

**DRAFT SUMMARY MINUTES**  
**Scientific and Statistical Committee**

Pacific Fishery Management Council  
Crowne Plaza Hotel  
Drake I Room  
1221 Chess Drive  
Foster City, CA 94404  
650-570-5700  
June 11-13, 2007

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

The meeting was called to order at 8 a.m. Dr. Donald McIsaac briefed the SSC on priority agenda items.

Dr. McIsaac spoke to the recent resignation of Dr. Lyman McDonald from the SSC and noted the need for additional salmon expertise on the SSC. Dr. McIsaac requested that SSC members encourage the nomination of potential candidates for the September 2007 meeting.

Dr. McIsaac thanked Dr. Martin Dorn for his work as the SSC Groundfish Subcommittee Chair during this busy year. Dr. McIsaac reviewed the status of the 2007 groundfish assessment process and reiterated the importance of completing the assessment review process in time for the November 2007 Council meeting. He noted that, at this time, several assessments appear to warrant additional work and review. There was discussion of the possibility of referring more assessments to the October 2007 review panel than time allows. Dr. McIsaac requested the SSC consider alternate approaches such as scheduling a new review panel or delaying incomplete or problematic assessments to the next assessment cycle, as appropriate.

Subcommittee assignments for 2007 are detailed in the table at the end of this document.

**Members in Attendance**

Mr. Tom Barnes, California Department on Fish and Game, La Jolla, CA  
Mr. Robert Conrad, Northwest Indian Fisheries Commission, Olympia, WA  
Dr. Ramon Conser, National Marine Fisheries Service, La Jolla, CA  
Dr. Martin Dorn, National Marine Fisheries Service, Seattle, WA  
Dr. Owen Hamel, National Marine Fisheries Service, Seattle, WA  
Dr. Tom Helser, National Marine Fisheries Service, Seattle, WA  
Mr. Tom Jagielo, Washington Department of Fish and Wildlife, Olympia, WA  
Dr. Peter Lawson, National Marine Fisheries Service, Newport, OR  
Dr. Todd Lee, National Marine Fisheries Service, Seattle, WA  
Dr. André Punt, University of Washington, Seattle, WA  
Dr. Stephen Ralston, National Marine Fisheries Service, Santa Cruz, CA  
Dr. David Sampson, Oregon State University, Newport, OR  
Ms. Cindy Thomson, National Marine Fisheries Service, Santa Cruz, CA

## **Members Absent**

Mr. Steve Berkeley, University of California, Santa Cruz, CA

## **Scientific and Statistical Committee Comments to the Council**

The following is a compilation of June 2007 SSC reports to the Council. (Related SSC discussion not included in written comment to the Council is provided in *italicized text*).

### ***Coastal Pelagic Species Management***

#### F.2. Pacific Mackerel Harvest Guideline for 2007-2008

Dr. Emannis Dorval presented a clear and detailed overview of the Pacific mackerel stock assessment to the Scientific and Statistical Committee (SSC). The assessment was technically sound, and the modeling approach taken was not greatly different from previous assessments of this stock. The SSC endorses the Stock Assessment and Review (STAR) Panel conclusions that this assessment represents the best available science and can form the basis for Council decision-making.

Like previous versions, this stock assessment was done using the Age-structured Assessment Program (ASAP) modeling framework. An attempt was made to implement the assessment in SS2, but the Stock Assessment Team and the STAR Panel were not satisfied with the results: they could not determine why the model was unable to fit portions of the early catch history. It may be possible to resolve this issue in time to review an SS2 modeling methodology for Pacific mackerel during the September sardine STAR Panel meeting. The SS2 methodology could then be used in the future for Pacific mackerel but would not affect the current assessment or the 2007-2008 harvest guideline.

Opportunities to improve the Pacific mackerel assessment are limited due to fundamental problems – (1) lack of a cooperative agreement between Mexico and the United States and (2) lack of a reliable index of abundance. The STAR Panel report does a good job of describing these problems. The most likely remedies are to negotiate a formal agreement with Mexico to collect and share catch and abundance data and to develop a more reliable stock-wide abundance index.

All of the current abundance indices have problems that limit their usefulness for this assessment. Potential improvements could involve the use of acoustic or LIDAR surveys. If technical issues can be solved, such surveys may be used to produce an abundance index over the entire range of the stock and provide data to improve the stock assessment in a relatively short time frame. It would also be desirable to combine acoustic or LIDAR surveys with an improved implementation of the egg and larval surveys. These techniques could be applied to sardine as well as mackerel.

