assessment documents and STAR Panel reports that had occurred since the Council adopted its *2013 Research and Data Needs* document (during the 2013, 2015, and 2017 assessment cycles). Additional RDN items were taken from reports of the stock assessment process review meetings that were held in 2015 and 2017. The set of RDN items were systematically considered and reviewed by the members of the GFSC with each member picking up to six RDN items that were considered to be highest priority. This exercise resulted in 32 individual RDN items that David included in the draft text for groundfish RDN.

It was suggested that David include instructions with the draft 2018 groundfish RDN text to clarify elements for which he would like assistance. The initial portion of the draft text includes a summary of progress made on groundfish items from the *2013 Research and Data Needs* document. David was unsure of progress that may have been made for many of the 2013 RDN items and seeks assistance from others on those 2013 RDN items that are highlighted. Feedback on all parts of the draft 2018 groundfish RDN text is welcomed.

Mr. John DeVore (Council staff) plans to circulate the draft *2018 Research and Data Needs* document to the full SSC during the week of 12-16 February. Discussion and revisions to the draft document are to take place via email correspondence with the aim of preparing a version for distribution to the Council's advisory bodies in advance of the April Council meeting. The Briefing Book deadline for the April meeting is March 15th. David requests comments and edits from the full SSC by March 12th.

References

He, X., and J.C. Field. 2017. Stock Assessment Update: Status of Bocaccio, *Sebastes paucispinis*, in the Conception, Monterey and Eureka INPFC areas for 2017. Pacific Fishery Management Council, Portland, Oregon.

GFSC Notes:

The Excel workbook provided by Dr. Haltuch used a value of 21.31% of the survey biomass off California being between the 40°10' and 42° region to apportion catches to the assessment areas. The supporting text description of the options incorrectly states that a value of 20.31% was used.

Appendix A.

**PROPOSED AGENDA
Scientific and Statistical Committee's
Groundfish Subcommittee**

Pacific Fishery Management Council
Large Conference Room
7700 N.E. Ambassador Place, Suite 101
Portland, OR 97220
Online Webinar
Telephone: 503-820-2280
February 8, 2018

This is a meeting of the Scientific and Statistical Committee (SSC's) Groundfish Subcommittee (GFSC), with remote attendance via webinar (see webinar information below). There will also be a public listening station at the Pacific Council office (address listed above). SSC subcommittee meetings are open to the public, and public comments will be taken at the discretion of the SSC Groundfish Subcommittee Chair.

A suggestion for the amount of time each agenda item should take is provided. All times are approximate and subject to change. At the time the agenda is approved, priorities can be set and these times revised. Discussion leaders should determine whether more or less time is required, and request the agenda be amended.

To Attend the GoToWebinar:

1. Use this link: <https://www.gotomeeting.com>
2. Click "Join a Webinar" in the top right of page.
3. Enter the Webinar ID: 728-365-997
4. Please enter your name and email address (required)
5. You must use your telephone for the audio portion of the meeting by dialing this TOLL number 1-312-757-3121
6. Enter the Attendee phone audio access code 728-365-997
7. Enter your audio phone pin (shown on screen after joining the webinar)

System Requirements

- PC-based attendees: Required: Windows® 7, Vista, or XP
- Mac®-based attendees: Required: Mac OS® X 10.5 or newer
- Mobile attendees: Required: iPhone®, iPad®, Android™ phone or Android tablet (See the GoToMeeting Webinar Apps)

THURSDAY, FEBRUARY 8, 2018 – 1 PM

A. Call to Order-GFSC Administrative Matters

1. Call to Order and Introductions
2. Approve Agenda

Dave Sampson

3. Rapporteur Assignments
(1 p.m., 0.5 hours)

B. Revised Overfishing Limits

1. Review Revised Overfishing Limits for Lingcod Melissa Haltuch
(1:30 p.m.; 1 hour)
2. Review a Revised 2020 Overfishing Limit for Bocaccio Xi He and John Field
(2:30 p.m.; 0.5 hours)

