

## **Gulf of Alaska Plan Team Minutes**

The meeting of the Gulf of Alaska groundfish Plan Team convened on November 13<sup>th</sup> at 1pm at the Alaska Fishery Science Center, Seattle, WA.

Members of the GOA plan team in attendance included:

Jim Ianelli	AFSC REFM (GOA co-chair)
Diana Stram	NPFMC (GOA co-chair)
Sandra Lowe	AFSC REFM
Jeff Fujioka	AFSC ABL
Jon Heifetz	AFSC ABL
Robert Foy	AFSC Kodiak
Nick Sagalkin	ADF&G
Cleo Brylinsky	ADF&G
Tom Pearson	NMFS AKRO
Sarah Gaichas	AFSC REFM
Steve Hare	IPHC
Kathy Kuletz	USFWS

Ward Testa (NMML) and Ken Goldman (ADF&G) were unable to attend. Approximately 15 State and agency staff and members of the public also attended. The revised agenda for the meeting is contained in the Joint Plan Team minutes.

### **Sharks**

Jon Heifetz reviewed the summary for the shark assessment. The Team discussed the justification for the use of maximum incidental catch (as recommended by the assessment author last year) as opposed to the use of average catch for Tier 6 calculations. Tom Pearson noted that it was based on the fact that there is no history of a directed fishery, thus all catch is incidental and the use of average incidental catch would be inappropriate.

The Team noted that the SSC decided that biomass estimates for Bering Sea sharks are not reliable thus Tier 5 was unacceptable. However, the team discussed that dogfish, which are not present in the Bering Sea but are more abundant in the Gulf, are more likely to have adequate survey biomass estimates than other shark species. Not all Team members agreed that Tier 6 should be based on the maximum incidental catch for sharks and not on the average as it is more appropriate and seems acceptable relative to current knowledge on the different life histories. Fisheries most likely impacted by a low Tier 6 based ABC would be sablefish hook and line which catches dogfish as bycatch. Julie Bonney asked if there was any information on the incidental catch of sharks in the sablefish IFQ fishery, or if any catch information from the halibut fishery is included. If these data are missing then true incidental catch would be higher as only landed catch is recorded. The Team requested that for the analysis of "other species" category that the Council is undertaking ABC's based on Tier 6 using both average catch and maximum average catch be evaluated.

The Team requested an examination of dogfish assessed as a Tier 5 species separate from the other shark species in the complex but concurs with the Tier 6 (maximum historical catch) recommendation at this time for the entire complex. The Team reiterates comments from November 2006. The Team recommends both ABC approaches be presented for analytical purposes.

*November 2007*

**Octopus:**

Liz Connors provided a summary of the octopus assessment. She noted that consistent with discussions last year, the average Tier 6 approach appears to be too conservative for some species, e.g., octopus and squid. Using Tier 6, average catch for octopus would have constrained the pot cod fishery since the estimated Tier 6 OFL would have been exceeded in a number of years. The author encouraged splitting out and monitoring octopus outside of the complex, but noted they may never be appropriately managed within the present Tier system and the use of trawl surveys.

The Team requested clarification that observed octopus caught off Kodiak tended to be smaller and in poorer condition. The author noted that these octopus were observed to be smaller, thinner and with more lesions than octopus in the Bering Sea. These octopus were all from pot fishing boats. These observations may indicate diet-related issues.

The team discussed to what extent there is an interest in commercial fishing for octopus. Nick Sagalkin noted that there have been some inquiries in getting a commissioner's permit. Liz commented that it would be useful to have some experimental fishery on octopus in order to collect data. Tom Pearson noted that NMFS also received inquiries about directed fishing for squid or octopus. The Plan Team supports the use of an experimental fishery for octopus in order to collect additional data on this species. The Team refers back to comments expressed in the November 2006 GOA plan Team Minutes regarding alternative management options and approaches for this and other applicable species.

**Squid:**

Olav Ormseth presented an overview of the squid assessment. Historical catches (or records thereof) are very low, thus Tier 6 calculations are problematic. Two approaches are presented in the assessment which includes and excludes the 2006 high catch level; results showed a profound effect from the addition of this one year of data.

Using Tier 5 for squid was problematic due to the lack of reliable *M* estimates. Alternative assumptions for *M* were presented. Option 2 incorporated a decay function for the OFL calculation. Team members questioned the timing of the decay function. The author indicated that relative timing for this is not well known, but this approach would account for the high turnover in the species. Two alternatives were also included for survey biomass estimates.

The Team discussed the high squid biomass from trawl survey in 2007 as compared with the historic high 2006 fishery catch levels. The Team discussed the need for better information on squid lifespan and mortality. The Team discussed the possibility of moving squid into the forage fish category. Julie Bonney noted that this could pose a problem for the pollock fishery with the MRA for the forage fish and the possibility of running into high catches as with 2006 and thereby exceeding this MRA in that fishery. The Team noted that it would be possible to adjust the MRA in that case and that consideration should be given to incorporation of squid into the forage fish category.

**Forage Fish**

Olav Ormseth presented an overview of the executive summary for forage fish. The assessment concentrated on capelin and eulachon this year. The Team discussed the wide range in capelin estimates presented which included the estimates of biomass from the trawl survey, EIT survey and the mass-balance model. The Team noted the wide range in these numbers and the need to figure out which is most representative of the actual biomass. For example, it is unclear whether the EIT survey adequately samples the GOA capelin population. Some ideas were discussed

including modifying the EIT survey to more effectively sample nearshore areas where there is additional capelin. It was commented that the best time and areas for acoustic capelin surveys would be between January-February in the inner bays of Kodiak. The current biomass estimates for capelin based on bottom-trawl surveys biomass are known to be biased low.

For eulachon, the surveys provide somewhat better estimates of overall biomass but the author still noted that this represents an underestimate. New to the assessment are some information compiling state harvests. Reported catch data reports may be unreliable. The author noted that there is some potential for increased examination of inshore runs as an index of eulachon biomass in the future. The Team suggested looking into the British Columbia fishery for eulachon and its influence on demand in Alaska.