#### *SSC Notes –*

- *Crash penalties might be avoided by using the exponential mortality switch in SS2.*
- *Consider subsetting the CPFV data for targeting vs. non-targeting trips.*
- *Consider a hierarchical approach to estimating annual mortality rates in CalCOFI data.*

## *Groundfish Management*

### 6. Stock Assessments for 2009-2010 Groundfish Fisheries

#### **FULL STOCK ASSESSMENTS**

##### Sablefish

Dr. Michael Schirripa (of the Stock Assessment Team [STAT]) presented an overview of the 2007 sablefish stock assessment to the Scientific and Statistical Committee (SSC). Dr. Martin Dorn presented an overview of the Stock Assessment Review (STAR) Panel report.

Efforts were made by the STAT to reduce the complexity of the current assessment compared to previous assessments. Major changes include not utilizing pot survey and fishery logbook data, reducing from 5 to 3 the number of commercial fisheries in the model, and the addition of the Northwest Fisheries Science Center (NWFSC) shelf survey. The sablefish assessment continues to use sea surface height (SSH) as a predictor of recruitment. These environmental data are incorporated in a technically superior way compared to the previous assessment. One result of these changes and the addition of the most recent data is that the model now provides a plausible estimate for steepness.

The estimate of spawning biomass remains highly sensitive to estimates of NWFSC slope survey catchability. A preliminary model fixed this value at 1, while the model fit best with a much lower value. The STAR Panel created a prior for survey catchability based on informed consensus opinion. The median of this prior ( $Q = 0.56$ ) was used for the base model, whereas the full prior distribution was used to calculate high and low states for nature for the decision table.

There were two unresolved areas of disagreement between the STAT and the STAR Panel as noted in the STAR Panel report. The SSC worked with the STAR Chair and the STAT to resolve these issues. There was considerable discussion among the SSC, STAR Chair and STAT about the use of SSH in the assessment. The SSC concurs with the STAT and endorses the use of SSH in the current assessment but notes that much more work needs to be done toward evaluating the selection and validation of environmental signals in stock assessments as was recommended following the Groundfish Harvest Policy Evaluation Workshop in December, 2006. The inclusion of SSH had only a small influence on estimated depletion levels (in 2009: 38.6% with vs. 36.9% without the SSH data).

The base model estimates a 2007 spawning biomass of 93,895 mt and depletion level of 38.3%, both of which are somewhat higher than the estimates from the 2005 assessment. The higher estimates of current and historical biomass are largely due to the change in estimated survey catchability. The model also shows a rapid increase in spawning biomass since 2002 due to very strong 1999 and 2000 year classes.

The SSC endorses the use of the base model and decision Table 1 for Council decision making. The fourth section of decision Table 1 represents the catch series that will stabilize the population at  $B_{40}\%$  under equilibrium assumptions, whereas the rest of the table represents the

standard decision table which uses the accepted F proxy ( $F_{45\%}$ ) to define catches. The document available for SSC review was still in draft form and needs to be fully updated to reflect the final base model and include all the required diagnostics. The STAT will provide a new draft to the STAR Panel members who will provide a review for completeness according to the assessment TOR before the document is finalized.

*Technical notes and recommendations:*

*The SSC also discussed the methods used for developing the prior on survey catchability. While the current prior is endorsed for use as the best available, considerable improvements to this prior could be made with a more thorough analysis and the SSC suggests development of priors for catchability as a topic for an off-year workshop. The SSC also noted a problem with the lognormal approximation to the prior which had some affect in this case (resulting in an overestimate of the  $Q$  value used for the “high” state of nature) and which could have a much more important affect on the presentation of uncertainty in other situations.*

*The SSC endorses the STAR Panel recommendation that full cross validation of environmental data that includes selection of predictive variables be conducted before inclusion in future sablefish assessments.*

Longnose Skate

The SSC was given a presentation by Dr. Vladlena Gertseva on the assessment for longnose skate, and Dr. Martin Dorn provided a review of the STAR Panel findings. This initial assessment of longnose skate was performed using a single sex configuration of Stock Synthesis 2. The assessment is configured as one stock in U.S. waters from Canada to Mexico, and models a single fishery because 97% of all landings are trawl-caught. It includes catch data from 1916-2006, along with limited age data from the catches. Abundance estimates from four NMFS surveys since 1980 were sources of fishery-independent data, including survey length compositions since 1997. Longnose skate exhibit the life history traits of late maturity, low fecundity and slow growth. In addition, resilience of the stock was assumed to be low. The selectivity curve for the fishery allows full selectivity at 90 cm, which corresponds to fish that are only 10% mature. This could be a concern because the fishery is catching immature fish from a stock that is assumed to exhibit low productivity.

Dr. Gertseva noted that the estimates of spawning biomass in the May 23, 2007 version of the stock assessment report were double the correct values. However, none of the other assessment results or findings is affected by this correction.

