

**MINUTES**  
**Scientific and Statistical Committee**

Pacific Fishery Management Council  
DoubleTree by Hilton Sacramento  
Terrace Room (Tuesday), Capitol Salon B (Wednesday)  
2001 Point West Way  
Sacramento, CA 95815  
Telephone: 916-929-8855

March 8-9, 2016

**Members in Attendance**

- Dr. Aaron Berger, National Marine Fisheries Service Northwest Fisheries Science Center, Newport, OR
- Dr. Evelyn Brown, Lummi Nation, Bellingham, WA
- Mr. John Budrick, California Department of Fish and Wildlife, Belmont, CA
- Mr. Alan Byrne, Idaho Department of Fish and Game, Boise, ID
- 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. 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
- Dr. Peter Lawson, National Marine Fisheries Service Northwest Fisheries Science Center, Newport, OR
- 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. Kevin Piner, National Marine Fisheries Service Southwest Fisheries Science Center, La Jolla, CA

<b>SSC Recusals for the March 2016 Meeting</b>		
<b>SSC Member</b>	<b>Issue</b>	<b>Reason</b>
Dr. Galen Johnson	E.3. Chinook Fishery Regulation Assessment (FRAM) Co-manager Update	Dr. Johnson contributed to the FRAM algorithms for calculating mean size and proportion sublegal
Dr. Pete Lawson	E.4. Identify Management Objectives and Preliminary Definition of 2016 Salmon: Management Alternatives Including Test Fishery Alternatives	Dr. Lawson worked on the GSI test fishery proposal
Dr. Dan Holland	D.1. California Current Ecosystem Report Including Integrated Ecosystem Assessment	Dr. Holland contributed to the IEA report
Dr. John Field	D.1. California Current Ecosystem Report Including Integrated Ecosystem Assessment	Dr. Field contributed to the IEA report

***A. Call to Order***

Interim Chair Will Satterthwaite called the meeting to order at 0800. Dr. Donald McIsaac provided an overview of the agenda. Subcommittee assignments were decided as reflected in the table at the end of these summary minutes.

Upcoming workshops include the May 2-5 CPS assessment workshop to determine methods for assessing currently unassessed CPS species such as northern anchovy. More logistic details will be discussed and decided at the March 10 CPS Subcommittee meeting. The productivity/ $B_{MSY}$  workshop tentatively scheduled for this summer could cover  $B_{MSY}$  and  $F_{MSY}$  proxy reference points, best practices for modeling productivity, and the steepness meta-analysis to determine steepness priors. The key to a productive productivity workshop will be finding folks who will conduct management strategy evaluations and provide other analyses to inform the workshop discussions. There may be a need for a follow-up meeting to develop policy recommendations for changing proxy reference points. Owen Hamel and John Field will solicit staff interest for doing these analyses. Further planning discussions can then occur in April. The historical harvest reconstruction workshop is tentatively scheduled for this fall after the Washington catch reconstruction process is done. Theresa Tsou requested guidance on what needs to be provided for the workshop. The SSC recommended the actual catch reconstructions and the rules/methods used to reconstruct historical catches. Theresa further asked if alternative catch reconstructions based on different assumptions for filling data gaps would need to be provided. Consistency on characterizing uncertainty in reconstructing historical catches is one of the goals of the workshop.

## ***D. Ecosystem Management***

### **1. California Current Ecosystem Report Including Integrated Ecosystem Assessment**

The Scientific and Statistical Committee (SSC) received a presentation by Drs. Chris Harvey (NWFSC) and Toby Garfield (SWFSC) on the annual ecosystem report to the Council. The annual ecosystem report is a concise source of information on patterns of climate forcing on the California Current ecosystem, and the biological response of ecosystem components, including fish stocks and fisheries. The report is an important step towards providing the Council family with an ecosystem perspective on West Coast fish stocks, fisheries, and coastal communities. The SSC appreciates the authors' responsiveness to suggestions offered by the Council and SSC on the previous year's report.

The annual ecosystem report makes a strong case that the extreme environmental conditions over the past few years are likely to have near-term adverse effects on salmon runs, but the report did not quantify the magnitude of these effects. The impacts of recent environmental conditions on groundfish stocks are less clear and may be mixed, but the most likely impact is lower recruitment during the event. Lower recruitment will only impact the fishery when the impacted year classes begin recruiting to the fishery in 3-5 years. In addition, groundfish populations typically include many year classes, so a few years of lower recruitment should have a relatively small effect on overall biomass trends.