The Team requested having an expanded assessment for species such as forage fish in off years in order for the Team to have greater time to review and discuss the information presented.

### **Sculpins**

Rebecca Reuter presented an overview of the executive summary for sculpins including updated catch and biomass estimates. The catch of sculpins is low compared to the recommended ABCs and OFLs. The authors still recommend Tier 5, but note that they are lacking life history information for GOA although some new data is available from the Bering Sea. Biomass estimates are considered reliable. The most prevalent bycatch species will have better observer-collected data this year. In the Bering Sea, as data improves, the authors are recommending that individual species be split out and separate Tier 5 specifications be computed (and summed) for ABCs and OFLs. The catch is monitored by individual species though fishery catches remain low. Natural mortality estimates are widely varying,  $M \sim 0.08$  to  $0.36$  by species thus use of an average rate seemed inappropriate given this variability. Some additional information came from age data (maximum age) as a result of an NPRB research project. Additional funding is needed for non-target species. ADF&G collected some GOA sculpin species and this will improve information for subsequent assessments.

### **Grenadiers**

Dave Clausen presented an overview of the grenadiers summary. He reiterated the fact that these are a non-specified species and have no associated management measures. These should be included in the future for specifications purposes in the FMP. Catch of grenadiers is predominantly giant grenadiers thus the author again recommends using giant grenadier as a proxy for the complex, noting that the other two grenadier species are only caught in the survey at deeper water stations.

This species is recommended for Tier 5 management given reliable biomass estimates for the GOA based on trawl survey estimates. The author recommends a natural mortality rate of 0.057 based upon Pacific grenadier. A maximum age of 58 years has been estimated from aging of grenadiers recently. Thus  $M = 0.074$  could be a more appropriate estimate. He noted that the recent ages have not been validated. A maturity study is on-going and information on size and age and female maturity may be available soon. This year the observer program is collecting additional information on giant grenadiers and length and sex information is forthcoming from this in addition to species composition. The author noted that estimates of catch in the halibut fishery for sharks and other species are still important. The Team reiterates previous comments regarding the need for additional data from this fishery.

The Team discussed the timing of the other species amendment process and the possibility of evaluating grenadiers separately for incorporation into the FMP as a managed species. The

Council may comment on this at its December meeting in conjunction with the report from the nontarget committee.

### **Flathead sole**

Buck Stockhausen presented the overview of the flathead sole assessment. Bycatch and discard information were summarized in the assessment. Arrowtooth flounder are caught primarily as bycatch in this fishery but are discarded. The Team suggested breaking out crab and salmon by species in future assessments to better evaluate prohibited species catch. Team members noted a steady decline for all prohibited species, but consistent trends amongst halibut, crab and salmon.

The author provided an overview of the assessment model. This is a straightforward update of the previous full assessment. Age 3+ biomass is starting to increase while spawning stock biomass remains stable. Spawning stock biomass is likely to increase in the near future as new year classes mature and increase the level of the spawning stock. A question was raised regarding the magnitude of estimated recruitment from 2006. The authors indicated that this is highly uncertain at this point and that the estimated is based on length data not survey data. Retrospective analyses comparing 2003 and 2005 assessments indicate consistency with the 2007 assessment results.

The author recommended using maximum permissible  $F_{ABC}$ . The Plan Team concurred with the author's 2008 and 2009 ABC and OFL recommendations. The apportionment is based on the percentage of survey biomass in each area from the most recent survey.

### **Rex Sole**

Buck Stockhausen presented the overview of the rex sole assessment. He noted that TACs are well below ABCs for this species, which is also limited by halibut bycatch. The survey indicates considerable biomass of rex sole in trawl exclusion zones in southeast Alaska out of the reach of the trawl fishery. Arrowtooth flounder is common in bycatch and not retained. The Team also suggested breaking out the prohibited species catch of crab and salmon by species in the next assessment. There is a substantial increase in crab bycatch in 2006. The other PSC also increased but was within the range of previous years.

The model represents a straightforward update of previous model assessment incorporating all new data as available. Additional age data are needed for this species and so that growth estimates can be used to refine the age-length matrix. Maturity and selectivity issues persist for this species (selectivity is for fish much older than the age at 50% maturity). Also, the estimates of survey and fishery selectivities differ substantially. It was noted that the "observed" ages are primarily from bycatch in other fisheries and may not reflect the pattern should a directed fishery develop.

Recruitment has been high from 2001-2003. Given the time series, it may be possible to estimate a stock recruitment relationship. Current model results were consistent with the 2005 assessment. Note that while the current model computer code was developed and customized for rex sole, the data have also been implemented in SS2 and still indicated similar issues with selectivity (therefore not a model based issue). Team members suggested the author try to acquire more recent age data from the recent surveys.

### ***ABC recommendations:***

Similar to 2005, the author recommended the use of the model to estimate current adult spawning biomass to apply in the Tier 5 ABC calculation. The Team concurred and believes that the model is tracking biomass better than the survey and therefore agrees with the author's recommended

approach. This species is up for MSC certification. The Team also recommended that authors address CIE review comments as applicable for this stock in the next assessment. The ABCs are apportioned by area based on the most recent survey. The team suggested further evaluation into the origin of the length data in the fishery by area. The author noted that additional explorations are planned for the coming year on this.

### **Deepwater flatfish (DWF)**

Buck Stockhausen presented the overview of the deep water flatfish assessment. Dover sole is the largest component of the complex, representing 99% of the catches in recent years. The balance is made up of limited catches of Greenland turbot and deep-sea sole. There are very limited catches of DWF in recent years. Julie Bonney commented that the Dover sole market is poor and that recent catches indicate limited directed fishing. The fleet prefers to reserve their halibut bycatch limits for other fisheries.

