

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

Pacific Fishery Management Council  
Doubletree Hotel Sacramento  
Capitol Salon C Room  
2001 Point West Way  
Sacramento, California 95815  
Telephone: 916-929-8855

**March 7-8, 2014**

**Members in Attendance**

Mr. Robert Conrad, Northwest Indian Fisheries Commission, Olympia, WA  
Dr. Martin Dorn, National Marine Fisheries Service, Seattle, WA  
Dr. Owen Hamel, SSC Chair, National Marine Fisheries Service, Seattle, WA  
Dr. Daniel Huppert, University of Washington, Seattle, WA  
Mr. Tom Jagielo, Seattle, WA  
Ms. Meisha Key, SSC Vice-Chair, California Department of Fish and Wildlife, Santa Cruz, CA  
Dr. Peter Lawson, National Marine Fisheries Service, Newport, OR  
Dr. Charles Petrosky, Idaho Department of Fish and Game, Boise, ID  
Dr. André Punt, University of Washington, Seattle, WA  
Dr. David Sampson, Oregon Department of Fish and Wildlife, Newport, OR  
Dr. William Satterthwaite, National Marine Fisheries Service, Santa Cruz, CA  
Ms. Cindy Thomson, National Marine Fisheries Service, Santa Cruz, CA  
Dr. Tien-Shui Tsou, Washington Department of Fish and Wildlife, Olympia, WA

**Members Absent**

Dr. Andrew Cooper, Simon Fraser University, Vancouver, B.C.  
Dr. Vladlena Gertseva, National Marine Fisheries Service, Seattle, WA  
Dr. Todd Lee, National Marine Fisheries Service, Seattle, WA

***A. Call to Order and Scientific and Statistical Committee (SSC) Administrative Matters***

The meeting was called to order at 8 a.m. on Friday, March 7, 2014. Council Executive Director, Dr. Donald McIsaac briefed the SSC on priority agenda items.

| <b>SSC Recusals for the March 2014 Meeting</b> |  |                                    |
|--|--|------------------------------------|
| <b>SSC Member</b>                              | <b>Issue</b>                                     | <b>Reason</b>                      |
| Dr. André Punt                                 | I.1 Pacific Sardine Temperature Parameter Review | Dr. Punt was a contributing author |

### ***SSC Future Meeting Planning***

The data-weighting workshop is tentatively scheduled for July in Seattle and will be hosted by the NWFSC. The NWFSC does not have the funds to pay for Dr. Chris Francis to attend. The SSC asked Mr. DeVore to explore whether PFMC can pay for Dr. Francis to attend the workshop.

There is a sardine aerial survey workshop on April 22 in La Jolla. There will be further discussion with Mr. Kerry Griffin to better understand if SSC attendance will be requested.

There is an expectation that there may be a workshop on historical groundfish catch reconstructions this December. Dr. Tsou reported WDFW has put out a contract to get this work done in time to report the Washington catch reconstructions by then.

Council staff will work with the SSC chair and Economic Subcommittee chair on conducting a review of economics models later this year. This review will likely occur in an Economics Subcommittee meeting before or after one of the scheduled SSC meetings. There may be a need to invite one or more SSC members who are not on the Economics Subcommittee.

In April, the SSC will review a few considerations they would like to see addressed at the upcoming productivity workshop. Drs. Punt and Dorn will prepare their thoughts.

### ***C. Ecosystem Management***

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

The Scientific and Statistical Committee (SSC) reviewed the Annual State of the California Current Ecosystem Report and Supplement (Agenda Item C.1.a, Attachments 1 and 2) and the California Current Integrated Ecosystem Assessment (IEA) Phase II Report (Agenda Item C.1.a, Attachments 3 and 4). Dr. Chris Harvey from the Northwest Fisheries Science Center (NWFSC) and Dr. Brian Wells from the Southwest Fisheries Science Center (SWFSC) presented on the State of the California Current report. Dr. Phil Levin (NWFSC) presented on the Phase II report.

The Annual State of the California Current Ecosystem Report is a succinct source of information on trends in climate indicators, fish abundance, sea lion abundance and condition, non-fishing human activities, and major fisheries. The report is an important first step in 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. Useful background information and additional details are provided in the supplemental attachment 2 and journal articles linked therein.

The SSC recommends incorporating information on measurement/sampling uncertainty for indices whenever they are available.

The SSC also notes that that some ecosystem attributes are so intrinsically variable that short-term trends are unlikely to be statistically distinguishable even if present. The SSC also recommends attempting to identify threshold values of indicators, with these proposed thresholds subsequently reviewed by the SSC.