Last year, the SSC Ecosystem Subcommittee (SSCES) met with the California Current Integrated Ecosystem Assessment (CCIEA) team during the September Council meeting to conduct a technical review of the human dimension indicators in the Integrated Ecosystem Assessment (IEA). The SSC agreed with the CCIEA team that a technical review of aspects of the IEA was helpful, and recommends that a similar review meeting be scheduled this year, ideally in September 2016. Based on discussions with the IEA team, the potential topics for technical review from the annual ecosystem report include:

- the proposed indicators to evaluate trends in freshwater, estuarine, and marine habitat;
- the "stop light" method for characterizing environmental conditions for salmon; and
- further review of coastal community vulnerability indicators.

Additional topics that are not presently included in the annual ecosystem report, but may benefit from SSCES review include:

- review of the analysis of environmental forcing on sablefish requested by the Council; and
- risk assessments being developed by the CCIEA team as discussed during the webinar series on ecosystem indicators held earlier this year.

This meeting will be most useful if the primary analysts conducting the work being reviewed attend the meeting. Given the number of potential review topics, a two-day meeting of SSCES will likely be needed to conduct the review.

*Notes to SSC and the CCIEA team:*

- *The SSCES and SSC should formalize the process of making recommendations to CCIEA team by providing a bulleted list of recommendations. A point-by-point response to the list should be included in the supplementary materials to the annual ecosystem report*
- *The SSC appreciates the improvement to the standard trend plots by including shading indicating uncertainty based on fitting a MARSS (multivariate auto-regressive state space) model. It would be useful to add the estimated trend from the MARSS model to the plot.*
- *If conceptual models are going to be presented in the annual ecosystem report, they need to be presented in sufficient resolution to be legible.*
- *The SSC continues to be concerned about the community vulnerability analysis. Some of the community-level indicators may reflect only one or two responses. Also coastal community trends should not be evaluated in isolation. A comparison to national and regional trends is needed.*
- *The personal use indicator in some years is dominated by personal use of chum salmon. The SSC continues to be concerned about whether these data were recorded consistently by all management entities, in particular, how utilization of chum salmon roe is recorded. The SSC requests that additional documentation for this indicator be provided.*
- *Several indicators such as sea lion pup counts and murre mortality cannot be evaluated properly without reference to overall population abundance. For example, if the murre population is very large in comparison to mortality count, then impacts will be considered lower than would be the case for a smaller murre population.*
- *Composite indices for high, medium, and low energy forage taxa rely on an assumption that the catchability is same for all species in the composite indicator. This may be a poor assumption for the sampling gears used for forage species, such as surface trawls, mid-water trawls, and ichthyoplankton surveys. Whether equal catchability is an appropriate assumption would also depend on the species included the composite index, i.e., anchovies and sardines may have similar catchability in surface trawls, but not rockfish and squid.*
- *Some indicators in the report ended in 2014 even though there is sufficient information to update the indicator to 2015. An attempt should be made to include the most recent information for all indicators, including reasonably well-supported projections.*

## **E. Salmon Management**

### **4. Identify Management Objectives and Preliminary Definition of 2016 Salmon Management Alternatives Including Test Fishery Alternatives**

Mr. Brett Kormos (CDFW) briefed the SSC on a proposed test fishery, based on coded-wire tags (CWTs), to evaluate potential differences in the Klamath River Fall Chinook and Sacramento River Fall Chinook contribution rates north and south of the Klamath River mouth (Agenda Item E4, Attachment 4). This proposal was unchanged from that reviewed by the SSC in November 2015. The proposed sampling design was not sufficiently developed for the SSC to evaluate whether it would achieve its goals. To do this evaluation, a projection of the expected number of CWT recoveries given the sample rates and quotas proposed would be needed.

The SSC discussed a test fishery proposal from the California Salmon Council titled “Fine scale ocean distribution patterns of Klamath River Chinook salmon, in comparison to other stocks of interest, including the ESA-listed California Coastal Chinook” (Agenda Item E4.b, Supplemental NMFS Report). The proposal is based on geo-referenced genetic stock identification (GSI) samples collected at-sea. Its focus is to evaluate the distribution of Klamath River Chinook and

California Coastal Chinook in the Klamath Management Zone, Fort Bragg, and San Francisco Management areas. Sampling is stratified by area and month and includes proposed non-retention sampling in areas that have typically been closed to commercial fishing. The targeted sample size ranges from 200 to 400 for each month-area stratum in the study area. The sample sizes in this proposal are about 25 to 50 percent of those in the 2007 proposal reviewed by the SSC. The sample plan in the proposal projects 3,000 non-retention samples collected in time-area strata expected to be closed to commercial fishing. The SSC notes that the resolution of the GSI stocks is not at the same level as stocks used for management.