Survey biomass estimates of deep-sea sole and Greenland turbot remain low. Four alternative models for Dover sole were considered. Models varied by consideration of selectivity and survey types. Team members questioned the use of constant selectivity for the survey due to the depth-stratification and depth limits in some years. The author noted that he evaluated length composition by deepwater and shallow water component, and the deepwater component did not substantially change the length composition.

The author recommended the use of the base model with the understanding that it leads to a more conservative estimate of biomass than other alternative model configurations. ABC and OFL recommendations for Dover sole are based on Tier 3 recommendations with Tier 6 recommendations for Greenland turbot and deep-sea sole. Beth Stewart questioned to what extent the GOA Greenland turbot is assumed to be a spillover from the Bering Sea population. The author noted that it could be spillover but could also be in the natural part of its range as the species has an extended range. Beth commented that Dover sole is a valuable species and will be targeted when there is sufficient biomass to support a directed fishery, thus measures should be taken to anticipate when we might need to be more precautionary in anticipation of a directed fishery. Buck noted that Dover sole currently it is not being observed in the survey catches, thus it would be difficult to track anything other than an increase in fishery catches. The Team discussed the process for taking more precautionary measures and noted that this could be similar to the skate issue, in that if there was an increase in annual catches, we would expect a discussion of this in the assessment and there would likely be an immediate need to address this by management measures for conservation purposes.

The Team approved of the ABCs and OFLs for 2008 and 2009 as recommended by the author. The Team expressed appreciation for the added effort to improve the presentation of flatfish assessment results.

### **Arrowtooth flounder**

Jack Turnock presented an overview of the arrowtooth flounder assessment. The assessment indicated an increase in ABCs due to an updated age transition matrix. Recent retention has been close to 60%. The assessment uses a similar model formulation common to other flatfish models. Age length data have been added through 2005 and this has led to more information on growth differences between males and females. The survey biomass estimate of arrowtooth flounder increased slightly over the 2005 value. However, the level of mature biomass declined relative to the 2005 assessment due to lower estimated growth used in the model.

New information has been included on GOA arrowtooth diet. Pollock represents a proportion of arrowtooth diet and this coupled with the large number of arrowtooth, indicates that a significant level of pollock are estimated to be consumed by arrowtooth. Total natural mortality for arrowtooth was the same as in previous assessments but may change in the future based on new growth estimates.

The Team approved of the ABCs and OFLs recommended by the assessment authors.

### **Shallow water flatfish (SWF)**

Shallow water flatfish has been split out as a separate chapter this year. New biomass estimates for all species are available from the 2007 survey. Northern and southern rock sole are Tier 4 species and the remaining species are Tier 5. The Team discussed the authors' projection of biomass for 2009 and the need for consistency with other assessments. The Team noted that in comparison with other species in Tier 4, the methodology used for SWF projections may indicate a higher level of precision than would be expected. The author will update projections for consistency in this chapter prior to distribution to the Council next week.

The apportionment table was not provided in the assessment but was later calculated based on the most recent survey percentage by area consistent with all flatfish assessments. The author agreed to add a table to the assessment for this apportionment.

The Team approved of the ABCs and OFLs as recommended.

### **Pollock**

Martin Dorn presented the pollock assessment. The assessment model has not changed from last year but has been updated with new information. The author noted that catch has been below TAC in recent years with the fishery unable to catch the full quota, particularly in area 610. Bycatch in 2006 was comprised of ~9% of species other than pollock. The squid bycatch in 2006 was the highest on record. Flatfish can also comprise a high percentage of the bycatch partly due to the fact that arrowtooth forage in midwater, coupled with the fact that pollock trawling in the GOA can be both pelagic and bottom trawl. PSC bycatch was summarized in the assessment this year. Notably Chinook salmon bycatch peaked in 2005 and Tanner crab was very high in 2006. Members of the public commented that some of this may be an artifact of expansion on the non-observed fleet. The Team discussed the potential problems with RO PSC bycatch estimates and that their validity and spatial nature should be evaluated. This could be particularly important for evaluating Tanner crab bycatch in 2006

The Team discussed the data presented on catch at age by area and season in 2006, noting that there were fewer length frequency samples taken in Chirikof than ages. The author agreed that this seemed anomalous and will investigate this. He noted that sample sizes have declined in recent years.

The Team discussed the acoustic results from Shelikof Strait in 2007 whereby the acoustic survey estimate was low and the total estimate the lowest in the time series. There has been a lack of juvenile pollock in Shelikof Strait in recent years. The Shumagin estimate was also very low in 2007, and there is no evidence of a trend in Chirikof. While only the Shelikof Strait acoustic data are used in the model, the other data are important for the allocation by area. Mike Guttormsen noted that timing-wise Sanak was surveyed post-spawning but in all other areas the timing of the survey has tended to be representative of pre-spawning. He noted that all indicators have declined substantially from last year with Shelikof and Shumagin at new lows. Beth Stewart

commented that the fishery in 610 found it very difficult to find fish in most seasons, with some seasons finding a mixture of only very small and very large fish.

Team members questioned the market for catch of smaller fish (e.g. 2 year olds), noting that there was some indication that these are used for bait. Catch of two year olds in Bering Sea are rare, especially since 1999 (post AFA). Members of the public commented that there is a limited market for 2 year olds, hence the fishery tries to avoid them but this is not always possible.

Size composition data from the Shumagins indicated a lack of 2 year olds, although Mike noted that the acoustic survey did find some in that region. The team discussed the relative spatial overlap between the ADF&G survey and the NMFS survey noting that ADF&G surveys further up into bays than NMFS.

The Team discussed the use of annual estimates versus long term estimates of spawning biomass and the utility of adjusting annually noting that if the stock were to move to Tier 1 annually adjusting spawning biomass would be necessary.

The Team reviewed the selectivity parameterization and the conservative impact to the model, such as the tradeoffs between a functional form of selectivity (dome shaped) with fixed Q. The Team suggested that next year the author investigate the use of an asymptotic survey selectivity with a freely estimated Q.