The SSC is concerned that the data presented on Coastal Pelagic Species (CPS) and forage species abundance (Figures 3.3 and 3.4) are drawn from surveys that used different gear, were limited in spatial extent, and were not designed to sample forage fish, and may therefore be misleading.

The SSC suggests that Chapter 4 (human activities) and 5 (human wellbeing) be reorganized to characterize all of the mentioned activities as sources of wellbeing, with the level of each activity suggestive of both the extent of wellbeing and adverse effects on the ecosystem. Activity levels should in turn be distinguished from indicators that are more directly relevant to ecosystem effects (e.g., nutrient input, ship strikes).

The State of the California Current Ecosystem Report is currently limited to 20 pages at the Council's request, which necessarily limits what can be included. The SSC recommends inclusion of information on additional upper trophic level predators (e.g., sea birds and marine mammals other than sea lions) and abundance estimates for CPS derived from stock assessments when available. IEA team members expressed interest in presenting habitat information as well as more economic analyses. To make room for this information, forage fish abundance, information on vessels fishing in Alaska, and human well-being data from Puget Sound could be dropped.

One hour of Committee time is not sufficient to provide a meaningful review of all aspects of the Annual State of the California Current Ecosystem Report. The SSC recommends a meeting of the Ecosystem Based Management Subcommittee of the SSC toward the end of the year to conduct a more thorough review of the Annual State of the California Current Ecosystem Report and some elements of the IEA, in addition to the planned review of Atlantis. The SSC recommends establishing a routine process for feedback between the IEA team and the Council.

*SSC Notes:*

*As predictive models are developed, their forecasts should be reported and compared to observations whenever possible.*

*The IEA team needs input from the Council on scenarios to run, and feedback /responses to feedback should occur more frequently than just in response to annual reports.*

*If possible, upriver fall bright Columbia River Chinook salmon should be added to the Chinook Salmon Abundance section.*

*The copepod richness indicator seems counterintuitive in that higher diversity is "bad", at least*

*for groundfish.*

#### **D. Groundfish Management**

##### 3. Consider Barotrauma Device Mortality Rates

The Scientific and Statistical Committee (SSC) reviewed the revised report on “Proposed discard mortality for cowcod, canary rockfish, and yelloweye rockfish released using descending devices in the recreational fishery” by the Groundfish Management Team (GMT). The revision was in response to SSC’s comments made in April 2013. Dr. Ian Taylor of the GMT briefed the SSC on two modeling approaches for estimating confidence intervals for discard mortality rates. The SSC recommends using the Bayesian hierarchical method and incorporating the 2013 data in the analysis. In cases where mortality values decrease with depth, the SSC recommends extending the higher mortality rate values in shallower depth strata to deeper depth strata. This is a conservative approach which allows moving forward, while the modeling approach can be further refined in the future to avoid this issue. The SSC endorses the approach outlined above as the best available science for use in management. The mortality rate values should be revisited as additional data become available.

##### 2. Essential Fish Habitat (EFH) Evaluation Criteria and Phase 2 Report

Brad Pettinger, chair of the EFHRC, provided a summary of the finalized Phase 2 report of the Groundfish Essential Fish Habitat Review process. The level of disagreement reflected in the report is unusually high, as indicated by minority statements inserted into the document in various places and in public comment. The SSC previously noted that the EFHRC, unlike most other Council advisory bodies, had the dual role of providing both technical expertise and stakeholder representation, and included members who reviewed their own proposals. Therefore, difficulties in reaching consensus should probably have been anticipated. The focus at this stage in the EFH review process should be on how to move forward with Phase 3 of the EFH review. An important step is for the Council to develop a problem statement and to establish a set of objectives that any proposed alterations to EFH should achieve. The Council should also give consideration to how to achieve a clear separation of policy and science in the EFH review process, for example by giving stakeholder groups a role in the development of policy alternatives and assigning a technical group to be responsible for evaluating alternatives.

The SSC also received a presentation from Dr. Michelle McClure on a NMFS report that discussed ways to evaluate whether the EFH closures in Amendment 19 are working. The document was distributed to the SSC on the day of the review, so there was time for only limited review by the SSC.

The report discussed five overall objectives that were articulated in the Record of Decision for Amendment 19. These objectives included:

1. Protect a diverse array of habitat types across latitude and biogeographic zones.
2. Protect a full range of benthic habitat.
3. Prioritize pristine or sensitive habitats for protection.

