

## Joint BSAI/GOA Plan Team Minutes

The meeting of the Bering Sea and Aleutian Islands and Gulf of Alaska groundfish Plan Teams convened on September 19th at 1pm at the Alaska Fishery Science Center, Seattle, WA.

Members of the Plan Teams in attendance included:

Loh-Lee Low	AFSC REFM(BSAI chair)	Jim Ianelli	AFSC REFM (GOA co-chair)
Mike Sigler	AFSC (BSAI vice chair)	Diana Stram	NPFMC (GOA co-chair)
Kerim Aydin	AFSC REFM	Sandra Lowe	AFSC REFM
David Carlile	ADF&G	Jeff Fujioka	AFSC ABL
Bill Clark	IPHC	Jon Heifetz	AFSC ABL
Jane DiCosimo	NPFMC	Robert Foy	UAF
Theresa Tsou	WDFW	Nick Sagalkin	ADF&G
Brenda Norcross	UAF	Tory O'Connell	ADF&G
Andy Smoker	NMFS AKRO	Tom Pearson	NMFS AKRO
Grant Thompson	AFSC REFM	Sarah Gaichas	AFSC REFM
Ivan Vining	ADF&G	Bill Clark	IPHC
Dan Lew	AFSC	Theresa Tsou	WDFW
Kathy Kuletz	USFWS	Ward Testa	NMML
Lowell Fritz	NMML	Kathy Kuletz	USFWS

Ken Goldman (ADF&G, member of the GOA Team) was unable to attend but participated by telephone.

Members of the public and state and agency staff present included: Mike Szymanski, Tom Casey, Beth Matta(AFSC), Phil Rigby (AFSC/ABL), Cindy Tribuzio (UAF), Sara Miller (UAF), Lisa Thompson (AFSC), Jennifer Ferdinand (AFSC), Mark Wilkins (AFSC/RACE), Brent Paine, Steve Davis (NMFS AKR), Liz Connors (AFSC), Mark Zimmerman (AFSC), Paul Spencer (AFSC), Mark Amend (AFSC), Russ Nelson (AFSC), Martin Dorn(AFSC), Cleo Brylinsky (ADF&G), Farron Wallace (WDFW), Dave Benson, Ed Richardson, Julie Bonney, Gary Stauffer, Lisa Butzner, Teresa A'mar(AFSC), Jennifer Boldt (AFSC), Greer Cowan, Bob Lauth (AFSC), Peggy Murphy, Jon Warrenchuk, Dave Clausen (AFSC), Thorn Smith, Steve Alger, Buck Stockhausen (AFSC), Chris Rooper (AFSC/RACE), Tom Wilderbuer (AFSC), Donna Parker, Chris Wilson (AFSC/RACE), Mike Guttormsen (AFSC/RACE).

### Agenda

A revised agenda (attached) was approved for the meeting.

### Summary of Council activities

Jane DiCosimo provided a written summary of current Council actions. The Teams noted that those management issues of particular relevance to the Plan Teams are on the joint Team agenda. These include groundfish specifications, the TAC EIS, rockfish management, other species management, and non-target species management. Team comments on those issues are addressed below.

### Research priorities

Jane DiCosimo provided the research priorities that were adopted by the Council in April 2006. Because these were recently adopted, the Teams will provide recommendations to revise research priorities to the Council in September 2007.

### State water management summary

Tory O'Connell summarized State water fishery actions in Southeast Alaska. The Board of Fisheries allocated the Southeast demersal shelf rockfish fisheries between commercial (84%) and sport (16%)

fisheries. The sport allocation was based on more than the five year average sport catch. The State also imposed new guided sport logbook reporting requirements for yelloweye rockfish, and new bag limits and retention requirements. No directed commercial fishery occurred for yelloweye rockfish in 2006. Also, ADF&G is investigating alternative approaches to estimate unreported mortality associated with commercial halibut fishing.

Ken Goldman summarized Central region management changes to state water fisheries. A commissioner's permit was approved for the lower Cook Inlet (LCI) to fish for spiny dogfish in 2006. The permit allowed one vessel to longline for spiny dogfish with a limit of 100,000 to 110,000 lb. A single landing occurred in mid-August in Homer, AK (harvest is confidential). This fishery has been available to fishermen since 2005, however, this was the first permit requested and issued.

PROPOSAL 6: 5 AAC 28.XXX. State waters pollock fishery, Cook Inlet Area, was submitted by ADF&G. The proposal requests the Board to establish a walleye pollock fishery in state waters located between 149° and 150° W long. and amend current state water closures to include only those waters within 3 nm of three Steller sea lion (SSL) haul outs. The proposal presents two options: Option A, a state waters season with 1,500 mt allowable harvest, a season opening date to coincide with the federal season and an emergency order closure, and Option B, a parallel season with no harvest limits. Elements common to both options include a commissioner's permit requirement, 300,000 lb daily trip limits and tender restrictions, 100% observer coverage, and a vessel monitoring system requirement. This proposal will be deliberated at the Board meeting scheduled for October 14 - 15, 2006.

The commercial Prince William Sound (PWS) sablefish fishery was modified. The PWS sablefish fishery is a split season fishery. The seasons run from March 15 - May 15 and August 1 - 21. In 2006, a larger number of complaints than usual about the predation of sablefish off of the longlines by Orca whales were reported. As a result, ADF&G altered the second part of the fishing season by extending the season from July 25 through August 31, 2006. Approximately 70 percent of the quota (of 242,000 lb) was harvested this year. Typically, around 90 percent of the quota has been taken in recent years.

Nick Sagalkin reported on state water management in the Westward District. State-waters Pacific cod fisheries occur in Kodiak, Chignik, and the South Alaska Peninsula Management Areas. Each of these seasons is based on a percentage of the ABC from the respective federal management area. State-waters seasons do not require VMS or observer coverage. However, state-water Pacific cod seasons in these areas limit gear to pot or jig and limit the amount of gear to 60 pots or 5 jig machines.

The State-waters season generally begins after the federal "A" season closes. State-waters Pacific cod fisheries in the Kodiak Management Area begin seven days after the Central Gulf closure, in the South Alaska Peninsula Area seven days after the Western Gulf, and the Chignik Area by regulation on March 1<sup>st</sup>. In 2006, the Kodiak Area pot season closed on March 29<sup>th</sup>, but the jig season harvest was slow and continued through the summer. In the Chignik Area, there was no effort beyond May 21<sup>st</sup> for either the pot or jig fleet. In the South Alaska Peninsula Area the pot fleet season closed on April 6<sup>th</sup> and the jig fleet continued through the summer. Because summer-time harvests in the state-waters Pacific cod fisheries was slow, and because substantial quota remained with no indication that the state-waters fishery quotas would be achieved before December 31, ADF&G closed the state-waters Pacific cod seasons on September 1, and immediately reopened the state-waters for the parallel fishery to provide more opportunity. Closing the state-waters and allowing the parallel season to open, allowed more effort and gear types, and did not exclude any gear type from the fishery that could have participated during the state-waters season.