Assessment results indicate that the spawning biomass slowly declined through the late 1960s, and has continued a general downward trend since then, but with fluctuations. The current biomass is within the range of 41-80% of unfished stock size, with a best estimate of 66%. The major sources of uncertainty in the results are: 1) the magnitude of the historical catches, and 2) the NWFSC shelf-slope survey catchability coefficient  $Q$ . These sources of uncertainty were used to develop alternative states of nature for the decision table. The stock is projected to remain above 40% of unfished stock size under the most likely catch scenarios for the next ten years, and only under the most aggressive catch scenario ( $F_{45\%}$ ) combined with the most pessimistic state of nature (high  $Q$  and high historical catch) is the depletion level forecast to decline below 40% of unfished

abundance. Considering that elasmobranchs have distinct life history traits that differ from other groundfish, the default harvest rate for groundfish (F45%) is unproven and potentially too aggressive. The SSC endorses the STAR Panel conclusions that this assessment represents the best available science and can form the basis for Council decision-making.

*Technical notes and recommendations:*

- *There was no attempt to estimate steepness based on data. The model had a best fit at steepness = 1.0, but that seemed too high to the STAR and STAT. A future task could be to back calculate steepness based on estimates of productivity for other elasmobranchs.*
- *The trend in residuals and lack of a plus group in the fit to age frequency data (P 93 of the assessment report) could be consistent with an ageing error that underestimates old fish. The large plus group that is predicted by the model is consistent with a big stock that has not been subjected to a lot of fishing pressure. Underageing is common when vertebrae are used to age other elasmobranchs. This should be investigated for longnose skate.*
- *Did the foreign fleet take skate? This needs to be investigated.*
- *Total reported landings may not be the best source of information on total removals for a species that is caught as bycatch and has high discard rates. It would be useful to explore an effort-based method of estimating historical catches.*

**UPDATED STOCK Assessments**

The Groundfish Subcommittee of the SSC met June 9-10 to review updated assessments of Pacific Ocean perch, cowcod, yelloweye rockfish, English sole, and widow rockfish. According to the terms of reference for stock assessment reviews, updates are appropriate in situations where a “model” has already been critically examined and the objective is to simply incorporate the most recent data. To qualify, a stock assessment must carry forward its fundamental structure from a model that was previously reviewed and endorsed by a STAR Panel. Any new information being incorporated into the assessment should be presented in enough detail that the review panel can determine whether the update satisfactorily meets the Council’s requirement to use the best available scientific information. The groundfish subcommittee’s review focused on two crucial questions: (1) did the assessment comply with the terms of reference for stock assessment updates and (2) are new input data and model results sufficiently consistent with previous data and results that the updated assessment can form the basis of Council decision-making. If either of these criteria were not met, then a full stock assessment was recommended.

While an update assessment is clear in concept, in practice there are often special issues that make it difficult to determine whether an assessment qualifies as an update. For the update assessments reviewed by the subcommittee, several such issues needed to be considered. These included 1) when correction of an error in the previous assessment had a significant impact on model results, and 2) when “new” data were added to early years in the assessment. Despite these considerations, it was generally clear which assessments were acceptable as an update.

The Groundfish Subcommittee prepared draft reports on each of the assessment updates. These draft

reports were then reviewed and adopted by the full SSC.

*Technical notes and recommendations:*

1. *Terms of reference should include discussion of how to treat errors discovered in a previous assessment. The magnitude of the change when the error is corrected is the primary consideration. If the correction of the error results in a significant change in stock status, the assessment probably could not be considered an update. Changes that are within the error bounds of the previous assessment can probably be accommodated in assessment.*
2. *Terms of reference should request that the STAT explore major differences in data inputs when these inputs are refreshed.*

English Sole

The SSC groundfish subcommittee reviewed a document entitled “Updated U.S. English sole stock assessment: Status of the resource in 2007”, authored by Dr. Ian Stewart. Dr. Stewart gave a brief presentation and fielded questions from the committee.

The updated model was run with SS2 Version 2.00e. Two fleets (North and South) were modeled as operating on one coastwide stock. In the future it may be useful to look at the two areas separately.

The update incorporated a revised catch data series for 1981-2006 which resulted in a small increase in total landings. A substantial amount of new fishery age and length data were also incorporated into the update (predominantly new age data for the period after 2001). The update also used a new recruitment bias-correction option in SS2. Compared to the 2005 assessment, the net result of the changes made in the update had the effect of 1) increasing the magnitude of recent year classes and 2) increasing the estimate of  $B_0$ . The level of depletion in 2006 from the base case model is 116%, but is expected to decrease as the impact of recent strong recruitments diminishes.

The SSC determined that the English sole assessment update complied with the terms of reference for updates and is consistent with the previous assessment. The SSC endorses its use for Council decision-making.