4. Distribute socioeconomic costs equitably.
5. Implement area closures to facilitate research.

The NMFS report proposes methods to evaluate the extent to which the existing EFH closures achieve objectives 1-4, but there is no metric for determining how much protection is enough. A different pattern of spatial closures could be evaluated using the same methods, thus providing a way to evaluate alternatives — if these objectives are still considered appropriate by the Council.

The purpose of EFH closures is to benefit groundfish populations, but the extent to which those benefits occur is not a question that current scientific capacity is able to answer reliably. Absent the ability to determine whether EFH closures are or are not effective, EFH initiatives should acknowledge the high level of uncertainty regarding their effectiveness and recognize the potential for damage to EFH to occur before impacts on groundfish populations are detected.

The SSC recommends that greater consideration be given to scientific research objectives when designing EFH closures, as this may allow the uncertainty in whether EFH closures are effective to be reduced in the future.

## ***I. Coastal Pelagic Species Management***

### **1. Pacific Sardine Temperature Parameter Review**

Dr. André Punt provided the Scientific and Statistical Committee (SSC) with a presentation on the report entitled “Revised Analyses Related to Pacific Sardine Harvest Parameters” (Agenda Item I.1.b). The report includes updated Management Strategy Evaluation analyses using revised California Cooperative Oceanic Fisheries Investigations (CalCOFI) temperature index data, and incorporates advisory body input regarding performance measures, candidate control rules, and sensitivity tests. The revised oceanographic data appear to have little influence on the results.

The SSC noted that the MSE results pertain to long-term (1000 year) estimates. Since the sardine population is currently in a relatively low portion of its cyclical variation, the next 10-year average harvests could likely be substantially lower than the mean annual harvests presented in the document.

The SSC recommends that overfishing limits (OFLs) for the northern subpopulation of Pacific sardine be based on an  $E_{msy}$  proxy derived from the relationship between estimated  $E_{msy}$  and the 3-year moving average of the CalCOFI temperature index, restricted to an  $E_{msy}$  range of 0-25 percent (Figure 4 of Agenda Item I.1.b – CalCOFI).

The SSC also reviewed the Coastal Pelagic Species Management Team’s (CPSMT’s) “Report on Sardine Harvest Parameters Changes”, presented by Ms. Lorna Wargo, co-chair of the CPSMT. The CPSMT discussed the effects of the new CalCOFI temperature index and the revised temperature productivity relationship on the performance of potential sardine management harvest control rules (HCRs). Scenarios included, among others, evaluating FRACTION ranges of 5-15 percent and 10-20 percent, and consequent effects on HCRs. The SSC noted that, given the SSC’s decision on OFLs (above), options D, E, and O of the CPSMT no longer apply. The SSC

recognized that the choice of any particular range of the FRACTION parameter is primarily a matter of policy; however, the CPSMTs proposals are logical. In particular, the proposed change to a 10-20 percent range is intended to allow the harvest rate at the median observed temperature index to reflect the calculated relationship between the temperature index and  $E_{msy}$ .

Overall, the SSC finds that the revised analyses represent the best available science to guide Council decisions, and the CPSMT's recommendations provide useful guidance on potential policy changes regarding Pacific sardine harvest management.

The SSC recommends that the ability to change Pacific sardine HCRs should be frame-worked into the CPS Fishery Management Plan, as is currently the case for groundfish, making the process more flexible for future management.

## ***F. Salmon Management***

### 1. Review of 2013 Fisheries and Summary of 2014 Stock Abundance Forecasts

#### 2013 Review of Ocean Salmon Fisheries

Dr. Robert Kope discussed the *Review of 2013 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. Table II-5 reports the performance of Chinook stocks relative to 2013 preseason conservation objectives while Table II-6 summarizes Chinook stock status relative to overfished and overfishing criteria. There were no Chinook stocks classified as overfished based on the geometric mean spawning escapement using the most recent three years of available data. Tables III-6 and III-7 present this same information for coho. There were no coho stocks classified as overfished.

#### 2014 Stock Abundance Forecasts

Dr. Kope also discussed Chinook and coho stock abundance predictions for 2014. In March 2013 the SSC recommended a review of Sacramento Index (SI) forecast methodologies and exploration of options. As a result the Council approved a new forecast method for Sacramento River fall Chinook in November 2013. Using the new method the SI forecast is 634,650 for 2014. This is lower than the 2013 post-season SI estimate of 862,525.

The SSC endorses the 2014 forecasts, acceptable biological catches, and overfishing limits in Preseason Report I as the best available science for use in 2014 salmon management.