A new state-waters Pacific cod fishery opened March 15<sup>th</sup> in the Aleutian Islands west of 170° W long. Jig, longline, pot, and non-pelagic trawl gear were allowed gear types. The fishery is based on 3% of the BSAI Pacific cod ABC of 194,000 mt, which translates to a guideline harvest level of 12,830,772 pounds. The state-waters GHLL is apportioned so that a maximum of 70% of the GHLL is available prior to June 10<sup>th</sup>. The remaining 30% of the state GHLL and any unharvested GHLL from the first season is available beginning June 10<sup>th</sup> and prior to the fishery closure on December 31<sup>st</sup>. A total of 26 fishing vessels

participated in the fishery. In addition, two floating-processor vessels and two shore-based processors participated. The first fishery closed March 24th after 8.5 million pounds were harvested. The state-waters fishery reopened June 10<sup>th</sup> with a GHLL of 4.3 million pounds, but less than 5% of the GHLL was harvested. In order to maximize harvest opportunity the state-waters fishery closed on September 1<sup>st</sup> and immediately reopened under parallel rules. The projected unharvested portion of the state-waters GHLL was made available for harvest in the federal/parallel fisheries. ADFG held 500,000 pounds of the state-waters GHLL in reserved to allow for potential reopening of the state-waters fishery.

Several proposals from the public will appear before the BOF this fall concerning the creation of pollock fisheries in the South Alaska Peninsula Area.

### **Budget Outlook**

Russ Nelson, RACE Division, summarized the effects of proposed 2007 budget and potential impacts on AFSC surveys. Because there are insufficient funds for all planned surveys, the biennial Eastern Bering Sea (EBS) slope survey (70 days of sea time) was canceled and the biennial AI survey was reduced by 20 days in 2006. In 2007, the AFSC is scheduled to conduct the annual Bering Sea bottom trawl survey and the biennial Gulf of Alaska shelf and slope bottom trawl surveys. It is expected that there will be insufficient funds to conduct all these surveys in 2007 and that decisions will need to be made on which surveys will be conducted. The 2007 budget also has potential impacts on surveys conducted from NOAA ships such as the pollock echo-integration survey because of potential shortfalls in the operational funds for those ships. Further, there may only be sufficient funding for either the Gulf of Alaska or EBS survey next year. Budgets for other divisions (REFM, Marine Mammal Lab, Auke Bay Lab) are similarly jeopardized. The status of the 2007 budget is not likely to be known until sometime early next year. Russ noted that because budgets are on annual cycles reverting to triennial surveys for the GOA and AI would not solve annual budget shortfalls.

### **Proposed Groundfish Specifications**

Ben Muse reviewed the Council's two-year specifications process. This began in September 2005, when the plan teams recommended 2006-2007 OFLs and ABCs. The Council drew on these to recommend proposed 2006-2007 specifications in October 2005 and made revised, final recommendations in December 2005, after receiving the reports from the assessment authors and the Plan Teams.

The Council is now beginning the process of adopting 2007-2008 Groundfish Specifications. The process begins with Plan Team OFL and ABC recommendations from the September 2006 meetings. In October 2006, the Council will recommend proposed 2007-2008 Specifications, and in December 2006 will make revised, final recommendations, after receiving the reports from the assessment authors and Plan Teams.

The fishery in 2007 will begin in January on the 2006-2007 specifications adopted in December 2005. The 2007-2008 specifications will become effective, and supplant the 2006-2007 specifications, when the Secretary publishes the final rule in late February or March 2007.

Dr. Muse provided the Plan Teams with the projected 2007-2008 OFLs and ABCs used in the Groundfish Specifications Draft EIS for their use in formulating their OFL and ABC recommendations. Team members and industry representatives raised questions about the projection methodology used for EBS pollock, noting a difference between the OFL and ABC for 2007 adopted by the Council in December 2005, and the OFL and ABC projected for 2007 in the DEIS. Jim Ianelli explained that the difference occurred because the projection model used in the DEIS used a Tier 3 model to project the 2007 and 2008 OFL and ABC. In December 2005, the SSC recommended the use of a Tier 1 projection for EBS pollock OFL and ABC for 2006 and 2007. The BSAI Team will review this issue in more detail when it meets separately later in the week to adopt proposed specifications for 2007-2008 for SSC and Council review.

## Marine Mammal Update

Lowell Fritz summarized the status of research and management of Steller sea lions and fur seals in 2006. In 2006 the Court vacated all Steller Sea Lion Research Permits until EIS is finished. A Draft Steller Sea Lion Recovery Plan was prepared, which summarizes Recovery Criteria and Threats Assessment. For delisting both the eastern and western populations, the criterion is a 3% per year increase in population for 30 years, 5/7 regions must be stable or increasing. Based on this criterion, the eastern population could be considered for delisting. For downlisting the western population to threatened, the criterion is a significant increase for 15 years, 5/7 regions must be stable or increasing. Threats to recovery include:

- 1) Potentially High –
  - a) Environmental Variability;
  - b) Competition with Fisheries; and
  - c) Predation by Killer Whales;
- 2) Medium –
  - a) Incidental take by fisheries (uncertainty in Russia);
  - b) Toxic substances; and
- 3) Low –
  - a) Subsistence harvest;
  - b) illegal shooting;
  - c) entanglement;
  - d) disease and parasitism;
  - e) disturbance (tourism or research)

A Biological Opinion on BSAI-GOA groundfish fisheries has commenced. Some SSL research was accomplished: 1) May: Brand-resight trips CGOA, EAI (prior to order); 2) June: Partial aerial survey for non-pup trend counts; and 3) June-July: Much reduced brand resight effort: a) No Ugamak field camp; and b) ½ of normal Marmot field camp. Lost research included: 1) June-July: Pup counts, condition, branding in CGOA; and 2) Annual: Captures for telemetry. Partial SSL aerial survey results indicated that the populations in some areas may have stabilized. Between 2000 and 2004, counts had increased in the western population overall and in most subareas. However, counts in 2004 and 2006 were essentially the same in the eastern Aleutian Islands and both the eastern and western Gulf of Alaska. Counts in the western Aleutian Islands continued to decline, as they have since the 1980s. In summary, Western SSL populations are unlikely to get sustained population increase with increases in survivorship alone; natality must also rebound.

Northern fur seal pup production on the Pribilof Islands was estimated in August 2006; results will be available for the November Plan Team meeting.

## Survey Update

Bob Lauth summarized the EBS and AI bottom trawl surveys, which survey 20-200 m depths. The sampling protocol changed to include biological sampling of crabs. Summer plankton biomass was assessed. Sea surface and bottom temperatures were markedly lower than in 2005. The EBS pollock bottom trawl survey estimated a biomass of 2.8 million t, down from over 4.7 million t in 2005. The 2006 Pacific cod survey estimate was 15% lower than the estimate for 2005. The yellowfin sole also indicated a decline while northern rock sole increased slightly in 2006.

The EBS slope survey was cancelled in 2006 due to lack of funds. The survey is conducted from 200 – 1,200 m depth and divided into 6 subareas based on geologically distinct bathymetric types. Target species include rougheye rockfish, shortraker rockfish, Pacific ocean Perch, northern rockfish, Greenland turbot, arrowtooth flounder, Kamchatka flounder, SST's, and 8 species of skates. This survey was re-established in 2002 and 2004 after a hiatus of regular triennials surveys that ran from 1979 to 1991.

Mark Wilkins summarized the 2006 Aleutian Bottom Trawl Survey. Sampling occurred at 366 stations (about 85% of the usual level of sampling). By October 4, estimates of abundance, distribution, and size composition will be provided preparation of the stock assessments.

Phil Rigby reported that the sablefish longline survey had just been completed. This survey now spans 28 years of covering the upper slope and major gulleys from 200-1000 m and has been incorporated in a number of other assessments including rougheye rockfish, thornyheads, Greenland turbot, grenadiers, and sleeper sharks.

### **Management Strategy Evaluation**

Teresa A'mar (with Martin Dorn) summarized her thesis studies on the GOA pollock fishery. She is incorporating results from ecosystem models as part of this work. Tom Wilderbuer and Jim Ianelli continue to use this approach to evaluate strategies for flatfish species. Grant Thompson was examining analytical approaches to MSE. The AFSC held an informal ad-hoc working group on MSEs this summer. This approach is also useful for examining effects of different survey frequency designs and this has been done for pollock relative to the GOA bottom trawl survey.