The Team reviewed the retrospective patterns on spawning biomass and discussed the difficulty in estimating relative year class size and impacts on projections. The author noted that recent strong year classes tend not to be utilized in the ABC projection due to large uncertainty. This is problematic in deciding on a more consistent approach to estimating larger year classes.

The short-term projection is for a continued decline in stock abundance. However, the overall medium-term projection is for improvement given indications of abundant juvenile pollock. The Team discussed the previously overly optimistic outlook for 2008 and the resulting estimated ABC compared to the current more conservative estimate for 2008. The Team notes that specifications from last year opens the 2008 A-season for this fishery. The Team suggested an MSE for this stock to project the relative impact of additional precaution in the assessment and ABC recommendations.

The author reviewed the southeast Alaska pollock data. Larger fish were observed this year based on the trawl survey. No fishery is possible in this area except with jig gear. The Team noted that it would be interesting to model this portion of the population given the lack of fishing.

***Allocation:***

An appendix is presented in the assessment for the allocation. The author noted that main change in the summer allocation this year is driven by dropping the 1999 survey from average and the proportional shift away from Shumagins.

Prince William Sound data is not yet available to update the assessment for this area. The Team held a discussion on the availability of this data in September and requested data which is available from the State to be incorporated into the assessment. The September GOA Plan Team minutes stated:

*The survey does not include PWS thus any contribution to the overall GOA pollock from this region are not assessed by the bottom trawl survey. The methodology for inclusion of PWS in the*

*assessment provides a compromise for how to incorporate dated ADF&G survey data in the assessment. The only survey data that has been made available to the assessment author thus far is from 1999. An expansion factor of 1% is applied to all the NMFS surveys to account for this biomass contribution from PWS. For management purposes, the resulting ABC for central and western GOA is then reduced by the guideline harvest level for PWS. Previous attempts to account for this biomass have been somewhat ad hoc and there has been only limited additional effort by ADF&G to survey this area. Comparisons of ADF&G and NMFS survey gear have indicated that the NMFS net is more effective on similar bottom areas. Thus it is likely that the ADF&G estimate of biomass is biased low. Other considerations are that the PWS fishery has historically been a spawning fishery at the entrance to PWS and it is not clear if the fish being caught are coming from PWS or from other areas of the gulf. Some genetic work has been done exploring the extent to which the spawning populations are distinct between the two regions. Results indicate some evidence of stock structure, but overall results are inconclusive.*

Based on discussion at that time, the Team requested that these State data be made available to the author in order to provide updated information on the relative contribution from the PWS stock. The Team reiterates this request from September 2007 and asks that the data be made available to the assessment author in a timely manner for incorporation into the assessment next year in lieu of this year.

***ABC recommendations:***

The author reviewed the indications of stock status and reiterated the necessity of being conservative with ABC recommendations for this stock. He summarized the following indications of stock status: low acoustic survey results in 2007, record low total estimated biomass in Shelikof Strait, variable survey estimates and trends, projections that spawning biomass will be at a minimum in 2008 and will increase in subsequent years, evidence that the three years of year classes 2004-2006 may be near average or average in abundance, and the pattern since 1999 that estimated stock size is higher in the final year than estimates for same year in subsequent assessments.

The elements of risk aversion incorporated into the model are the following: fixed trawl survey catchability at 1, and applying a more conservative harvest rate than the maximum permissible  $F_{ABC}$ . The combination of these two factors reduces the recommended ABC to approximately 54% of model point estimate.

The Team agreed with the assessment author on the ABC and OFL recommendations for 2008 and 2009. The Team expressed concern about the possibility that despite being very conservative at the time, the results seems to be less conservative than intended in retrospect. The stock appears to indicate that it will increase in the near future. The Team discussed the projected increase in 2009 and the potential the increase will not be as high as projected.

Jon Warrenchuck commented on the recent high catches of eulachon in the fishery and requested comment to what extent this might represent a concern. The Team noted that the executive summary of the forage fish assessment evaluated state catches of eulachon and capelin. Additional stock identification work will ideally be forthcoming and more information may be available next year in an updated forage fish assessment. Martin noted that midwater tows in the EIT survey and the bycatch rate in that survey data could be used as a possible index of abundance. Mike Guttormsen commented that some catches in Shelikof indicated higher eulachon than pollock, and showed an increase in recent years. Bob Foy commented on some recent research from scientists in Canada indicating that an increase in eulachon abundance could be related to temperature changes in recent years, possibly causing a distributional change not an



actual increase in abundance. The Team noted that this should be explored more next year in the forage fish assessment.

### **Rockfish Assessments**

Dana Hanselman presented an overview of the general rockfish issues including similarities in model standardization, responses to CIE reviews and the rockfish pilot project.

Julie Bonney provided an overview of the rockfish pilot program given its first year of implementation. She reported on the percentage of CVs that have formed cooperatives as well as the employment statistics. The program appears to be having the intended impact on stability in the processing sector. The co-op contracts have additional rules that are being employed within and across co-ops setting standards for fishing practices designed to reduce bycatch of halibut. A higher percentage of the catch in this year was taken by pelagic gear given the flexibility afforded the fleet under this program. Greater use of pelagic gear decreased the mortality of halibut. No discards of CQ quotas are allowed at sea (100% retention) under this program. Jon Heifetz noted that for rockfish that are not part of the program but managed under MRAs (i.e. shortraker and rougheye) there has been a high amount of at sea discards, particularly for rougheye rockfish. Julie agreed that this is a technical problem with the program that may need to be addressed either by NMFS or the Council. Retention of these species is not allowed when vessels do dedicated sablefish trips; sablefish is not considered a basis species for retention. In the meantime the coops will try to address this within their individual allocations by having the appropriate CQ species mix on board to allow retention. Tom Pearson summarized the changes in both fishing practices as well as fishing areas as a result of the implementation of this program.

