MINUTES
Scientific and Statistical Committee

Pacific Fishery Management Council
DoubleTree by Hilton Sacramento
California Salon II
2001 Point West Way
Sacramento, CA 95815
Telephone: 916-929-8855
September 10-11, 2015

Members in Attendance

Mr. John Budrick, California Department of Fish and Wildlife, Belmont, CA

Mr. Alan Byrne, Idaho Department of Fish and Game, Boise, ID

Dr. Andrew Cooper, Simon Fraser University, Vancouver, B.C.

Dr. Martin Dorn, National Marine Fisheries Service Alaska Fisheries Science Center, Seattle, WA

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. Daniel Huppert, University of Washington, Seattle, WA

Mr. Tom Jagielo, Seattle, WA

Dr. Galen Johnson, Northwest Indian Fisheries Commission, Olympia, WA

Dr. Kevin Piner, National Marine Fisheries Service Southwest Fisheries Science Center, La Jolla, CA

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

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. Cameron Speir, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA

Dr. Tien-Shui Tsou, Washington Department of Fish and Wildlife, Olympia, WA

Members Absent

Dr. Peter Lawson, National Marine Fisheries Service Northwest Fisheries Science Center, Newport, OR

Dr. Todd Lee, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA

SSC Recusals for the September 2015 Meeting		
SSC Member	**Issue**	**Reason**
Dr. Andrew Cooper	H.3 Final Stock Assessments (black rockfish)	Dr. Cooper chaired the STAR panel for this assessment
Dr. Martin Dorn	H.3 Final Stock Assessments (China rockfish and bocaccio)	Dr. Dorn chaired the STAR panel for these assessments
Dr. John Field	H.3 Final Stock Assessments (China rockfish and bocaccio)	Dr. Field was on the STAT or supervised the STAT for these assessments
Dr. Owen Hamel	H.3 Final Stock Assessments (black rockfish, China rockfish, kelp greenling, and widow rockfish)	Dr. Hamel supervised the STAT for these assessments
Dr. David Sampson	H.3 Final Stock Assessments (black rockfish, kelp greenling, and widow rockfish)	Dr. Sampson was on the STAT or chaired the STAR panel for these assessments
Dr. Theresa Tsou	H.3 Final Stock Assessments (black rockfish and China rockfish)	Dr. Tsou was on the STAT for these assessments

A. Call to Order

Interim Chair Will Satterthwaite called the meeting to order at 0800. Dr. Donald McIsaac provided an overview of the agenda. Agenda Item C.6, Future Council Meeting Agenda and Workload Planning, was added to the agenda to consider recommending Stock Assessment Prioritization to the November 2015 Council agenda. Dr. John Field was elected to serve as the interim vice chair. Mr. John Budrick, a designee for the vacant California Department and Fish and Wildlife seat, was assigned to serve on the Groundfish Subcommittee while he occupies this seat.

D. Ecosystem Management

1. Fishery Ecosystem Plan Initiative Scoping

The Scientific and Statistical Committee (SSC) received a report by the SSC Ecosystem Based Management Subcommittee (SSCES) on a September 9th meeting with Drs. Chris Harvey and Toby Garfield (California Current Integrated Assessment team) [CCIEA]) and Josh Lindsay, Corey Niles, Yvonne deReynier, and Deb Wilson-Vandenberg (Ecosystem Workgroup, [EWG]). The meeting began with a technical review of human dimension indicators in the CCIEA annual report, including indicators still in development, such as community vulnerability indices and an assessment of the social-ecological vulnerability of forage fish fisheries to climate change. The SSCES will prepare a more complete discussion of the issues raised during this part of the meeting,

including recommendations, to be reviewed by the full SSC during the November Council meeting and subsequently forwarded to the CCIEA team.

The SSCES also discussed the EWG report on potential Fishery Ecosystem Plan (FEP) initiatives (agenda item D.1.a), and developed a response to the questions posed by the Council in March 2015 related to the indicators reported in the State of the California Current (SOTCC) Report. The SSCES and CCIEA representatives agreed that the meeting was useful, productive, and worth repeating. However, many of the primary analysts responsible for the work being reviewed were not in attendance, and their participation would have been desirable.

With respect to the EWG report, the SSC agreed that the Coordinated Ecosystem Indicator Review Initiative developed by the EWG would provide the basis for a comprehensive examination of the scope and potential utility of future indicators and other products that would help fulfill FEP or Fishery Management Plan (FMP) needs. This would enable both the continued integration of ecosystem science in the Council process, as well as expand the engagement between the Council and its advisory bodies and the CCIEA team. With respect to the timeline proposed by the EWG, the SSC notes that the proposed spring 2016 meeting among Ecosystem Advisory Subpanel (EAS), EWG, SSCES and CCIEA scientists may not be possible in April 2016 due to previously scheduled NOAA program reviews. An independent May meeting or Council associated June meeting would likely be more feasible. The timeline for meetings and interactions recommended by the EWG in the near term seems ambitious but possible, although the SSC recognized that many of the desired products and indicators that are likely to be identified as a result of this process will take substantial analysis (and therefore time) to both develop and review.

With respect to the Council's questions on indicator use that arose from the presentation of the SOTCC annual report (March 2015), the SSC developed the following responses.

i.   What can we reasonably expect to learn from or monitor with the existing indicators in the CCES Report?

The SSCES concluded that the current indicators are useful for understanding the major environmental drivers and current status of the major biological components of ecosystem. Although the human dimensions section of the report does not provide a comprehensive summary of human impacts on the ecosystem, or of all the human benefits derived from the ecosystem, it is reasonable to expect improvements to this section as new approaches are developed. The community vulnerability indices and other products discussed at the SSCES review might ultimately help to address this need. The current indicators are a step towards the broader consideration of ecosystem factors that might inform Council decision-making, and should continue to be updated. They represent the foundation on which to build future ecosystem research and analysis.

ii. How well do the existing indicators accomplish their intent? Are any redundant?