### **Off-year Assessment Criteria**

The Teams discussed protocols for so-called off-year assessments and agreed upon the following criteria:

- 1) Authors **must** do a full assessment in "off" years if the Plan Team or SSC requests them to.
- 2) Authors **may** do a full assessment in "off" years if they choose to.
- 3) Anytime the assessment model is re-run and presented in the SAFE Report, a full assessment document **must** be produced.
- 4) The single-species projection model **must** be re-run and the results reported in a one-page SAFE Report summary if current-year catch differs by more than 10% from the expected value.
- 5) The single-species projection model **may** be re-run using new catch data without re-running the assessment model.
- 6) One-page SAFE Report summaries **do not** count as assessment "updates" for the purpose of the Species Information System.

### **Sablefish**

Dana Hanselman provided the Team an overview of progress made in refining the sablefish assessment. A split sex model is now being explored. Biological data in the model were updated. By separating the model by sex, more selectivity curves needed to be estimated. Parametric and non-parametric functional forms were explored as potential options. Model selectivity estimation was modified to attempt to better represent the IFQ fishery from 1995 to the present. Further exploration needs to be done to better estimate the IFQ fishery. Differing mortality rates by sex were investigated but also require further experimentation. Trawl survey estimates were examined for the GOA as a proxy for the whole population. The author requested Plan Team input on the direction of the analysis and further ideas in need of exploration.

The author noted that ages from samples taken in gullies have yet to be added to the model. These have not been used in the past because they are considered to be outside of the exploitable population. These could be useful in indexing juvenile recruitment.

The Teams commend the author on his explorations thus far and look forward to further details on these model modifications in the next assessment iteration. Discarding and highgrading were noted as additional aspects to potentially include in further assessments. It was noted that higher prices are offered for the larger fish thus fishermen are targeting the larger fish and hence potentially highgrading to land them.

Remaining issues suggested by the author for exploration include developing better methods for specifying variances and further exploration of residual patterns. Some improvements were noted in the residual pattern under the new model configuration. There was an observed switch in the survey length residual patterns around 2000. The Teams discussed the potential necessity of modifying additional parameters under the split sex model (e.g., catchability) to improve the residual pattern. Team members noted that differential selectivities by sex ought to be sufficient to capture the dynamics (thus there may be no need to modify catchability). Growth curves are currently fixed and selectivity varies by age. Suggestions were made to explore length-based selectivity instead of age-based. The author intends to fix or constrain natural mortality estimates in the model for both sexes.

The author noted that the November chapter would include the split-sex model, updated biological information and the trawl survey data work in progress. If time permits, additional explorations with the model will also be attempted. Team members noted that some of these model additions may change the ABC estimates considerably thus additional agenda time may need to be allotted for this topic in November. The base model used in previous years will also be updated and presented in conjunction with the new split sex model. Thus the Teams will be able to compare and, if necessary, choose between the models at that time. The Teams felt comfortable with the presentation of the alternative model at this time such that if results from this model showed considerable improvement over the base model, choosing to use the alternative model in November for ABC recommendations would be acceptable. Traditionally model changes are presented at the September plan Team meeting to allow for new model configurations to be used in November as necessary.

New information on the trawl survey and area apportionments calculations was not anticipated to have a large impact on ABC calculations. Bill Clark noted that switching to a split sex model in the halibut assessments did not show a dramatic change in biomass estimates however adding additional historical age information did change the results considerably.

The Teams discussed the potential for area allocation considerations in November. Allocative changes were noted to be the purview of the Council not the Plan Teams provided they remain within the previously established biological boundaries. It was noted that if there was a biological concern these would be revisited otherwise this would remain outside of the necessity for Plan Team deliberations.

### **Rockfish working group**

Jon Heifetz updated the Teams on activities of the rockfish working group (RWG). A workshop was held at the Auke Bay Lab during Spring to discuss modeling history, the evaluation of influential parameters and uncertainty, and standardize input and output for SAFEs. A new age-structured model for yelloweye rockfish was initiated. Considerations were also given to incorporating ecosystem components into stock assessments. A report was generated from the RWG meeting and made available for the Plan Team meeting. Recommendations from this meeting included consistency in SAFE documents, data sets and data quality and model configurations. It was recommended to obtain new maturity estimates prior to reconfiguring the northern rockfish model. Comparison should be made of BSAI and GOA model configurations. Improved documentation of priors and developing appropriate priors as well as the distributions included in the SAFE reports were also recommended.

The Teams commended the rockfish working group on their continued efforts in improving rockfish models and assessments.

### **CIE Review of rockfish assessments**

A review of the rockfish assessments was conducted by the Center for Independent Experts over the summer. Reports from the CIE findings were made available for the Plan Team meeting. Jon Heifetz provided an overview of the CIE findings with respect to strengths and weaknesses of the rockfish assessments.

The Teams discussed some of the criticisms put forward by CIE reviewers. It was noted that the AFSC will likely produce a response to the CIE review. In the short-term many comments may be addressed in the stock assessments produced for November. The issue of exceeding area-specific TACs for some rockfish in the GOA (but below the Gulfwide OFL) was presented to the reviewers yet comments or resolutions were not provided in their reports. The Team noted that it would be useful for to highlight this omission so that potential problems can be averted.

The Teams discussed the scope of work and what information was provided prior to the meeting. A website was provided for the distribution of background materials to the reviewers in advance of the meeting (<ftp://ftp.afsc.noaa.gov/afsc/public/rockfish/rfwg.html>). Presentations were made by AFSC scientists over the course of the review. It was noted that while the statement of work could have potentially been more precise, that there is obviously a great deal of information and background necessary for adequate review of rockfish assessments. Team members discussed that the overall breadth of the review and complicated the focus. Phil Rigby commented that the charge for the CIE to review the degree of conservatism inherent in rockfish assessments was unusual, but was designed to address concerns about being sufficiently precautionary in managing rockfish.

The Teams discussed the CIE review in relation to the Goodman report and the current instructions to the stock assessment authors. The Teams encourage the authors to address comments as appropriate to the stock assessments. The Team felt that many of the comments were general to trawl survey and stock assessment and could be equally applicable to most groundfish species. Research in these aspects is encouraged and has been previously noted in research priorities. Phil Rigby noted that the AFSC has discussed evaluating the trawl survey protocol (and problems with untrawlable grounds) and its implication for rockfish species in 2007. Jim Ianelli commented that consistency in applying catchability estimates for rockfish is necessary and should be included in any further review of this issue. While potential funding may limit the ability to conduct extensive workshops or review of this issue, an estimate of survey trawlable grounds would represent a first step and could potentially be done with some of the available data. The Team supported a workshop to analyze untrawlable grounds and review potential solutions to this problem.

The Teams commented on some specific points, including natural mortality estimates. The Teams recommend that some guidelines be prepared for consistent treatment of the maximum age used in computing these estimates. Further evaluation of stock structure is being conducted already by stock assessment authors and will continue. The Teams discussed the issues noted by the CIE with respect to the link with assessment results and quota setting and the potential conflict in establishing bounded TACs in the assessment. It was noted that this is not an assessment issue but rather a policy issue for the Council. The Teams commented that this is representative of the North Pacific quota setting system rather than something that is specifically related to rockfish stock assessments.

