AGENDA C-5(c)
OCTOBER 2009

MEMORANDUM

TO: Council, SSC, and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
2 HOURS

DATE: September 23, 2009

SUBJECT: 2010/2011 BSAI and GOA Groundfish Specifications

ACTION REQUIRED

Receive Plan Team reports; recommend proposed groundfish specifications for 2010/2011

BACKGROUND

Plan Team reports

During their meetings on September 18, 2009, the BSAI and GOA Groundfish Plan Teams recommended proposed groundfish specifications for 2010 and 2011. The team recommendations are based on rollovers of the established 2010 final specifications, except for Eastern Bering Sea walleye pollock which is a rollover of the 2009 final specifications. The rollover approach was adopted by the Council in 2007. The report from the Joint BSAI/GOA Plan Team meeting is attached as Item C-5(c)(1). The BSAI Groundfish Plan Team report is attached as Item C-5(c)(2). The report from the GOA Groundfish Plan Team is attached as Item C-5(c)(3). The teams also accepted proposed changes to stock assessments for Pacific cod, sablefish, sharks, skates, sculpins, and BSAI Alaska plaice, and received numerous informational reports from NMFS staff.

Proposed Groundfish Specifications

The Council is scheduled to recommend proposed BSAI and GOA groundfish specifications for a two-year period each October for the sole purpose of notifying the public of likely outcomes for Council action to set quotas for 2010 and 2011 in December 2009. Therefore, 2010 specifications that were adopted in December 2008 have been published in the *Federal Register* and will start the fisheries in January 2010.

Bering Sea/Aleutian Islands The BSAI Plan Team recommendations for proposed 2010/2011 BSAI groundfish specifications are attached as Item C-5(c)(4). Final BSAI groundfish specifications for 2009/2010 including: 1) Prohibited Species Catch (PSC) limits for halibut, red king crab, Tanner crab, opilio crab, and herring and their gear type and target fishery apportionments and 2) halibut discard mortality rates (DMRs) for CDQ (Community Development Quota) and non-CDQ are attached as Item C-5(c)(5) to assist the Council in setting proposed PSC limits for 2010/2011 at this meeting. IPHC Staff recommendations for 2010 - 2012 CDQ and non-CDQ fisheries will be provided in December 2009. NMFS staff will be available to assist in setting PSC amounts using Table 8(a) through (e) for 2009.

Gulf of Alaska The GOA Plan Team recommendations for proposed 2010/2011 GOA groundfish specifications are attached as Item C-5(c)(6). Final specifications for 2009/2010 and halibut PSC apportionments are attached as Item C-5(c)(7) to assist the Council in setting proposed halibut DMRs and PSC apportionments for 2010/2011.

GOA TAC Considerations for State Pacific Cod Fishery Since 1997, the Council has reduced the GOA Pacific cod TAC to account for removals of not more than 25 percent of the Federal P. cod TAC from the State parallel fisheries. Using the area apportionments of the proposed 2010 P. cod ABC that was recommended by the Plan Team, the 2010 and 2011 federal TAC for P. cod would be adjusted as listed below.

Proposed 2010 and 2011 Gulf of Alaska Pacific cod ABCs, TACs and state Guideline Harvest Levels (GHLs) (mt).

Specifications	Western	Central	Eastern	Total
ABC	31,005	45,315	3,180	79,500
State GHL	7,751	11,329	318	19,398
(State % of ABC)	25	25	10	24.4
Federal TAC	23,254	33,986	2,862	60,102

Joint crab and groundfish meeting The plan teams for crab, BSAI groundfish, and GOA groundfish met jointly on September 16, 2009 to review items of common interest: role of economists on plan teams, annual catch limit FMP amendments, total catch accounting under ACL requirements, review of habitat areas of concern criteria, application of uncertainty in crab and groundfish stock assessments and ABC control rules for crab. A report from the meeting is attached as Item C-5(c)(8).

Final Joint Groundfish Plan Team Minutes

September 15-19, 2009
Alaska Fisheries Science Center
Seattle, WA

The Joint meeting of the BSAI and GOA groundfish Plan Teams convened Tuesday, September 15, 2009 at 1 pm at the Alaska Fisheries Science Center in Seattle, Washington. Members of the Plan Teams present for all or part of the meeting included:

Bering Sea/Aleutian Islands Groundfish Plan Team	
Loh-Lee Low	NMFS AFSC REFM (Chair)
Mike Sigler	NMFS AFSC (Vice chair)
Kerim Aydin	NMFS AFSC REFM
Lowell Fritz	NMFS AFSC MML
David Carlile	ADF&G
Bill Clark	IPHC
Jane DiCosimo	NPFMC (Coordinator)
Yuk W. (Henry) Cheng	WDFW
Brenda Norcross	UAF
Mary Furuness	NMFS AKRO
Grant Thompson	NMFS AFSC REFM (SSC Liaison)
Dave Barnard	ADF&G
Leslie Slater	USFWS
Dana Hanselman	NMFS AFSC ABL
Alan Haynie	NMFS AFSC

Gulf of Alaska Groundfish Plan Team	
Jim Ianelli	NMFS AFSC REFM (Co-chair)
Diana Stram	NPFMC (Co-chair)
Sandra Lowe	NMFS AFSC REFM
Jeff Fujioka	NMFS AFSC ABL
Jon Heifetz	NMFS AFSC ABL
Robert Foy	NMFS AFSC
Cleo Brylinsky	ADF&G
Tom Pearson	NMFS AKRO
Nick Sagalkin	ADF&G
Steven Hare	IPHC
Leslie Slater	USFWS
Sarah Gaichas	NMFS AFSC
Nancy Friday	NMFS MML
Paul Spencer	NMFS AFSC REFM
Michael Dalton	NMFS AFSC

Ken Goldman (GOA Plan Team ADF&G) was absent. About 50 members of the public and NMFS staff attended parts of the meeting. The teams reviewed changes to the draft agenda.

Stock Structure Paul Spencer summarized the conclusions of a Council working group report on proposed guidelines for how the Plan Teams should determine species and spatial management units for setting annual catch limits. The workgroup discussed management considerations related to both evolutionary and ecological paradigms for stock structure. Paul asked the Plan Teams to consider how to apply a precautionary rationale to stock structure decisions for management. Tony Gharrett and Mike Canino presented several BSAI case studies. Bill Clark and Sarah Gaichas asked the teams to consider how to distribute harvest spatially relative to the biomass, regardless of genetic or other evidence of stock structure. Jim Ianelli requested that the Plan Teams prepare a summary of the separations by area and species that have been implemented over the years for future consideration. Paul offered to provide that information for BSAI and GOA rockfishes.

Tony Gharrett summarized the materials and methods of marine fishery genetics, and genetic information for BSAI blackspotted rockfish. Mike Canino summarized genetics studies of Pacific cod, walleye pollock, and Atka mackerel. The main questions for genetics are 1) where are population centers located? and 2) how much dispersal occurs? Fishery managers may find it useful to think of genes as tags; however temporal and spatial scales are different than our usual management scales. There is a thousand plus year frame of reference for genetics, but only annual to decadal time scales for fishery management. The question is how to reconcile potential for populations to maintain/replenish genetic structure in space over generation times with temporal and spatial scale of fishing in the North Pacific. Measuring the dispersal potential of the genes within the population range is difficult, but getting that rate is essential to determining possible fishery impacts. We want to avoid "holes" in the population where genetic structure is separated by fishery removals. Genetic migration rates are per generation, and are not annual rates. Generation time is defined as a population average, and takes into account not just first age at spawning but also the number of years of reproductive activity.

Paul led a discussion of what the next steps would be in forming a Plan Team policy, including the ICES model of a separate stock structure committee, the ESA status review process determining evolutionarily significant units, and an alternative approach proposed by the working group on stock structure. The working group proposed a framework where consistent information types would be examined for each stock in question, including fishery harvest and spatial information, barriers and phenotypic characters, behavior and movement, and genetic information.

The teams agreed that a consistent process for examining stock structure issues would be helpful for setting ACLs. The teams proposed a three step process for evaluating stock structure within the management context.

1) data on stock structure would be reviewed using the working group's proposed framework (with any modifications suggested by the Teams or SSC).
2) relative risks to the stock would be weighed for status quo versus altered spatial management to address stock structure.
3) management issues would be considered (such as the feasibility of managing smaller areas, smaller TACs, costs of possible fishery closures, or cryptic species with available data).

The teams agreed with the working group that the scientific data on stock structure should be evaluated at the September Plan Team meeting rather than in November so that resultant ACLs would not constrain management decisions. If management constraints prevented scientific advice from being fully implemented (such as quotas that are too small to manage), alternative management strategies to address stock structure concerns could be considered in the future.

The Teams suggested that stock assessment authors include the data necessary to make consistent evaluations of stock structure in the introductory section on stock structure. Only authors who plan to suggest spatial or stock splits in their current assessments are required to provide the necessary information to the teams each September, and include that information in their November SAFE Report chapter. In the future, this information may be requested for all chapters. The framework (see table in the working group report) should be provided in the stock assessment template going out to authors to notify them that this information will be required if stock splits are recommended, and may eventually be required in all assessments. Case studies will be selected by the Plan Teams in November 2009 for the November 2010 assessments. Instructions to stock assessment authors will include a consistent set of potential area splits for catch and exploitation rate calculation where possible (e.g., include an EBS vs. AI split in BSAI assessments, except that smaller scale splits may be requested; analyses by 3-digit INPFC management areas was suggested for specific cases). Otherwise, hypothesized stock structure should drive areal analysis. Missing information for the framework should be listed as *research priorities* for that stock. Finally, if stock identification information shows that very small management scales might be required that are beyond current capabilities for monitoring and enforcement, this information should still be included in the assessment so that steps can be taken to mitigate any risks the current management might pose to the stock.