C. Review Draft Sections of the 2018 Research and Data Needs Document Relevant to Groundfish

1. Review Assignments and Deadlines for SSC and Council Review in April and Beyond Dave Sampson
2. Discuss Research Priorities and Content
(3 p.m.; 1 hour)

D. Other Items?

ADJOURN

PFMC
02/02/18

*Appendix B. Participant list (*s indicate Groundfish Subcommittee members)*

Last Name	First Name
Berger *	Aaron
Budrick *	John
Conroy	Mike
DeVore	John
Doerpinghaus	Jessi
Field *	John
Hamel *	Owen
Harley	Abigail
He	Xi
Hooper	Brian
Key *	Meisha
Krause	Sandra
Mandrup	Melissa
Matson	Sean
Mattes	Lynn
Petersen	Joe
Reed	Heather
Rudolph	Tom
Sampson *	David
Satterthwaite	Will
Shen	Chenchen
Simon	Jennifer
Stephens	Andi
Tsou *	Theresa
Zimm	Louis

SSC Notes:

- *The sigma portion of the P* buffer should be increased into the future as well, but not accounting for it as of yet, so assumptions regarding underattainment may not be prudent at this point.*
- *Note that the Attachment 3 Option 6 label in the OFL Tab header on the table incorrectly states that the value used in 0.913 vs. a different value included in the table.*
- *Basing apportionment on the percentage of biomass in California alone is better-supported than the 8% coastwide and the GMT provided a compelling argument for low 2017-2018 attainment, thus options 1 and 2 were excluded from further consideration.*
- *Bocaccio 2019 ACL – the F applied was not consistent with the ACL in 2019 and needs to be addressed in SS making leading to the error. Put in the accepted practices document the need to address this issue. More information from Owen Hamel of NWFSC on the technical issue in SS is provided below.*

Melissa requested that I send an email which could be saved for posterity to remind us of the issue concerning the application of the buffer in projections when using hybrid F.

*Currently, as implemented in SS for versions 3.30.10 and earlier the buffer specification in the forecast file ("control rule target") applies to reduce the Fs not the catches by the value input here. Commonly, our assessments have used Pope's approximation for F which does not have an explicit F in the calculation and hence when applying the control rule target (the buffer value) in the forecast file this fraction was multiplied by the catch providing us with ACLs that equal the OFL*buffer for all years exactly.*

*However, when using the Baranov or Hybrid F approach for fishing effort, there now is an F in the calculation of this quantity. Currently, the option in the forecast file with applying the control rule target (the buffer value) to the Fs. This results in ACL values that do not equal the OFL*buffer because the ACL is now being determined in terms of the adjusted F value.*

*Additionally, the ratio of the ACL to the OFL is not a consistent fraction across the forecast period. This prohibits simply adjusting the control rule target value to the value that would equal the OFL*buffer and would require one to iteratively determine this value for each year of the forecast period.*

This issue has been raised with Rick and we hope to have a fulfilling correction for next cycle. He believes the change could be done without too much effort but would require an I/O change to the model.

If there are any questions Ian or myself would be happy to discuss this further.

A. SSC Administrative Matters

Planning for April Anchovy Discussion

The Scientific and Statistical Committee (SSC) reviewed materials in preparation for an April 2018 discussion on “Process for Review of Reference Points for Monitored Stocks” with particular focus on consideration of potential revisions to the current OFL for the central subpopulation of northern anchovy. Specifically, the SSC discussed the motion and guidance from the April 2017 agenda item G.2 regarding Council guidance on current and alternative OFL methods for the Central Subpopulation of Northern Anchovy (CSNA), and what materials are most appropriate for additional review and analysis in preparation for that discussion and anticipated SSC report.