This study would provide information on stock distribution in areas that have usually been closed to commercial fishing and would provide finer spatial resolution than CWTs because all samples are geo-referenced upon capture. Because GSI can identify Klamath River fish of either hatchery or natural origin, tagged or not, GSI would be expected to yield more recoveries of Klamath River Chinook-identified fish (albeit not distinguishing fall from spring) for a given number of impacts compared to CWTs.

Fully evaluating the usefulness of the information generated by either test fishery would require an analysis of the uncertainty in stock-specific CPUEs and the ability to detect stocks that are a small proportion of the total Chinook abundance in a given area/time.

*SSC Notes:*

- 1. Collection of samples in low abundance years could be beneficial. Would be able to compare distributions of stocks in low and high abundance years and when certain stocks are more/less abundant than other. This would avoid any biases introduced by only sampling in high abundance years.*
- 2. Would add to the existing GSI database and include areas rarely sampled before (due to commercial closures)*
- 3. The current GSI baseline is unable to distinguish Klamath River Fall Chinook and Klamath River Spring Chinook. Sacramento River Fall Chinook, also referred to in the proposal, are part the GSI reporting group "Central Valley Fall Chinook" which also includes Sacramento River late Fall Chinook, Feather River Spring Chinook, and San Joaquin Fall Chinook.*
- 4. For each sample collected by GSI that assigns to the Klamath River there will be less "cost" than 1 sample assigning to the Klamath River using CWT.*
- 5. The two proposals should/could cooperate where possible so samples collected could be used for both studies thereby reducing the number of samples that need to be collected. To do this the CWT samples would need to be geo-referenced at sea.*

**D. Ecosystem Management**

2. Update on Coordinated Ecosystem Indicator Review Initiative

[The SSC is scheduled to provide their recommendations on this subject to the Council in June. The following are the notes from their March discussion on this agenda item.]

*Dr. Kit Dahl briefed the SSC on the work of the Ecosystem Workgroup, which is conducting a review of ecosystem indicators for the Annual California Current Ecosystem Status Report (the "annual ecosystem report") (Agenda Item D.2.a, Ecosystem Workgroup Report). A series of five webinars took place during January and early February 2016 to inform Council advisory bodies*

*and the public on Integrated Ecosystem Assessment (IEA) products. The Ecosystem Workgroup will be reporting to the Council in June.*

*The science related to selecting ecosystem indicators and their use in management is evolving. Thus, the development and testing of ecosystem indicators should be considered to be a long-term process for the Council.*

*The SSC notes that it is already involved in review of IEA products, the annual ecosystem report, and potential ecosystem indicators. The SSC, through its Ecosystem Subcommittee (SSCES), has conducted reviews of several IEA products, including the Atlantis model for the California Current. The SSC is proposing a two-stage process to review the annual ecosystem report (Item D.1, Supplemental SSC Statement); an initial review at the September Council meeting of proposed changes and additions to the annual report and a review of the final version of the annual report prior to its presentation to the Council at the March Council meeting. The SSC sees the process of review and revision as part of an ongoing long-term way for the SSC to be involved in refining the ecosystem information that is provided to the Council.*

*The SSC recognizes that ultimately ecosystem information, including ecosystem indicators, could be used to improve management of Council fisheries. The SSC's role in this is to review how ecosystem indicators to be used in management (e.g., in harvest control rules or EFH designation) are linked to the processes that they were developed to indicate and any analyses that justify use of ecosystem indicators as leading to improved management. The SSC supports the Ecosystem Workgroup's suggestion to focus on indicators that could inform Council decisions in the short- to medium-term. Areas for such focus could include EFH designation, and the impact of fishing on forage species.*

*The SSC is expecting to update its Research and Data Needs Document in two years. The section of that document related to ecosystem considerations will be revised to reflect the data needed to inform the annual ecosystem report.*

## **G. Groundfish Management**

### **8. Changes to Trawl Catch Share Program Gear Regulations – Final Action**

Dr. Jim Hastie (NWFSC) briefed the SSC on proposed changes to gear regulations in the trawl catch share fishery. The proposed changes include eight components (minimum mesh sizes, measuring mesh size, codend regulations, selective flatfish trawl, chafing gear, multiple gears on board, fishing in multiple management areas, and bringing catch aboard before previous catch is stowed).

Although it is impossible to fully anticipate all effects, it is unlikely that the proposed changes to gear construction regulations and enforcement (minimum mesh sizes, measuring mesh size, codend regulations, selective flatfish trawl, and chafing gear) would present any insurmountable problems in maintaining high-quality data for assessment purposes. However, greater variability in the gear used by the fleet could generate greater uncertainty.