Julie also provided an overview of the first phase of an EFP employing electronic monitoring on CVs in the rockfish fishery. Dana requested clarification on why some dusky and northerns were not fully caught. Julie indicated that some of that is related to becoming more accustomed to the program and the difficulty of being weathered out of the fall fishery timing. She indicated that these problems will likely be sorted out better in the second year of the fishery with the fleet encouraged to catch those species earlier in the fishing year. Tom Pearson further commented that while in the past the TAC has been exceeded for several rockfish fisheries, this program has reduced the potential for exceeding the TAC. Some of the downfalls of this program include the cost of the observer requirements, and the vessel allocations based on the qualification period as established in the program. Some criticism still exists by Kodiak residences not involved in the fishery regarding rationalization as a fishery management regime. (Diana, note there was no fleet consolidation the first year 26 vessels in 2007 versus 25 in 2006). Nick Sagalkin noted that some additional issues exist whereby fishermen outside of the program are still being held to some of the program requirements. Currently the program has a fixed end date in 5 years (2011).

### **Pacific Ocean Perch**

Dana Hanselman presented the assessment for POP. The model has been updated with new data but retains the same model structure. He noted that the precision of biomass estimates from the survey has increased in recent years. More medium size catches of POP were spread across the GOA rather than relatively rare, but large survey catches.

The Team concurred with the assessment author on the recommended ABCs and OFLs for 2008 and 2009. For apportionments, the Team discussed the distributional shift eastward leading to a decline in the WGOA and relative increase in the CGOA and EGOA.

Dana summarized the data gaps and future research needs with an emphasis on habitat requirements for early life stages, trawlable vs untrawlable grounds, model assumptions (e.g.,

sample size weighting) and the catchability prior distribution. The Team discussed how to get around the trawlable vs untrawlable grounds issue, noting that the acoustic survey could assist in this. The Team encourages additional effort be expended on acoustic surveying for POP (and rockfish in general) in the GOA. Mark Zimmerman provided an update on his work with assimilating habitat data to synthesize for evaluating the trawlable and untrawlable areas in the GOA. The Team discussed the potential for this to be an increasingly important fishery in the GOA in the future.

### **Northern rockfish**

Dana Hanselman presented an overview of the northern rockfish assessment. The model was presented last year and has been updated with new data as available. The biomass estimate from the recent survey declined 37% from 2005. The precision of the survey biomass estimates continues to be poor for this species. Age compositions indicate that recruitment has been low and the fishery catches mainly older fish. The relative decline in projected spawning biomass for 2008 and 2009 leads to a decline in the projected ABC for this stock.

The apportionment calculation has been modified for all rockfish to now include the (previously excluded) 1-100 m depth strata. It was noted that historically, that depth strata was excluded based upon historic POP distribution when all rockfish were in the same complex for management. However, based on the distribution of northern rockfish, there is limited evidence to support continuing to exclude this depth strata. Based on the trawl survey, the northern rockfish in this stratum are about the same size as those in deeper stratum and thus should be considered part of the exploitable population. The new apportionment calculation leads to a greater apportionment for the WGOA. The weighting scheme 4:6:9 applies to the percentages. The Team discussed the rationale for weighting the percentages instead of the biomass noting that this was done rather ad hoc at the time and has been employed (on percentages ) ever since. The Team requests inclusion and a careful evaluation of the apportionment weighting (on biomass versus percentages) for next year's assessment. The Team concurred with the author's recommended ABC and OFLs for 2008 and 2009.

### **Rougheye rockfish**

Kalei Shotwell provided an overview of the rougheye rockfish assessment. She noted that there was a large increase in the trawl survey biomass estimate in 2007 from 2005. Four more years of survey age data were added to the model which increased the estimated recruitments. The addition of the new age data and a substantial increase in both surveys resulted in a 40% increase in estimated female spawning biomass and a 30% increase in the ABC for 2008. Information is included in the stock structure section of the assessment on the blackspotted rockfish because there are two species present in this complex, rougheye and blackspotted rockfish. At some trawl stations, both species are found in the same tow. There will be additional investigation done on life history characteristics of these two species and the potential for differential exploitation of each species. Some genetic sampling on the longline survey has been conducted to evaluate the distribution of the two species, but results are not yet available.

A sensitivity analysis on the use of data was included in last year's assessment and reevaluated in this assessment using new data from the 2007 model. Variance assumptions on the age/length composition data were also evaluated. Conclusions from this analysis were to consider increasing the weighting on the catch data index and to explore the model assumptions on age/length bins given that rougheye tend to be older than other rockfish and may be continuing to grow at the pooled age bin currently assumed.

The Team discussed the relative increase in ABC for this species but given the improved data in the model and indications of increased abundance from both the longline and trawl survey this ABC seems appropriate. The Team noted that the TAC was not caught last year. Catch in future years is also unlikely to reach the TAC. The Team discussed MRAs and that arbitrarily keeping the ABC lower may compel discards. Jon Heifetz mentioned that there is evidence that sablefish compete with rockfish in the longline survey thus the longline survey may not be as useful for those species as an index of abundance. The Team discussed that the trawl survey increased from 2005 as did the longline survey. The trends are still fairly flat however and the Team discussed to what degree there is confidence in this relative increase from the model. The Team discussed the fact that the overall biomass is considered to be higher (not in trend but overall from previous estimates as shown in figure 11-11). The author noted that the maturity information is likely to be revised based upon additional available maturity data.

The Team recognizes that there are two species and it would be important to evaluate if there is disproportionate catch of one of these species in relation to abundance as well as potentially different life history characteristics for each species which might necessitate different assessments and specifications for each species or some consideration of differing management by species.

The Team approved the author's recommended ABCs and OFLs for 2008 and 2009.

### **Pelagic Shelf Rockfish**

Kalei Shotwell presented the assessment for pelagic shelf rockfish. This complex includes dusky rockfish which has an age structured assessment (tier 3) while dark, widow and yellowtail are Tier 5 with specifications all summed for a single OFL and ABC. For dusky rockfish, the trawl survey estimates decreased slightly and did not show indications of recent recruitment. Spawning biomass decreased in 2008. However, the model estimated total biomass estimate is slowly increasing until current year. Martin Dorn suggested reevaluating the confidence intervals around the model mode. The ABC is a slight decrease from the 2005 estimate.