The SSC Chair led an overview discussion of a number of available reports that are either available to or were developed for the PFMC by the SWFSC and various Council entities in order to prioritize those reports most relevant to the upcoming April discussion and recommendations. The past documents and reports determined to be most relevant for inclusion in April briefing book materials include:

- The original Conrad 1991 manuscript (included in SSC briefing materials for the March 2018 meeting).
- The data and/or analyses associated with the conversion of Conrad's coastwide estimate of MSY to an estimate applicable to U.S. waters (help from WC Region and PFMC staff?)
- Any associated SSC statements or minutes regarding discussions that were associated with the SSC recommendation to adopt the Conrad results as the best available science for informing the CSNA OFL (help from WC Region and PFMC staff?)
- The joint SSC/CPS MT Report on Central Subpopulation of Northern Anchovy Overfishing Limit Process April 2017
- The SWFSC Review and Re-evaluation of Minimum Stock Size Thresholds for Finfish in the Coastal Pelagic Species Fishery Management Plan for the U.S. West Coast (Supplemental NMFS Report, September 2016), with a specific focus on the SRFIT analysis applied to CSNA and its estimates of F_{MSY} and B_{MSY} .

Additionally, at the April meeting, the SSC anticipates a detailed discussion of how the results of the January 2018 acoustic-trawl survey methodology review could apply to anchovy biomass and FMSY estimates. As preliminary indications from the ATM review suggest that a primary Panel recommendation will be that the ATM results are appropriate for use as relative, but not absolute, abundance estimates, the expectation is that this would preclude direct application of the ATM survey results as would be required to apply several of the options for potential CSNA management laid out in the April 2017 report. Consequently, the SSC also anticipates a white paper by Dr. Andre Punt regarding how a relative abundance index could be used to develop a harvest control rule for CSNA. This document is anticipated to provide guidance on how a management strategy evaluation (MSE) could inform a process for developing such a rule, and will provide some insights into what a potential timeline for developing such an MSE might look like.

SSC Subcommittee Assignments, March 2018

Salmon	Groundfish	Coastal Pelagic Species	Highly Migratory Species	Economics	Ecosystem-Based Management
Galen Johnson	David Sampson	André Punt	Aaron Berger	Cameron Speir	Dan Holland
John Budrick	Aaron Berger	Aaron Berger	John Field	Michael Harte	Evelyn Brown
Alan Byrne	John Budrick	Evelyn Brown	Michael Harte	Dan Holland	John Field
Owen Hamel	John Field	John Budrick	Dan Holland	André Punt	Michael Harte
Michael Harte	Owen Hamel	Alan Byrne	André Punt	David Sampson	Galen Johnson
Will Satterthwaite	Meisha Key	John Field	David Sampson		André Punt
Rishi Sharma	André Punt	Owen Hamel	Rishi Sharma		Will Satterthwaite
Ole Shelton	Rishi Sharma	Meisha Key			Ole Shelton
Cameron Speir	Tien-Shui Tsou	Will Satterthwaite			Cameron Speir
		Tien-Shui Tsou			Tien-Shui Tsou