Some of the proposed alternatives that allow fishing with multiple gears (Issue F in the Preliminary Draft Environmental Impact Statement [DEIS, Agenda Item G.8, Attachment 1]) and in multiple management areas (Issue G) on a single trip could affect the quality of data available for analyses that inform management. Estimates of total mortality depend upon information on catch by gear

type and management area. Co-mingling of total catch could result in greater uncertainty in data used in stock assessments because gear-specific and area-specific catch and effort per trip would be unknown and species-specific selectivity varies among gear types. Also, fishing in multiple management areas could prevent accurate tabulation of catch by area.

Alternatives and sub-options that include sorting requirements could alleviate these analytical issues (Multiple Gears Alternative F3 Sorting Sub-option A; Multiple Areas Alternative G2). Separation of catch by gear type/area would need to be maintained at least through the point where catch accounting systems could identify catch by gear type and area in order to preserve the current levels of data resolution. These sorting requirements would likely impose costs on fishing operations that would need to develop methods and new configurations to prevent co-mingling. Sorting requirements may also require additional monitoring, including possibly expanding observations to areas below deck. These monitoring and enforcement considerations have not been well-analyzed to date and may require additional consultation with the Council's Enforcement Consultants.

How the proposed gear changes would interact with future management changes is not well-understood. For example, changing from human observers to electronic monitoring may require additional consideration of how to monitor compliance with sorting requirements.

The SSC notes the effects of alternative actions in the Preliminary DEIS are described in a way that is confusing and makes comparison between alternatives difficult. Specifically, some of the No Action alternatives are described as having either positive or negative impacts. This makes it unclear against what baseline the effects of the alternatives are being measured. Also, the effects of the alternatives are described in strictly qualitative terms and the sources of the information used to make these determinations are not well described.

*SSC Notes:*

*The DEIS and NMFS report note that there is uncertainty regarding how many fishers would alter their existing gear construction if the proposed regulations took effect. It is not clear what incentives fishers have to do this. It may be that smaller mesh, for example, is only used at certain points in the gear to improve stability/durability.*

*We do not have any information regarding previous regulatory or other changes in the fishery that may have affected data quality.*

*Some clarification on the description of the no-action alternative effects exists in the text of the DEIS. However, describing no-action alternatives as having positive or negative impacts is confusing and not standard.*

*Qualitative assessment of effects may have been developed by regional staff from conversations with NWFSC staff and public comment.*

*It is unknown how the proposed changes to the gear construction changes would interact with any future changes to the Rockfish Conservation Area and Essential Fish Habitat to affect benthic habitat.*

## ***E. Salmon Management, continued***

### **3. Chinook Fishery Regulation Assessment (FRAM) Co-manager Update**

In November 2015, the Scientific and Statistical Committee (SSC) reviewed the modified methodologies for growth and sublegal contacts of the Chinook Fishery Regulation Assessment Model (FRAM) and the proposed update to the Chinook FRAM base period and found them technically sound and improvements over current practices. Development of the new base period is not yet complete. The new growth algorithms cannot be used with the old (current) base period because the original size-at-age data are unavailable. There are no technical barriers to use of the new sublegal encounter algorithms with the old (current) base period, but the required work cannot be completed in time for use during the 2016 pre-season process. The SSC anticipates that the SSC Salmon Subcommittee will review the new base period and documentation in October 2016, followed by full SSC review in November 2016.

*SSC Notes:*

*Concerns were expressed regarding the lack of description of the QA/QC (and that the Co-Manager letter specifically referred to QA/QC on results, not data).*

### **2. Review of 2015 Fisheries and Summary of 2016 Stock Abundance Forecasts**

#### **2015 Review of Ocean Salmon Fisheries**

Dr. Robert Kope discussed the *Review of 2015 Ocean Salmon Fisheries* report with the Scientific and Statistical Committee (SSC). The report includes sections on status determination criteria in Chapters II and III for Chinook and coho salmon stocks, respectively. Though the escapement goals were not met or the maximum fishing mortality threshold was exceeded for some Chinook and coho salmon stocks, none of the stocks are approaching an overfished condition. Table II-5 contains the performance of Chinook stocks relative to 2015 preseason conservation objectives while Table II-6 contains Chinook stock status relative to overfished and overfishing criteria. There were no Chinook stocks classified as overfished. Tables III-6 and III-7 contains this same information for coho. There were no coho stocks classified as overfished.