The SSCES found that the existing indicators are an appropriate way to monitor changes in ecosystem characteristics, and are an aid in understanding how ecosystems function. Several of the biological indicators have a limited geographic scope, but this was recognized to be a largely unavoidable constraint of the data sources that support those indicators. The SSCES suggested that additional indicators related to total bycatch (or total retention rates) within and among a range of fisheries should be considered for inclusion in the report, and that indicators of total economic value would complement the indices of total catch by major fisheries.

iii.   Are there alternate indicators (or information or analysis) that may perform better in context? Are there additional indicators that could help inform Council decision-making under each of its fishery management plans (FMPs) and consistent with the purpose of the FEP?
The SSCES and CCIEA representatives discussed the potential for additional analysis to help inform Council decision-making. For example, the CCIEA team has made substantial progress developing tools relevant to assessing trophic flows in the California Current Ecosystem and to inform the FEP and CPS FMP objective of providing adequate forage for dependent species. This work could quantify tradeoffs and possible thresholds that could be associated with management decisions. However, predictions of ecosystem effects into the future need a rigorous basis, and uncertainty should be reflected through a probabilistic, decision analysis, or risk assessment framework.

The SSCES also discussed the utility of involving of CCIEA analysts in the evaluation and discussion of ecosystem considerations in groundfish and CPS stock assessments (e.g. the ecosystem role, trophic interactions, habitat requirements or other relevant information on ecosystem processes). Although this has been included in the Terms of Reference for stock assessments, it would be appropriate to prioritize this aspect of IEA involvement in the next round of stock assessments. The SSC has observed that the 2015 round of groundfish stock assessments included fairly minimal evaluation or discussion of ecosystem considerations.

SSC notes:

The EWG is recommending a process to obtain feedback from management teams and advisory panels on the types of information that should be included in the State of the Ecosystem Report. While this is a worthwhile process, it should be anticipated that some of the issues identified will be outside of the scope of immediate revisions to the report, and may require new research by CCIEA analysts or collection of new data sets over the longer term.

The SSCES also noted that several indicators that were provided in the March 2015 presentation on the Council floor, such as the snow-water equivalent index and discussion of the Northeast Pacific warm water anomaly (aka, "the warm blob"), that were not included in the 2015 report. Similarly, the SSCES suggested that the section of the CCIEA report dealing with human indicators include language to the effect that the current suite of indicators is a work in progress, and different indicators may appear in future reports. The SSCES also noted that some indicators that had come under fairly intense scrutiny in past meetings (such as the mean trophic level of the catch and personal use indices) were removed from the 2015 report, but could merit reintroduction in future reports if and when some of the analytical concerns can be addressed. The SSCES and CCIEA agreed that future reports might devote less space to explaining the background of repeatedly presented time-series, and instead use that space to address issues identified in the response to question iii, below.

During the SSC discussion it was also noted that given the often substantial variability in trends by region, combined with the constraints of the length of the report, it could be beneficial to include landings and revenue trends by region in some version of the online IEA products, and to note in the annual report if and where such higher resolution data might exist. Finally, it was noted that indicators that relate to recreational catches, effort or participation are also absent from the report.

The SSCES and CCIEA also considered the possibility of identifying thresholds in indicators related to tipping points in the California current. The SSCES recognized that the latter reflect the leading edge of research in the field, and will ultimately require substantial analysis and review, necessitating a longer time frame and increased involvement of the SSC and relevant advisory bodies.

The utility of many of the IEA products to inform EIS and other regulatory analysis was also recognized. Finally, recognizing the importance of evaluating cumulative impacts across fisheries management plans (Chapter 4 in the Fisheries Ecosystem Plan), the EWG noted that updates to the FEP are tentatively scheduled for 2018, and assistance and/or analysis by the IEA Team to better inform that effort would be highly beneficial.

The SSCES recognized considerable promise in many research areas related to human dimension indicators, particularly the efforts to quantify community vulnerability to disruptive events such as changes in resource productivity or management actions. A summary of the major SSCES recommendations to the CCIEA team includes:
1. *Develop time series of human dimensions indicators so that trends over time could be analyzed.*
2. *Highlight issues related to analyzing demographic data when sample sizes are small, as this may lead to highly variable values. This problem could be addressed by aggregating data to larger community units.*
3. *Characterize the uncertainty associated with indicator values.*
4. *Focus effort evaluating whether the indicators can capture changes that result from management changes (either historical or predictive).*

E. Salmon Management

1. Salmon Methodology Review

Mr. Mike Burner briefed the Scientific and Statistical Committee (SSC) on the current list of proposed topics for the 2015 Salmon Methodology Review to be held October 20-22 in Portland, Oregon. The following items were identified for potential review this fall, and the lead entity for each work product is identified at the end of each item.

1. Update of the Chinook Fishery Regulation Assessment Model (FRAM) base period, base period algorithms, and documentation (Model Evaluation Workgroup).

2. Evaluation of Sacramento River winter Chinook contribution to ocean fisheries north and south of Point Sur (California Department of Fish and Wildlife, National Marine Fisheries Service).

3. Evaluation of a management line at Point Reyes for the Klamath Ocean Harvest Model (KOHM), Sacramento Harvest Model, and Winter Run Harvest Model (California Department of Fish and Wildlife, National Marine Fisheries Service).

Materials to be reviewed should be submitted no later than October 5 to Mike Burner. Agencies

should ensure that materials submitted to the SSC are technically sound, comprehensive, clearly documented, and identified by author. The SSC plans to review reports on these topics at the November meeting.

SSC Notes:

The proposed Chinook FRAM base period update includes a number of proposed algorithm changes for formal review (including estimating growth curves and sublegal encounters) and a progress report.

Items 2 and 3 will be combined in one report and presentation.

Alaska's request for variances on salmon forecasts has been retracted, and it is anticipated that a more detailed request will be made in the Spring of 2016.

The Klamath Tribes are still interested in investigating spring Chinook ocean impacts, but analysis will not be completed in time for methodology review this year.

Insufficient recoveries were found to evaluate a potential management line splitting the California Klamath Management Zone in the KOHM and SHM, so it is anticipated that a test fishery will be proposed to the Council soon.

G. Highly Migratory Species Management

2. Swordfish Management and Monitoring Plan Hardcaps

The Scientific and Statistical Committee (SSC) reviewed the presentation titled 'Analysis to Compare the Operation of the Drift Gillnet Fishery under Hard Caps Alternatives' given by Dr. Stephen Stohs. The presentation described responses to concerns raised by the SSC at the March and June 2015 SSC meetings. The responses satisfied SSC concerns with the exception that documentation of the bootstrapping methods was not publicly available at the time the SSC discussed the issue. Methods documentation should be publicly available in advance of the meeting to facilitate public input into the SSC discussion.