Pacific cod as bait Tom Pearson presented an approach that would constitute a step forward in achieving total catch accounting for Pacific cod, which is allowed to be taken as bait in the BSAI for use in the BS crab fisheries. There is no requirement for a catcher vessel to report the amount of Pacific cod caught with crab pot gear for use as bait. NMFS In-Season Management staff is recommending the use of the 2005 to 2009 average Pacific cod weight (i.e., 3 kg Pacific cod/pot) divided by the harvest weight of crab as a percentage to estimate a time series of removals of Pacific cod used as bait. Grant Thompson reported that In-Season Management's estimates of historic removals will likely be counted in the BS cod model as pot catch. An industry member suggested that the Council recommend that an amendment to the regulations be considered to require reporting of cod taken as bait for the crab fisheries to address this data reporting gap. Tom noted that observer program data could also be used to estimate removals. Mary Furuness reported that vessels taking cod as bait generally hold cod endorsements on their limited entry permits and are limited by the 20% cod MRA.

Pacific cod aging accuracy Tom Helser, AFSC, evaluated possible causes of the observed inconsistency between Bering Sea Pacific cod mean length at age and the modal length in survey length frequency data. He posed three hypotheses why such an inconsistency may exist: 1) if age samples and length samples are taken from survey hauls in spatially distinct areas of the Bering Sea that show difference growth characteristics; 2) if growth is

highly variable and changes rapidly, particularly for younger ages, showing pronounced ontogenetic structure; and 3) ageing bias where determination criteria assign a fish of unknown true age to greater or lesser ages. Each theory may not be mutually exclusive, but may act synergistically. Results include:

- Pacific cod growth is rapid and spatially variable (as function of bottom depth and latitude). A generalized additive model (GAM) using a thin plate spline smoothing function revealed a significant functional relationship between mean length and mean age with both bottom depth and latitude. Specifically, average length and average age increase with bottom depth while decreasing with higher latitudes. In addition, the rate of change in mean size and age is significantly influenced by age.
- The spatial distribution of age samples and length samples taken in the survey, as shown by a comparison of median and inter-quartiles (25th and 75th percentile) of catch-weighted bottom depth and latitude, can differ substantially. For those survey years where the catch-weighted distributions of age samples were at deeper depths and lower latitudes than the length samples, the mean length at age 1 from the age data was greater than the mean length in the length database for the corresponding age. However, mean lengths at age 2 from length samples (obtained by slicing the length composition) were in general consistently greater than mean lengths from age samples regardless of the spatial variation in hauls from which age and length samples were taken. It is quite possible that greater mean length at age 2 from length samples are contaminated by lengths from age 3 from the process of slicing length distributions for age.
- Pacific cod growth is temporally dynamic and can vary between cohorts. A hierarchical growth model incorporating cohort specific growth parameters as random components (common distribution as defined by hyper-parameters for the mean and variance-covariance) and environmental covariates as fixed effects revealed that the cohort specific growth coefficient K and t_0 can vary substantially over time and that bottom temperature exerts a significant effect on these parameters. Further, modal lengths for presumptive ages 1-4 from length data from the three most dominant cohorts (1992, 1996, and 1999) are generally consistent with posterior predictive distributions at age generated from the cohort specific hierarchical growth model and in only one case lie outside the inter-quartile range. However, in cases where there is an inconsistency in predicted mean length at age and the modal length (ages 2 and 3 in 1999) the maximum posterior density is always less than the modal length.
- Interpreting ages from Pacific cod otoliths can be problematic before age 4 with difficulty stemming from discriminating annual marks from other growth checks. This is largely confirmed by computation of standard age reading statistics (1992-2008) that indicate percent agreement drops from over 90% at age 1 to about 60% at ages 2 through 6, after which agreement declines roughly linearly until age 12. Variability associated with agreement (as expressed by CV of agreement) increases abruptly at ages 2 and 3, but declines until age 6 and then gradually increases. The use of edge-type criteria (ages 2 – 4) was also evaluated. Edge-type is an ordinal variable (0-5) that may be recorded by the reader (not all readers enter values in this field of the database) and used to assign a final age based on time of collection and amount of calcification laid down at the edge after last annulus formation. Comparison of length frequency distributions from ages that reversed the use of edge type criteria were shifted to substantially larger sizes for ages 2 and 3 than the same set of age samples that did used edge type assignments, while for age 4 the length distribution was shifter to smaller sizes. This generally produced consistency between the mean size at age and the modal size from length samples for ages 3 and 4, but shifted the mean length at age 2 to slightly greater lengths than the modal length from the length samples.

Additional research is needed to reconcile inconsistencies between mean length at age and modal length in the survey length frequency data. These results indicate that pursuing alternatives in modeling Pacific cod growth specifically by cohort may improve the fit to the data, however, other time varying features such as selectivity in the assessment model may be confounded with cohort-specific growth. Also, age samples and length samples appear to be collected differently in the survey, and depending on the spatial distribution of the hauls from which these samples are taken, mismatches between mean length at age and modal length may occur. Finally, it is unclear whether the use of edge type in assisting age readers in interpreting final age based on marginal patterns is appropriate. Research on the use of marginal increment analysis of other species has validated the use of this procedure but it remains uncertain if such a technique should be applied to Pacific cod. Future research to address

potential aging bias and to confirm age determination criteria used for Pacific cod is needed. The list below indentifies specific research intended to be conducted by the Age and Growth Program as well as suggestions that may aid understanding of factors contributing to potential bias. In particular, *research priorities* include:

- Stock assessment model incorporating bias into the existing aging error matrix for ages 2-3 could be employed in the short term to evaluate a process-oriented approach to assessing inconsistency in these data sources.
- The AFSC in collaboration with the IPHC is planning a Pacific cod bomb radiocarbon 14C study using otolith specimens collected in 1962-1963 from the GOA. Pacific cod aging has not been scientifically validated and recovery of these samples would provide the first validation using bomb 14C, which is considered the gold standard of age validation. This is intended to be a study focused specifically on potential aging bias of ages 2-4 using these early samples, but will be augmented with AFSC collections to evaluate older ages.
- To factor out sampling artifacts, ages could be sampled randomly rather than using a length stratified sampling framework from hauls in the 2010 survey. This would ensure spatial consistency of samples for these two types of data and allow direct comparison of size without effects caused by spatial variability in growth.
- Work will continue and efforts will be made to compare GOA and EBS Pacific cod age data.

Pacific cod assessments Grant Thompson presented a suite of alternative models for the EBS and GOA, based on the model preferred and recommendations for various new model elements by each team and SSC in 2008. For the GOA, the key features of the base Model A are: low emphasis (0.12) on age data, because it was not possible to fit both the age data and the trawl survey trend well; asymptotic selectivity in the January-May trawl fishery; age-based trawl survey selectivity; all selectivities double normal. The alternative models, with features based on 2008 suggestions, are stepwise modifications of Model A, as follows:

Model B. Add some new size-at-age data.
Model C. Set emphasis on age data to 1.0.
Models D. Set survey catchability to 1.0 for all years.
Models D1-D6. A factorial array with factors
(i) double normal or exponential-logistic selectivity
(ii) January-May trawl fishery selectivity asymptotic or free
(iii) trawl survey selectivity for 27+ cm fish asymptotic or free
Models E. Size-based trawl survey selectivity.
Model E1. Double normal selectivity.
Model E2. Exponential-logistic selectivity.

Fits of the alternative models were all similar to Model A in that the model predictions of the trawl survey abundance tend to be low (all or most of the residuals are positive). A serious conflict between the survey trend and the age/size composition data continues.

For the Bering Sea, the key features of the base Model A are: all fishery and survey selectivities are asymptotic except for a few seasonal longline and pot fisheries; trawl survey catchability estimated (not fixed); trawl survey selectivity age-based and all others size-based; ascending limb of trawl survey selectivity allowed to vary annually; all selectivities double normal. The alternative models B-H are a factorial array with factors:

(i) double normal or exponential-logistic selectivity
(ii) trawl survey catchability free or fixed (at 1.0)
(iii) trawl survey selectivity asymptotic or free

The exponential-logistic selectivity function was suggested in 2008 because some of the fitted double normal selectivities in Model A showed questionable abrupt turns among older age groups. But this year's fits with the exponential-logistic function were far inferior to those with double normal selectivity, as measured by likelihood and AIC values. All of the models with double normal selectivities fitted the survey data quite well.

Grant posed three questions about alternative models in both regions: 1) whether to retain double normal or exponential-logistic selectivities or both; 2) whether to set priors on some selectivity parameters; and 3) whether to change any of the allowed annual selectivity deviations (intended to account for the year-to year variation in the vulnerability of younger fish). The Stock Synthesis package contains an option for removing the user's control over selectivity at the smallest (youngest) or largest (oldest) size (age) in the double normal selectivity function, resulting in fewer parameters to be estimated. The BSAI Team recommended that Grant use that feature as needed, rather than retaining the exponential-logistic function. The team did not recommend a return to setting priors on selectivities, or any change in the selectivity deviations. (Dropping the exponential-logistic function will remove a complication related to implementing selectivity deviations for that function.)

There are still questions about the cod age data, due to the mismatch between survey length modes and estimated mean length at age of younger fish in the Bering Sea, and by the difficulty of fitting the age compositions in the Gulf. The teams welcomed the work done by Tom Helser (and by Grant) on the estimates of mean length at age, but recommended more work be undertaken as a *research priority*. The teams were also impressed by the large influence of applying or not applying edge type criteria in determining age, first reported by Tom Helser at this meeting. This issue also is a *research priority*. In the meantime, the teams requested that Grant report some model fits that do not attempt to fit the age data in both regions.