*The 2005 STAR Panel used the strength of the 1999 year class as the basis for a decision table; two alternatives from the base model were presented. In both cases, sigma R was reduced below the base case to reduce the magnitude of the 1999 year class. Ian noted that a major axis of uncertainty in the assessment is the disparity between two maturity at age relationships; one developed in the 1950's and another in the 1990's. For sensitivity runs to compare with the base case, the updated assessment uses: 1) a low biomass scenario (using the 1950's maturity at age schedule instead of the 1990's maturity at age schedule) and 2) a high biomass scenario (including the new NWFSC survey data).*

Pacific Ocean Perch

Dr. Owen Hamel presented the Pacific Ocean perch update assessment, which incorporated recent survey and fishery data. The new data suggest continued rebuilding of the Pacific Ocean perch stock is occurring. The NWFSC slope survey shows a generally increasing trend, and there are indications of a strong 1999 year class in both the survey and fishery age composition data over several years. Assessment results are highly consistent with the previous assessment except that a stronger 1999

year class is estimated. The current assessment indicates that the 1999 year class is the strongest since the 1960s. The SSC determined that the Pacific Ocean perch assessment update complied with the terms of reference for updates and endorses its use for Council decision-making.

*Technical notes and recommendations:*

- *There are some very poor fits to earlier fishery age-composition data, particularly in 1976-79, where observations show a strong year-class tracking through the population that is not matched by model predictions. It may be possible to improve these fits by reconfiguring the fishery selectivity shifts in the model.*
- *Final accumulation bin for fitting fishery and survey length composition data is at a relatively small size. Future assessments should consider alternative binning strategies.*
- *Observer data should be examined for evidence of a strong 1999 year class. These data may also be useful for determining the size composition of discards.*
- *The ADMB model for Pacific Ocean perch has been used for a number of assessments. While the model has continually been refined, the next assessment should give consideration to further improvements. For example, there may be better ways to treat the bias correction in the stock recruit relationship. There are also potential benefits to moving the assessment to SS2 software, though this is not an explicit recommendation of the SSC.*

Widow Rockfish

The SSC groundfish subcommittee received a presentation on the update assessment of widow rockfish. The update, which indicates much stronger age-3 recruitment in 2003 than had been estimated by the last full assessment (conducted in 2005), projects that the stock of widow rockfish will exceed the rebuilding target of 40% of unexploited spawning biomass during 2009, largely because of the exceptional strength of this year-class. The projections further indicate that the stock could sustain fishery removals of about 2,000 mt annually. During the review of the update it was determined that the update assessment had not fully accounted for the bycatch of widow rockfish by the fishery for Pacific hake. The SSC recommends that the current update should be revised with updated catch statistics that correctly account for removals in recent years, but notes that the revised catch data should not substantively alter the results of the update. The SSC groundfish subcommittee will conduct an email review of a revised update prior to the September SSC meeting, at which time the revised update will be reviewed by the full SSC. The SSC determined that the widow rockfish assessment update complied with the terms of reference for updates. The SSC notes that future widow rockfish assessments will increasingly be compromised by the lack of a reliable tuning index for recent years.

*Technical notes and recommendations:*

- *The triennial bottom trawl survey index values for widow rockfish in 2001 and 2004 were extremely low, about 1/3 of the previously lowest value, although the CVs for these values are very high. This is troublesome given the update's projection of increasing biomass in recent years. Further, the update document suggests that future assessments may increasingly need to*

*rely on estimates of biomass from the trawl shelf survey because other tuning indices have become unreliable.*

- In previous assessments the “Oregon midwater-trawl fishery” was directed at widow rockfish, whereas in the 2005 full assessment and the 2007 update the landings and age-composition sample data associated with this fishery came from bycatch of widow rockfish taken by the mid-water trawl fishery directed at Pacific hake. It is unclear whether the mid-water trawl fishery directed at widow rockfish has the same age-selection curve as the bycatch fishery directed at Pacific hake, as assumed in the 2005 assessment and the update.*
- The next round of stock assessments should include a full assessment of widow rockfish, conducted in SS2, to confirm that the stock has attained the rebuilding target, as projected in the current update. Further, the new full assessment should confirm that the recent midwater trawl bycatch fishery (directed at Pacific hake) provides a signal of year-class strength that does not exaggerate year-class strength due to a shift in selection.*
- The revised assessment document should more clearly document the various components of fishery removals (e.g., by the at-sea fishery for Pacific hake versus by the shoreside fishery for Pacific hake versus by the tribal fishery for Pacific hake).*
- The revised update assessment document should clearly indicate the source of recent age-composition data (e.g., whether from the at-sea versus shoreside sector of the Pacific hake fishery).*

#### Cowcod

The STAT, represented by Drs. Dick, Ralston, and Pearson, presented an updated stock assessment to the SSC. The last full assessment for cowcod was conducted in 2005. Attempts to update the cowcod assessment have resulted in substantial changes in depletion and historical exploitation rates. In addition the visual survey is less consistent with the 2002 population estimate from the 2005 assessment. Therefore, the cowcod assessment update as presented to the SSC did not fully meet the terms of reference. As such, the SSC recommends that a full assessment for cowcod be developed and considered for review at either the darkblotched or Mop-Up STAR Panel.