The SSC endorses the bootstrap analysis (Agenda Item G.2.a, Supplemental NMFS Report 5) for use in evaluating hard cap alternative and notes the following considerations and assumptions regarding the analysis. The method used to account for incomplete observer coverage, including the rounding of fractional results, is an important consideration. The bootstrap analysis accounted for incomplete observer coverage by expanding observed interactions based on the level of observer coverage and rounding up the fractional result to calculate total interactions. Alternative 5 (as defined in Agenda Item G.2.a NMFS Report 1, page 10) accounts for incomplete observer coverage by adjusting the cap level for observer coverage and rounding up the fractional result to calculate observable cap level. These approaches used to account for incomplete observer coverage are not equivalent. Furthermore, the bootstrap analysis assumes that fleet behaviors affecting interaction rate, fleet costs, and ex vessel price will be the same in the future as in the re-sampled period. As a result, estimated profits should be interpreted as relative measures of profit under different hard cap alternatives rather than absolute projections.

H. Groundfish Management

10. Groundfish Management Science Improvements and
    Methodology Review Topics

The Scientific and Statistical Committee (SSC) reviewed possible topics for off-year science workshops related to improving groundfish stock assessments for the 2019-20 management cycle based on recommendations from recent Stock Assessment Review (STAR) panels (Agenda Item G.4a, Attachment 1). The SSC identified three priority topics for off-year science workshops. These three workshops were also recommended in 2013 (and two of them in 2011), but could not be completed for various reasons. The SSC continues to regard them as priority topics.

Successful workshops require dedicated research, careful organization before the workshop, and post-meeting development of scientific reports, all of which come at a cost of time and resources. The Council should be cognizant of the trade-off between the number of workshops that are held and amount of progress that can be made on other projects with the potential to improve data inputs and stock assessments.

1. Workshop to review historical landings time series (recommended in 2011 and 2013).
A major effort to reconstruct historical landings was initiated in 2008 in response to the Council's call to compile the best estimates of catch history early in the development of Pacific Coast groundfish fisheries. Currently, this effort has produced published estimates for most California and Oregon fisheries and species. Databases have been developed for raw landings and historical species composition data for Washington, and some analysis should be complete by summer 2016, in time for a workshop. An off-year science workshop would review reconstructions of all landings comprehensively. This review would need to be structured differently than the other proposed workshops, since the most expertise is to be found among current and former employees of state agencies, and experienced fishermen and processors. Formal uncertainty analysis for the historical catch estimates due, for example, to uncertainty in estimates of landings species compositions, would also be an important priority for this workshop.

2. Workshop on estimation of B_{MSY} proxies (recommended in 2011 and 2013).
The Council's harvest control rules depend on estimates of stock size relative to a B_{MSY} proxy, with a default B_{MSY} proxy defined as some fraction of unfished stock size, B_0. Changes in stock assessment methods or data inputs can lead to large changes in estimated B_0, and in some cases to marked changes in depletion levels, overfishing limits, acceptable biological catches, or rebuilding

times. This workshop would review alternative control rules (e.g., control rules based on "Dynamic B_0" or on direct estimates of B_{MSY}) and compare their performance with current approaches using management strategy evaluation (MSE). The workshop would build on the last B_0 workshop, but would be more focused on the performance of control rules. It would also include review of stock status for a range of stocks when stock status determinations are based on "Dynamic B_0." The evaluation of control rules could be based on the MSE currently being developed to evaluate rebuilding revision rules.

3. Workshop on the shape of the stock productivity curve (Recommended in 2013).
Recent data-moderate assessment approaches such as Extended Depletion-Based Stock Reduction Analysis (XDB-SRA) are designed to have greater flexibility in how productivity changes with stock size. In contrast, nearly all full assessments of West Coast groundfish use the two parameter Beverton-Holt stock recruit relationship, which imposes strong constraints on the shape of the stock productivity curve. While the approach used in XDB-SRA has conceptual appeal, it is not clear whether such flexibility is appropriate given what is known about the growth and mortality of West Coast groundfish. The two approaches represent a fundamental difference in how stock productivity is modeled, and there are important implications to biomass and fishing mortality reference points used in Council's harvest control rules. The SSC recommends that a scientific workshop be sponsored that would evaluate the suitability of these alternative ways of modelling stock productivity in data-moderate and full assessments. Work to include XDB-SRA's approach for modeling productivity in Stock Synthesis has been conducted, making 2016 an opportune year to review productivity assumptions.

Other potential future workshops discussed include:

- Workshop on methods of data reweighting (recommended in 2013).
The Center for the Advancement of Population Assessment Methods (CAPAM) is holding a workshop on this topic in October, 2015. Depending upon the results of that workshop, there may no longer be a need for a separate west coast workshop on this topic. The issue, while technical in nature, has important consequences, since it is not unusual for assessment results to be fairly sensitive to the weights given to composition data. These issues apply to groundfish, CPS and other assessments.

- Workshop on transboundary groundfish stocks.
This workshop would address both control rules and transboundary assessments. Current assessments that are limited by political boundaries that are not reasonable assessment boundaries biologically. Transboundary assessments without related international control rules may not result in better management. Work with scientists from Canada and/or Mexico would be helpful prior to and during this potential future workshop.

- Workshop on recreational catch per unit effort (CPUE) standardization.
Several recent stock assessments have depended upon CPUE standardization, relying on a few methods, such as that of Stephens and MacCall (2004). There has been a proliferation of methods in recent years, and a review of alternative methods would be useful to provide consistent advice prior to future assessments.

- Workshop on spatial models.
As with CPUE standardization methods, there is a fair amount of recent research and literature on

spatial modeling. A workshop to review alternative methods and provide guidance for stock assessment could be useful in the future.

SSC Notes:

Workshop/SSC subcommittee meeting on management proxies (both F and B proxies).

Harvest rate and biomass target and limit proxies should be readdressed as more and better information is available over time.

3. Final Stock Assessments

The Scientific and Statistical Committee (SSC) was briefed by members of 2015 stock assessment teams and stock assessment review (STAR) panel chairs on assessments reviewed this summer. The stock assessments reviewed include black rockfish, bocaccio, China rockfish, kelp greenling off Oregon, and widow rockfish. The SSC provides the following comments and recommendations regarding these assessments.

Black Rockfish
Black rockfish was last assessed in 2007 with separate assessments north and south of Cape Falcon, OR. This year three separate assessment models were developed for black rockfish off California, Oregon, and Washington. The STAR panel-endorsed assessments for California and Washington were brought forward to the SSC for approval, but the assessment for Oregon was not endorsed.