Sablefish Dana Hanselman presented an update on the sablefish assessment. A Center for Independent Experts (CIE) review occurred in March 2009. Overall, the CIE panel found that the current assessment approach was acceptable. The Panel also recommended several areas for exploration or improvement. The Panel suggested some approaches regarding abundance estimates from longline and trawl surveys. The Panel concluded that the assessment should continue using fishery catch rate data in the assessment. Other comments related to foreign fishery length data, sex-ratio data, halibut survey data, and State of Alaska sablefish surveys. The Panel also recommended more work on sablefish recruitment dynamics, which in part, will occur through the recently awarded Gulf of Alaska Integrated Ecosystem Research Program. The Panel also commented on model structure, methods for apportioning the ABC among management areas, movement (tagging) data, methods for treating abundance data affected by whale depredation, selectivity (size vs. age-based), growth estimation (inside vs. outside the model). Substantial discussion occurred regarding whether a spatially disaggregated model was appropriate, but the assessment authors, at this time, will continue with a pooled (Alaska-wide) model.

In response to the CIE Panel report, the assessment authors presented progress on several alternate model configurations at this meeting. For example, the likelihood weights on the model data sources were iteratively re-weighted, however, this work will not be complete until 2010. The authors plan to convene a group of modelers to assist with this work this winter. Also, an industry review of the assessment has been requested. Thus, the assessment will not be revised until the September 2010 Plan Team meeting, and the base model from last year will continue to be used for the 2009 assessment. The Plan Teams agree with the authors' recommendation to continue with the base model for 2009.

Chris Lunsford presented an update on the 2009 AFSC longline survey, 2009 survey database, and research on sperm whale depredation. A survey of the Bering Sea and Gulf of Alaska was completed. Survey catches (not the abundance index, which hasn't been computed yet) for sablefish are very similar between 2008 and 2009, up for giant grenadier, down for shortspine thornyhead and rougheye/shortraker rockfishes, and up substantially for Pacific cod. Killer whale depredation affected about 60% of Bering Sea stations. Sperm whale depredation was substantial in 2008, but fell in 2009 to near the average value. Interactions between the survey vessel and fishing vessels were few this year (1-2 vessels) and have been low in recent years. Tagging of sablefish and shortspine thornyhead continued in 2009 and archival tagging of lingcod was new this year. Survey database development is nearly complete, in part due to special effort by Cara Rodgveller. These improvements will allow web access to summarized longline survey data. Other data requests can be accommodated by ABL staff.

Depredation research focused on sperm whales by Jan Straley, Aaron Thode and the Alaska Longline Fisherman's Association, which included photo identification, satellite tagging (some long-distance movements), updated analysis of survey depredation rates and using passive acoustics to measure depredation. Joe Liddle will update the statistical analysis of depredation rates to include data through 2009. Passive acoustics will attempt to determine whether depredation events can be detected. If initial efforts are successful, this method could be used

to quantify depredation rates. The method tentatively has identified "creaks" followed by silence as indicating a successful prey capture. Another acoustic technique permits animal range and depth to be derived from their echoes and hydrophones. Future work plans include completing the acoustic analysis, triangulation of "creak" data to identify when depredation occurs, development of software to automatically detect creaks and matching acoustic data to a boat event logger. Finally, funding from the cooperative research pool will be requested to continue this work. As *research priorities*, the Plan Teams recommend that the depredation research continue and that funding be found to update the sperm whale assessment with an updated abundance estimate. At this time there is no abundance estimate available, which means the potential biological removal for sperm whales cannot be defined. This is important as there are apparent increases in sperm whale depredation/fishery interactions. Therefore, the Teams recommend a sperm whale abundance survey be conducted and included in the sablefish stock assessment also as a *research priority*.

Ecosystem Effects Stephani Zador presented the Ecosystem Considerations chapter and Sarah Gaichas presented the Ecosystem Assessment. Stephani replaced Jennifer Boldt. Jennifer recently took a new job and has done a great job improving the Ecosystem Considerations chapter. The September draft includes 22 updated contributions and 2 new contributions. The Ecosystem Assessment presented was the same version that was reviewed by the SSC in December 2008; it will be updated for the November 2009 SAFE Report. Among the updates:

- 2009 sea surface temperature anomalies were cool; very cold conditions and extensive sea ice in Jan-Mar 2009 in the Bering Sea. March-May 2009 showed favorable conditions for upwelling along the west coast. The effects of the currently developing El Nino may be enhanced in the north due to the current state of the Arctic Oscillation (AO). Lower eddy kinetic energy in the GOA and AI which may mean phytoplankton confined to the shelf and lower cross-shelf transport in the GOA and low heat and salt transport from N. Pacific through Aleutian passes into the Bering Sea. OSCURS models runs suggest 5 of the 8 most recent years (2002-2009) have drift conditions associated with more favorable flatfish recruitment. Continuous plankton recorder time series show high GOA biomass and bloom length in 2008.
- There was a drop in the relative area disturbed by trawling gear in the EBS between the 1990s (10-15% disturbed area) and the 2000s (9-11%), with a slight increase from the lows in 2007-2008. The Plan Team recommended that this should be calculated as percentage of trawlable shelf (shallower than 1000m) in addition to percentage of the entire region.
- There has been a general shift in distribution to the north and shallower over time in the spatial distribution of Bering Sea groundfish. This existed even after adjusting for temperature.
- Most of the nontarget catch is of non-specified species. In the Bering Sea there has been a general decrease in non-specified catch; recent increases are driven by jellyfish. BSAI HAPC catch has decreased. Closure of the Arctic to bottom trawling added 148,000km^2 to the area closed to bottom trawling; overall almost 65% of U.S. EEZ off Alaska is closed to bottom trawling year round. Fishing effort is currently at or below long-term averages. Production levels of groundfish from surplus production curves in BSAI are low relative to their biomass (compared to higher production at same biomass in the early 1980s).
- The Ecosystem Assessment showed a selection of indices in a common format and reported on trophic guilds within the food web. The teams recommended: 1) combined and by-guild surplus production be provided, 2) clarify small issues (errors?) in displaying types of species by data availability, 3) distill the ecosystem information further - highlight the most important information in the SAFE Report summary. The teams recommended that AFSC staff circulate a shortlist of graphical summaries among Plan Team members to hone the information, as requested, 4) clarify one of the summary graphs identified as 'trawl gear' to be trawling effort by pelagic gear, 5) include the legend on every page; 6) incorporate a visual display of uncertainty by changing the physical width of the green band (or place it off to the right).

Economic SAFE Report Ron Felthoven presented key results from the Economic SAFE Report for the 2008 fisheries. Ron summarized the primary recent contributions of the AFSC Economic and Social Science Research Group and listed several research topics to be investigated during the coming year. The format of the report is unchanged, with the following topics included (among others): catch, value, prices, effort, discards, gross

measures of fishing capacity, crew weeks for CPS, and estimated observer costs. The market data report contained in recent reports is being updated by AFSC this year. Ron also summarized papers and projects that addressed a variety of topics: 1) markets and trade, 2) data collection projects, 3) recreational fishing, 4) models of fisher behavior, 5) economic performance, 7) regional economic models, and 8) socioeconomic, cultural, and community analyses. Ron provided an overview of trends in value and catch, noting that while catch was down in 2008, value was up. Plan team members expressed interest in knowing more about how the Alaska fish output compares to the national output and how the value of different species contributes to changes in total value. In response, a new table is being added this year that compares Alaska fisheries value to national value.

Vulnerability Analysis Olav Ormseth presented the results of a vulnerability analysis applied to non-target and selected target species in the GOA and BSAI. Vulnerability is defined as the likelihood of overfishing in the absence of conservation measures. The vulnerability analysis measured the vulnerability as a function of stock productivity and susceptibility to the fishery. The vulnerability analysis provides information pertinent to classifying stocks in the new annual catch limit (ACL) categories of "fishery" stocks or the optional "ecosystem component" stocks. The Joint Plan Teams recommended that the Council's ACL analysis consider listing all target[1] stocks, sharks, skates, squids, sculpins, octopods, and giant grenadier be considered for inclusion "in the fishery" and be subject to ACLs and status determination criteria. An alternative should be included of whether to list squid and octopus complexes as candidates for the Council analysis to evaluate whether they could be included in a new ecosystem component (EC) category. Some members favored managing octopus in the fishery. The analysis would include consideration of moving forage fish and prohibited species into the EC category only.

Octopus Liz Conners gave a brief presentation on a new octopus field study beginning in 2010 that has been funded by NPRB. The study includes an outreach program to collect information on locations and seasonality of octopus dens from local divers, a life-history study aimed at documenting reproductive seasons in Alaskan waters, a trial of longlined habitat pot gear, and a pilot tagging study. Liz also reviewed other research initiatives underway for octopus.

The plan team was asked for direction on the period of incidental catch data to be used for Tier 6 OFL and ABC calculations for sharks and octopus. These two groups do not have any data available from the historical period specified for Tier 6, only for the most recent 12 years (1997-2008). The team agreed that a fixed period is more acceptable than one that is continually updated with recent annual data. There was some discussion as to what constituted a "reasonable time period" to include in the calculations. The teams recommended that a 12 year period be fixed for these groups and used into the future.

Sharks Two issues for the shark complex stock assessment were presented to the September groundfish plan team meeting. The first issue is that the estimated catches previously reported by the Regional Office for the years 2003-2008 were incorrect, owing to a database problem. This problem has been corrected and the correct catches will be reflected in the 2009 stock assessment. The changes in the catch will result in the average catch from 1997-2007 (which is used to assign the ABC and OFL) increasing by 46%. The second issue is trying to estimate shark (and other non-target species) bycatch in the halibut IFQ fisheries.