Dark rockfish will be moved to state management effective in 2009 thus it is currently included in PSR complex for this specifications process. Catch of PSR increased in the CGOA due to implementation of the pilot rockfish project. Julie Bonney commented that catchability in the survey might be particularly problematic for this species as the fleet observes a tendency for the fish to avoid the net. The Team discussed the potential of increased age collections for rockfish in the CGOA in response to the Rockfish Pilot Program. However, it was noted that increasing the number of rockfish ages available for use in stock assessments is restricted by the number that can be aged and not the number that are sampled. The Team notes that there are implications of having an increase in samples obtained in the CGOA in proportion to other areas, and the authors will investigate potential problems this may cause relevant to the fishery age compositions.

The Team approves the author's recommended ABCs and OFLs for 2008 and 2009.

### **Shortraker and other slope rockfish**

Kalei Shotwell presented the assessment for shortraker and other slope rockfish. She noted that survey age results are newly available for these species. Shortraker are currently a Tier 5 species but with additional age data available there is the potential for an age-structured model in the future. Julie Bonney commented that it is useful to include the 2006 catch by area for comparison against 2007 and the potential impacts of small apportionments by area. Catch in 2007 was greater than the TAC in the WGOA. The ABC in the WGOA is very small. The change in apportionment by area is due to the downweighting of the 2003 survey this year compared to

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previous years (due to relative weighting scheme for apportionment). The Team discussed the use of the relative weighting scheme used in apportionments but not employed in estimating the biomass where the last three surveys are utilized. The Team reiterates the request as noted previously to reevaluate the current use of the weighting scheme. The evaluation of the weighting scheme should be done for discussion at the plan team in 2008 (off-year). The Team approved the ABCs and OFLs for 2008 and 2009.

Other slope rockfish are Tier 5 species except sharpchin which is a Tier 4 species. New age data are available for multiple species. There is a slight increase in overall ABC for 2007. The Team notes a new mortality value used for silvergray rockfish due to a recent publication by Malecha et al. (2007). The Team approved the ABCs and OFLs for 2008 and 2009.

The Team discussed the present scheme of apportioning the OFL for POP by region, and the extent this is warranted. This originates from the rebuilding plan for POP and may no longer be necessary. TAC in EYAK/SEO is set to incidental catch levels. Silvergray rockfish is the only member of the complex with any potential for targeting and is located primarily in EGOA.

### **Demersal Shelf Rockfish (DSR)**

Cleo Brylinsky presented an overview of the demersal shelf rockfish assessment. New data included in the assessment include new density estimates for CSEO and new average weights for all four management areas in SEO. Exploitable biomass for 2008 decreased 6% from the 2006 estimate (based on the 2005 survey work). The Team discussed the averaging methods from all surveys in different years and questioned to what extent this could bias the results and mask a larger potential decline, particularly in light of the recent evidence of decline in one area. New average weights originate from the 2007 IPHC survey bycatch. Previously these average weights originated from the commercial fishery landings but in the absence of landed catch and a directed fishery, the data was collected from the IPHC. All landed DSR were considered (i.e. more than just the 20 hook protocol) and as a result average weight increased. As in years past, the ABC includes an additional 4% for the other rockfish species in the DSR assemblage. The author noted that in 2006, the BOF made an allocative decision to split the TAC 84/16 between commercial and sport fisheries respectively. Once a determination is made of the estimated incidental catch in other fisheries it will be determined whether or not a commercial fishery will occur.

The Team discussed the retention of DSR as incidental catch rather than bycatch. Full retention is required but there are anecdotal indications that some are being discarded. There are different regulations for the sportfish fishery versus the commercial fleet. The charter fleet must retain the first 3 DSR and then must release all subsequent DSR caught. Additional information has been provided by the sportfish managers in the assessment this year on retained and discarded yelloweye.

The author noted that east Yakutat will be next surveyed contingent upon funding. She noted that funding for the survey is unlikely next year. Additional emphasis needs to be placed on the estimation of rocky habitat. The Team discussed averaging or weighting surveys given indications of declines in recently surveyed regions. The Team discussed the potential ways to account for uncertainty in biomass estimates, noting that additional precaution is added by setting  $F=M$  given the vulnerability of the species to overfishing due to their longevity, late maturation and sedentary and habitat-specific residency. The Team is also concerned about the potential for under-reporting of catches. The survey index for this year has decreased. The Team noted that in the absence of additional survey information for the future the species would likely drop a tier level. The Team expressed concern about the potential lack of surveys for this stock. The Team

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discussed the potential with a very low TAC of not meeting incidental catch needs in the halibut fishery. The ABC and OFL for 2008 and 2009 were approved by the team.

### **Thornyhead rockfish**

Sandra Lowe presented the assessment for thornyhead rockfish. The assessment has been updated with new data. The assessment methodology was modified by using the most recent survey to calculate a Tier 5 ABC and OLF instead of the average of the two most recent surveys, given that the 2005 and 2007 surveys covered all depth and area strata. Previous to 2005, not all depth and area strata were covered in each survey therefore an average had been used.

There was a 10% decline in the overall GOA 2007 trawl survey biomass estimate and the decline was greatest in the western GOA. The 2008 ABC recommendation represents a 13% decrease relative to the 2007 ABC/TAC due to the modification of using only the most recent survey (rather than the average) coupled with the decline in the survey biomass estimate.

The Team discussed the reasons for the substantial decline in the western GOA as compared to other areas. Chris Lunsford noted the longline survey RPW for sablefish in the WGOA has also declined. This provides additional support for observed decline suggesting that the decline in the WGOA is not simply the result of a sampling artifact. The Team questioned to what extent the fishery catch by area has changed over this time period and recommends further examination next year into the catch by area of this species given that it is a highly valuable incidental catch in other fisheries. The Team notes that proportionally relative to the ABC, the catch in the WGOA is highest. The Team notes that the ABC in the WGOA would be lower than last years catch. Tom Pearson commented that people are topping off on sablefish in the WGOA rockfish fisheries.