#### *Technical notes and recommendations:*

*The STAT presented a number of analyses that focused on three areas, two of which represent corrections of model error structures. Changes relative to the last assessment included:*

- Historical catch series revised based on new assumptions/decisions: a) new ratio estimator developed that tracks rockfish landings in Southern California Bight rather than statewide rockfish landings; b) correction factor applied to southern area data, 1916-1927, c) based on a new ratio to estimate foreign caught rockfish which were subsequently deleted from the 1916-1927 catches; new ratio estimator used to estimate cowcod relative to total rockfish catch based on samples taken in 1984-1989; d) CALCOM landings 1969-1985 revised based on 611 newly recovered species composition samples from 1983-1985.*

- *Fishery and survey selectivity was set equal to maturity ogive, rather than set equal to fecundity relationship as in the previous assessment (model now becomes quite sensitive to the visual line transect survey).*
- *A new length at age relationship was developed based on fork length rather than total length based on the previous assessment (small but noticeable impact on biomass trajectory). In addition, CVs of length at age were assumed to decline from 25% for the youngest age to 5% for the oldest age, rather than 5% over all ages assumed in the previous assessment.*

*Changes in historical catch and correction of length at age function had a minor impact on model results relative to the previous assessment. More notably, the correction of selectivity resulted in a change in the 2005 depletion level from 17.8% to 9.4%, and substantial change in harvest rates. In particular, the SSC questioned the logical consistency of whether a harvest rate of 0.4 is reasonable given the stock dynamics of cowcod (i.e. slow growth, long generation time, and low productivity), and whether the STAR would have re-assessed other assumptions and structures of the model from what was originally approved. Moreover, the visual biomass estimate, which had minimal influence on estimates of stock biomass, now exerted a larger impact on assessment result with selectivity error corrected.*

*The STAT recommended a number of additional analyses in addition to the error corrections and revisions of historic catch series to improve the cowcod assessment in preparation for developing a full stock assessment at the mop-up panel. The SSC concurs with the STAT that these analyses will be fruitful and offers the following comments:*

- *Methods of developing ratio estimators for deriving the proportion of cowcod in the historical rockfish catch should be thoroughly documented, including rationale and sensitivity analysis on model results.*
- *Conduct a re-analysis of the CPFV blocking structure to take into account spatial relationships and CPUE trends in aggregate pseudo blocks. The STAT presented a re-analysis of the spatial structure of the CPFV data and a new CPUE index derived from application of the delta-GLM, which resulted in a significant reduction in total log-likelihood of the assessment model. As expected, model fit to the CPFV CPUE index improve but also fit the visual biomass survey better as well. The SSC agreed that this was a parsimonious result however caution should be exercised to account for potential bias that might result from temporal changes in targeting and fishing patterns of the CPFV fleet.*
- *Develop a two fishery model that attempts to estimate more realistic selectivity patterns for the recreational fishery and CPFV logbook index. Empirical length data suggests that the recreational fishery selectivity may be shifted to smaller sizes of fish than would be implied by setting the fishery selectivity curve equal to the maturity ogive. The STAT presented preliminary runs of a two fishery model which reduced the overall magnitude of biomass and increased fishery harvest rates to 50% during the late 1980s. Again, the SSC notes whether such high exploitation rates are possible given the low productivity of the cowcod stock and recommends that assumptions used in the model with regard to growth and stock productivity be thoroughly evaluated.*

## Yelloweye Rockfish

The stock assessment update for yelloweye rockfish was presented to the SSC by John Wallace. Landings, compositional data, and the catch per unit of effort (CPUE) time series were all updated through 2006 in accordance with the Terms of Reference. Some key issues identified in the update by the STAT were: (1) correction of a technical error in the definition of age and length classes, (2) deleting Washington trawl-caught fish from hook-and-line age compositions, and (3) revising the natural mortality rate upwards from 0.036 to 0.043 yr<sup>-1</sup>. The update also considered the effect of including fishing trips that target halibut in the calculation of the Washington sport CPUE statistic, as well as the impact of dropping 2000 and 2001 from that particular time series. Neither of those two sensitivity analyses produced an appreciable effect on model outcome. Overall, the update with  $M = 0.043$  is consistent with the previous assessment and the SSC endorses the update model with the revised natural mortality rate for use in status determination and management of the stock.