The primary challenge for the black rockfish assessment in all three states is the absence of larger, older female black rockfish in fisheries catches, a phenomenon that has long been a challenge in developing plausible assessments for black rockfish and other species that exhibit this tendency. Past modeling approaches, and those taken during the STAR Panel week, have explored both "hiding" larger, older females (e.g., applying dome-shaped selectivity to fisheries, which often results in what are considered to be implausibly high "cryptic" biomass levels of large, old, unavailable fish) or "killing" off larger, older females (one common formulation being a ramp up in natural mortality rates with age) in order to fit the observed data. The California and Washington models addressed this issue in a novel way (compared to previous assessments) by allowing for differential natural mortality by sex. It was not possible to evaluate this approach for Oregon at the STAR Panel meeting, because a working model was not available.

The SSC recommends that the Oregon black rockfish assessment should be referred to a mop-up panel, and does not endorse the California and Washington black rockfish assessments at this time. The SSC does not anticipate that the California and Washington assessments will be re-opened for a full review at the mop-up panel. However, delaying final approval of these assessments is prudent to allow for potential changes in them that could allow consistency among all three assessments.

Bocaccio
The last full assessment of bocaccio rockfish was conducted in 2009, and was subsequently updated in 2011 and 2013. Data inputs and model structure generally followed those of the 2009 assessment, with the exceptions that age data for bocaccio were included for the first time, natural mortality was estimated rather than fixed, and the steepness of the stock-recruitment curve was set to 0.773 rather than estimated. Strong recruitment was estimated for 2010 and 2011, although it was not estimated to be as strong as it was in previous assessments. There were early indications of strong recruitment for 2013. Results were sensitive to the choice of data-weighting.
The assessment estimates current depletion (2015) at 36.8%. The stock is projected to be rebuilt in 2016 (with depletion estimated to be 45.8%), but that is dependent on the realization of the strong 2013 recruitment and will need to be confirmed by an update assessment in the next cycle.

The bocaccio assessment represents the best available science for use in developing 2017-2018 management measures as a category 1 assessment. The SSC recommends that the next assessment of this stock be an update assessment.

China Rockfish
In 2013, a data moderate assessment was conducted in Extended Depletion-Base Stock Reduction Analysis (XDB-SRA). In that assessment, two areas, north and south of Cape Mendocino, were modeled separately. The 2013 assessment indicated that the southern stock was above the B_{MSY} proxy of $B_{40\%}$, while the northern stock was found to be in the precautionary zone.

The 2015 stock assessment was conducted using SS3. The Northern area from the 2013 assessment was split into Northern and Central areas for the 2015 assessment, and models were developed for three separate areas: Washington, Oregon plus California north of Cape Mendocino, and California south of Cape Mendocino. Differences in growth, size-composition data, exploitation history, and biogeographic boundaries formed the basis to split the assessment into separate areas along the coast.

New data for the 2015 assessment included length and age compositions starting as early as the 1970s. The models included seven fishery-dependent indices of abundance (three indices for each of the Southern and Central areas, and one for the Northern area). Maturity and fecundity relationships were also updated. Steepness was fixed in all models at 0.773, and the natural mortality rate was estimated for the Northern and Southern areas and fixed at the estimated value, 0.07, for all areas

The Northern assessment modeled years from 1967 (when catch began) to 2015, whereas the other two areas covered the period 1900-2015. For the Southern area model, discard data were modeled as a separate fleet. For all models, the selectivity of landings was asymptotic, and growth was estimated. Recruitment deviations were not estimated, so recruitment is assumed to be that from the stock-recruitment curve in each area for each year.

The SSC endorses the use of the 2015 China rockfish assessment as the best scientific information available for status determination and management as a category 2 assessment. The category 2 designation is due to the lack of recruitment deviations in all three area models. The spawning stock biomass for China rockfish is estimated to be above the B_{MSY} proxy of $B_{40\%}$ in the Northern and Central areas, and in the precautionary zone (below the B_{MSY} proxy but above the B_{limit} of $B_{25\%}$) in the Southern area, while increasing in recent years. Given the expectation that China

rockfish will not be assessed in the next few cycles, the SSC recommends that the next assessment of this stock be a full assessment, unless there is a compelling reason to conduct an update assessment in the next two cycles.

Kelp Greenling off Oregon
The last assessment of kelp greenling was conducted in 2005. The changes from that assessment included: the use of SS3 rather than SS2, revised fleet definitions, revised catch histories, inclusion of discards, new and updated indices of abundance, additional age and length composition data, and revised life history parameters.

The assessment assumed a single, two-sex population for waters off the Oregon coast and modeled the period 1915-2014. The model included four fleets which were defined as a combined commercial fleet (hook and line, and bottom longline) and three recreational fleets (ocean-boat, estuary-boat, and shore). Data included in the model were catches and associated length composition data, three fishery dependent CPUE series, and three series of conditional age-at-length data.

The base model estimate of 2015 spawning biomass depletion was 80% of unfished, indicating a lightly exploited stock. The 'scale' of the biomass was sensitive to the assumed value for natural mortality.

The SSC endorses the use of the 2015 kelp greenling assessment as the best scientific information available for status determination and management as a category 1 assessment. The SSC recommends that the next assessment of this stock be an update assessment.

Widow Rockfish
The last full assessment of widow rockfish was conducted in 2011. That assessment estimated that the stock had increased above the rebuilding target of $B_{40\%}$, leading to the stock being declared rebuilt. A number of revisions were made to the data used for the current stock assessment, including 1) a new method of index standardization for NWFSC trawl survey using a geo-statistical delta-GLMM model, 2) a new steepness value (0.798) based on an updated meta-analysis of steepness, 3) a prior distribution developed for the natural mortality parameter from an analysis of a maximum age of 54 years, 4) updated methods of expanding fishery length and age composition, and survey conditional age at length, and 5) new ageing error tables. For this assessment, there was more thorough investigation of available age and length data, increasing the amount of these data relative to previous assessments. In addition, Washington historical landings were reconstructed.

The changes from the last assessment include how fisheries were structured and how selectivity was modeled. The fleets were reconfigured based on fishing strategy rather than geographic area as in previous assessments. The triennial survey was considered a single time series rather than split as most other West Coast assessments.

The 2015 spawning biomass is estimated to be 75.1% of unfished spawning biomass, and has increased steadily since a low of 37.3% depletion in 1998. Increases in stock size are due to the low level of harvest and strong recruitment in 2008 and 2010.

The SSC endorses the use of the 2015 widow rockfish assessment as the best scientific information available for status determination and management as a category 1 assessment. The SSC

recommends that the next assessment of this stock be an update assessment.