The Team approved the author's recommendation to use the most recent survey for both the apportionment and biomass estimation and approved the author's 2008 and 2009 recommended ABCs and OFLs.

Julie Bonney requested additional rationale for use of only one survey for biomass and apportionment. Sandra Lowe answered that CVs are very low for this species and thus averaging over multiple surveys to account for variability is unnecessary. Thornyhead are also considered to be relatively stationary. Age data for thornyhead are unavailable but a study with researchers at Oregon State University has begun to help to develop otolith age-determination methods for shortspine thornyheads.

### **Skates**

Olav Ormseth presented the skate assessment. The 2007 survey biomass estimate was about 6,000 t lower than the 2005 estimate. The most noticeable decline was in longnose skates. There was an increase in the overall biomass of Bathyraja skates. Similar trends have been noticed in the Atlantic coast where large skates declined and smaller skate species increased when skates were targeted by fisheries. The bulk of the skate biomass is in the CGOA for all species. The directed fishery remains closed due to high incidental catch and poor catch data coupled with concerns about underestimating the true bycatch in the halibut fishery.

The Team discussed the estimation for skate bycatch in halibut fishery. The estimate reported in the SAFE was calculated by applying the catch rate of skates in the IPHC halibut survey to the number of hooks fished in the IFQ halibut fishery. The IPHC does not use this approach, as they believe skate bycatch is likely to be less in the directed halibut fishery. Therefore, the authors suggested that the estimate reported in the SAFE report be treated as a potential upper bound for

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halibut fishery catch of skates. The authors and the Team agreed that improving the estimation of halibut fishery bycatch is a major concern for GOA skates. An additional problem is the lack of data regarding the species composition of discarded skates.

The Team encourages an EFP with observers or video monitoring be undertaken. Members of the public indicated that a Kodiak-based longline fleet is interested in fishing for skates and most of this fleet holds halibut IFQ. This could provide a means to obtain information on the bycatch of skates in the halibut fishery as well as the halibut bycatch in a directed skate fishery. Ex-vessel value continues to increase for skates thus there may be growing interest in targeting skates.

Area specific OFLs are recommended by the authors in the assessment given the potential for localized depletion. As in previous years, the Team disagreed with area-specific OFLs and instead recommends gulfwide OFLs by species with area-specific ABCs. The Team still expresses concern that the OFLs are less than the estimated bycatch in the halibut fishery.

The Team expressed concerns regarding indication of declining biomass in the two largest species based upon the two most recent surveys. The Team continues to be concerned about the estimated bycatch in the halibut fishery in comparison to the indication of declining biomass.

The author noted that age-data from the Bering Sea may be utilized for an age-structured assessment for big and longnose skates in the GOA next year. New natural mortality rates are anticipated to be included next year. The Team recommended that it would also be useful to track effort by various gear types over time.

Survey length data were discussed, and the Team requests including the sample sizes for each of these and actual number of fish measured (e.g., as in Figure 17-11). Longline survey information may also be available to include in the assessment model. Nick Sagalkin indicated that the State survey may also have information on skate abundance.

The authors also noted that fishery impacts on skate nursery areas have yet to be evaluated. There is limited information available on skate nursery areas in the GOA.

### **Atka mackerel**

Sandra Lowe presented the Atka mackerel assessment. The assessment includes updated data and an expanded ecosystem section. The Team approved the author's recommendation for Tier 6 calculated ABCs and OFLs for 2008 and 2009. The TAC was increased in 2007 to meet increased incidental catch needs. The concerns remain regarding the prevalence of a single year class in the population which is declining and the need for continued conservation. The Team notes that 1,500 t continues to meet incidental catch needs.

The Team noted that catch is currently coming from incidental catch and topping off in the rockfish fisheries. Julie Bonney commented that GOA CPs are the only ones that are interested in retaining Atka mackerel and a decrease in WGOA rockfish quotas will likely lead to declining incidental catch of Atka mackerel.

### **Pacific cod**

The Team received a brief summary of limited GOA Pacific cod model results on Thursday evening. The Team recognized the extenuating circumstances under which the assessment was prepared and appreciates the efforts of the author to provide the Team some limited modeling results. However the Team expressed concern about the time available to review this assessment

and the lack of a full assessment. As such, the Team requests a protocol be followed for all future assessments:

*The Team is of the opinion that there must be adequate review time allotted for reviewing assessments in advance of specifications discussions at the Plan Team meeting. The timing of this should be such that assessments are provided for review no later than the Friday before the start of the November plan team meeting. The Team does not believe that any assessment should be considered in the Council process that does not include adequate initial review by the Plan Team. Further, any assessment that goes directly to the SSC would set an inappropriate precedent which does not comply with the review process that has been codified and forms the basis of informed decision-making by the North Pacific Fishery Management Council.*

Grant Thompson presented the summary assessment for Pacific cod in the GOA and noted that the approach was to use the preferred model from the BSAI cod assessment for the GOA rather than attempting a broader range of model configurations given timing constraints.

Grant summarized changes to the model and where these differed from the BSAI model. Changes from the BSAI model include the following: fixed  $M$  at 0.38, fixed  $Q$  at 0.92, trawl survey selectivity based on length rather than age and constrained to be asymptotic, all fishery selectivities are unconstrained, and mean length-at-age data are included. The team noted that retaining selectivity based on length not age was similar in structure to last year's GOA assessment. Likewise the fishery selectivities were unconstrained in the previous year's model as well. A major change from the structure of last year is the use of a 6 parameter double logistic selectivity function rather than a four parameter double normal, and the use of annual time varying survey selectivity but no time varying fishery selectivity. The use of time varying survey selectivity is based on the assumption that smaller fish are shifting over time to different areas. The starting year in the model has been moved to begin in 1977 and there were several additional changes to the SS2 model that the Plan Team was unable to fully review. Changes in the assessment are listed by comparison with the preferred BSAI model.