Two methods are being examined, both using the IPHC annual longline survey as an index for extrapolation to total commercial effort or landings. Concerns with both methods are: 1) extrapolating from the 20% hook count to total catch in the survey may be biased; 2) survey behavior and commercial behavior may not be the same; and 3) biological data, such as average size and sex ratio may not be known for all species (i.e. sleeper sharks). The plan team supported the author's plan to use Monte Carlo methods to incorporate uncertainty around the biological data and the survey extrapolated shark catch. Further, they suggested a filter of the survey data to make it more similar to commercial fishing behavior, and they suggested working with the Regional Office to ensure that bycatch isn't double-counted in the catch accounting system and these estimates of bycatch.

[1] those for which catch specifications are currently set

Bering Sea Project Mike Sigler presented an update on the Bering Sea Project (Bering Sea Ecosystem Study (BEST)-Bering Sea Integrated Ecosystem Research Program (BSIERP)). This project is funded by the North Pacific Research Board and the National Science Foundation. Mike provided an overview of the research program and a summary of major findings of 2008 results.

Marine Mammals Lowell Fritz briefed the teams on results of 2009 marine mammal summer surveys.

Steller sea lions – NMFS conducted an aerial survey throughout the AK range from 24 June -16 July 2009. The two objectives for this survey were to 1) estimate pup production in AK and 2) conduct a non-pup survey in SE AK, Prince William Sound (PWS), Kenai and Kodiak approximately 2.5 weeks later than last year to investigate further the effect of survey timing and movement of sea lion counts and distribution. Pup production estimates will be available in November. Preliminary results of non-pup counts indicate that there were ~1,000 fewer in PWS in 2009 than in 2008, suggesting that part of the increase in the eastern GOA observed last year was due to movement of sea lions into this area from elsewhere (likely SE AK and/or Central GOA). Preliminary estimates of juvenile and early adult sea lion vital rates (from brand resighting) suggest high survival (>90% age 4+). Using best estimates of survival at age (from Ugamak and Marmot/Sugarloaf) and non-pup trends in the eastern Aleutians and central GOA from 2000-2008, NMML estimated that natality (ratio of total live births to total female population in a specified community or area over a specified period of time) in the central GOA is 31% lower in the 2000s than in the late 1970s, and 18% lower in the eastern Aleutians. The central GOA estimate is similar to that estimated by Holmes et al (2007) using different data.

Northern fur seals – Pup production on the Pribilof Islands was assessed in 2008. The number of pups born on St Paul in 2008 was ~6% lower than in 2006 and continued the average 5.7%/year decline observed since 1998. Pup production on St George is about 5 times less than on St Paul, and has remained relatively constant since 2002. Pup production on Bogoslof Island, last assessed in 2007, increased at a rate of 13%/year between 1997 and 2007. Female fur seals with pups on St Paul forage predominantly on the Bering Sea shelf, while those on Bogoslof use pelagic habitats north of the eastern Aleutian Islands; females on St George use both shelf and pelagic habitats. St Paul female fur seal summer foraging patterns reflect changes in age-related pollock distribution and year-class strengths. Also, foraging trips are shorter, pollock are consumed more often and pup weights are greater as pollock abundance increases (Sterling 2008). These data suggest a recent deterioration in the quality of on-shelf foraging habitats for female fur seals in the Bering Sea, which is likely related to recent decreases in pollock abundance.

Biological Opinion - Lisa Rotterman, The NPFMC requested that NMFS delay release of the groundfish fishery biological opinion to permit consideration of 2009 pup survey data, non-pup timing-related survey data, and a report by John Maniscalco regarding natality of Steller sea lions on Chiswell Island. After considering the request, NMFS decided that the incorporation of the 2009 data would improve the opinion and agreed to delay the opinion to permit incorporation of these data. The opinion is now scheduled for a CIE review and availability in March 2010, in time for full consideration by the NPFMC and the public at the Council's April 2010 meeting. Because of the delay, NMFS also will be able to incorporate some of the 2008 commercial fisheries data.

Trawl Surveys - GOA Mark Wilkins provided an overview of preliminary results from the GOA bottom trawl survey. Data will be finalized and made available to stock assessment authors shortly. A full survey was conducted this year (fortunately) despite uncertainty in funding throughout the planning process. The survey used three vessels and included all depth strata to 1000m. No stations were dropped and depth strata were all sampled.

There were observed increases in pollock and Pacific cod, particularly high age-1 estimates for both stocks. Most rockfish species show flat trends or minor increases except for northern rockfish which demonstrated a sharp decline. Trends in rougheye and blackspotted rockfish are complicated by species identification issues. Jim asked about expert testing for species identification. Mark reported that staff can clearly identify some of the fish as blackspotted rockfish and some as rougheye rockfishes, while some are not clearly distinguishable to species. Those latter fish will be tested for species identification through tissue and otolith samples. Eulachon trends were presented but given the pelagic nature of the species are highly uncertain.

The teams discussed the consideration of net performance between tows. Mark indicated that each individual tow is monitored although differences in net performance tend to occur primarily in more shallow waters. Net

performance is estimated by monitoring speed over ground. Members of the public commented that water flow through the net would be a more appropriate measure of net performance. Mark indicated that the standard for consistency in evaluating performance is the speed over ground and consideration would need to be given with respect to previous years in order to modify this standard.

The teams commended NMFS HQ and AFSC for completing the GOA survey on short notice after full funding was made available.

Trawl Surveys - BSAI The twenty-eighth annual bottom trawl surveys of the EBS continental shelf was completed in August 2009. Standardized biological sampling of groundfish resources was conducted successfully at 376 stations, and abundance and biomass estimates and analyses of size and age composition were generated for selected commercial groundfish species for use in the annual stock assessments. Data collections included more than 149,000 length measurements of 45 fish taxa and more than 9,200 age structures of 13 fish taxa. Numerous special research projects also were conducted including the fourth year for two projects: collecting acoustic data on midwater walleye pollock to augment the EIT time series, and collecting summer samples to monitor distribution and abundance of zooplankton on the EBS shelf. A second year of collecting a synoptic environmental dataset for BSIERP also was completed. Bottom shelf temperatures were slightly higher in 2009 (0.1°C) compared to 2008 with the southward extension of the cold pool (<2°C) similar to 2008. A majority of trawl catches contained pollock, although the estimated total biomass decreased from 3.03 million t in 2008 to 2.28 million t in 2009. The largest catches of pollock were concentrated along the northwest outer shelf and near the Pribilof Islands, where bottom temperatures were above 0°C; large catches of pollock were also observed north of the Alaska Peninsula near Unimak Island. Similar to pollock, Pacific cod were broadly distributed across the EBS shelf and caught at nearly all stations. There was a marginal increase in Pacific cod total biomass from 0.40 to 0.42 million t and a much higher proportional increase in population due to higher numbers of 15-20 cm and 40-50 cm Pacific cod. Estimates of total biomass of yellowfin sole, rock sole, flathead sole, arrowtooth flounder, and Greenland turbot declined 13-25% from levels estimated for 2008. A 4% increase in biomass was observed for Alaska plaice and a 21% increase, in Pacific halibut.

Sculpins Todd TenBrink presented a brief summary on the recently completed life history project on the five most abundant sculpins in the BSAI. Parameters such as age, growth, reproduction, and diet were investigated. Natural mortality (M) estimates presented in the 2008 BSAI sculpin assessment were the direct result of using new life history information to calculate M based on several indirect methods. The teams briefly discussed what methods were best to use for the sculpin complex or individual species within the complex. If indirect methods are to be used, the teams recommended those associated with Beverton and Holt life history invariants. These methods included Jensen (1996), Charnov (1993), and Roff (1986) among those used to calculate M for sculpins. The teams also recommended catch-curve analysis for unexploited stocks such as sculpins.

Skates Olav Ormseth presented a review of the BSAI skate assessment and management. The SSC adopted an age-structured model for Alaska skate (*Bathyraja parmifera*) in 2008. The model presented at the November 2008 Plan Team meetings fit the data well with one exception: length at age was consistently underestimated. The Tier 3 estimates of OFL and ABC are lower than the Tier 5 estimates, likely the result of a delayed maturation of Alaska skate. Currently, age and length at 50% maturity for Alaska skate is 10 years and 93 cm, respectively. The Plan Teams will consider whether to reduce Tier 5 OFLs and ABCs for other skates with similar lengths and ages at maturation. New maturity data for other skate species (e.g. *Bathyraja interrupta* and *B. aleutica*) may be available soon based on research conducted at Moss Landing.

Adjourn The joint team meeting adjourned at approximately 11:30 am.

BSAI Groundfish Plan Team
Final Report
AFSC- Seattle, WA
September 19, 2009

Loh-Lee Low (AFSC), Chair
Mike Sigler (AFSC), Vice-chair
Grant Thompson (AFSC), SSC Liaison
Jane DiCosimo (NPFMC), Coordinator
Dave Carlile (ADF&G)
Mary Furuness (AKRO)
Brenda Norcross (UAF)
Leslie Slater (USFWS)
Dave Barnard (ADF&G)
Kerim Aydin (AFSC)
Bill Clark (IPHC)
Lowell Fritz (NMML)
Yuk Wing (Henry) Cheng (WDFW)
Alan Haynie (AFSC)
Dana Hanselman (AFSC)

The BSAI Groundfish Plan Team convened on Friday, September 19, 2009 from 1:00 pm to 4:00 pm. About 40 members of the public and AFSC staff attended parts of the meeting. The team revised the writing assignments for leading discussions and preparing the SAFE Report introduction summary sections for the November 2009 meeting.

Taina Honkalehto summarized the following three BSAI surveys conducted in 2009.