SSC Notes:

Bocaccio
The perceived strength of 2010 and 2011 year class that was seen in the last assessment has not shown up (they are currently estimated to be high, but lower than before). Is there a consistent pattern of 2-year-olds appearing to be strong and then disappearing?

There is a residual pattern in the age data from the setnet and handline fleets (which are no longer operational), so the next assessment might want to leave them out.

It would be useful to include more guidance as to how to choose the high and low states of nature for the decision tables.

There were some strange selectivity patterns that couldn't be resolved in this assessment, and these should be explored in the future.

There are some older indices that aren't that informative, so it might be advisable to remove them in future full assessments.

At the post-mortem, we might want to discuss about diagnostics for the data weighting (e.g., a table for starting weights and ending weights)

Kelp Greenling off Oregon
Catch estimates for important recreational fleets (shore and estuary) are not well determined in the recent period because of declining sampling. The catch from these fleets were not trivial in the most recent period.

Data available from the RecFIN database needs to include meta data and flags identifying pseudo data (e.g., lengths that are converted weights).

It was noted that when age-length samples are taken with an intervening age based process, growth estimated using CA@L data will be biased unless the corresponding age based process (age based movement or age based selectivity) is incorporated in the model estimating growth.

The sigma calculated using the alternative method from Ralston et al. 2011 based on the difference in the estimate of biomass for the base-case and low state of nature (0.44) > default (0.36) > 2015 model estimate (0.315). The SSC should consider which approach is most appropriate to provide sigma for this stock.

Widow Rockfish
One issue with respect to widow rockfish assessment that will require follow-up, perhaps at the post-mortem review, is how to use prior information on steepness when steepness is fixed in the stock assessment. The STAR panel recommended that the meta-analysis needed to be re-run with information from the previous assessment removed from the analysis to avoid double-use of data. This led to a steepness of 0.798 that was used in the assessment. Another approach would be to use the steepness value (0.773) that includes the widow rockfish information on steepness from the previous assessment, since the information on steepness in the current assessment is not used when

steepness is fixed. Both of these approaches are a way to deal with non-standard situation, so it is unclear which approach is most appropriate. In any case, the SSC needs to specify recommended approach so that assessment authors have clear guidance in future assessment cycles. Since widow rockfish assessment results are not sensitive to small changes in steepness, this issue has very minor impact on assessment results.

8. Amendment to Modify Groundfish Essential Fish Habitat and to Adjust Rockfish Conservation Areas

The Scientific and Statistical Committee (SSC) reviewed two methods for providing information on the spatial distribution of the density of rockfish caught using the trawl fishery. This information could be used to identify areas of high catch-per-unit-effort (CPUE) for potential Rockfish Conservation Areas (RCAs). The outcomes from applying the methods could not be used for the impact analysis that will be used to evaluate the consequences of the selected alternatives without methodological refinements that integrate predictions of density over space, because there is no way to compare the cumulative density of fish included or excluded from particular areas. The methods were based on visualizing the CPUE data from the trawl survey (Agenda Item H.8, Attachment 3) and the commercial fishery data collected by observers (Agenda Item H.8, Attachment 4).

Application of both methods is restricted spatially because data from the fishery and the trawl survey are only available for trawlable areas and because the fishery data are only available for areas open to fishing. There are several other sources of data that are available, that were not analyzed, such as the results from the hook-and-line survey and the International Pacific Halibut Commission survey. Use of these data would complicate the analysis but would provide increased sample sizes for some areas of the coast.

Trawl survey data are available from the RCAs as well as from areas open to fishing. The approach for analyzing the trawl survey data is based on maps of trawls, where each trawl is categorized according to its catch-rate. However, methods chosen for visualizing differences in CPUE in Agenda Item H.8, Attachment 3 are not consistent among species, which makes interpretation of the plots difficult. Moreover, the basis for visualizing differences in CPUE (color-coding observations by catch rate) was not fully explained, but the results of the analysis could potentially be very sensitive to how CPUE differences are characterized. The SSC recommends that if this method be used, the color coding be based on the same percentiles of the distribution of CPUE for all species so that the colors have the same meaning for all species and so that the analysis is replicable.

Commercial CPUE data based on observer sampling may be available for the entire year unlike the trawl survey data, and hence could provide information on seasonal distribution patterns. However, the "line density" calculation in Agenda Item H.8, Attachment 4 does not estimate average density spatially and should not be used.

The SSC does not support use of either of the methods in Agenda Item H.8, Attachments 3 and 4 to rank RCA alternatives. Use of geostatistical methods to map species distributions spatially and seasonally would provide a better way to use both trawl survey and commercial CPUE data to characterize species distributions. Analysis of the trawl survey data should be based on a common set of percentiles, but these data can only provide information on the distribution of species in summer. Spatial and temporal distributions could be estimated using methods such as that

developed by Dr. James Thorson (Northwest Fisheries Science Center), which has been used to analyze the trawl survey data for the current round of assessments. This method could be used to account for factors ignored by current approaches such as differences in catchability among vessels.

5. Specifications Process for 2017-2018 Management

The Scientific and Statistical Committee (SSC) reviewed a draft table of 2017-2018 groundfish overfishing limits (OFLs) and category assignments presented by Mr. John DeVore (Agenda Item H.5, Attachment 1, Table 1).

The 2017-2018 OFLs from the most recent assessments are based upon the assumption that, for most stocks, annual catch limits (ACLs) based on default harvest control rules will be taken. In a few cases (e.g., Dover sole), the assumption for annual total catch removals are based on recent year average catches. OFL projections from some of the older assessments have been updated using actual catches since the assessment was conducted; however, updated projections have not been made for all stocks. In this cycle, the SSC is recommending updated projections based on ACL removals or recent year average catches (e.g., arrowtooth flounder) to avoid unnecessary constraints to fisheries. Other OFL projections, such as those for longspine thornyhead, have not been updated since providing updates to older assessments is not a trivial workload.

The changes in projection methodology used to compute the OFLs have been endorsed to provide the most risk-neutral OFLs possible given the capacity of the science centers to provide these updates. Further, the assumption of ACL removals assuming default harvest control rules in projecting 2017 and 2018 OFLs is consistent with the new Amendment 24 framework. In cases where the Council decides to change the default harvest control rules for 2017 and 2018 and such a change results in a significantly different ACL removal assumption, the SSC will need to reconsider the 2018 OFL since that limit will be sensitive to the 2017 removal assumption. The SSC will need to deliberate which changes in harvest control rules will require a reconsideration of OFLs.