### 8. Sacramento Winter Chinook Biological Opinion

Dr. Mike O'Farrell (Southwest Fisheries Science Center) gave a presentation to the Scientific and Statistical Committee (SSC) on the management strategy evaluation (MSE) that formed the basis for determining a harvest control rule for Sacramento Winter Run Chinook. The MSE and its results had been examined previously during a workshop associated with the April 2013 Council meeting in which members of the SSC, Salmon Technical Team, and Salmon Advisory Subpanel

participated. The current Sacramento Winter Run Chinook jeopardy standard includes a harvest control rule adopted by National Marine Fisheries Service Southwest Region (SWR) in 2012 that was based on the MSE analyses. The current SWR rule, along with a variety of alternative harvest control rules, were evaluated at the workshop. The operational model for the MSE and components of the model used to evaluate the harvest control rule alternatives have been peer reviewed and published. The SSC notes that results from MSE analyses are best used as a means to compare proposed harvest control rules on a relative basis but the empirical results from model runs (such as the frequency of occurrence of no fishing periods) should not be viewed as accurate predictions of future events.

The SSC endorses the MSE as the best available science for evaluating the harvest control rules for Sacramento Winter Run Chinook.

*SSC Notes:*

*The parameterization of the MSE's underlying population model is described in a publication now in press in Transactions of the American Fisheries Society but that has not been seen by the SSC. Thus, some questions about the treatment of uncertainty in vital rates, and their effects on the ability to discriminate among control rules, could not be addressed.*

*It was noted that it is currently impossible to estimate the impacts of the fishery on age-2 Sacramento Winter run Chinook, although they are expected to be small. The impacts of the fishery during the years used to parameterize the model are implicitly included in the estimated natural mortality rate, and the model does not (and cannot) remove these impacts when simulating a closed fishery. This would reduce the ability to distinguish between control rules that do or do not completely close the fishery, although it is noted that the simulations predict that complete fishery closures would be infrequent.*

## 9. California Coastal Chinook Update

The Scientific and Statistical Committee (SSC) reviewed the document “California Coastal Salmonid Population Monitoring: Strategy, Design, and Methods” (Agenda item F.9.a, Attachment 1) submitted by the California Department of Fish and Wildlife (CDFW). The monitoring plan had been examined previously during a workshop associated with the April Council meeting in which members of the SSC, Salmon Technical Team, and Salmon Advisory Subpanel participated.

The document provides a broad overview of possible methods, concepts, and considerations that could be used in development of a monitoring plan but is not focused specifically on California Coastal Chinook or on data needs for potential abundance-based management of this stock. The SSC notes generally that these data needs include estimation of both stock-specific escapement and harvest. One challenge is the lack of coded-wire-tagged fish for this stock, which necessitates using alternative methods of estimating stock-specific harvest (e.g., genetic stock identification).

The SSC concludes that while this document could be used as a general guide to develop a more specific monitoring plan for California Coastal Chinook, it lacks detail to determine whether the

data collected would be adequate for Council decision-making regarding abundance-based management. Establishing a monitoring program for this stock would require an intensive, long-term investment, with uncertain fishery benefits. If CDFW and the Council decide to pursue development of a monitoring plan for this stock, the proposed methods should undergo thorough SSC review to ensure the monitoring will meet management needs.

#### ***D. Groundfish Management, continued***

##### **5. Biennial Harvest Specifications for 2015-2016 Groundfish Fisheries**

#### **Overfishing limits (OFLs)**

The Scientific and Statistical Committee (SSC) Groundfish Subcommittee reviewed proposed methods for computing 2015 and 2016 overfishing limits (OFLs) for cowcod south of 40°10' N lat., kelp greenling off Oregon, kelp greenling off Washington, and cabezon off Washington during webinars conducted on December 11, 2013 and January 30, 2014. The SSC endorses the cowcod rebuilding analysis, the OFLs for cowcod south of 40°10' N lat (Table 1 of Attachment D.5a), and the OFLs for kelp greenling off Oregon and Washington (Table 2 of Attachment D.5a). These tables also report acceptable biological catches (ABCs) for P\* values of 0.45 and 0.25. The SSC notes that the 2016 OFLs depend on the Council's choice of P\*.

In relation to cabezon, the SSC notes that the population off Washington is estimated to be at a lower fraction of its unfished level than that off Oregon, even though catches increased substantially off Oregon following the mid-1990s. This result is a consequence of the full assessment for cabezon off Oregon indicating increased recruitment after 1997 which cannot be reflected in the Depletion-Based Stock Reduction Analysis (DB-SRA) assessment method applied for cabezon off Washington. The SSC recommends that the DB-SRA assessment for cabezon off Washington be revised, assuming that the depletion in 2010 equals that inferred from the assessment for Oregon (48%). This work could not be completed before the end of the SSC meeting.