### *Technical notes and recommendations:*

*The yelloweye rockfish analysis incorporated the following data and modeling updates:*

- *Updated catch data from 1980-2006 for three fisheries (trawl, hook-and-line, and sport) for each State (WA/OR/CA).*
- *Updated length composition data for WA/OR/CA trawl, WA hook-and-line, and CA sport fisheries.*
- *Updated age composition data for WA/CA trawl, and WA hook-and-line fisheries.*
- *Updated the IPHC survey index of abundance to include 2006.*
- *Updated the modeling platform from SS2 version 1.21 to version 2.00c.*
- *Corrected three clear errors in the prior assessment (Wallace et al. 2006), i.e.,:*
- *Mis-specification of the length bin structure*
- *Mis-specification of the age bin structure*
- *Excluded WA trawl ages from WA hook-and-line fishery age compositions*
- *Revised the “super-year” method of pooling age and length composition data to a preferred SS2 option to “compare expected aggregation to observed aggregation”.*
- *A sensitivity analysis was conducted to evaluate of the effect of including halibut directed trips in the OSP CPUE index. The 2007 depletion level changed from 14.5% in the base model (only bottom fish trips) to 14.7% when the CPUE index included both bottom fish and halibut directed trips.*
- *A sensitivity analysis was conducted to evaluate the effect of dropping the 2000 and 2001 WA sport CPUE index due to marked changes in the regulatory environment (reduced bag limits). When those two years were deleted the 2007 depletion level changed from 14.52% in the base model to 14.51%.*
- *Revised the natural mortality rate estimate from 0.036 to 0.043 yr<sup>-1</sup>, based on profiling likelihood from the updated coastwide model, with added confirmation from a Canadian*

*estimate obtained from Bowie Seamount. The logic of this revision followed the intent of the 2006 STAR Panel. The SSC endorsed the revision in M as appropriate in the updated assessment. The effect of this revision was to change the base model 2007 depletion level from 14.5% to 16.4%.*

*Research recommendations:*

- *Explore regional models in lieu of the coastwide model*
- *Given that WA hook-and-line fishery composition data were contaminated with WA trawl fishery data, re-estimate the hook-and-line selectivity to evaluate the appropriateness asymptotic selection.*
- *Incorporate information on Canadian yelloweye rockfish to the extent possible.*
- *Should it become available, explore the utility of a point biomass estimate (with CV) of yelloweye rockfish that is based upon in situ observations.*

**STATUS OF OTHER STOCK ASSESSMENTS**

**Shortbelly Rockfish**

The SSC also reviewed the stock assessment for shortbelly rockfish conducted by the SWFSC, which was presented to the SSC by Dr. Field. This stock assessment was not reviewed by a Council STAR Panel with SSC participation. Rather it was reviewed using a structure similar to a STAR Panel (external reviewers, including a Center for Independent Experts [CIE] reviewer) and using the Council Terms of Reference for groundfish stock assessments. The SSC was asked to review this assessment primarily because NMFS solicited a review by the Council in order for it to qualify as an assessment.

The assessment report does not provide estimates of accepted biological catch (ABCs) and optimum yield (OYs), the reviewers except for the CIE reviewer were not selected using the same process as for STAR Panels, and the record of how the review panel interacted with the assessment authors is not as complete as would be expected of STAR Panels reports. Therefore, this assessment does not fully satisfy the Council TOR for groundfish stock assessments. However, it represents improved knowledge about shortbelly rockfish and might be suitable for management purposes in place of inferences from the hydroacoustic surveys conducted during 1977 and 1980.

Dr. Field provided the SSC with the results of projections based a range of future sequences of catches, and these suggested that catches at the level of the current OY for shortbelly rockfish would lead to major reductions in abundance. However, catches of shortbelly rockfish are currently close to zero. If the GMT wishes to use the results from this assessment for management purposes, the SSC offers the following suggestions:

- (a) the estimates of biomass for recent years are based on the greatest amount of data and are hence the most reliable;
- (b) the trend in abundance from 1991 to the present is relatively reliable; and

- (c) if ABCs and OYs are to be based on a survey estimate of abundance rather than the results of the assessment, the estimate of abundance for 1991 obtained by Ralston *et al.* (2003) should be preferred to the results of the 1977 and 1980 hydroacoustic surveys.

The SSC notes that the assessment of shortbelly rockfish does improve knowledge about one of the non-commercial species included in the Groundfish FMP and hence provides information relevant to further understanding the ecosystem impacts on the fish populations managed by the Council, as well as the implications of the choice between static and dynamic  $B_0$ . The SSC encourages additional assessments of species that are not of immediate management concern. Review of assessments that come from outside of the normal Council process should ideally be scheduled as part of the “off year” science activities.

Finally, the SSC had access to the report by the CIE reviewer of the shortbelly rockfish assessment. The SSC notes that these reports contain general comments on assessment methodology and process, and recommends that summaries of the relevant parts of the CIE reports for the current round of stock assessments be made available to the SSC. In addition, the SSC recommends that Dr. Patrick Cordue (CIE reviewer on all of the 2007 groundfish STAR Panels) participate at any “post-mortem” meeting as this will increase the ability to fine-tune the assessment and review process based on the experiences during 2007.