The model-estimated ABC is down 33% from last year and is approximately equal to this year's total catch. The size composition data weighting scheme utilized in the Bering Sea assessment was not utilized in the GOA. Some problems with using this weighting scheme were attributed to the combination of State pot data and port sampling information as compared with federal catches, therefore, for size data a similar methodology to last year was employed and for age data a modified approach to scaling the data was utilized.

The Team questioned the re-estimated weight-at-length in last year's assessment which was not included this year, and requested clarification on why the data are restricted to survey length-weight and do not include the observer length-weight data as well. The author noted that this was due to the objective last year of achieving consistency and an examination of this issue could be recommended for the next assessment. The Team suggested including a table of sample sizes for the next assessment and that other sources of information on length-weight be included, especially for fisheries data that may apply during seasons other than the summer when survey data are collected. The Team discussed what the most appropriate weight-length relationship is for use in the assessment. It was noted that for Bering Sea pollock there is approximately a 10% difference in the length relationship over the year and this could be even more variable for cod. Martin Dorn noted that he did not think that the SS2 model would allow for seasonal length-weight relationship changes. The Team discussed to what extent there may be a strong seasonal relationship. The Plan Team recommends that the author look at variability in length-weight data, specifically intra-annual variability (previously looked at inter-annual variability) for the subsequent assessment. The Team also discussed the selectivity at length and seasonal

differences. The Team requested that error bars be included in the length at age figure to indicate the low number of samples and the impact on results particularly notable at higher ages.

The Team discussed the trends in survey biomass with age 3+ and female spawning biomass. Time series of recruitment indicates that 2005 and 2006 year classes in the GOA may be average and above average respectively (with large error bars as indicated). The 2006 data are from the 2007 survey data. This is in contrast to estimates of recruitment in the Bering Sea which indicates that variability in recruitment in the GOA is much less than the variability in recruitment in the Bering Sea.

The Team discussed the phase plane diagram and the implication of the control rule in 2008 whereby the model biomass is now below the  $B_{40\%}$  target biomass and subject to the kink in the control rule, whereas, in the previous assessments the biomass was well above  $B_{40\%}$ . The Team noted the fact that past year's model results indicated only a slight decrease from peak abundance in 1990 in contrast to a more pronounced decrease indicated in this year's model.

The Team also expressed concerns with use of the model results given the multitude of changes in this year's model as compared to last year, noting that it would be useful to compare against a similar model configuration from last year. The Team expressed concerns about the limited review time period for model changes and the protocol for reviewing extensive changes in model methodology in September prior to adoption in the current assessment year.

Therefore, the Team felt that it was premature to accept the model under these circumstances given the limited review time and lack of a full assessment. The Team notes that extensive review in an open forum has been provided via the various assessment workshops. However, given that these were attended by only a few Plan Team members, these reviews were considered inadequate for the current assessment.

Members of the public expressed concern about the Pacific cod fishery in the GOA. They noted that SSL RPAs have affected a large change on the age and size of cod in the fishery given that a significant area is no longer fished that used to be fished on an annual basis prior to 2000. The fishery has been aggregated into smaller areas and removals are now from site specific spots rather than larger geographic areas. They noted that the survey however still samples across the broad geographic area thus there is a higher potential for localized depletion in the areas remaining to the fishery. The Team notes that previous models have had time-varying changes in fishery selectivity and this has been removed in this model. Previous configurations had a different selectivity from 2000-present to account for the modification to fishery selectivity as a result of SSL RPAs.

***ABC deliberations:***

The Team debated options for establishing ABCs for 2008 and 2009 ranging from accepting that the stock is in Tier 3b for assessment results but applying a Tier 5 calculation for specifications purposes, to a possible Tier 4 estimation, to rolling over last year's ABC and OFL or using results from last year's model for ABC specifications in this year. The Team noted that in last year's assessment, the 2008 max permissible was 71,361 which assumed a catch of 68,859 which is higher than the actual catch in 2007. The team noted that using this projection would ignore the 2007 survey data (which was about 20% below the 2005 value), and the model assumed catchability change (from 1.0 to 0.92).

In considering an ABC recommendation, the Team discussed that the survey biomass estimate declined, and that recruitment is low but with some indication of improvement. Sarah Gaichas



noted that in the ecosystem model she has unable to reconcile the Pacific cod model estimates of biomass with the mass balance on cod predation and thus to balance the model has had to utilize the survey estimates of biomass. Thus, the fact that the new model results better track the survey is preferable and a possible indication that the current model might better represent the actual biomass.

Grant provided an estimate of last years 2005 estimated spawning biomass scaled to the relative decline in the survey biomass (2005: 2007) in order to give some indication of to what extent there is a true decline in spawning biomass and whether the stock is below  $B_{40\%}$ . The subsequent value for estimated spawning biomass (89,000 t) is still below  $B_{40\%}$ . The team noted that unless there is some indication of projected increase, this should give some indication of stock status.

The Team recommends an ABC and OFL based upon a Tier 5 calculation using the survey biomass estimate and an  $M$  of 0.38 which was noted to be externally estimated utilizing Jensen's rule and Stark's new published maturity schedule information. This calculation leads to a 2008 (and 2009) ABC and OFL of 66,493 t and 88,660 t respectively. The updated apportionment incorporating the 2007 survey biomass information is 39% WGOA, 57% CGOA and EGOA 4%. Apportionment has been based on the unweighted average of the last three surveys. The Team discussed to what extent there should be some weighting involved in recent surveys.

The Team requests that prioritization be given to the GOA assessment next year.

The Team concluded their assessment reviews at 12:15pm and adjourned to the work session portion of the meeting to compile the remaining sections of the SAFE report until 5:00pm.