In relation to China rockfish off Washington, Agenda Item D.5.b (Supplemental WDFW Report) highlights that there has been a large increase in the catch off Oregon, but no corresponding increase in the catch off Washington. The assessment for China rockfish north of 40°10' N lat is based on a catch-per-unit-effort index for Oregon which might not reflect trends off Washington. Such issues related to incomplete spatial coverage of data are, however, not unusual for assessments of nearshore species. The SSC notes that updating this OFL would involve conducting a revised data-moderate assessment for China rockfish off Oregon using only data collected north of 40°10' N lat and then developing a way to compute an OFL for just Washington. It is infeasible to do these analyses and review them in the time available before final decisions need to be made. However, the SSC recommends that the assessment of China rockfish north of 40°10' N lat be considered for revision during the next assessment cycle. The SSC also advises that historical catches of nearshore species by state may not reflect biomass by state because of major differences in the management among states.

Dr. E.J. Dick outlined a revised approach for calculating OFLs for stocks assessed using DB-SRA

and extended DB-SRA. The SSC agrees that the revised approach is more technically correct than that used to compute the OFLs presented to the Groundfish subcommittee in January 2014. The SSC notes that revised 2016 OFLs for China, brown and copper rockfish are needed but could not be produced before the end of the SSC meeting. In addition, ABCs for these species need to be computed for P\* values of 0.45 and 0.25. The SSC notes that this issue is different from the situation for China rockfish off Washington outlined above which would involve a major change to the stock assessments.

Application of the revised approach would likely have impacted other OFLs projected using DB-SRA. However, the effect of revising all of the DB-SRA-based OFLs is likely to be small, and the SSC advises that this revision occur during the next assessment cycle.

The SSC will review the revised OFLs for China, brown and copper rockfish and those for cabezon off Washington once they are available and provide the endorsed OFLs to Council Staff for inclusion in the EIS.

#### **Advice on Estimating the Monterey-area Cowcod ACL**

The SSC recommends that the cowcod ACL contribution for the area north of Point Conception be computed by applying the fishing mortality rate corresponding to the ACL for south of Point Conception to the biomass north of Point Conception from DB-SRA. This is more scientifically justified than the past approach of doubling the ACL value from south of Point Conception to produce the ACL for the entire area.

#### **Additional Issues**

Based on its review of how OFLs have been computed this cycle, the SSC wishes to emphasize the following points:

- (1) Setting of DB-SRA-based OFLs is highly reliant on the work of Dr. E.J. Dick. He has not only conducted several of the data-moderate assessments, but is also responsible for the DB-SRA analyses. Additional staff working in this area are needed given the rapidly increasing number of requests for additional analyses.
- (2) Assessment authors and state data providers should talk well before assessments are conducted to ensure that the most appropriate data are used in assessments, particularly for assessments which rely on fishery-dependent data sources.
- (3) The spatial structure of assessments should be based on biological considerations but avoid inferring stock status for areas for which there are no index data, particularly for nearshore species.

*The TOR for assessments needs to be updated to clarify when and how assessments can be revised, e.g. due to correction of errors.*

SCIENTIFIC AND STATISTICAL COMMITTEE'S GROUND FISH SUBCOMMITTEE  
STATEMENT FROM THE CONFERENCE CALL ON REVIEW OF COWCOD  
REBUILDING ANALYSIS AND OVERFISHING LIMITS FOR KELP GREENLING AND  
CABEZON

On December 11, 2013, the Scientific and Statistical Committee's Groundfish Subcommittee (SSCGF) held a conference call to review the draft cowcod rebuilding analysis and new overfishing limits (OFLs) for Kelp Greenling in Oregon and Washington and for the Washington stock of Cabezon. The SSCGF members participating in the conference call included Vladlena Gertseva, Owen Hamel, Tom Jagielo, Meisha Key, André Punt and David Sampson.

**Cowcod Rebuilding Analysis**

Dr. E.J. Dick provided the SSCGF with a summary of the draft rebuilding analysis for cowcod. Progress towards rebuilding for cowcod was reviewed in relation to the median time to rebuild ( $T_{TARGET}=2068$ ), which was adopted in 2009. The catches of cowcod have been lower than the annual ACLs since the start of the rebuilding plan in 2003.