*Technical notes and recommendations:*

- *The estimate of initial abundance of shortbelly rockfish and hence the ratio of initial abundance to  $B_0$ , depends almost completely on inferences based on the CalCOFI indices of spawning biomass for the 1950s and 1960s. These indices are also high for other species (e.g. bocaccio) during these years, which increases the confidence in them, but concerns remain whether the high values for the 1950s-60s may be due to sampling effects.*
- *Taking the arcsine of a proportion is appropriate when conducting statistical tests, but it is not clear why, for example, the arcsine of the proportion of shortbelly rockfish in the diet of seabirds would be proportional to the abundance of age-0 shortbelly rockfish.*
- *The SSC highlights the implications of fitting the model to annual data on prey lengths in sea lion diets and encourages examination of a seasonal model. Estimating the growth curve (and the coefficient of variation of length-at-age) within the model may lead to improved fits to the sea lion length-frequency data.*
- *Consideration should be given to re-examining the hydroacoustic estimates of abundance. However, the SSC recognizes that this could be a substantial undertaking.*
- *Consideration should be given to developing a prior distribution for the depletion of the stock at the start of 1950. One way to do this would be to compute the distribution of spawning biomass as a fraction of  $B_0$  given assumed values for  $\sigma_R$  and  $M$ .*

Blue Rockfish

Dr. Owen Hamel presented the draft Blue Rockfish STAR Panel report and Dr. Alec MacCall spoke to the STAT’s response to the Panel report. The blue rockfish assessment was not completed during the Panel meeting (May 21-25th). Initially, the STAT presented two commonly-used stock assessment models (SS2 and A Stock Production Model Incorporating Covariates [ASPIC]). Due to

several implementation problems with the SS2 model, the STAT preferred the ASPIC model. However, the STAR Panel did not consider the ASPIC-based assessment results adequate to support Council management decisions.

This STAR Panel reviewed three stock assessments (blue rockfish; black rockfish – south; and black rockfish – north). There was not sufficient time during the Panel meeting to work through the blue rockfish modeling issues and reach consensus. Dr. MacCall indicated that the STAT may be able to improve the ASPIC-based assessment over the next few months. The SSC supports the ASPIC work and encourages the STAT to also explore other models that may be able to utilize all of the available data, e.g. SS2 or a simple delay-difference model. If this is possible, the SSC recommends that a revised blue rockfish assessment be taken up at the Mop-Up STAR in early October.

#### Black Rockfish -Southern Stock

Dr. Owen Hamel briefed the SSC on the recently completed STAR Panel review of the black rockfish assessment (May 21-25th). The Panel and the STAT were able to complete their work on the northern stock of black rockfish. For the southern stock, however, several important issues were not resolved. In the latter case, the Panel and the STAT concurred that the problems could be worked out over the next few months, and that a revised assessment could be tabled at the Mop-Up STAR in early October. The SSC concurs and recommends that black rockfish (southern stock) be taken up by the Mop-Up Panel.

#### *Council Administrative Matters*

### 3. Recreational Fishery Information Network Data and Sampling Refinements

The Scientific and Statistical Committee (SSC) discussed several issues related to the quality and accessibility of RecFIN data, as well as RecFIN proposals to change discarded fish procedures, average weight computation, and management by numbers. Mr. Russell Porter (RecFIN/PSMFC) attended the session in order to answer questions and provide clarifications.

The SSC recognizes the important role RecFIN is designed to play in terms of providing a centralized repository of recreational data, coordination among the states, and the development of recreational fishery statistics. This role is very important since RecFIN data is intended for use in stock assessments, by the Groundfish Management Team (GMT), and for regulatory analysis and decisions. The SSC identified several areas where RecFIN has not been able to fully achieve these objectives.

RecFIN is not currently serving its role as a central repository of recreational catch and effort data. The data on the RecFIN site is often not complete or up to date, and may be different than data available from the states. As a result, stock assessors and managers commonly use state data, or a mixture of state and RecFIN data. The choice of which data to use rests upon the individual user which can lead to inconsistent data use and may affect the outcomes of analyzes. The SSC, therefore, recommends that stock assessors, analysts, and managers consult with the individual states when they obtain data from the RecFIN website until data coordination between the states and RecFIN is resolved.

More documentation of RecFIN data is necessary, especially documentation of historical changes in the data collection programs. This is necessary for data users to understand the sources of the data, and when data sources or methods have changed. RecFIN has recently implemented a procedure where each state and RecFIN must notify the RecFIN Technical Committee when any changes are made to the programs that would affect fishery statistics. The RecFIN Technical Committee would then need to agree to these changes. The changes will then be published on the RecFIN website. This is a very good idea as it will provide a way for data users to track changes over time. It is recommended that all historical changes be clearly documented and easily available to data users. In addition, there are some instances where information from the states and RecFIN do not agree and changes have not been made to bring them into alignment. There does not appear to be an accepted procedure to determine which data is considered the best-available in these circumstances. This issue should be addressed.