### **Species of Concern**

Jane DiCosimo updated the Teams on the species of concern management initiative and on-going work with non target species management. She reviewed the current alternatives under consideration for management of non-target species and other management initiatives with respect to non target species. Three choices for an overall goal of non-target management would identify the level of concern needed for these species: 1) preventing overfishing and rebuilding overfished non-target species; 2) preventing ESA listing and rebuilding listed non-target species; or 3) maintaining non-target stocks at or above a specified threshold (not MSY not ESA) that will allow for optimal yield of target fisheries while maintaining above ESA listing thresholds. Tools to achieve these goals include the following: In-season management of catch, creative industry / NOAA cooperation to manage bycatch (e.g. SEASTATE – dirty 20), time area management, monitoring trends in catch, maximum retainable allowances – MRAs.

Rebecca Reuter provided an overview of the issues involved in addressing management of data-poor species. This presentation was presented at the AFS meeting in September 2006. She suggested that for these data poor species our existing tier system may be insufficient. An alternative assessment strategy for these species is necessary. New strategies for addressing these species are intended to highlight data needs, prioritize research efforts and prevent overfishing of these data-poor species.

An example of a data quality assessment was provided to evaluate the adequacy of current data as an improvement over historical data. Alternative assessment information is then assessed to evaluate the degree of management concern these species represent. Alternative management strategies for these highlighted species will then be discussed and decided by the Plan Teams. The envisioned review process will mimic the current review process by the Plan Teams, SSC and Council with some differences due to the qualitative nature of the information and the need for initiating management actions as the need arises.

Team members questioned the need for an instruction sheet to all authors to give guidance on requirements for inclusion in stock assessments. The methodology by which some species were highlighted for the Observer Program for increased identification was questioned. The availability of information and the potential for identification by observers was necessary despite the fact that some species were in greater need of identification (but identification was not yet possible by observers). Differing approaches for some species as opposed to others would be advisable based upon their differing life-history characteristics. Another iteration of this analysis will be available for review at the November Joint Plan Team meeting.

### **HEPR Program update**

Mike Sigler provided an overview of the Habitat Process Ecosystem Research program (HEPR). Two major accomplishments in the previous year include a five-year plan for essential fish habitat research, and a new program being planned to evaluate the impacts of loss of sea ice.

### **Ecosystem Considerations**

Jennifer Boldt provided an update of the Ecosystem Considerations chapter and website which provides access to data and contributions in the chapter. The website will be updated in November 2006 with the final version of the chapter. Five sections were noted to be of particular interest to the Teams: Executive Summary, Introduction, Ecosystem Assessment, Ecosystem status indicators, Ecosystem-based management indices and information. The executive summary section was reorganized according to SSC comments.

Ecosystem Status Indicators: The climate section is not yet updated but will be provided in the November. Current information indicates 2006-2007 may be an El Nino year (last year was a La Nina year). GOA zooplankton biomass estimates were included. Larval fish information in the GOA was updated. Indices of groundfish survival (log recruit per spawning biomass anomalies) were analyzed to detect years of significant shifts in survival. Overall recruitment and survival indices across major commercial groundfish species in the BSAI and GOA were also estimated. Results from a transport model for winter spawning flatfish were presented.

Ecosystem based management Indices: The status relative to overfishing for managed stocks in the North Pacific were presented. Fish stock sustainability index (FSSI) indices were presented for species in the BSAI and GOA. Updated fishing effort for both BSAI and GOA were included. A new contribution is included on distribution and abundance trends in the resident human population of the BSAI ecosystem. Catch information were updated for PSC species and non-target catch.

**Ecosystem Assessment:**

Kerim Aydin provided an overview of the Ecosystem Assessment. The SSC has been encouraging the incorporation of this information into individual stock assessments. The goal of the ecosystem assessment would be to investigate simple thresholds which could be utilized in a multi-species context to provide management-related advice. New syntheses included this year are: the relationship between EBS pelagic forage species; the relationship between predation/production and fishing/production, a metric proposed to evaluate the management implications of potential exploitation of forage species and a metric proposed to evaluate the “fisheries footprint” of individual fisheries.

Model reconstructions were presented which investigate the estimated prey biomass and predation mortality over time in relation to the target species biomass trajectory. Forthcoming analyses will investigate life history traits, genetic diversity and functional diversity.

Kerim provided an overview of GOA and BSAI arrowtooth flounder population considerations for the ecosystem section of the stock assessments for these species in the SAFE reports. Mortality estimates in the BSAI indicate that there is greater predation on arrowtooth than is seen in the GOA ecosystem. To what extent there is a control exhibited by large pollock in the BSAI preying on arrowtooth is uncertain. Questions were posed from the public regarding the consumption of capelin and length-frequency of prey in the GOA given data indicating a decline of capelin in this region. Kerim noted that these data were collected offshore and primarily after 1990 thus are not representative of earlier crash periods. Bob Foy indicated that the data presented were also consistent with the recent work in Kodiak from 2000-2004 which further reiterated the importance of capelin as food production.

Sarah Gaichas provided an overview of ecosystem considerations for AI pollock and AI cod. The presentation was to demonstrate the type of information that is available for use in these assessment chapters. Information is available on single species in an ecosystem context with respect to relationships and relative role in the ecosystem as well as a comparison between the AI and the EBS. Preliminary results indicate that there are very different ecosystem roles for Pollock and cod between the AI and the EBS. Information presented uses diet data from the early 1990s. Updated information will be included in future iterations. Preliminary simulations indicate a correlation between adult pollock decline and atka mackerel increases. There is less data available for AI pollock compared with other (EBS and GOA) managed Pollock populations in the North Pacific. Model results indicate that Steller sea lions appear to represent a significant predator on cod populations in the AI. Results also indicate that bottom up effects (benthic production, phytoplankton production) exert significant effects on cod populations. While data are uncertain, an interrelationship exists between cod and sablefish with cod preying heavily on juvenile sablefish. Biomass density for cod in the AI is comparable to the EBS, while pollock biomass density in the AI is much less than pollock biomass for the EBS. Predation effects on pollock are much more pronounced in the GOA and EBS than in the AI.

**Seabird monitoring**

Kathy Kuletz presented an overview of the new at-sea monitoring program. Funding was acquired through an NPRB grant to survey populations in the BSAI and GOA. Preliminary results were presented and a survey protocol is being refined.

**Halibut Discard Mortality Rates**

Halibut discard mortality rates are set by the Council on a 3-year cycle for non-CDQ fisheries based on an average of the past 10 years and annually for CDQ fisheries based on available data. Halibut Discard mortality rates for 2005 were presented in conjunction with recommended rates for use in 2007-2009. The Teams recommend adopting the listed discard mortality rates for the CDQ and non-CDQ DMRs for the BSAI and the GOA fisheries.

## Halibut Assessment

Bill Clark presented an overview of assessment and management of Pacific halibut. The assessment is based on the assumption of a closed population in each management area. Dramatic reductions in size at ages have occurred in the last 20 years. Females are very vulnerable to the fishery thus the assessment moved to a sex specific assessment to better account for this. CPUE can be used as an index of abundance for this fishery as very limited changes have occurred in fishing practices. Quotas for the stock are established by the Halibut Commission while allocative issues are managed by individual fishery management Councils in the US and Canada. Information included in the assessment model was reviewed. Sex composition of the commercial landings is estimated externally to the assessment model and then included as assessment data. Size specific yields are roughly 70% female. Bill noted that the decrease in size at age is likely density-dependent.

Bill provided an overview of recent work in PIT tag-recapture data. Lower than anticipated recapture rates were found in the GOA and especially in the AI. Seeding experiments were conducted in 2005 which improved the recovery rates for this year. Comparisons were made for mortality rates between the assessment and the mark-recapture experiment. Results were not in close agreement. Biomass estimates between the two were also compared with the mark-recapture estimates widely overestimating the biomass, particularly in the western regions. Estimates of migration rates from the central and western GOA seem to be underestimating migration from these areas. Overall results from the experiment were inconclusive. There are no immediate plans to repeat the experiment.