The cowcod stock assessment was conducted using Extended Depletion-Based Stock Reduction Analysis (XDB-SRA) rather than an age-structured model such as Stock Synthesis; therefore, the rebuilding analysis could not be conducted using the standard rebuilding software (such as "Puntalyzer"). The projections accounted for uncertainty in all of the estimable parameters of XDB-SRA. In the absence of an age-structured model, the mean generation time was set to 38 years as in the 2009 rebuilding analysis. The SSCGF agrees that the technical approach taken to conduct the rebuilding analysis is appropriate and that the appropriate outputs were provided. The rebuilding analysis provides the basis for Council decision making.

Cowcod is substantially ahead of schedule given the updated rebuilding analysis. For example, the updated  $T_{MIN}$  (2019) is much smaller than the  $T_{MIN}$  from the 2009 rebuilding analysis (2059). This result is expected given that the 2013 stock assessment is more optimistic than the 2009 stock assessment. Progress towards rebuilding is considered adequate. The updated  $T_{MAX}$  (2057) is now lower than the  $T_{TARGET}$  (2068), therefore the SSCGF recommends redefining the  $T_{TARGET}$  for cowcod.

*Notes for EJ*

- Update the document to specify that the proxy  $F_{MSY}$  was the fishing mortality corresponding to  $0.4 B_0$ . Add the  $F_{MSY}$  proxy to Table 4.
- Indicate which values in Table 4 are distribution medians rather than single fixed values.
- Ensure that the final version of the rebuilding analysis follows the Terms of Reference for Rebuilding Analyses.

**Catch-based yield estimates for cowcod north of Point Conception**

Dr. E.J. Dick provided the SSCGF with DB-SRA estimates of OFLs for cowcod north of Point Conception. The cowcod stock assessment was only for the stock south of Point Conception. DB-SRA has been used in the past to provide an OFL for the northern component of the stock under the assumption that depletion is the same in the north and the south. Dr. E.J. Dick applied DB-SRA to catches using the posterior distribution for the parameters from the base model for cowcod

south of Point Conception. This resulted in the conclusion that the stock north of Point Conception is smaller than that south of Point Conception. The OFLs from DB-SRA (13.3mt for 2015 and 13.7mt for 2016) are similar to the estimate of sustainable catch from DCAC (12.5mt). The SSCGF recommends that the OFL for cowcod north of Point Conception be based on the results from DB-SRA and that the ACL north of Point Conception be computed by applying the fishing mortality rate corresponding to the ACL for south of Point Conception to the biomass north of Point Conception from DB-SRA.

*Notes for EJ*

- *Compute ACLs for cowcod north of Point Conception for each run included in the draft rebuilding analysis for cowcod south of Point Conception under the assumption that fishing mortality in 2015 and 2016 is the same north and south of Point Conception.*

**Overfishing Limits for Kelp Greenling in Washington and Oregon and Cabezon in Washington.**

Dr. E.J. Dick presented results of preliminary analysis to determine an OFL for Kelp Greenling in waters off Washington and Oregon. A DB-SRA model has been developed for the two states combined, using a prior on 2005 depletion that matches the depletion estimate from the 2005 Kelp Greenling assessment off Oregon (Cope and MacCall 2005). Also, an exSSS Kelp Greenling model has recently been developed for Oregon waters only (Cope, pers. com.), although it has not received a formal review. The exSSS model uses recently revised Oregon recreational and commercial historical catches, while DB-SRA model does not. Catch streams in neither model have been reviewed. The SSCGF recommends that the revised Oregon historical catch estimates for Kelp Greenling be reviewed and included in the model to be used for 2015-2016 management.

Currently, there is no biological information that would indicate a presence of separate stocks of Kelp Greenling in Washington and Oregon waters. However, there have been substantial differences in removals and management of this species between the two states since 1997 (with the advent of the Oregon live fish fishery). These differences would argue for a need for separate Kelp Greenling assessments for Washington and Oregon. Dr. Alec MacCall proposed to develop separate DB-SRA models for each state. An Oregon model would use the updated historical catches and the prior on 2005 depletion based on the 2005 Kelp Greenling assessment off of Oregon (Cope and MacCall 2005), while the Washington model would use the prior on 1997 depletion (the year before the increased removals in Oregon started) from the Oregon model. The SSCGF found this approach reasonable.

Dr. E.J. Dick also proposed to develop a data-moderate (category 2) Kelp Greenling assessment for the 2015-2016 management cycle, instead of one based on DB-SRA. The SSCGF however, agreed that there is no time to develop and properly review a data-moderate assessment for the 2015-2016 cycle, but recommends that such model be developed for the next management cycle.