March echo integration-trawl (EIT) survey of pollock in the Bogoslof Island area. Two main spawning areas were identified: Umnak in the east and Samalga in the west. Pollock dominated the catch in 5 trawl hauls. The 2009 pollock population estimate was 110,000 tons. About 86% of the biomass came from the Samalga region. The overall size composition was unimodal with a mean of 55 cm. There were no new recruits evident this year. Fish do not typically appear in this population until they reach 4-5 years old, and peak numbers occur at 6-7 years old; therefore the 2006 year class has not been observed yet in the EIT survey. The last decade has been characterized by low, semi-stable biomass estimates. The next Bogoslof survey will be conducted in 2011.

Summer EIT survey of eastern Bering Sea shelf walleye pollock. The EIT survey methods were the same as in the past; a daytime survey, with continuous acoustic data collected at 5 frequencies along north-south transects spaced 20 nmi apart. The survey began in Bristol Bay and finished west of Cape Navarin, Russia. Opportunistic midwater and bottom trawls were made targeting pollock backscatter, and also targeting euphausiid layers for multi-frequency identification work and for BSIERP. A large set of physical oceanographic data was collected. Night collections were made of additional oceanographic samples and supplemental trawls. Target strength (TS) data also was collected with a lowered transducer and acoustic data on fish school morphology with a multibeam echosounder. Estimates were made of pollock biomass between 16 m from the surface and 3 m off the bottom. Results showed the EBS summer shelf waters were cold, as in 2006-2008. The U.S. EEZ midwater pollock biomass estimated from the EIT survey was 0.916 million t. The pollock biomass in Russia was about 0.005 million t. East of 170° W (9.6% of the shelf-wide biomass) pollock lengths were between 40-70 cm with a mode at about 55 cm. West of 170° W in the U.S. (89.8% of the shelf-wide biomass) pollock were numerically dominated by small fish with lengths between 9-18 cm (approximate age of 1 year), and then by fish 27-38 cm (approximately age 3s), and there were fewer older adults than usual. In Russia (0.6% of the shelf-wide biomass), pollock lengths were multi-modal, between about 20-60 cm.

Acoustic euphausiid abundance index for the Bering Sea A new analysis of MACE acoustic-trawl survey backscatter data from 2004 to present was used to create an index of summer euphausiid abundance on the Bering Sea shelf. The analysis relies on a comparison of acoustic backscatter at four frequencies and net sampling with a Methot trawl. Euphausiids are one of the most important prey for walleye pollock in the Bering Sea. The time series of Bering Sea summer euphausiid abundance, 2004-2009, relative to 2004 shows that euphausiid biomass increased three-fold, while pollock has decreased. These patterns are

probably related, but they may also be independent responses to changes in environmental conditions. This euphausiid index may help us better understand temporal and spatial variability in pollock abundance.

EBS Pollock update Jim Ianelli reviewed new information in the context of how it relates to the 2008 model projections for 2009 and 2010.

The Team discussed the different approaches to estimating current-year and future-years' mean weights-at-age for EBS pollock, noting that the convention has been to use the recent three-year-mean values. This practice was selected by the SSC several years ago when alternative approaches were presented, which included options to use the means over the recent 10-yr period and over the entire time series. Jim also described a possible new predictor based on a suite of variables that plausibly affect mean weight, such as the proportion of the annual catch that is taken east and west of 170°W, ocean temperature, year-class strength, and a variety of other factors. Work on this new alternative is currently in progress. The set of explanatory variables is limited to those with measurements available in the year of the assessment. As envisioned, the "best" predictive model would be determined on the basis of minimizing the weighted (by average cohort biomass) sums of squared differences between predicted and out-of-sample observed mean weights-at-age. The Team cautioned the assessment authors about introducing a new approach in November unless it was clearly demonstrated to be superior. The team clarified that it may not recommend a new method until September 2010.

Spatial patterns of the 2009 summer season fishery were examined and compared with identical periods from 2006-2008. Several fishermen in the audience commented about their experiences this season and noted the high level of abundance of ~350 g pollock. They also commented that the A and B season fishing patterns (i.e., locations of spawning concentrations, etc.) appeared to be later than normal and thought that might be due to colder ocean conditions. Monthly fishery length frequency data showed the prevalence of relatively large pollock throughout the A-season, and for June and July. By August the preliminary length frequency data indicated that large pollock comprised less of the catch and the main mode of pollock in the fishery was centered around 35 cm.

Jim's presentation of new survey data began by emphasizing that bottom-trawl survey (BTS) gear appears to catch older, larger pollock whereas the echo-integration trawl survey (EIT) covers the upper water column where younger pollock tend to reside. Relative to the 2008 survey index values, both the EIT and BTS point estimates were lower in 2009. However, compared to values projected from last year's stock assessment model the BTS survey estimate was above expectations whereas the EIT estimate was below expectations. The author showed a method for combining these survey index values relative to expectations (by accounting for age-specific selectivities and survey catchability estimates) so that some indication of potential impact relative to the 2008 projections for 2010 could be considered. Results indicate that when divided out by age classes, the combined new data suggest that the 2006 year class is consistent with past estimates (slightly higher by about 7%) but that the 2009 biomass from the two surveys combined was below expectations.

Jim reiterated that interpreting survey results that cover different age-components of the population requires careful consideration and suggested that in the forthcoming assessment, projections of next year's expected survey estimates will be included to aid in interpreting next year's survey results once they become available, i.e., the assessment presented in November of 2009 should include a table of projected survey estimates for 2010 to facilitate interpretation of data presented next September. However, the issue of the relative statistical weights applicable to the two surveys will continue to make *ad hoc* revision of estimated year class strengths a dubious exercise. The impact of new survey data on last year's projection requires understanding how all the different data components interact.

Jane DiCosimo reviewed the two year cycle for setting groundfish specifications. She noted that the TACs were set for 2010 based on the December 2008 Council action and that Council action in October 2009 would not change those TACs. The purpose of setting proposed specifications was solely to notice

the public under the requirements of the Administrative Procedures Act, so that the final rule is a logical outgrowth of the proposed rule. Mary Furuness clarified that NMFS could file an in-season action to lower specifications when the fisheries open in January 2010 based on the Council's December 2009 recommendations. She reported that an in-season action was taken to lower the EBS pollock and cod specifications in January 2009. Jane cautioned that the public should not place undue importance on the Plan Team's recommendations for proposed specifications. Additional information may come before the SSC or Council in October, since the survey data was recently released for AFSC analysis. The preamble to the proposed rule will discuss the information available to the Council and the Council's rationale for its recommendations. That discussion will inform the public that the 2010 final specification for pollock is unknown, but may be lower than the current pollock specification (1.2 M t).

Mike Sigler led the discussion of the proposed specifications for 2010/2011. The team focused its discussion on EBS pollock first, based on new information presented by the AFSC scientists. The team discussed whether it has sufficient new information to recommend a pollock ABC different than the 2008 model's projection for 2010, and if so, what would be the basis for the new recommendation. Mike reviewed the new information, which showed that 1) "EIT Pollock biomass was below last year's projection for 2009, 2) there were 5 consecutive years of low pollock recruitment and that it may be another year before we see the 2006 cohort fully recruited into the fishery, 3) one index (EIT) suggests a lower biomass estimate while the other (BTS) indicated higher than expected. Relative to (3), the Team noted that the EIT survey is understood to provide a better index of 3-year olds (the 2006 year class) than the BTS and that, when the model is run, the BTS age-3 selectivity estimate will likely change and result in a lower abundance estimate for this year class. The author noted that the uncertainty of the 2006 year class may also increase, but is likely to still be above average.

Several Plan Team members spoke in favor of rolling over the 2009 OFL and ABC for 2010 because they felt it would be difficult to justify increasing the ABC by 50% following the two lowest survey estimates on record observed in 2009, which could result in reduced spawning biomass estimates for 2010. They suggested that rolling over the 2009 specifications would notify the public better of the eventual outcome of the assessment and minimize negative expectations for the final specifications to be decided in November 2009. Henry Cheng recalled that an MSY strategy is prohibited for a Tier 1 stock that is below B_{MSY}.

Other members suggested that this decision was almost a philosophical choice rather than a scientific decision. In the absence of the assessment results, there is not a "better" number to adopt for setting the OFL and ABC. The 2009 and 2010 numbers were equally incorrect; it is not known if the November 2009 assessment will report a number even lower than the 2009 OFL and ABC. Until a new number is available based on the assessment updated with the 2009 survey observations, they suggested keeping the current 2010 specifications for the proposed rule based on the best available information because the survey results were preliminary and the assessment has not been updated and presented.

The Team reached consensus on the following findings (noting that predicting projections from an integrated assessment model with many different interacting data sets is difficult):

1) the November 2009 assessment likely would result in a lower pollock biomass projection for 2010 compared with the November 2008 assessment (ABC less than 1.2 M t) due to:

   a) overall lower than expected survey biomass observations

   b) the possibility that the 2006 year class will be lower than estimated last year given past estimates of uncertainty about this year class.

2) it is possible that the ABC from the November SAFE for 2010 will be even lower than the 2009 ABC (815,000 t) due to the same reasons as above.

3) The effect of (1a) and (1b) may mostly be on adult pollock biomass, which could result in a lower spawning biomass than projected and hence, given the harvest control rule, would result in a lower ABC for 2010 than that projected from the 2008 assessment if nothing else in the assessment changes.

The Team was split on its recommendation for proposed 2010 OFL and ABC between rolling over the 2009 OFL and ABC and the 2010 OFL and ABC for the proposed rule. The majority favored rolling over the 2009 numbers. The pollock model previously predicted a substantial increase in spawning biomass, which would have resulted in a higher fishing mortality because of the control rule. In light of evidence from the two pollock surveys, there appears to be less chance for a large increase in spawning biomass. The Plan Team recommendation is to roll over the ABC and OFL from 2009 to 2010 for the proposed rule.