#### **2016 Stock Abundance Forecasts**

Dr. Kope discussed Chinook and coho stock abundance forecasts for 2016 in *Preseason Report I*. The SSC endorses the 2016 forecasts, acceptable biological catches, and overfishing limits in *Preseason Report I*, as the best available science for use in 2016 salmon management.

#### **Considerations Regarding Recent Environmental Conditions in 2015-2016**

The California Current Integrated Ecosystem Assessment team described severe ocean conditions unfavorable to salmon. Environmental conditions were incorporated into forecasts for some stocks, but not all. While mechanisms are not in place to quantitatively incorporate such considerations into the forecasts for all stocks in 2016, caution is warranted in setting harvest levels and management measures.



## **G. Groundfish Management, continued**

### Stock Assessment Prioritization

[The SSC is scheduled to provide their recommendations on this subject to the Council in April. The following are the notes from their March discussion on this agenda item.]

*Dr. Jim Hastie briefed the SSC on progress towards implementation of a process for stock assessment prioritization that included a comprehensive discussion of the means by which he developed draft scores for prioritization factors for Pacific Coast Groundfish. His analysis excluded stocks not listed in the FMP, stocks with landings less than 1 mt of landings between 2010 and 2014, and ecosystem component species. There were 71 stocks remaining after these exclusions, and all were scored on a suite of factors such as the timing of the most recent assessment, the log-transformed value of the landed (ex-vessel) catch, similar metrics for recreational and subsistence fisheries, rebuilding status, and species vulnerability scores (list not inclusive). Some factors that were recommended in the original technical memorandum on stock assessment prioritization, such as ecosystem importance and non-catch value, were either excluded (ecosystem importance) or heavily downweighted (non-catch value) due to ongoing challenges in deriving a reasonable process for scoring those factors. The SSC discussed various alternative means of deriving such scores based on ecosystem models or climate vulnerability assessments, but did not provide clear guidance with respect to resolving this issue.*

*In response to previous SSC comments, all factors are now standardized to have a maximum score of 10, with a set of weightings applied to these factor scores to reflect the perceived importance of each factor. There is some intent to provide an indicator of “unexpected change” (e.g., observed trends that diverge substantially from those predicted by the most recent assessment) by the April meeting, but it was not clear whether this would be feasible. The target assessment frequency was defined based on the mean age of the catch (biomass based). The SSC discussed the fact that mean generation time may be a more appropriate metric for informing target frequency.*

*A significant issue was discussed relative to the ranking of species by their importance to commercial vs. recreational fisheries. Specifically, it was noted that virtually all important recreational species are also important to commercial fisheries, although the reverse is not true; due to depth constraints and other factors a substantial number of commercial species are of no substantive importance to recreational fisheries. This leads to a greater relative ranking for recreational species over commercial with respect to prioritization, when the commercial and recreational importance factors are “evenly” weighted. While this does speak to the relative importance of recreational species, many of which lack fishery-independent indices of abundance and routine compositional data collection programs, this disparity may not reflect a “balanced” prioritization regime for informing Council decisions. The SSC expressed an interest in exploring a wider range of alternative means of weighting these factors.*

*Dr. Hastie and the SSC also noted that because stock assessments for nearshore species typically include multiple regions, such assessments require larger STAT teams and often greater preparation and review time, which would limit the number of assessments that could be done in a given cycle relative to a stock modeled in a single region. This too could be a factor to incorporate into the prioritization process. Finally, the SSC also noted that the information developed in this exercise could be useful in informing substantial data gaps, such as the paucity of age data and lack of age structure collection programs, for California recreational fisheries.*

## SSC Subcommittee Assignments, March 2016

Salmon	Groundfish	Coastal Pelagic Species	Highly Migratory Species	Economics	Ecosystem-Based Management
<b>Pete Lawson</b>	<b>David Sampson</b>	<b>André Punt</b>	<b>Kevin Piner</b>	<b>Cameron Speir</b>	<b>Martin Dorn</b>
John Budrick	Aaron Berger	Aaron Berger	Aaron Berger	Michael Harte	Evelyn Brown
Alan Byrne	Evelyn Brown	Evelyn Brown	John Field	Dan Holland	John Field
Owen Hamel	John Budrick	John Budrick	Michael Harte	André Punt	Michael Harte
Michael Harte	Martin Dorn	Alan Byrne	Dan Holland	David Sampson	Dan Holland
Galen Johnson	John Field	John Field	André Punt		Galen Johnson
Will Satterthwaite	Owen Hamel	Owen Hamel	David Sampson		Pete Lawson
Cameron Speir	André Punt	Will Satterthwaite			Kevin Piner
	Tien-Shui Tsou				André Punt
					Will Satterthwaite
					Tien-Shui Tsou