The SSC endorses the OFLs and accompanying category designations that are not highlighted in Table 1, and did not endorse further changes in sigma for any of those stocks. The OFLs for stocks highlighted in Table 1 will be addressed in November pending further investigation and/or provision of OFLs not available at this meeting. The reasons for some of these OFLs not being endorsed at this meeting are explained as follows.

- Black rockfish: 2017 and 2018 OFLs are unavailable pending endorsement of the new assessments at the "mop-up" panel review in September 2015 and SSC review in November 2015.
- Bocaccio: The apportionment of the OFL north and south of 40° 10' N. latitude needs further investigation.
- Cowcod: OFL projections are needed that assume ACL removals.
- Dover Sole: The SSC endorses the method of using the most recent 3-year average total catch to project OFLs because catches have been considerably lower than ACLs using default harvest control rules.
- Lingcod: New OFL projections are needed using actual catches since 2009 when the assessment was conducted.

- Stocks last assessed in 2005 that have not been updated: The 2005 assessments are out of date and 2017 and 2018 OFL projections are not available. The SSC anticipates the new OFLs will be based on DB-SRA and the stock category assignment will be changed to category 3. This affects California scorpionfish, gopher rockfish in California north of Pt. Conception, and starry flounder.

- Stocks assessed in 2013 using data-moderate methods: 10-year OFL projections were not provided in the 2013 data-moderate assessment document. This affects OFLs for brown rockfish, copper rockfish, English sole, rex sole, sharpchin rockfish, stripetail rockfish, and yellowtail rockfish north of 40° 10' N. latitude.

Table 1. 2017 and 2018 overfishing limits and stock categories endorsed (if not highlighted) by the SSC assuming no changes to the default harvest control rules (OFLs for highlighted stocks will be addressed in November; overfished stocks in CAPS; stocks with new assessments in bold). Default sigmas for each category are: category 1 = 0.36, category 2 = 0.72, category 3 = 1.44. Sigma for aurora rockfish is 0.39.

Stock	Category	2017 OFL	2018 OFL
OVERFISHED STOCKS			
BOCACCIO S. of 40^{0}10' N. lat.			
COWCOD S. of 40^{0}10' N. lat.			
COWCOD (Conception)			
COWCOD (Monterey)	*3*	*11.6*	*12.0*
DARKBLOTCHED ROCKFISH	**1**	**671**	**693**
PACIFIC OCEAN PERCH	1	948	972
YELLOWEYE ROCKFISH			
NON-OVERFISHED STOCKS			
Arrowtooth Flounder			
Black Rockfish (CA)			
Black Rockfish (OR)			
Black Rockfish (WA)			
Cabezon (CA)	1	157	156
Cabezon (OR)	1	49	49
California scorpionfish			
Canary Rockfish	**1**	**1,793**	**1,661**
Chilipepper S. of 40^{0}10' N. lat.	**1**	**2,727**	**2,623**
Dover Sole	1	89,702	90,282
English Sole			
Lingcod N. of 40º10' N. lat.			
Lingcod S. of 40º10' N. lat.			
Longnose skate	1	2,556	2,526
Longspine Thornyhead (coastwide)	2	4,571	4,339
Pacific Cod	3	3,200	3,200
Petrale Sole	**1**	**3,280**	**3,152**
Sablefish (coastwide)	**1**	**8,050**	**8,329**
Shortbelly	2	6,950	6,950
Shortspine Thornyhead (coastwide)	2	3,144	3,116
Spiny dogfish	2	2,514	2,500
Splitnose S. of 40^{0}10' N. lat.	1	1,841	1,842
Starry Flounder			
Widow Rockfish	**1**	**14,130**	**14,511**
Yellowtail N. of 40^{0}10' N. lat.			

Stock	Category	2017 OFL	2018 OFL
STOCK COMPLEXES			
Nearshore Rockfish North			
Black and yellow	3	0.01	0.01
Blue (CA)			
Blue (OR & WA)	3	32.3	32.3
Brown			
Calico	3	-	-
China	**2**	**30.2**	**29.3**
Copper			
Gopher	3	-	-
Grass	3	0.7	0.7
Kelp	3	0.01	0.01
Olive	3	0.3	0.3
Quillback	3	7.4	7.4
Treefish	3	0.2	0.2
Shelf Rockfish North		2,303	2,301
Bronzespotted	3	-	-
Bocaccio	3	284.0	284.0
Chameleon	3	-	-
Chilipepper	**1**	**205.2**	**197.4**
Cowcod	3	0.4	0.4
Flag	3	0.1	0.1
Freckled	3	-	-
Greenblotched	3	1.3	1.3
Greenspotted 40°10' to 42° N. lat.	2	9.2	9.1
Greenspotted N. of 42 N. lat. (OR & WA)	3	6.1	6.1
Greenstriped	2	1,299.6	1,306.4
Halfbanded	3	-	-
Harlequin	3	-	-
Honeycomb	3	-	-
Mexican	3	-	-
Pink	3	0.004	0.004
Pinkrose	3	-	-
Puget Sound	3	-	-
Pygmy	3	-	-
Redstripe	3	269.9	269.9
Rosethorn	3	12.9	12.9
Rosy	3	3.0	3.0
Silvergray	3	159.4	159.4
Speckled	3	0.2	0.2
Squarespot	3	0.2	0.2
Starry	3	0.004	0.004
Stripetail	3	40.4	40.4
Swordspine	3	0.0001	0.0001
Tiger	3	1.0	1.0
Vermilion	3	9.7	9.7
Slope Rockfish North		1,533	1,538
Aurora	1	17.5	17.5
Bank	3	17.2	17.2
Blackgill	3	4.7	4.7
Redbanded	3	45.3	45.3
Rougheye/Blackspotted	2	210.7	214.6