Alaska Plaice Tom Wilderbuer consulted with the team on his plans for assessing Alaska plaice with a split sex model. The data show that both sexes are about the same weight for a given length, although females have larger lengths-at-age and weights-at-age. The new model uses sex-specific data on fishery and survey age composition and weight at age. The new model provides sex-specific estimates of population number, fishing mortality, and selectivity, and allows for estimation of sex-specific natural mortality. The team commended the author for development of the new model and recommended that it be used in this year's assessment.

Groundfish retention standards Mary Furuness briefed the team on a report she and her staff prepared on the effects of Amendment 80 on groundfish retention standards (GRS). Vessels in the non-AFA trawl catcher/processor sector had the lowest retained catch rates of any groundfish trawl fishery in the BSAI. In response, the Council developed the GRS program under Amendment 80, which requires cooperatives and individual catcher processors in the limited access sector to meet an annual standard for retaining groundfish. The GRS is calculated as the round-weight equivalent of total retained groundfish from production data to total groundfish catch from observer data. The 2009 standard is 75% and increases to 85% in 2011. At the November 2008 meeting, Jason Anderson, Best Use Cooperative, raised an issue about how the assessments and economic chapter report estimates of flatfish bycatch in the assessments in the context of retained and discarded catch for the Catch Accounting System and the team agreed to take a report on that issue at this meeting. Mary provided a brief report on the catch accounting system and Amendment 80 groundfish retention standards. She will prepare draft text that authors could include when presenting bycatch data in the assessment chapters. The text will explain that bycatch rates are sometimes calculated in different ways depending on the context of the specific report.

Adjourn The meeting adjourned at approximately 4:00 pm.

Gulf of Alaska Plan Team Minutes

The meeting of the Gulf of Alaska groundfish Plan Team convened on September 18th, 2009 at 1pm at the Alaska Fishery Science Center, Seattle, WA. Members of the GOA Plan Team in attendance included:

Jim Ianelli	NOAA AFSC REFM (GOA co-chair)
Diana Stram	NPFMC (GOA co-chair)
Sandra Lowe	NOAA AFSC REFM
Jeff Fujioka	NOAA AFSC ABL
Jon Heifetz	NOAA AFSC ABL
Nancy Friday	NOAA AFSC NMML
Cleo Brylinsky	ADF&G
Tom Pearson	NOAA AKRO
Mike Dalton	NOAA AFSC REFM
Leslie Slater	USFWS
Paul Spencer	NOAA AFSC REFM
Sarah Gaichas	NOAA AFSC REFM

Team members Ken Goldman (ADF&G), and Nick Sagalkin (ADF&G) were absent. Henry Cheng attended the BSAI meeting. Approximately 10 state and agency staff and members of the public also attended. Names of attendees are included in the Joint Plan Team minutes. The agenda for the meeting is attached to the joint Plan Team minutes. No changes were noted to the agenda.

GOA Pollock EIT survey results

Mike Guttormsen provided an overview of the winter EIT survey results. The Shumagins were surveyed in mid February, followed by Sanak Trough and the shelf break south of Unimak and Unalaska Islands. Large concentrations of age-1's were found in Shumagin Trough, with age 2's and 3's mixed with adults dominating off Renshaw Point and elsewhere in the Shumagins. Tom Pearson noted the Shumagin fleet, which typically operates off of Renshaw Point, took slightly longer to catch their quota this year. Pollock from the 1999 and 2000 year classes dominated in Sanak but were mostly absent from the Shumagins. The high percentage of spent fish for Sanak indicated that peak spawning had already occurred. Martin Dorn plans a co-operative survey in Sanak Trough next January. No pollock were found along the shelf break

Very few pollock were detected along the Chirikof shelfbreak. Shelikof was dominated by 2-year old fish (2007 year class), with the remaining fish primarily age-5. Dense concentrations of 35-40 cm pollock were found in Marmot Bay to the northwest of Spruce Island, which was consistent with results from a survey conducted there 2 years earlier, during which dense concentrations of 2-year olds were detected. Patchy concentrations of adult fish were located in Spruce Gully along the canyon edges.

The overall survey biomass increased from 2008, which is consistent with both the 2009 bottom trawl results and the 2008 model predictions for 2009. All results this year are from the *Oscar Dyson*. These results are uncorrected for vessel effect between the *Miller Freeman* and *Oscar Dyson* (this will be done within the assessment model).

Additional future survey effort will include the following:

2010 Shumagin/Sanak: Prince William Sound
2010 Shelikof/Chirikof: Marmot Bay and Kenai Peninsula Bays
2011 GOA-2 month summer survey from 170°W to Yakutat.

Julie Bonney noted that Kenai fishing typically occurs during roe season and that this should be taken into consideration in the timing of the proposed survey. She suggested looking at historical catches to estimate the best timing for this survey, but this may not be possible because of vessel allocation issues. Because the previous two Gulf-wide summer surveys located large quantities of POP, the Plan Team questioned whether abundance estimation would be possible, as was done for capelin. Mike noted that the Acoustics Group does not yet have a target strength-to-length relationship for POP but hopes to develop one next year using data collected with a lowered transducer system. The summer survey will also estimate relative euphausiid abundance, which Sarah Gaichas noted would be very important for ecosystem considerations and forage fish assessments.

The Team discussed the ability to use echosounders on commercial vessels for surveying in the GOA. The Team noted that it would be useful to begin collecting data soon. Julie noted that the fleet has noticed much higher amounts of POP intermixed with pollock and that POP appears to be taking over traditional fishing grounds for pollock along the shelfbreak.

Proposed specifications

The Team reviewed the proposed specifications for 2010-2011 that are used to establish the proposed rule. Consistent with last year's approach, the Team is recommending a rollover of the actual specification set for 2010 for both 2010 and 2011 for the proposed rule.

The Team discussed other mortality column included this year for discussion of total removals. Recommendations were made for clarifying catch columns. The column on total catch should note that this is commercial catch (including discards) from the groundfish fisheries as reportecd by the Catch Accounting System (CAS). The Other Mortality column includes recreational catch, research catches, experimental fishing catches, etc. Column titles should be modified accordingly to clarify this. A source of unreported mortality which continues to be an issue is bycatch of groundfish in the halibut fishery, primarily demersal shelf rockfish, Pacific cod and skates.

Julie Bonney noted that reporting of total removals for ACL purposes may have some difficulties in consistent approach across different fisheries. Consideration must be given to ensure that double-counting is not occurring when catch has already taken off of the ABC or TAC. The Team discussed EFPs and the implications that total removal accounting under ACLs have on the ability to allow for EFPs. Research removals are another concern, noting that for sablefish the longline survey catches can represent a substantial proportion of the catch. Jeff Fujioka suggested that historical catch information be revised for inclusion in the assessment to account for these catches. Julie Bonney requested that it would be useful to educate the public regarding the impact of re-running the model to include these previously unaccounted for catches.

Organization for November meeting

The Team discussed SAFE report organization for this year as well as future years and made summary assignments for November for all Team members. Diana emailed these assignments to Team members following the meeting.
The Team recommends that when the shortraker rockfish assessment uses an age-structured model it should be in a separate chapter.

The Team made several requests to assessment authors:

1. ABC apportionment information for summary tables should be included in the executive summary of the assessments. Rockfish chapters should be used as an example of the tables necessary in the assessment for use in the introduction.
2. Assessment authors should include the information needed to do the status determination criteria on an annual basis in their assessments.

For the November meeting, the Team requested that only essential assessment-related material be covered in order to allow the Team sufficient time for deliberations and assessment review. The Team requests that Pacific cod specifications should be done in separate Team deliberations even if the actual assessment reviews are done in joint session.

Tom Pearson will send 2009 catch by area and GOA-wide totals to all Team members one week before. Tom and Sarah will coordinate on the week-ending date for 2009 catch in order to estimate catches of other species for the same time frame.

Mike Dalton suggested including economic information on gross revenue change split-out by species. The Team recommended including this as a separate new section in the introduction.

The meeting adjourned at 2:45pm.

DRAFT September 2009 BSAI Plan Team Proposed OFL and ABC Recommendations (metric tons) for 2010-2011

		2009				2010			2011		
Species	Area	OFL	ABC	TAC	Catch	OFL	ABC	TAC	OFL	ABC	TAC
Pollock	EBS	977,000	815,000	815,000	742,156	977,000	815,000		977,000	815,000	
	AI	32,600	26,900	19,000	1,315	36,800	30,400		36,800	30,400	
	Bogoslof	58,400	7,970	50	50	58,400	7,970		58,400	7,970	
Pacific cod	BSAI	212,000	182,000	176,540	122,827	235,000	199,000		235,000	199,000	
Sablefish	BS	3,210	2,720	2,720	632	2,980	2,520		2,980	2,520	
	AI	2,600	2,200	2,200	751	2,410	2,040		2,410	2,040	
Atka mackerel	Total	99,400	83,800	76,400	31,506	84,400	71,100		84,400	71,100	
	EAI/BS		27,000	27,000	13,864		22,900			22,900	
	CAI		33,500	32,500	13,272		28,500			28,500	
	WAI		23,300	16,900	4,370		19,700			19,700	
Yellowfin sole	BSAI	224,000	210,000	210,000	81,498	210,000	198,000		210,000	198,000	
Rock sole	BSAI	301,000	296,000	90,000	45,606	314,000	310,000		314,000	310,000	
Greenland turbot	Total	14,800	7,380	7,380	4,049	14,400	7,130		14,400	7,130	
	BS		5,090	5,090	1,903		4,920			4,920	
	AI		2,290	2,290	2,146		2,210			2,210	
Arrowtooth flounder	BSAI	190,000	156,000	75,000	24,563	196,000	161,000		196,000	161,000	
Flathead sole	BSAI	83,800	71,400	60,000	16,981	81,800	69,800		81,800	69,800	
Other flatfish	BSAI	23,100	17,400	17,400	2,044	23,100	17,400		23,100	17,400	
Alaska plaice	BSAI	298,000	232,000	50,000	10,872	354,000	275,000		354,000	275,000	
Pacific Ocean perch	BSAI	22,300	18,800	18,800	11,244	22,100	18,600		22,100	18,600	
	BS		3,820	3,820	600		3,780			3,780	
	EAI		4,200	4,200	3,533		4,160			4,160	
	CAI		4,260	4,260	2,727		4,210			4,210	
	WAI		6,520	6,520	4,384		6,450			6,450	
Northern rockfish	BSAI	8,540	7,160	7,160	1,054	8,580	7,190		8,580	7,190	
Shortraker rockfish	BSAI	516	387	387	155	516	387		516	387	
Rougheye rockfish	BSAI	660	539	539	132	640	552		640	552	
Other rockfish	BSAI	1,380	1,040	1,040	376	1,380	1,040		1,380	1,040	
	BS		485	485	176		485			485	
	AI		555	555	200		555			555	
Squid	BSAI	2,620	1,970	1,970	259	2,620	1,970		2,620	1,970	
Other species	BSAI	80,800	63,700	50,000	20,312	80,707	63,680		80,707	63,680	
Shark	BSAI					596	447		596	447	
Skates	BSAI					38,200	32,000		38,200	32,000	
Sculpin	BSAI					41,600	31,000		41,600	31,000	
Octopus	BSAI					311	233		311	233	
Total	BSAI	2,636,726	2,204,366	1,681,586	1,118,382	2,706,833	2,259,779		2,706,833	2,259,779	