The RecFIN website for data queries needs to be thoroughly updated and revised. The current interface is difficult to use, does not provide adequate error or warning messages, and may lead to inappropriate uses of extracted data. The website should also be enhanced to include more detailed effort data and raw data that stock assessors can use for the estimation of catch per unit of effort statistics. RecFIN established a Database Subcommittee to look at some of these issues; however additional resources and expertise are needed for this to be effective.

With regards to the proposed change in discarded fish recording, and the pooling rules to assign average weight; any changes that promote more consistency across states is encouraged. Also, the use of management by number of fish in the recreational groundfish fisheries will not affect how stock assessments are conducted.

#### Role of the SSC versus RecFIN Technical Committee

It is not clear how the SSC can best interact with the RecFIN Technical Committee. Additional consideration of how these two bodies can interact effectively is needed.

#### ***Groundfish Management, continued***

##### 9. Amendment 20: Trawl Rationalization Alternatives (Trawl Individual Quotas and Cooperatives)

The Scientific and Statistical Committee (SSC) met with Mr. Merrick Burden to discuss various issues associated with the trawl rationalization alternatives. The SSC comments regarding the current analysis are as follows:

- One option being considered is a carryover allowance that would allow surplus quota pounds to be carried over from one year to the next. From a biological perspective, it may be desirable to consider ways to reduce the effect of such allowances on stocks that are declining. The Groundfish Management Team suggestion regarding adjustment of quota pound surpluses in proportion to changes in the trawl allocation (Agenda Item E.9.a, Attachment 2, p. 31, footnote r) would be one way to address this issue.

- The graphs in Agenda Item E.9.a, Attachments 3 and 4 depict revenue associated with initial allocations of quota pounds to individual permit holders relative to their 2006 revenue. The SSC recommends that the analysis be extended to include several recent years (e.g., 2004-2006) to determine the extent to which annual revenue variability affects the outcome of the analysis.

The SSC Economics Subcommittee has agreed to meet with Mr. Burden and other analysts on Sunday, September 9 for a more comprehensive review of methodologies being used to evaluate the rationalization program.

### ***Council Administrative Matters, continued***

5. Magnuson-Stevens Act Reauthorization Implementation (This agenda item was postponed until the September 2007 Council meeting.)

The Scientific and Statistical Committee (SSC) noted that the “Pacific Whiting Act of 2006” (Agenda Item B.5.a, Attachment 4, Section 604) calls for the appointment of two U.S.A. scientific experts to the whiting “Scientific Review Group.” The SSC has considerable experience with whiting assessment and management issues. The Council may wish to nominate a member of its SSC to serve as one of the U.S.A. members of the Scientific Review Group.

### ***SSC Administrative Matters, continued***

7. Planning of Remaining 2007 SSC Meetings

*The SSC discussed SSC participation at the June 27-28, 2007 workshop on Pacific Halibut assessment methodology hosted by the International Pacific Halibut Commission. Dr. Tom Helser and Mr. Tom Jagielo agreed to attend the workshop.*

*The SSC discussed preliminary plans for the next version of the Research and Data Needs document and discussed what could be done by the September 2007 meeting. Subcommittee Chairs agreed to review the last version and consider improvements to their respective sections and to review potential new topics. Mr. Burner agreed to develop an initial template for the document which brings more consistency between the various sections of the document.*

### **Public Comment**

None.

**Adjournment** – The SSC adjourned at approximately 1 p.m., Wednesday, June 13, 2007.

## SSC Subcommittee Assignments, June 2007

Salmon	Groundfish	CPS	HMS	Economic	Ecosystem-Based Management
<b>Pete Lawson</b>	<b>Martin Dorn</b>	<b>Steve Ralston</b>	<b>Ray Conser</b>	<b>Cindy Thomson</b>	<b>Steve Berkeley</b>
Robert Conrad	Steve Berkeley	Tom Barnes	Tom Barnes	Todd Lee	Tom Barnes
Owen Hamel	Ray Conser	Ray Conser	Steve Berkeley	David Sampson	Martin Dorn
David Sampson	Owen Hamel	Tom Jagielo	Robert Conrad		Tom Jagielo
	Tom Helser	Tom Helser	André Punt		Pete Lawson
	Tom Jagielo	André Punt			Todd Lee
	André Punt				André Punt
	Steve Ralston				Steve Ralston
	David Sampson				Cindy Thomson

**Bold** denotes Subcommittee Chairperson

PFMC  
08/22/07