Stock	Category	2017 OFL	2018 OFL
Sharpchin			
Shortraker	*3*	*18.7*	*18.7*
Splitnose	*1*	*1,026.7*	*1,027.1*
Yellowmouth	*3*	*192.4*	*192.4*
Nearshore Rockfish South			
Shallow Nearshore Species		*NA*	*NA*
Black and yellow	*3*	*27.5*	*27.5*
China	**2**	**13.3**	**13.8**
Gopher (N of Pt. Conception)			
Gopher (S of Pt. Conception)	*3*	*25.6*	*25.6*
Grass	*3*	*59.6*	*59.6*
Kelp	*3*	*27.7*	*27.7*
Deeper Nearshore Species		*NA*	*NA*
Blue (assessed area)			
Blue (S of 34 ^{0}27' N. lat.)	*3*	*72.9*	*72.9*
Brown			
Calico	*3*	*-*	*-*
Copper			
Olive	*3*	*224.6*	*224.6*
Quillback	*3*	*5.4*	*5.4*
Treefish	*3*	*13.2*	*13.2*
Shelf Rockfish South		1,916	1,917
Bronzespotted	*3*	*3.6*	*3.6*
Chameleon	*3*	*-*	*-*
Flag	*3*	*23.4*	*23.4*
Freckled	*3*	*-*	*-*
Greenblotched	*3*	*23.1*	*23.1*
Greenspotted	*2*	*77.8*	*77.4*
Greenstriped	*2*	*238.4*	*239.6*
Halfbanded	*3*	*-*	*-*
Harlequin	*3*	*-*	*-*
Honeycomb	*3*	*9.9*	*9.9*
Mexican	*3*	*5.1*	*5.1*
Pink	*3*	*2.5*	*2.5*
Pinkrose	*3*	*-*	*-*
Pygmy	*3*	*-*	*-*
Redstripe	*3*	*0.5*	*0.5*
Rosethorn	*3*	*2.1*	*2.1*
Rosy	*3*	*44.5*	*44.5*
Silvergray	*3*	*0.5*	*0.5*
Speckled	*3*	*39.4*	*39.4*
Squarespot	*3*	*11.1*	*11.1*
Starry	*3*	*62.6*	*62.6*
Stripetail	*3*	*23.6*	*23.6*
Swordspine	*3*	*14.2*	*14.2*
Tiger	*3*	*0.04*	*0.04*
Vermilion	*3*	*269.3*	*269.3*
Yellowtail	*3*	*1,064.4*	*1,064.4*
Slope Rockfish South		736	739
Aurora	*1*	*74.4*	*74.5*
Bank	*3*	*503.2*	*503.2*
Blackgill	*2*	*143.0*	*146.0*
Pacific ocean perch	*3*	*-*	*-*
Redbanded	*3*	*10.4*	*10.4*

Stock	Category	2017 OFL	2018 OFL
Rougheye/Blackspotted	2	4.3	4.4
Sharpchin			
Shortraker	3	0.1	0.1
Yellowmouth	3	0.8	0.8
Other Flatfish			
Butter sole	3	4.6	4.6
Curlfin sole	3	8.2	8.2
Flathead sole	3	35.0	35.0
Pacific sanddab	3	4,801.0	4,801.0
Rex sole			
Rock sole	3	66.7	66.7
Sand sole	3	773.2	773.2
Other Fish a/			
Cabezon (WA)	3	4.5	4.8
Kelp greenling (CA)	3	118.9	118.9
Kelp greenling (OR)			
Kelp greenling (WA)			
Leopard shark	3	167.1	167.1

C. Council Administrative Matters

6. Future Council Meeting Agenda and Workload Planning

The SSC discussed the 2015 NOAA Technical Memorandum NMFS-F/SPO-152 "Prioritizing Fish Stock Assessments" along with a presentation by the document's editor Richard D. Methot, NOAA Senior Scientist for Stock Assessments.

The prioritization system was developed to guide regional planning decisions for upcoming stock assessment cycles; it will be implemented regionally through joint efforts by NMFS and the Councils. It provides a quantitative approach to ranking the need for each stock to be assessed, to inform the Council harvest specification process. The system relies both on quantitative data and subjective scores for each stock, some of which are already available in national/regional databases (e.g., years since last assessment), and regional expertise from scientists, managers, and advisors. NOAA Leadership, the Office of Management and Budget, and the Government Accountability Office support this system as an appropriate approach to schedule regional stock assessments. According to Dr. Methot, NOAA Fisheries has identified the 2017 Pacific Coast Groundfish stock assessment process as an "ideal candidate for the first implementation of the system". He would like to present this approach to the Council at the upcoming November 2015 meeting.

The SSC sees both merit and challenges in the proposed assessment prioritization system. It uses a transparent process that should result in a comprehensive plan for assessing the Council's stocks while balancing diverse management objectives. The SSC notes that the Council currently has no formal committee responsible for scheduling stock assessments. The Council will need to develop working groups for assembling the technical data that will inform the prioritization process. The system relies on assigning relative weights to the different prioritization factors. Deciding on these subjective weights is a substantial exercise and will require the commitment of time and resources. Nonetheless, the SSC recommends that the Council consider Dr. Methot's proposed system at the November Council meeting.

SSC Subcommittee Assignments, September 2015

Salmon	Groundfish	Coastal Pelagic Species	Highly Migratory Species	Economics	Ecosystem-Based Management
Pete Lawson	**David Sampson**	**André Punt**	**Kevin Piner**	**Todd Lee**	**Martin Dorn**
Alan Byrne	Andrew Cooper	Alan Byrne	Andrew Cooper	Dan Huppert	John Field
Owen Hamel	Martin Dorn	Owen Hamel	John Field	André Punt	Pete Lawson
Galen Johnson	John Field	Dan Huppert	André Punt	David Sampson	Galen Johnson
Will Satterthwaite	Owen Hamel	Tom Jagielo	David Sampson	Cameron Speir	Todd Lee
Cameron Speir	Tom Jagielo	Will Satterthwaite			Kevin Piner
	André Punt				André Punt
	Tien-Shui Tsou				Will Satterthwaite
					Tien-Shui Tsou

Bold denotes Subcommittee Chairperson

PFMC
10/16/15

DRAFT Tentative Council and SSC Meeting Dates for 2015

Council Meeting Dates	Location	Likely SSC Mtg Dates	Major Topics
March 7-12, 2015 Advisory Bodies may begin Fri, March 6 Council Session begins Sat, March 7	Hilton Vancouver Washington 301 W. Sixth Street Vancouver, WA 98660 USA Phone: 360-993-4500	One-day CPS Subcm Session **Thu, March 5** Two-day SSC Session **Fri, March 6 – Sun, March 7**	IEA annual report Final CPS EFP Pacific mackerel set-aside Final CPS methodology review Salmon review/Pre I CA current & IEA reports Unmanaged forage fish FPA