**Bold** denotes Subcommittee Chairperson

## DRAFT Tentative Council and SSC Meeting Dates for 2016

Council Meeting Dates	Location	Likely SSC Mtg Dates	Major Topics
<p><b>March 8-14, 2016</b> Advisory Bodies may begin Tue, March 8 Council Session begins Wed, March 9</p>	<p><a href="#">DoubleTree by Hilton Hotel Sacramento</a> 2001 Point West Way Sacramento, CA 95815 Phone: 916-929-8855</p>	<p>Two-day SSC Session <b>Tue, March 8 – Wed, March 9</b> One-day CPS Subcm Session <b>Thu, March 10</b></p>	<p>Chinook FRAM base period co-manager update Identify salmon management objectives Salmon review/Pre I CA current &amp; IEA report FEP indicators and climate shift initiatives update Groundfish gear changes</p>
<p><b>April 8-14, 2016</b> Advisory Bodies may begin Fri, Apr 8 Council Session begins Sat, Apr 9</p>	<p><a href="#">Hilton Vancouver Washington</a> 301 W. Sixth Street Vancouver, WA 98660 USA Phone: 360-993-4500</p>	<p>One-day SSC Session <b>Sat, April 9</b></p>	<p>Pacific sardine assessment and management measures Groundfish initial stock assessment plan and Terms of Reference Salmon methodology topic selection</p>
<p><b>June 22-28, 2016</b> Advisory Bodies may begin Wed, June 22 Council Session begins Thu, June 23</p>	<p><a href="#">Hotel Murano</a> 1320 Broadway Plaza Tacoma, WA 98402 Phone: 253-627-3167</p>	<p>Two-day SSC Session <b>Wed, June 22 – Thu, June 23</b></p>	<p>HMS biennial management measures, SDC, and ref. pts. Groundfish final stock assessment plan and Terms of Reference Sablefish ecosystem indicators 5-year IFQ program review</p>
<p><b>September 14-20, 2016</b> Advisory Bodies may begin Wed, Sept 14 Council Session begins Thu, Sept 15</p>	<p><a href="#">The Riverside Hotel</a> 2900 Chinden Blvd Boise, ID 83714 Phone: 208-343-1871</p>	<p>Two-day Ecosystem Subcm Session <b>Mon, Sept 12 – Tue, Sept. 13</b> Two-day SSC Session <b>Wed, Sept 14 – Thu Sept 15</b></p>	<p>Anchovy assessment workshop report CPS MSST report Anchovy active management alts. Salmon methodology topic priorities SRWC control rule recommendations Groundfish EFH-RCA amendment PPA FEP indicators initiative FPA</p>

<p><b>November 15-21, 2016</b>  <b>Advisory Bodies may begin Tue, Nov 15</b>  <b>Council Session begins Wed, Nov 16</b></p>	<p><u><a href="#">Hyatt Regency Orange County</a></u>  11999 Harbor Blvd.  Garden Grove, CA 92840  Phone: 714-750-1234</p>	<p>Two-day SSC Session  <b>Tue, Nov 15 – Wed, Nov 16</b></p>	<p>CPS methodology topic selection  Anchovy stock assessment  CPS SAFE  Groundfish stock assessment  methodology topic priorities  5-year IFQ program review  Sablefish ecosystem indicators  Salmon methodology review</p>
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**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 2016

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

	<b>Workshop/Meeting</b>	<b>Potential Dates</b>	<b>Sponsor/ Tentative Location</b>	<b>SSC Reps.</b>	<b>Additional Reviewers</b>	<b>AB Reps.</b>	<b>Council Staff</b>
<b>1</b>	Nearshore Groundfish Assessment Workshop	March 22-23	ODFW/ Portland	?	?	?	DeVore
<b>2</b>	CPS Assessment Workshop	May 2-5	SWFSC/ La Jolla	2-3 CPS Subcommittee members	Outside experts	CPSMT CPSAS	Griffin
<b>3</b>	Evaluation of Stock Productivity Methodological Approaches/B <sub>MSY</sub> Workshop	Summer 2016?	TBD	GF & HMS Subcommittees	TBD	GMT HMSMT	DeVore
<b>4</b>	Groundfish Historical Catch Reconstructions	Fall 2016?	TBD	GF Subcommittee	TBD	GMT GAP	DeVore
<b>5</b>	Alternative Anchovy Management Webinar	Late July?	TBD	CPS Subcommittee?	TBD	CPSMT CPSAS	Griffin
<b>6</b>	Anchovy STAR Panel (Contingent on an Assessment)	Oct.?	TBD/ La Jolla	CPS Subcommittee	CIE	CPSMT CPSAS	Griffin
<b>7</b>	Salmon Methodology Review	Late Oct.?	Council/ Portland	Salmon Subcommittee	None	STT SAS MEW	Burner
<b>8</b>	PICES/ICES Meeting on Small Pelagics	Nov. 1-13	PICES/ICES/ San Diego	TBD	TBD	TBD	TBD