No analysis was presented for determining an OFL for Cabezon in Washington. The SSCGF agreed to hold another conference call on January 30, 2014, to review OFL estimates for Cabezon off Washington and Kelp Greenling off Oregon and Washington. Models and catch histories used to generate OFLs for these two species would also be reviewed during that conference call.

**References**

Cope, J., MacCall, A. 2005. Status of Kelp Greenling (*Hexagrammos decagrammus*) in Oregon and California Waters as Assessed in 2005. Pacific Fishery Management Council, Portland, OR.

SCIENTIFIC AND STATISTICAL COMMITTEE'S GROUND FISH SUBCOMMITTEE  
STATEMENT FROM THE CONFERENCE CALL ON REVIEW NEW OVERFISHING  
LIMITS FOR WASHINGTON STOCK OF CABEZON AND KELP GREENLING IN  
OREGON AND WASHINGTON

On January 30, 2014, the Scientific and Statistical Committee's Groundfish Subcommittee (SSCGF) held a conference call to review the new overfishing limits (OFLs) for the Washington stock of Cabezon and for Kelp Greenling in Oregon and Washington. During the call, the SSCGF also discussed the issue of model choice for 2013 China rockfish assessment. The SSCGF members participating in the conference call were Martin Dorn, Vladlena Gertseva, Owen Hamel, Tom Jagielo, Meisha Key, André Punt, David Sampson and Theresa Tsou.

**Review of new OFLs for Oregon stock of Cabezon in and Kelp Greenling stocks in Oregon and Washington**

Dr. E.J. Dick provided the SSCGF with new OFL estimates for the Washington stock of Cabezon, and the Kelp Greenling stocks in Oregon and Washington. He also summarized the data and methods that were used to calculate these OFLs.

The OFL estimates for Cabezon in waters off Washington were calculated using data-poor methods: Depletion-Based Stock Reduction Analysis (DB-SRA), and Depletion-Corrected Average Catch (DCAC). Catch time series for the models were provided by the Washington Department of Fish and Wildlife (WDFW); other input quantities were obtained from the last assessment of the Cabezon stock in Oregon (Cope and Key 2009). The assessment estimated that the Oregon stock was at 39% of its unfished level in 2013. The SSCGF endorses the DB-SRA results and new OFL estimates for use in the next management cycle.

The OFL estimates for Kelp Greenling stocks in Oregon and Washington were generated using DB-SRA models as well. The input parameters for the Oregon model were obtained from the last Oregon Kelp Greenling assessment (Cope and MacCall 2005). The Oregon model assumed the prior on 2005 depletion from the last assessment, and used an updated (compared to the last assessment) catch time series. The Washington model used a prior on 1997 depletion (the year before the Oregon fishery for live fish started) based on output from the Oregon DB-SRA model, as recommended during the SSCGF conference call on December 11, 2013. The models estimated that in 2013, the Kelp Greenling stock in Oregon was at 37% of its unfished level, and in Washington it was at 92% of its unfished stock biomass. Dr. E.J. Dick, however, noted that the Washington OFL estimates should not be considered sustainable on the long term. The SSCGF endorses the new OFLs for the Kelp Greenling in Oregon and Washington, but emphasizes that OFL estimates for the Washington stock should not be used beyond the 2015-2016 management cycle.

**China Rockfish Assessment Model Choice**

The SSCGF discussed model choice for the 2013 China rockfish assessment, as related to the issue of the management break between northern and southern stocks and how it pertains to the structure of the assessment model. At the November 2013 Pacific Fishery Management Council (Council) meeting, the Scientific and Statistical Committee (SSC) reviewed two sets of models for China rockfish. The first, which had been previously reviewed by a STAR panel and the SSC, assumed

a split between stocks at 40°10' N latitude. The second, new set of models assumed a split between stocks at 42° N. latitude (the Oregon-California border). The SSC was presented with no information that would help in determining the location which best represents the division between these assumed stocks, and thus there was no scientific basis for selecting one or the other as the biological boundary. Also, there were no data available to help determine if the trend in stock status in the area between 40°10' N and 42° N. latitude was more similar to the area to the north or that to the south. Both sets of assessments were endorsed by the SSC for potential use in management, as both sets were based on the same information and provided stable and reasonable results.