Bold denotes Subcommittee Chairperson

Council Meeting Dates	Location	Likely SSC Mtg Dates	Major Topics
<p>March 8-14, 2018 Advisory Bodies may begin Thu, March 8 Council Session may begin Fri, March 9</p>	<p>DoubleTree by Hilton Sonoma One Doubletree Drive Rehnert Park, CA 94928 Phone: 707-584-5466</p>	<p>Two-day SSC Session Thu, March 8 – Fri, March 9</p>	<p>Election of new SSC officers Identify salmon management objectives Salmon review/Pre-I CA current & IEA report FEP Climate Shift Initiatives Report Sablefish Ecosystem Indicators MSE Groundfish initial stock assessment plan and Terms of Reference Groundfish harvest specifications</p>
<p>April 5-11, 2018 Advisory Bodies may begin Thu, April 5 Council Session may begin Fri, April 6</p>	<p>Sheraton Portland Airport Hotel 8235 NE Airport Way Portland, OR 97220 Phone: 503-281-2500</p>	<p>Two-day SSC Session Thu, April 5 – Fri, April 6</p>	<p>Pacific Sardine Assessment Coastal pelagic species EFPs Salmon Methodology Topic Selection ATM Methodology Final Approval Process for Review of Ref. Points for Monitored Stocks</p>
<p>June 6-13, 2018 Proposed Subcommittees may meet Wed, Jun 6 Advisory Bodies may begin Thu, June 7 Council Session may begin Fri, June 8</p>	<p>DoubleTree by Hilton Spokane City Center 322 N. Spokane Falls Court Spokane, WA 99201 Phone: 509-455-9600</p>	<p>Two-day SSC Session Thu, June 7 – Fri, June 8</p>	<p>Final stock assessment plan and Terms of Reference Research and Data Needs, Prelim.</p>
<p>September 5-12, 2018 Proposed Subcommittees may meet Wed, Sept 5 Advisory Bodies may begin Thu, Sept 6 Council Session may begin Fri, Sept 7</p>	<p>DoubleTree by Hilton Hotel Seattle Airport 18740 International Boulevard Seattle, WA 98188 Phone: 206-246-8600</p>	<p>One-day Ecosystem Subcm Session? Wed, Sep 5 Two-day SSC Session Thu, Sep 6 – Fri, Sep 7</p>	<p>Groundfish Stock Assessment Methodology Review Topic Selection Research and Data Needs, Final Salmon Methodology Topic Priorities</p>

<p>November 1-8, 2018 Proposed Subcommittees may meet Thu, Nov 1 Advisory Bodies may begin Fri, Nov 2 Council Session may begin Sat, Nov 3</p>	<p><u>San Diego Marriott Del Mar</u> 11966 El Camino Real San Diego, CA 92130 Phone: 858-523-1700</p>	<p>Two-day SSC Session Fri, Nov 2 – Sat, Nov 3</p>	<p>CPS Methodology Topic Selection Groundfish Stock Assessment Methodology Topic Priorities Salmon Methodology Review</p>
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Proposed Workshops and SSC Subcommittee Meetings for 2018

	Workshop/Meeting	Potential Dates	Sponsor/ Tentative Location	SSC Reps.	Additional Reviewers	AB Reps.	Council Staff
1	SCS6 Meeting	Jan. 17-19	Council & NMFS/ San Diego, CA	Satterthwaite, Holland, Punt, Berger, Budrick, Field, Hamel, Harte, Johnson, Sharma, Speir, Tsou	TBD	None	Tracy, DeVore Others? TBD
2	CPS ATM Methodology Review	Jan. 30 - Feb. 2	Council/ La Jolla, CA	Punt, Brown, Hamel	TBD	TBD	Griffin
3	GF Subcommittee Webinar Review of Harvest Specifications and GF R&D Needs	Feb. 8	Council/Webinar	GF Subcommittee	None	None	DeVore
4	CAPAM Workshop on Spatio Temporal CPUE Indices	Feb. 26 - Mar. 2	CAPAM/ La Jolla, CA	TBD	TBD	None	TBD
5	Review of Sardine Update Assessment	Mar. 6	Council/ Webinar	CPS Subcommittee	None	CPSMT CPSAS	Griffin, DeVore
6	Review of Catch Estimation Methods in Sparsely Sampled Mixed Stock Fisheries	Mar. 28-29	Council/ Santa Cruz, CA	GF Subcommittee	TBD	TBD	DeVore
7	Review of Nearshore ROV Survey Designs and Methodologies	Late Summer/Early Fall?	Council/ TBD	GF Subcommittee	TBD	TBD	DeVore

Proposed Workshops and SSC Subcommittee Meetings for 2018

Workshop/Meeting		Potential Dates	Sponsor/ Tentative Location	SSC Reps.	Additional Reviewers	AB Reps.	Council Staff
8	CCIEA Indicator Review	Sep. 5?	Council/ Seattle, WA	Ecosystem Subcommittee	None	EWG EAS	Dahl
9	Salmon Methodology Review	Oct. TBD	Council/ TBD	Salmon Subcommittee	TBD	STT MEW	Ehlke