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Workshop/Meeting		Potential Dates	Sponsor/ Tentative Location	SSC Reps.	Additional Reviewers	AB Reps.	Council Staff
9	Recreational CPUE Standardization Workshop	TBD	PFMC/ TBD	TBD	TBD	GMT GAP	DeVore
10	Methods for Data Reweighting Workshop	TBD	NWFSC/ Council	GF & CPS Subcommittees	TBD	GMT GAP	DeVore
11	Transboundary Groundfish Stocks	?	Council	2 TBD?	?	GMT GAP	DeVore

## **Appendix: SSC CPS Subcommittee Report to the SSC on the 2016 Assessment of the Northern Subpopulation of Pacific Sardine**

### **General**

Dr. Kevin Hill (SWFSC) presented the 2016 sardine update assessment to the SSC CPS subcommittee on March 10<sup>th</sup>, 2016, following presentations by Dr. Emmanis Dorval on the 2015 DEPM estimate, and by Dr. Juan Zwolinski on the 2015 ATM surveys. The SSC CPS subcommittee wishes to thank the STAT for a complete and well documented update assessment.

New data included in the 2016 update proposed by the STAT include: 1) landings data for 2015, with updated landings data from 2014 and projected catch data for the first half of 2016; 2) new fishery length data from July-December 2015, with updated length data for July 2014 through June 2015; 3) new and updated conditional age-at-length data through June 2014 for the PacNW fisheries, and through the end of 2014 for the MexCal fisheries; 4) a 2015 DEPM index and both the spring and the summer 2015 ATM survey indices; and 5) length data from the spring 2015 ATM survey (the summer 2015 ATM survey length data were not used for reasons described below).

The spring and summer 2015 ATM surveys produced biomass indices of 29,048 mt (CV = 0.30, ln(SE) = 0.29) and 15,870 mt (CV = 0.80, ln(SE) = 0.70), respectively. These surveys were conducted in a similar manner to previous ATM surveys, with the exception that the spring survey was shifted substantially to the north compared to the area usually surveyed during this time of year. In the spring of 2015, the habitat model indicated that sardine habitat was shifted northward from the usual area due to warm ocean temperatures, and information from the fishery supported this prediction. The estimates of abundance are both below the respective indices produced in 2014 (~ 35,000 mt in spring and 26,000 mt in summer). Very little catch has been taken in the current management year (less than 300 mt in the second half of 2015).

The major issues with the update assessment that were discussed at the SSC CPS subcommittee meeting related to: 1) the 2016 DEPM index, and 2) how to estimate the size of the 2015 cohort.

### **DEPM Index**

The DEPM survey captured only six females that were at the right spawning stage for fecundity estimation. Fecundity data were consequently borrowed from the previous two years and combined with the current year's samples to estimate fecundity for applying the DEPM. The CPS subcommittee was concerned with this approach, as it deviates from usual practice as well as the observation that fecundity appears to vary among years. However, when the 2015 DEPM index was removed from the assessment, the results were essentially unchanged. The CPS subcommittee therefore concluded there was no harm in including the 2015 DEPM estimate in the 2016 update assessment, but that the analysis and question of inclusion should be revisited during the full assessment in 2017.

## **Recruitment estimate**

During the 2015 sardine assessment update, the 2015 STAT recognized that there had been a persistent retrospective issue with recruitment in preceding years, with terminal year recruitments estimated in the assessment models proving to have been overestimated based on subsequent information. The SSC endorsed the approach of setting the 2014 recruitment to be the average of the previous three estimated recruitments (as had been done previously in the Pacific mackerel assessment) to be more consistent with recent observed patterns in recruitment.