Sources: 2009 OFLs, ABCs, and TACs and 2010 OFLs and ABCs from the specifications adopted by the Council in December 2008 (except for walleye pollock which are rolled over from 2009); 2011 OFLs and ABCs equal to 2010; individual other species from December 2008 SSC minutes, minor modifications from Council 2008 recommendations to other species and BSAI totals to conform to SSC other species recommendations; 2009 catches through August 29 from AKR Catch Accounting.

TABLE 1—FINAL 2009 AND 2010 OVERFISHING LEVEL (OFL), ACCEPTABLE BIOLOGICAL CATCH (ABC), TOTAL ALLOWABLE CATCH (TAC), INITIAL TAC (ITAC), AND CDQ RESERVE ALLOCATION OF GROUNDFISH IN THE BSAI [1]

[Amounts are in metric tons]

Species	Area	2009					2010				
		OFL	ABC	TAC	ITAC [2]	CDQ [3]	OFL	ABC	TAC	ITAC [2]	CDQ [3]
Pollock [3]	BS [2]	977,000	815,000	815,000	733,500	81,500	1,430,000	1,230,000	1,230,000	1,107,000	123,000
	AI [2]	32,600	26,900	19,000	17,100	1,900	36,800	30,400	19,000	17,100	1,900
	Bogoslof	58,400	7,970	50	50	0	58,400	7,970	10	10	0
Pacific cod [4]	BSAI	212,000	182,000	176,540	157,650	18,890	235,000	199,000	193,030	172,376	20,654
Sablefish [5]	BS	3,210	2,720	2,720	2,244	374	2,980	2,520	2,520	1,071	95
	AI	2,600	2,200	2,200	1,788	371	2,410	2,040	2,040	429	38
Atka mackerel	BSAI	99,400	83,800	76,400	68,225	8,175	84,400	71,100	71,100	63,492	7,608
	EAI/BS	n/a	27,000	27,000	24,111	2,889	n/a	22,900	22,900	20,450	2,450
	CAI	n/a	33,500	32,500	29,023	3,478	n/a	28,500	28,500	25,451	3,050
	WAI	n/a	23,300	16,900	15,092	1,808	n/a	19,700	19,700	17,592	2,108
Yellowfin sole	BSAI	224,000	210,000	210,000	187,530	22,470	210,000	198,000	180,000	160,740	19,260
Rock sole	BSAI	301,000	296,000	90,000	80,370	9,630	314,000	310,000	75,000	66,975	8,025
Greenland turbot.	BSAI	14,800	7,380	7,380	6,273	n/a	14,400	7,130	7,130	6,061	n/a
	BS	n/a	5,090	5,090	4,327	545	n/a	4,920	4,920	4,182	526
	AI	n/a	2,290	2,290	1,947	0	n/a	2,210	2,210	1,879	0
Arrowtooth flounder.	BSAI	190,000	156,000	75,000	63,750	8,025	196,000	161,000	60,000	51,000	6,420
Flathead sole	BSAI	83,800	71,400	60,000	53,580	6,420	81,800	69,800	50,000	44,650	5,350
Other flatfish [6]	BSAI	23,100	17,400	17,400	14,790	0	23,100	17,400	17,400	14,790	0
Alaska plaice	BSAI	298,000	232,000	50,000	42,500	0	354,000	275,000	30,000	25,500	0
Pacific ocean perch.	BSAI	22,300	18,800	18,800	16,624	n/a	22,100	18,600	18,600	16,447	n/a
	BS	n/a	3,820	3,820	3,247	0	n/a	3,780	3,780	3,213	0
	EAI	n/a	4,200	4,200	3,751	449	n/a	4,160	4,160	3,715	445
	CAI	n/a	4,260	4,260	3,804	456	n/a	4,210	4,210	3,760	450
	WAI	n/a	6,520	6,520	5,822	698	n/a	6,450	6,450	5,760	690
Northern rockfish.	BSAI	8,540	7,160	7,160	6,086	0	8,580	7,190	6,000	5,100	0
Shortraker rockfish.	BSAI	516	387	387	329	0	516	387	387	329	0
Rougheye rockfish.	BSAI	660	539	539	458	0	640	552	552	469	0
Other rockfish [7].	BSAI	1,380	1,040	1,040	884	0	1,380	1,040	1,040	884	0
	BS	n/a	485	485	412	0	n/a	485	485	412	0
	AI	n/a	555	555	472	0	n/a	555	555	472	0
Squid	BSAI	2,620	1,970	1,970	1,675	0	2,620	1,970	1,970	1,675	0
Other species [8].	BSAI	80,800	63,700	50,000	42,500	0	80,700	63,700	34,221	29,088	0
Total		2,636,726	2,204,366	1,681,586	1,497,906	159,902	3,159,826	2,674,799	2,000,000	1,785,185	194,462

[1] These amounts apply to the entire BSAI management area unless otherwise specified. With the exception of pollock, and for the purpose of these harvest specifications, the Bering Sea (BS) subarea includes the Bogoslof District.

[2] Except for pollock, the portion of the sablefish TAC allocated to hook-and-line and pot gear, and Amendment 80 species, 15 percent of each TAC is put into a reserve. The ITAC for these species is the remainder of the TAC after the subtraction of these reserves.

[3] Under § 679.20(a)(5)(i)(A)(*1*), the annual Bering Sea subarea pollock TAC after subtracting first for the CDQ directed fishing allowance (10 percent) and second for the incidental catch allowance (4.0 percent), is further allocated by sector for a directed pollock fishery as follows: inshore—50 percent; catcher/processor—40 percent; and motherships—10 percent. Under § 679.20(a)(5)(iii)(B)(*2*)(*i*) and (*ii*), the annual Aleutian Islands subarea pollock TAC, after subtracting first for the CDQ directed fishing allowance (10 percent) and second for the incidental catch allowance (1,600 mt) is allocated to the Aleut Corporation for a directed pollock fishery.

[4] The Pacific cod TAC is reduced by three percent from the ABC to account for the State of Alaska's (State) guideline harvest level in State waters of the Aleutian Islands subarea.

[5] For the Amendment 80 species (Atka mackerel, flathead sole, rock sole, yellowfin sole, Pacific cod, and Aleutian Islands Pacific ocean perch), 10.7 percent of the TAC is reserved for use by CDQ participants (*see* §§ 679.20(b)(1)(ii)(C) and 679.31). Twenty percent of the sablefish TAC allocated to hook-and-line gear or pot gear, 7.5 percent of the sablefish TAC allocated to trawl gear, and 10.7 percent of the TACs for Bering Sea Greenland turbot and arrowtooth flounder are reserved for use by CDQ participants (*see* § 679.20(b)(1)(ii)(B) and (D)). Aleutian Islands Greenland turbot, "other flatfish," Alaska plaice, Bering Sea Pacific ocean perch, northern rockfish, shortraker rockfish, rougheye rockfish, "other rockfish," squid, and "other species" are not allocated to the CDQ program.

[6] "Other flatfish" includes all flatfish species, except for halibut (a prohibited species), flathead sole, Greenland turbot, rock sole, yellowfin sole, arrowtooth flounder, and Alaska plaice.

[7] "Other rockfish" includes all *Sebastes* and *Sebastolobus* species except for Pacific ocean perch, northern, dark, shortraker, and rougheye rockfish.

[8] "Other species" includes sculpins, sharks, skates, and octopus. Forage fish, as defined at § 679.2, are not included in the "other species" category.