## Estimating Pacific cod off-bottom distance from archival tags

Grant Thompson presented a summary of his paper with Dan Nichol on attempts to quantify some of the uncertainty surrounding survey catchability of Pacific cod. The authors examined archival tag data to see if distance between the fish and the sea floor could be determined. A possible method uses the Kalman filter to compute a likelihood function, and applies a hierarchical Bayesian approach to stabilize parameter estimates. The method used simulated data, where the true parameter values are known. Median distributions of fish depth and 95% confidence intervals were shown to be close to the true values. The Teams encouraged further development of both the Kalman filter approach in particular and use of archival tag data in general. The Teams noted the following points:

- For tags recovered over flat bottom, it may be reasonable to assume that bottom depth for the last few days of the time series is equal to (known) bottom depth at the point of recovery.
- The EBS and GOA exhibit different bottom contours; the EBS has large distances with low bottom height variation; soundings from charts could provide an objective prior distribution of bottom depth variability, although this will be confounded with fish behavior, because the relevant measure is the variance in bottom depth along the space-time trajectory traveled by the individual fish, which depends on fish behavior as well as topography.
- The behavioral response of fish to the approaching net is an important issue and should be addressed in the model; Somerton's work indicates that P. cod do not dive beneath or off to the sides of the net, but they may dive into the net from above. Also, fish may not be randomly distributed with respect to the bottom; for example, feeding behavior may raise questions about the assumption of normally distributed off-bottom distance.
- Headrope height is routinely recorded during the surveys. There are clear differences in headrope height between individual tows – it may vary by 0.5 - 1 m. Headrope height could affect mean CPUE of pollock, for example, which has a suspected diving response.
- Some fish appear to exhibit regular patterns of diurnal movement; perhaps it would be reasonable to assume that the maximum fish depth recorded each day corresponds to true bottom depth.
- Once the method is applied to the Pacific cod archival tag data, only daytime data will be used.

- There may be insufficient time to process all the archival tag data and apply the proposed method in this year's Pacific cod assessments.

### **Economic SAFE report**

Ron Felthoven summarized the contents of the Economic SAFE Report for 2006. North Pacific commercial groundfish remained steady at around 2.2 million mt in 2005. Ex-vessel value for groundfish increased slightly from \$645 million in 2004 to \$686 million in 2005. Groundfish accounted for 52% of total Alaska ex-vessel value. Salmon accounted for 22%. Halibut accounted for 13%. Shellfish fishery accounted for 12%. Pollock catch of 1.57 million t (or 72%). Pacific Cod catch of 267,000 mt (or 12%). Flatfish (yellowfin sole, rock sole, and arrowtooth flounder) catch of 197,000 t (or 10%). Sablefish, rockfish and Atka mackerel comprised the remaining 6%. Around 91% of total catch is linked to trawl gear. Hook and line accounted for 7.9% of catch. Pot gear accounted for 1.1% of catch. Around 90% of the catch occurs using one type of gear. An exception is Pacific cod, where trawls took 37% of the catch, hook and line took 51%, and pot gear took 12%. Catcher vessels took 47% of total groundfish catch, with 51% of total ex-vessel value. Catcher-processors (CPs) took 53% of total groundfish catch, with 49% of ex-vessel value. Dr. Felthoven explained that catcher vessels take a larger proportion of higher-priced species such as sablefish (\$2.18/lb in 2005). And trawl gear accounted for 91% of total catch by CPs, with 71 % of ex-vessel value. Much of the trawl catch is of low-priced species such as pollock, (\$0.13 /lb in 2005). Groundfish discard rates decreased by 26%, from 7.0% in 2004 to 5.2% in 2005 (8.4% in GOA, 5.0% in BSAI). Discard rates were higher for fixed gear at 11.5% (12.6% BSAI, 6.4% GOA) than for trawl gear at 4.6% (4.3% BSAI, 8.9% GOA).

### **Overview of economic and social research**

Dr. Felthoven identified the following research initiatives to provide economic information for managers:

1. BSAI Crab Data Collection Program
2. Mandatory Cost/earnings Data Collection Program for H&G Catcher-processor Fleet
3. Impact of Real-time Information on Salmon Bycatch and Location Choice
4. Non-consumptive Value of Steller Sea Lion Protection
5. Alaska Fishing Community Profiles
6. Emigration of IFQ Shares from Small, Remote, Fishing Communities
7. Obtaining Data to Improve Regional Economic Models for Alaska Fisheries
8. Integrating VMS Data with Commercial Groundfish Fisheries Data
9. Integrating VMS Data with Commercial Groundfish Fisheries Data
10. Market Data Collection and Translation
11. Bering Sea Pacific Cod Fishing Survey

### **Other species analysis update**

Jane DiCosimo updated the Teams on the planned joint BSAI/GOA FMP amendment to modify how other species are managed in both regions. Jane discussed the alternatives under consideration and the role of the plan Teams in recommending OFLs and ABCs for analytical consideration for the EA/RIR/IRFA. A review of draft chapters will occur at this meeting with plan Team recommendations on group OFLs and ABCs to be made in November. These recommendations will be made for purposes of the analysis only. Current management of other species under both FMPs (aggregate OFLs and ABCs in the BSAI and  $\leq 5\%$  of sum of total TACs in the GOA) will continue until changes are implemented by NMFS. A discussion paper on fishery interactions and separate group TACs is anticipated for the Spring of 2007. Initial review by the Council could occur in Fall 2007.

## **BSAI and GOA Grenadier Assessment**

Dave Clausen provided an overview of the draft Grenadier assessment for the BSAI and GOA. Currently grenadiers are included under both FMPs as non-specified species, whereby no management measures are established for this species.

Biomass of the species is dominated by the giant grenadier species. No information is currently available in incidental catch of grenadiers in the halibut fishery. Bill Clark noted that during the majority of the halibut fishing season, the depth distribution of the halibut fishery would not overlap with the depth distribution of grenadiers. The majority of the GOA grenadier catch comes from the sablefish fishery.

The Teams discussed the OFL calculations put forward by the assessment author. Team members questioned the premise of no historical exploitation on the species in calculating the natural mortality rate used for OFL calculations. A downward adjustment for ABCs was proposed by the assessment author by reducing the biomass estimates for the AI and utilizing a lower natural mortality estimate. Team members questioned the inconsistency in utilizing different natural mortality rates for OFL and ABC calculations. The Teams felt that further investigation of the natural mortality rate should be done. The Teams felt that using different natural mortality rates for OFL and ABC is inappropriate and the best estimate of the ones investigated should be chosen and utilized consistently. Other mechanisms could be used to lower the ABC as necessary. The Teams felt that the author should use the lower, proxy mortality rate of 0.057 in the calculation of OFL and ABC, along with the higher biomass estimate in the AI. The Teams noted that the biomass estimate in the AI is less reliable than the biomass estimates for the GOA and BS regions.

The Teams supported the tier 5 approach for this species. The Teams discussed the recommendation that grenadiers be included under FMP managed species given that the relative bycatch of these species is high as compared to the aggregate catch of the whole other species category in the GOA. This is notably problematic in the context of the non-target species initiative which will revise management of all species.