April 11-16, 2015
Advisory Bodies may begin Fri, Apr 10
Council Session begins Sat, Apr 11
	DoubleTree by Hilton Sonoma
	One Doubletree Drive
	Rohnert Park, CA 94928
	Telephone: 707-584-5466
		Two-day SSC Session
		Fri, April 10 – Sat, April 11
			Pacific sardine assess.
			Groundfish methodology review
			  COP – final
			Salmon methodology topic
			  selection
			NS1 guidelines comments

June 10-17, 2015 **Advisory Bodies may begin Thu, June 11** **Council Session begins Fri, June 12**	DoubleTree by Hilton Spokane City Center 322 N. Spokane Falls Court Spokane, WA 99201 Phone: 509-455-9600	One-day GF Subcm Session **Wed, June 10** Two-day SSC Session **Thu, June 11 – Fri, June 12** One-day GF/Econ Subcms Session **Sat, June 13**	Mackerel assess. & mgt. measures Anchovy update Groundfish stock assess. Groundfish spex process and schedule Rebuilding Revision Rules
September 9-16, 2015 **Advisory Bodies may begin Thu, Sept 10** **Council Session begins Fri, Sept 11**	DoubleTree by Hilton Hotel Sacramento 2001 Point West Way Sacramento, CA 95815 Phone: 916-929-8855	One-day Ecosystem Subcm Session **Wed, Sept 9** Two-day SSC Session **Thu, Sept 10 – Fri Sept 11**	Plan science improvements Salmon methodology topic priorities Tule control rule review Groundfish stock assess. Groundfish EFH amendment
November 14-19, 2015 **Advisory Bodies may begin Fri, Nov 13** **Council Session begins Sat, Nov 14**	Hyatt Regency Orange County 11999 Harbor Blvd. Garden Grove, CA 92840 Phone: 714-750-1234	Two-day SSC Session **Fri, Nov 13 – Sat, Nov 14**	CPS methodology topic selection Groundfish stock assess, and reb. anal. Groundfish biennial spex Salmon methodology review

SSC meeting dates and durations are tentative and are subject to change in response to Council meeting dates, agendas, workload, etc.

Proposed Workshops and SSC Subcommittee Meetings for 2015

Tentative – Depended on funding, dates subject to change

☐– Prep. Work Underway, Scheduled to Occur; ◻ Status of Supporting Analyses Uncertain, Remains a Priority;
▨ Setbacks exist, Questionable; ■Funding or Prep. Not Avail, likely to be canceled or postponed

	Workshop/Meeting	Potential Dates	Sponsor/ Tentative Location	SSC Reps.	Additional Reviewers	AB Reps.	Council Staff
1	National SSC Meeting	Feb. 23 - 25	WPFMC/ Honolulu	Key, Dorn, Hamel, Satterthwaite	TBD	NA	DeVore
2	Pacific Sardine Update Review	Mar. 6	Council/ Vancouver, WA	CPS Subcommittee	None	CPSMT CPSAS	Griffin
3	Nearshore Assessments Workshop	Mar. 31 – Apr. 2	Council/ Portland	Sampson, Cooper, Key, Dorn	None	GMT GAP	DeVore
4	Canary/Darkblotched Rockfish STAR	Apr. 27 – May 1	Council/ Seattle	Jagielo	2 CIE + Ianelli	GMT GAP	DeVore
5	Pacific Mackerel STAR	Apr. 27-29	Council/ La Jolla	Punt, Jagielo	2 CIE + 1	CPSMT CPSAS	Griffin
6	Review for Sablefish, Petrale Sole, and Chilipepper Rockfish Updates; Arrowtooth Data-Moderate Assessment, and Catch Reports	June 10	Council/ Spokane	GF Subcommittee	None	GMT GAP	DeVore
7	Review Trawl IFQ Model	June 13	Council/ Spokane	GF & Econ Subcommittees	None	GMT GAP	DeVore

	Proposed Workshops and SSC Subcommittee Meetings for 2015						
	Tentative – Depended on funding, dates subject to change						
	☐– Prep. Work Underway, Scheduled to Occur; ▨ Status of Supporting Analyses Uncertain, Remains a Priority; ▨ Setbacks exist, Questionable; ■Funding or Prep. Not Avail, likely to be canceled or postponed						
	Workshop/Meeting	**Potential Dates**	**Sponsor/ Tentative Location**	**SSC Reps.**	**Additional Reviewers**	**AB Reps.**	**Council Staff**
8	Bocaccio/China STAR	July 6-10	Council/ Santa Cruz	Dorn	2 CIE + 1	GMT GAP	DeVore
9	Black RF STAR	July 20-24	Council/ Newport, OR	Cooper	2 CIE + 1	GMT GAP	DeVore
10	Kelp Greenling/Widow STAR	July 27-31	Council/ Newport, OR	Sampson	2 CIE + 1	GMT GAP	DeVore
11	Pacific Sardine Distribution Workshop	Aug. 17-18	Council/ La Jolla	CPS Subcommittee	None	CPSMT CPSAS	Griffin
12	Mop-up STAR	Sept. 28 – Oct. 2	Council/ Seattle	GF Subcommittee	TBD	GMT GAP	DeVore
13	Salmon Methodology Review	Late Oct.?	Council/ Portland	Salmon Subcommittee	None	STT SAS MEW	Burner
14	Data-Weighting Workshop	Oct. 19-23	CAPAM/ La Jolla	TBD	TBD	NA	DeVore?
15	Methods for Data Reweighting Workshop	TBD	NWFSC/ Council	GF & CPS Subcommittees	TBD	GMT GAP	DeVore

	Proposed Workshops and SSC Subcommittee Meetings for 2015 **Tentative – Depended on funding, dates subject to change** □– **Prep. Work Underway, Scheduled to Occur;** ▨ **Status of Supporting Analyses Uncertain, Remains a Priority;** ▨ **Setbacks exist, Questionable;** ■**Funding or Prep. Not Avail, likely to be canceled or postponed**						
	Workshop/Meeting	**Potential Dates**	**Sponsor/ Tentative Location**	**SSC Reps.**	**Additional Reviewers**	**AB Reps.**	**Council Staff**
16	Reference Points (Bzero) Workshop II	TBD	TBD	GF Subcommittee	CIE/External 1-3:	GMT GAP	DeVore
17	Evaluation of Stock Productivity Methodological Approaches	Summer 2016?	TBD	GF & CPS Subcommittees	TBD	GMT GAP	DeVore
18	Groundfish Historical Catch Reconstructions	Summer 2016?	TBD	GF Subcommittee	TBD	GMT GAP	DeVore
19	Transboundary Groundfish Stocks	?	Council	2 TBD?	?	GMT GAP	DeVore