Coming into the subcommittee meeting, the 2016 sardine STAT suggested using the same approach for the 2015 recruitment estimate (i.e., setting the 2015 recruitment to the average of the estimates of recruitment for 2012, 2013 and 2014). However, in contrast to the situation during the 2015 update assessment, there were data to suggest that the 2015 recruitment may have been relatively large. In fact, when the 2015 recruitment was estimated with all of the data in the model, including the summer 2015 ATM survey lengths, the estimated recruitment was the largest in the time series. This was because the selectivity of the very small fish (< 10 cm) that were observed in large numbers in the summer 2015 ATM is estimated to be near zero in the model, and therefore any fish encountered are expanded up to a very large, if implausible, value. Selectivity is a model feature that cannot be addressed in an update model according to the Terms of Reference for update assessments, and therefore removing this year of length data is an appropriate approach. However, the evidence of a relatively large recruitment event should not be ignored. There are other indicators of a relatively strong 2015 sardine recruitment event. These include: 1) a large number of sardine late larvae and juveniles (young-of-the-year) caught in the 2015 SWFSC Rockfish Recruitment survey in all three latitudinal areas (in contrast to virtually none over the previous three years); and 2) a large number of larval sardine caught along the Newport Hydrographic Line (Leising et al. 2015). In addition, the CalCOFI sea surface temperature data which are used to determine  $E_{MSY}$  is the highest on record, providing for the maximum allowable  $E_{MSY}$  values in the harvest control rules.

The CPS subcommittee concluded that while there was no evidence of a strong 2014 recruitment during the 2015 update assessment review, currently there is no direct evidence of a poor 2015 recruitment, and in contrast, several indicators of a strong recruitment, with the only indicator of poor recruitment in 2015 being recent poor recruitments (and the appearance of some degree of autocorrelation in recruitment). Therefore, allowing the model to estimate the terminal year recruitment value (with no summer 2015 ATM survey length data, and therefore (lacking informative data) taking the value off of the estimated spawner-recruit curve) is appropriate. The CPS subcommittee therefore recommended that the 2015 recruitment be estimated from the stock-recruitment relationship rather than either being set to the average of the estimates for 2012, 2013 and 2014 or estimated within the assessment when the assessment includes the summer 2015 ATM survey length-frequency data.

## **Conclusion**

The SSC CPS subcommittee finds the 2016 update with the recommended recruitment estimation approach to represent an appropriate update of the 2014 sardine assessment model (i.e., it satisfies the Terms of Reference for Update Assessments). The results are consistent with the previous



assessment given the new data, and hence represent the best available science for management of the northern subpopulation of Pacific sardine. The biomass estimate and management quantities for this model are shown in part (a) of the table on page 12 of the 2016 Sardine Assessment Executive Summary. The SSC CPS subcommittee recommends endorsing the 2016/17 Pacific sardine OFL of 23,085 mt in that table.

### **May 2016 data limited workshop**

The CPS subcommittee briefly discussed the upcoming (2-5 May 2016) workshop that will respond to Council requests for planning for stock assessment of Pacific anchovy, including an assessment to be conducted during 2016. The planning for the workshop is underway. Jim Ianelli and André Punt have been designated as co-chairs. Seven or eight experts will be invited, along with representatives of the CPSAS and CPSMT. The CPS subcommittee agreed that the workshop should be conducted following the Terms of Reference for Methodology Reviews given that the methodology identified during the workshop could form the basis for an assessment of northern anchovy this year. The subcommittee recommends that the report of the workshop be reviewed by the SSC at the June Council meeting so that feedback can be provided to the analysts in a timely manner.

#### *SSC CPS Subcommittee Notes:*

- *The retrospective plot is unclear and the first retrospective run really begins at “-2”, so maybe redo this plot in the 2016 update with a different color for last two points as forecast, and call -2 -1, etc.*
- *It would be good to include a plot of the time series of  $E_{MSY}$  for OFL/ABC and HG calculation in the document.*
- *The ATM survey backscatter graphs across all years for spring and for summer should be included in the next assessment report.*
- *It is possible that some sardines were missed to the north of the spring 2015 ATM survey.*
- *The small sample sizes from trawling during the ATM surveys remains a concern; during 2016 many trawls had just one or two fish, but most in 2 hauls; the third largest haul was 17 fish.*
- *Selectivity patterns may have changed due to changes in migration due to small stock size. The next full assessment should explore selectivity blocks for recent years.*
- *A formal consideration of recruitment autocorrelation could be explored in the next full assessment.*
- *The next full assessment should consider alternative values for  $M$  or estimate  $M$ . Note that estimating  $M$  may lead to the need to revise the HCRs, which were derived for  $M=0.4\text{yr}^{-1}$ .*
- *The catchability and selectivity of the acoustic and trawl portions of the ATM surveys in particular remain large sources of uncertainty in the assessment. The SSC CPS subcommittee recommends prioritizing a methodology review of the ATM survey*