The Teams did not feel that current evidence indicated a conservation concern for these species. However the Teams noted that directed fisheries can rapidly develop. Current catch is predominantly female which could trigger conservation concerns but current information indicates that catches are low enough at this point that this does not represent a pressing issue. A proportion of the population is likely unsurveyed given that the survey does not sample below 1000m depth. The Teams felt that giant grenadiers were an appropriate proxy for the grenadier population as a whole. The Teams request that the author aggregate discussions in the assessment to be for grenadiers as a whole (i.e., not giant grenadiers specifically). The Teams commend the author on a well written and informative assessment.

## **Shark Natural mortality**

Cindy Tribuzio presented an overview of shark natural mortality estimates. Team members questioned the applicability of the methodology to shark species. Cindy noted that the study and original model development were developed with spiny dogfish included as well as other species and hence results for shark species are applicable. Results will be included in the SAFE chapter for next year as the paper results are not yet finalized. The Teams commended the author on her work to date and noted that the draft mortality estimates seem to fall within a reasonable range.

The Teams adjourned their meeting at 12:30pm Thursday, September 21<sup>st</sup> and broke into individual Team meetings.

### Gulf of Alaska Plan Team Minutes

The meeting of the Gulf of Alaska groundfish Plan Team convened on September 21<sup>st</sup>, 2006 at 1:30pm 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	UAF
Nick Sagalkin	ADF&G
Tory O'Connell	ADF&G
Tom Pearson	NMFS AKRO
Ken Goldman	ADF&G (by phone)
Sarah Gaichas	AFSC REFM
Bill Clark	IPHC
Theresa Tsou	WDFW
Kathy Kuletz	USFWS
Ward Testa	NMML

Approximately 15 state and agency staff and members of the public also attended. Names of attendees are included in the Joint Plan Team minutes.

The revised agenda for the meeting is included in the Joint Plan Team minutes. A presentation of the EIT Winter survey was added to the agenda.

### Echo Integration Trawl (EIT) Survey

Mike Guttormsen provided an overview of the Winter EIT survey in the Shumagins and Shelikof Strait. The Team discussed the preliminary results from using two different cod end liner mesh sizes. These investigations are intended to ascertain the selectivity of the survey trawl gear. The results suggest a potential for bias towards adult pollock relative to juveniles. If younger pollock are not sampled by the trawl gear, then the translation to relative biomass based on the acoustic signal may under-estimate the relative abundance of juvenile pollock. Martin Dorn discussed the selectivity curve utilized in the model and how information such as this could be simulated in the model. The selectivity curve used could be modified to attempt to account for this difference. Significant numbers of one year olds (the 2005 year class) were observed in the Shumagins in 2006. The 2000 year class, although age data are still being processed, appears to be relatively large based on the length frequencies from this year's survey.

The Team discussed key issues with this survey, including the alternative hypotheses about spawning biomass redistribution. It was discussed that there could be variability in Chirikof as this is only a two day survey. However, Martin Dorn noted that the inclusion of these areas outside of Shelikof in recent years provides a broader time series and may represent about 90% of the stock. A fuller evaluation of the potential to use these data within the model is recommended. It would be useful to verify that there are not additional shelf break spawning aggregations given that Chirikof was discovered recently based on fleet information. There has been limited additional exploration by the fleet, however it is possible that additional areas hold important components of the spawning pollock population. Julie Bonney suggested that additional areas be surveyed given that exploration by the fleet is limited by the short timing of the fishery. Julie noted that the industry is willing to assist in cooperative studies but awaits direction from the scientists.

The Team discussed the differing plans for either sampling multiple years in the same area versus expanding the survey to additional areas. Chris Wilson noted that while the Chirikof shelf break area could be continually surveyed, a better use of survey time might be to explore further along the shelf break to look for additional aggregations of spawning fish.

Jim Ianelli discussed the industry-funded EFP in the AI to collect acoustic information for Pollock and questioned to what extent a similar EFP might be possible in the GOA. Martin Dorn noted that interest was there in repeating this study in the Shumagin region as soon as this winter, but further development of an EFP has not progressed at this point. A broader NMFS survey in the region would also be advisable. Chris Wilson noted that the allocation of survey effort will be discussed at the annual REFM survey planning meeting to come. Chris further noted that MACE is currently working on additional projects in conjunction with industry vessels. Care should be given to the project planning in order to have the staff time and resources to analyze the data in a constructive manner. Anne Hollowed noted that this would be a good fit for an NPRB proposal or other means to address this given that staff timing and funding seems to be a limiting factor.

The report from the EIT survey will be turned into a processed report and available as such rather than attached as an appendix to the SAFE report as in years previously. The Team requested that an electronic link to this report be provided when the final pollock assessment is produced.

### **Kodiak Fishery Interaction Team (FIT) study**

Chris Wilson reviewed preliminary results from the one month Kodiak FIT study. Differences were examined between pollock biomass during and outside of the fishing period. Data were collected in control and treatment troughs before and during the fishery period. Interpretation of the results is forthcoming. The purpose of the study is to examine the impact on biomass of the fishery in relation to foraging for sea lions. Effort information is still to be determined for the treatment trough during the time period of the study. Martin Dorn noted that this information could be useful for assessment purposes in terms of providing an additional biomass estimate and/or time trend in regional biomass over the time period of the study. Results from previous years of this study have been utilized in the current Steller sea lion BiOp.

### **Dark Rockfish**

Diana Stram provided an overview of the initial review of the GOA dark rockfish management analysis. Initiation of this analysis to remove dark rockfish from the GOA FMP and turn it over to the State for management was recommended by the stock assessment author, plan Team and SSC in 2005. Analysis was postponed until after results from the 2005 GOA trawl survey could be included. Initial review of the analysis took place in April 2006. The SSC felt that data on the geographic and depth distribution of the species was insufficient at that time to support continued action to remove the species to State management. The 2005 trawl survey had a higher than normal biomass of dark rockfish notably from a single tow south of the Shumagins. The Council requested that the analysis be expanded to consider an additional alternative to delegate management for dark rockfish under the FMP to the State (similar to DSR management) as well as to evaluate similar management actions for dark rockfish in the BSAI. The current timing of the analysis is pending data availability to address lingering questions regarding the depth and geographic distribution of the species. The purpose of this discussion at the plan Team level was to solicit additional information availability to address these issues.

Rebecca Reuter presented an overview of dark rockfish information from the BSAI. There is limited information in the AI. Ken Goldman noted that dockside sampling in the CGOA shows some dark rockfish being landed (2-3%), but they do not show up on fish tickets in the CGOA (i.e. they all get listed on the fish tickets as dusky rockfish). No dark rockfish are picked up in State surveys, however, it was noted that the State surveys would unlikely cover rocky shores and kelp beds where dark rockfish live.

Jon Heifetz discussed that no regular surveys are available in nearshore areas and offshore surveys such as the GOA trawl survey are not appropriate for evaluating the biomass and distribution of this species. Diana questioned to what extent black rockfish are surveyed since dark rockfish are often caught in conjunction with black rockfish in the directed black rockfish fishery. It was discussed that black rockfish are not yet well assessed and acoustic methods are being sought for further assessment of these species. These methods are being explored. A great deal of anecdotal information exists however which shows black rockfish distribution nearshore in conjunction with dark rockfish. Tory O'Connell commented that submersible surveys show very few dark rockfish encounters in waters deeper than 50 fms.

The Team noted that the 1998 black rockfish amendment in the GOA was based on distribution information that is similar to what is presently the case for dark rockfish. Both species are predominantly nearshore species that are seldom caught in the GOA trawl surveys, except for very infrequent encounters. The Team noted that it seemed inconsistent to argue against taking action for dark rockfish in the absence of nearshore information when the species is not well assessed. All information available indicates that this species is most abundant in nearshore kelp beds. Sometime the species is encountered in shallow offshore areas but its primary habitat is widely believed to be at shallow depths and nearshore regions.