Given that there is no scientific basis for selecting among management boundaries, the SSCGF recommends that the set of models, which reflect the management boundaries currently chosen by the Council for OFL determination, be used for the purpose of setting OFLs and ABCs for China rockfish, for a northern and a southern portion of the coast. In the case of China rockfish, the Council has selected 40°10' N. latitude as the management boundary between northern and southern stocks; therefore the OFLs for the species should be based on the assessments with a break at 40°10' N. latitude. The SSCGF, however, emphasizes that in future, the Council should determine the north/south boundaries for fishery stocks prior to assessments, and that such boundaries would be changed afterwards only when strong biological evidence is presented.

*OFLs and ABCs are set for entire management areas; therefore, it is important that these quantities reflect the status of the stock in the entire area. If sub-areas within the management area are shown to have stocks with different status, trends and scales, then ideally separate OFLs and ABCs should be set for each sub-area. When information for a sub-area is lacking, the data from the rest of the area could be used for managing the entire area, unless there are strong reasons to think that this may lead to detrimental impacts on the portion of the stock within that sub-area. Using data from an area outside of a management area to inform the status and scale of the portion of a stock in a sub-area can result in the OFL for the entire management area being dominated by the inferred OFL for the sub-area, which could lead to overharvest of the entire stock within the management area.*

*The OFL and ABC apply at the level of the entire management area. Harvest Guidelines (HGs) could be set for sub-areas within a management area. Therefore, while the sum of the HGs over all sub-areas must be less than or equal to the ACL for the entire management area; any allocation of ACL to sub-area is a policy decision by the Council.*

## **References**

- Cope, J. M. and M. Key. 2009. Status of Cabezon (*Scorpaenichthys marmoratus*) in California and Oregon Waters as Assessed in 2009. Pacific Fishery Management Council, 7700 Ambassador Place NE, Suite 200, Portland, OR 97220. 390 pp.
- Cope, J.M. and A.D. MacCall. 2005. Status of Kelp Greenling (*Hexagrammos decagrammus*) in Oregon and California Waters as Assessed in 2005. Pacific Fishery Management Council, 7700 Ambassador Place NE, Suite 200, Portland, OR 97220. 158 pp.

## Stock Assessment Priorities for 2015

### SSC Notes:

*The question was posed whether the next petrale sole assessment needs to be a full assessment or an update would suffice. The last three petrale assessments have been full assessments and the model appears to be stable with few, if any, structural changes anticipated next year. In June 2013, when the SSC endorsed the 2013 petrale assessment, the SSC stated, “The petrale sole spawning stock biomass is projected to be above the  $B_{MSY}$  proxy by 2014 under the “base case” and by 2016 under the “low” state of nature. However, the SSC recommends that this change in status should be confirmed by a new full assessment”.*

*Some SSC members believed there was a NMFS policy that stated full assessments were necessary to declare an overfished stock rebuilt. Others were not aware of such a policy. Dr. Hamel was asked to enquire whether there was such a policy.*

*Subsequent to the meeting, Dr. Hamel contacted Dr. Rick Methot with the inquiry. Dr. Methot reported, “I see absolutely no reason why an update assessment would not suffice for making a rebuilt determination.”*

## SSC Subcommittee Assignments, March 2014

| <b>Salmon</b>      | <b>Groundfish</b>     | <b>Coastal Pelagic Species</b> | <b>Highly Migratory Species</b> | <b>Economics</b>     | <b>Ecosystem-Based Management</b> |
|--------------------|-----------------------|--------------------------------|---------------------------------|----------------------|-----------------------------------|
| Owen Hamel         | <b>Vlada Gertseva</b> | <b>André Punt</b>              | Andrew Cooper                   | <b>Cindy Thomson</b> | <b>Martin Dorn</b>                |
| Meisha Key         | Andrew Cooper         | Owen Hamel                     | André Punt                      | Vlada Gertseva       | Vlada Gertseva                    |
| Pete Lawson        | Martin Dorn           | Dan Huppert                    | David Sampson                   | Dan Huppert          | Pete Lawson                       |
| Charlie Petrosky   | Owen Hamel            | Tom Jagielo                    |                                 | Todd Lee             | Todd Lee                          |
| Will Satterthwaite | Tom Jagielo           | Meisha Key                     |                                 | André Punt           | André Punt                        |
|                    | Meisha Key            |                                |                                 | David Sampson        | Will Satterthwaite                |
|                    | André Punt            |                                |                                 |                      | Cindy Thomson                     |
|                    | David Sampson         |                                |                                 |                      | Tien-Shui Tsou                    |
|                    | Tien-Shui Tsou        |                                |                                 |                      |                                   |

**Bold** denotes Subcommittee Chairperson