The Team recommended proceeding with a revised analysis since added information from the 2007 survey is unlikely to resolve the questions of dark rockfish distribution and habitat issues. This was particularly important since survey funding may be limited by budget constraints. Team members suggested that alternative methods be explored. For example, how often have other coastal species been found in offshore waters and compare this with dark rockfish frequency. This should show that while single tows of high biomass are occasionally encountered (as with rockfish species in general), that this particular species is uncommon in the offshore areas of the trawl survey. Team members commented that there was indeed a wealth of information showing that dark rockfish are not generally found in offshore water by the fact that over 5,000 survey tows have been conducted, with very few tows showing abundant dark rockfish. The Team reiterates comments from previous years on the need to shift the species to State management where plans can be made for additional survey and assessment effort to improve management of dark rockfish.

The Team further commented on the alternatives under consideration in the broader scope analysis. Alternative 3 was not recommended for analysis due to as it seems unlikely the state would take on additional assessment and monitoring responsibility for a federally managed species.

### **Proposed specifications**

The Teams corrected a table showing the draft 2008 ABC and OFL for Rex Sole. The projections for this species were done in accordance with similar methodology for both 2007 and 2008. The projection model was used to approximate the biomass trend. This trend was then scaled to match the adult biomass estimates used by the author for Tier 5 calculations. Setting  $F=M$  for  $F_{OFL}$  and  $F=0.75M$  for  $F_{ABC}$ , the Team used the author's approach (a catch-equation method) to compute OFL and ABC.

The tables should also be footnoted regarding the SSC's recommended (from December 2005) for the 2006-2007 Pacific cod ABC. They chose to increment the increase in ABC for 2006 by half of the Plan Team's recommended increase (from 2005 ABC) noting that it will be revised in 2006. This affects the projected ABC shown for 2007 and 2008 since the mortality assumed in each year changed from when projections were done in 2005.

### **Demersal shelf rockfish**

Tory O'Connell updated the Team that there will be no new survey information for yelloweye rockfish this year. She noted that survey money has been cut for at least 3 years and also that the directed

commercial fishery has been closed. Consequently next year's assessment will not have updated abundance estimates or biological data available for analysis. Biological samples may be limited to samples taken from bycatch in the commercial halibut fishery, although there are logistic difficulties with this approach. She requested the Team consider future options and pointed out the potential of having the assessment drop down a tier level. ADF&G is working with the IPHC to collect full yelloweye bycatch data on the IPHC longline survey as well as biological samples. The Team discussed the halibut fishery protocol for extrapolating bycatch data. Bill Clark noted that prior to the 20 hook subsample protocol (initiated in the late 1990s) there were some data available on sampling of on all hooks and these data are available for use. He noted that the 20 hook subsample has been a very reliable subsample of the full sampling approach. The halibut survey could be used as a relative measure of abundance. The Team did not make any decision at this point on the appropriate tier level for DSR.

### **Northern rockfish**

Dean Courtney reviewed the revised assessment model for northern rockfish. While 2006 represents an "off-year" for rockfish assessments in the GOA, the plan Team requested that this assessment be revised in 2006 given the issues noted with the assessment in 2005. Dean reviewed comments from the plan Team last year regarding model critiques and how these were addressed in model revisions. The reference model was reviewed at the rockfish modeling workshop held in June 2006. His presentation focused upon changes to the assessment from the 2005 assessment reviewed by the plan Team.

The Team discussed the number of untrawlable stations. This information was also presented to the CIE. The 2005 survey had a higher number of larger tows than in previous years, but survey biomass is still highly variable for this species and the model continues to have a difficult time fitting this apparent variability.

The author reviewed the relative differences in model formulation for the 9 models compared in the assessment. The change in each model formulation is the relative fit to different aspects of the data inputs to the model. The author recommended the choice of model 1. This model was chosen because it was robust to both the spawner recruit information and to the added historical catch information and contained separate selectivities for fishery and survey. The Team discussed the model fit to survey biomass trends and to what extent the trend might be based high sampling error, versus true population changes (e.g. perhaps the high and imprecise estimates are more representative of the underlying distribution than the low precise biomass estimates).

The Team felt that the assessment represents a thorough investigation of the different dynamics in the model. New maturity information was noted to potentially change assessment results dramatically. The  $F_{40}$  rate in the model will likely be elevated as a result of the input of the new maturity information. Model estimated ABCs are likely to increase as a result of new maturity data. The Team notes that the maturity information would be very useful in progressing further in this evaluation and encourages the sharing of this data with the assessment authors for use in improving the input data to the model. Phil Rigby noted that this model was standardized in order to address CIE commentary and has also been modified in order to address and respond to all SSC and Plan Team comments accordingly.

The Teams commended the stock assessment author on improvements made to the assessment in response to critiques encountered over the past year.

### **Other Species assessments**

The Team reviewed draft assessments for the other species in the GOA. These analyses have been prepared in anticipation of a comprehensive amendment package analysis to break other species out into individual species groups in the GOA. Currently there are no assessments (aggregate or otherwise) for these species in the GOA. These draft assessments and their review by the plan Team at this time are

intended to provide input and select ABCs and OFLs for purposes of the forthcoming analysis at this time.

### **Sharks**

Dean Courtney presented an overview of changes incorporated in the draft GOA shark assessment. A joint BSAI/GOA shark assessment was presented in 2005. He noted that population trends appear to be stable or increasing in the GOA. The author noted problems encountered with extrapolating catch information and requested if methodology had changed leading to a change in catch information from 2003-2006. Team members discussed that if discrepancies are noted in the data consistently among the other species assessments, then coordination and standardization amongst assessments would be useful. The Team discussed catch information for shark species and how these estimates are extrapolated currently. The Team suggested also investigating extrapolated catch information for the halibut fishery. Tier 5 estimates increased based on new biomass estimates.

The Team discussed that tier 6 may not be a viable alternative for these species. The assessment author noted that current catch levels appear to be sustainable. Ken Goldman provided some additional information on calculation of life history parameters for some shark species. He may provide additional information in a presentation to the Team at the November plan Team meeting.

Other suggestions for the shark assessment are

1. to include recent average catch in tier calculation tables.
2. that all other species assessment be standardized in content and section information included

### **Calculating unobserved bycatch**

Joel Rice presented an overview on the calculation of bycatch from unobserved fisheries, specifically from the halibut fishery. Extrapolated bycatch from this fishery has been noted in several plan Team discussions to be highly problematic for many species (eg skates, DSR and sharks). The focus of this calculation was on the relative estimate of shark bycatch in the halibut fishery. Dean Courtney noted that shark information is not included in the observer samples. Sarah Gaichas noted that basic dogfish information may still show up in the observer estimates and could be useful for the assessment authors.

The Team discussed extrapolation of bycatch from the commercial halibut fishery based on halibut survey data using the existing 20 hook protocol. Dogfish bycatch is notably high from the survey information with a high amount of error. The commercial catch could also be potentially broken out further based on survey station areas to obtain better estimates of bycatch. Some individual stations in the halibut survey encounter high amounts of dogfish. Catch rates appear excessively high for dogfish overall but this could be based on results from individually sampled stations and better estimation may be possible by extrapolation the estimate out in smaller areas.

### **Octopus**

Liz Connors presented the draft octopus assessment. She noted that any interest in a directed fishery would likely require a special gear type. Retained catch has been increasing as incidental catch due to increased market value for the species. The assessment author noted that management based on tier 5 calculations from the trawl survey is not consistent with management of harvest for pot fisheries. She noted that trawl surveys are not good at estimating the biomass for this species. The author noted that larval survival for this species is particularly impacted by climate changes.

The tier system does not appear to be a good management tool for this species. This is similar to results from other investigations of other species assessments. Information was provided regarding the problems encountered under either tier 5 or tier 6 calculations. The author expressed that the tier system derived for groundfish species is inappropriate for invertebrate species such as octopus. The Team discussed to what

extent tier 5 might be appropriate and would thus encourage additional research for the species. The author felt that tier 6 was artificially low and if either tier 5 or 6 were necessary then tier 5 is preferable. The incidental catch history is from a period with no market and no incentive for catch thus establishing a target catch level based on this for tier 6 seems to be draconian. Suggestions were made to move this species solely to bycatch-only status and encourage an EFP.

The Team provided some suggestion on additional studies in the past (e.g., SeaGrant) investigating mortality estimates. Additional suggestions were made to characterize the uncertainty inherent in the assessment for this species.

### **Sculpins**

Todd Tenbrink reviewed the draft assessment for GOA sculpins. Large sculpin species dominate the overall aggregate biomass. Biomass data for the bigmouth sculpin indicates a declining trend while other sculpin species appear to be stable or increasing. The author does not recommend the use of the aggregate sculpin biomass for use in examining biomass trends for the population as a whole given the diversity of species present. The authors recommend the M estimate as the best available at this point until additional research can be initiated. Tier 5 is recommended for this species with further qualification that the species should be on bycatch-only status with no target fishery. A three year average for biomass is recommended to adequately capture recent biomass trends.

The Teams discussed the habitat requirements for the species and to what extent the biomass and species diversity is adequately represented by the trawl survey. Some species are noted to be associated with structured (and hence untrawlable) habitat but that these species are also found in trawl surveys. Information is notably lacking in this respect for this species. Species encountered on the survey are variable by year. Some species were noted to be broken out for identification only in recent years which complicates the ability to derive some approximation of diversity from the survey species encounter table provided. Several species will be aged soon which will provide additional information for the assessment. Certain sculpin species are noted to be more difficult to age than others.

### **Squid**

Sarah Gaichas reviewed the draft squid assessment for the GOA. Until 2004 squid catch was relatively low and increased dramatically in 2005. The majority of this catch came from the Pollock trawl fishery during the A season. Information for 2006 indicates that the catch of squid has tripled since last year. Squid comprise roughly 50% of the other species catch in the GOA. Tom Pearson noted that the squid are coming from a localized area in Shelikof straight. The species composition is believed to be largely *Berryteuthis* which are slightly longer lived than other squid species thus the dynamics behind the increased incidental catch are not well known. There is no evidence that squid are being targeted, rather the observed catch increase is a result of increasing incidental catch only. It was noted to be impractical to discard squid at-sea thus they are being landed when caught in large quantities in conjunction with pollock. Julie Bonney noted that there have been no changes in fishing location from the fleet. Changes are most likely to be attributed to changes in the squid population and are not likely due to some form of fishery effect. There appears to be some sort of localized Shelikof Straight effect as increased catch is coming solely from this area. The Team requests that the EIT survey further investigate this for additional information on species composition. Tom noted that landed squid are frozen for bait or for food.

Tier 6 estimates are not recommended for this species given the likelihood of unnecessarily constraining the pollock fishery. Tier 5 is recommended but problematic given that it is possible to have a higher exploitation rate than biomass available using the mortality rates chosen. Data from Japanese fisheries indicated some fishing mortality rates which would be more reasonable for the species. OFLs as

currently calculated in the assessment could potentially be constraining given the current catch levels in 2006.

Team members noted that this species would be a good candidate for MRA management rather than target catch levels. Similar suggestions were made for octopus. This would constrain the rapid development of a directed fishery but would not prevent the development of a target fishery. The Team commented that given the prevalence of squid throughout the water column it is likely that biomass from the trawl survey is underestimated. The EIT survey would be useful in evaluating this and also occurs at the same timing as the fishery, unlike the summer trawl survey.

The Team noted the importance of squid as a forage species. Kathy Kuletz noted that they are an important prey for seabird species as well. It was suggested that environmental conditions should be examined for clues to the population increase in recent years.

The survey Q should be evaluated further. Additional approximations from the northeast center should be explored for similar species. An exploration of the relative uncertainty could also be done. Available information for squid is noted to be limited. Additional information may be available on the depth distribution by species by evaluating commercial fisheries.

The Team discussed options for squid management in the future. Should squid be managed under ABCs and OFLs or are there better means to manage this species? Further discussion of this will occur at the November plan Team meeting.

The GOA Team adjourned at 6:30pm.

## NPFMC Groundfish Plan Teams

Agenda (Sept 19<sup>th</sup> version)

September 19-22, 2006

<b>A. Joint Groundfish Plan Team Meetings</b>		
<b>Tuesday Sept 19</b>		<b>Traynor Room</b>
13:00	Introductions	Scheduling, adoption of agenda
13:15	Council, AFSC, ADF&G	Update on current management activities; management in State waters April 2006 research priorities; FY07 Budget Impacts on assessments
14:00	TAC Setting EIS	EIS overview, methods used for TAC setting
14:45	Break	
15:00	Mammals	Update on surveys for SSL non-pup counts and Pribilof Island fur seal pup production estimates
15:30	Surveys	Survey updates: EBS and AI bottom trawl, GOA LL, EIT
16:30	MSE	Management Strategy Evaluation update (short), off-year assessments
<b>Wednesday Sept 20</b>		
9:00	Sablefish	Review model developments
10:30	Break	
10:45	Rockfish	Updates on rockfish working group, CIE review, splitting/lumping issue Update on Species of Concern Assessment and Ad Hoc committee
12:00	Lunch	— <i>Dr. Gaichas: GOA Ecosystem modeling</i> —
13:00	Ecosystem	HEPR Program update, Ecosystem Considerations Chapter review
15:00	Break	
15:15	Ecosystem	Ecosystem sections of GOA and BSAI ATF, AI Pollock and AI cod, Seabird monitoring
16:00	Halibut	Pacific Halibut assessment, using tagged-fish recaptures Pacific Halibut discard mortality rates (3-year revision)
<b>Thursday Sept 21</b>		
09:00	Pacific cod	Review Pacific cod analysis useful for the assessment model
10:30	Break	
10:45	Economics	Economic SAFE report, overview of economic and social research
12:00	Lunch	
13:00	Non-target Species	Other species analysis update BSAI and GOA grenadier assessment, Shark natural mortality discussion
14:45	Break	Split to separate Team meetings
<b>B. Gulf of Alaska Groundfish Plan Team</b>		
<b>Thursday Sept 21</b>		<i>Traynor Room</i>
15:00	N. Rockfish Specifications	GOA Northern rockfish assessment Adopt proposed OFLs and ABCs for 2007/2008
16:00	Other species	Draft assessments for squid, sharks, octopus, and sculpins
<b>Friday Sept 22</b>		
09:00	Other	Arrowtooth flounder bioenergetics modeling
10:00		Status of dark rockfish plan amendment
12:00		Lunch
13:00		Meet as needed
<b>C. Bering Sea/Aleutian Islands Groundfish Plan Team</b>		
<b>Thursday Sept 21</b>		<u>Observer Training Room</u>
15:00	Specifications	Adopt proposed OFLs and ABCs for 2007/2008
15:30	Pacific cod	BS and AI split discussion paper
16:00	Splitting/Lumping	General discussion of splitting OFLs and ABCs for species and areas
<b>Friday Sept 22</b>		
09:00	Pollock	Bogoslof Survey results, Aleutian Islands EFP, Pollock EIT surveys
09:30	Other species	Skate and sculpin ABC, splitting/lumping issue, distribution maps review