TABLE 8A—FINAL 2009 AND 2010 APPORTIONMENT OF PROHIBITED SPECIES CATCH ALLOWANCES TO NON-TRAWL GEAR, THE CDQ PROGRAM, AMENDMENT 80, AND THE BSAI TRAWL LIMITED ACCESS SECTORS

PSC species	Total non-trawl PSC	Non-trawl PSC remaining after CDQ PSQ [1]	Total trawl PSC	Trawl PSC remaining after CDQ PSQ [1]	CDQ PSQ reserve [1]	Amendment 80 sector		BSAI trawl limited access fishery
						2009	2010	
Halibut mortality (mt) BSAI.	900	832	3,675	3,400 in 2009, and 3,282 in 2010.	343 in 2009, and 393 in 2010.	2,475	2,425	875
Herring (mt) BSAI	n/a	n/a	1,697	n/a	n/a	n/a	n/a	n/a
Red king crab (animals) Zone 1 [2].	n/a	n/a	197,000	175,921	21,079	104,427	98,920	53,797
C. opilio (animals) COBLZ [2].	n/a	n/a	4,350,000	3,884,550 ...	465,450	2,267,412	2,148,156	1,248,494
C. bairdi crab (animals) Zone 1 [2].	n/a	n/a	980,000	875,140	104,860	437,658	414,641	411,228
C. bairdi crab (animals) Zone 2 [2].	n/a	n/a	2,970,000	2,652,210 ...	317,790	745,536	706,284	1,241,500

[1] Sections 679.21(e)(3)(i)(A)(2) and (e)(4)(i)(A) allocate 276 mt in 2009 and 326 mt in 2010 of the trawl halibut mortality limit and 7.5 percent, or 67 mt, of the non-trawl halibut mortality limit as the PSQ reserve for use by the groundfish CDQ program. The PSQ reserve for crab species is 10.7 percent of each crab PSC limit.

[2] Refer to 50 CFR 679.2 for definitions of areas.

TABLE 8B—FINAL 2009 AND 2010 HERRING AND RED KING CRAB SAVINGS SUBAREA PROHIBITED SPECIES CATCH ALLOWANCES FOR ALL TRAWL SECTORS

Fishery categories	Herring (mt) BSAI	Red king crab (animals) Zone 1
Yellowfin sole	146	n/a
Rock sole/flathead sole/other flatfish [1]	25	n/a
Turbot/arrowtooth/sablefish [2]	12	n/a
Rockfish	9	n/a
Pacific cod	25	n/a
Midwater trawl pollock	1,296	n/a
Pollock/Atka mackerel/other species [3]	184	n/a
Red king crab savings subarea Non-pelagic trawl gear [4]	n/a	49,250
Total trawl PSC	1,697	197,000

[1] "Other flatfish" for PSC monitoring includes all flatfish species, except for halibut (a prohibited species), flathead sole, Greenland turbot, rock sole, yellowfin sole, and arrowtooth flounder.

[2] Greenland turbot, arrowtooth flounder, and sablefish fishery category.

[3] Non-pelagic pollock, Atka mackerel, and "other species" fishery category.

[4] In December 2008 the Council recommended that the red king crab bycatch limit for non-pelagic trawl fisheries within the RKCSS be limited to 25 percent of the red king crab PSC limit (*see* § 679.21(e)(3)(ii)(B)(*2*)).

TABLE 8C—FINAL 2009 AND 2010 PROHIBITED SPECIES BYCATCH ALLOWANCES FOR THE BSAI TRAWL LIMITED ACCESS SECTOR AND NON-TRAWL FISHERIES

BSAI trawl limited access fisheries	Prohibited species and area [1]				
	Halibut mortality (mt) BSAI	Red king crab (animals) Zone 1	*C. opilio* (animals) COBLZ	*C. bairdi* (animals)	
				Zone 1	Zone 2
Yellowfin sole	187	47,397	1,176,494	346,228	1,185,500
Rock sole/flathead sole/other flatfish [2]	0	0	0	0	0
Turbot/arrowtooth/sablefish [3]	0	0	0	0	0
Rockfish	5	0	2,000	60,000	1,000
Pacific cod	508	6,000	50,000	60,000	50,000
Pollock/Atka mackerel/other species [4]	175	400	20,000	5,000	5,000
Total BSAI trawl limited access PSC	875	53,797	1,248,494	411,228	1,241,500

Non-trawl fisheries	Catcher processor	Catcher vessel
Pacific cod—Total	760	15
January 1–June 10	314	10
June 10–August 15	0	3
August 15–December 31	446	2
Other non-trawl—Total		58
May 1–December 31		58
Groundfish pot and jig		exempt
Sablefish hook-and-line		exempt
Total non-trawl PSC		833

[1] Refer to § 679.2 for definitions of areas.
[2] "Other flatfish" for PSC monitoring includes all flatfish species, except for halibut (a prohibited species), flathead sole, Greenland turbot, rock sole, yellowfin sole, and arrowtooth flounder.
[3] Greenland turbot, arrowtooth flounder, and sablefish fishery category.
[4] "Other species" for PSC monitoring includes sculpins, sharks, skates, and octopus.

TABLE 8D—FINAL 2009 PROHIBITED SPECIES BYCATCH ALLOWANCES FOR THE BSAI AMENDMENT 80 COOPERATIVES

Year	Prohibited species and area [1]				
	Halibut mortality (mt) BSAI	Red king crab (animals) Zone 1	*C. opilio* (animals) COBLZ	*C. bairdi* (animals)	
				Zone 1	Zone 2
2009	1,793	74,351	1,544,825	321,922	548,443

[1] Refer to § 679.2 for definitions of areas.

TABLE 8E—FINAL 2009 PROHIBITED SPECIES BYCATCH ALLOWANCES FOR THE BSAI AMENDMENT 80 LIMITED ACCESS FISHERIES

Amendment 80 limited access fisheries	Prohibited species and area [1]				
	Halibut mortality (mt) BSAI	Red king crab (animals) Zone 1	*C. opilio* (animals) COBLZ	*C. bairdi* (animals)	
				Zone 1	Zone 2
Yellowfin sole	370	6,286	634,639	61,785	151,133
Jan 20–Jul 1	223	6,096	618,505	55,778	119,056
Jul 1–Dec 31	147	190	16,134	6,007	32,077
Rock sole/other flat/flathead sole [2]	217	23,750	87,848	53,851	45,860
Jan 20–Apr 1	177	23,400	84,877	47,510	40,060
Apr 1–Jul 1	20	175	1,561	3,320	2,900
July 1–Dec 31	20	175	1,410	3,021	2,900
Turbot/arrowtooth/sablefish [3]	5	50	100	100	100
Rockfish	45	n/a	n/a	n/a	n/a
Pacific cod	0	0	0	0	0
Pollock/Atka mackerel/other species [4]	45	0	0	0	0
Total Amendment 80 trawl limited access PSC	682	30,086	722,587	115,736	197,093

[1] Refer to § 679.2 for definitions of areas.
[2] "Other flatfish" for PSC monitoring includes all flatfish species, except for halibut (a prohibited species), flathead sole, Greenland turbot, rock sole, yellowfin sole, and arrowtooth flounder.

[3] Greenland turbot, arrowtooth flounder, and sablefish fishery category.
[4] Pollock other than pelagic trawl pollock, Atka mackerel, and "other species" fishery category. "Other species" for PSC monitoring includes sculpins, sharks, skates, and octopus.

TABLE 9—FINAL 2009 AND 2010 PACIFIC HALIBUT DISCARD MORTALITY RATES FOR THE BSAI

Gear	Fishery	Halibut discard mortality rate (percent)	
		2009	2010
Non-CDQ hook-and-line	Greenland turbot	13	13
	Other species	11	11
	Pacific cod	11	11
	Rockfish	17	17
Non-CDQ trawl	Arrowtooth flounder	75	75
	Atka mackerel	76	76
	Flathead sole	70	70
	Greenland turbot	70	70
	Non-pelagic pollock	74	74
	Pelagic pollock	88	88
	Other flatfish	74	74
	Other species	70	70
	Pacific cod	70	70
	Rockfish	76	76
	Rock sole	80	80
	Sablefish	75	75
	Yellowfin sole	80	80
Non-CDQ pot	Other species	7	7
	Pacific cod	7	7
CDQ trawl	Atka mackerel	85	85
	Flathead sole	87	84
	Non-pelagic pollock	86	85
	Pelagic pollock	90	90
	Rockfish	82	82
	Rock sole	86	88
	Yellowfin sole	84	84
CDQ hook-and-line	Greenland turbot	4	4
	Pacific cod	10	10
CDQ pot	Pacific cod	7	7
	Sablefish	35	34

September 2009 GOA Plan Team Proposed OFL and ABC Recommendations (metric tons) for 2010-2011 (Page 1)

		2009				2010		2011	
Species	Area	OFL	ABC	TAC	Catch	OFL	ABC	OFL	ABC
Pollock	W(61)		15,249	15,249	9,320		24,199		24,199
	C(62)		14,098	14,098	11,184		22,374		22,374
	C(63)		11,058	11,058	6,141		17,548		17,548
	WYAK		1,215	1,215	1,218		1,929		1,929
	Subtotal	58,590	41,620	41,620	27,863	90,920	66,050	90,920	66,050
	SEO	11,040	8,280	8,280	0	11,040	8,280	11,040	8,280
	Total	69,630	49,900	49,900	27,863	101,960	74,330	101,960	74,330
Pacific cod	W		21,567	16,175	10,353		31,005		31,005
	C		31,521	23,641	16,881		45,315		45,315
	E		2,212	1,991	742		3,180		3,180
	Total	66,600	55,300	41,807	27,976	126,000	79,500	126,000	79,500
Deep water flatfish	W		706	706	8		747		747
	C		6,927	6,927	283		7,405		7,405
	WYAK		997	997	3		1,066		1,066
	SEO		538	538	2		575		575
	Total	11,578	9,168	9,168	296	12,367	9,793	12,367	9,793
Rex sole	W		1,007	1,007	314		988		988
	C		6,630	6,630	3,650		6,506		6,506
	WYAK		513	513	1		503		503
	SEO		846	846	0		830		830
	Total	11,756	8,996	8,996	3,965	11,535	8,827	11,535	8,827
Flathead sole	W		13,010	2,000	237		13,342		13,342
	C		29,273	5,000	2,351		30,021		30,021
	WYAK		3,531	3,531	0		3,622		3,622
	SEO		650	650	0		667		667
	Total	57,911	46,464	11,181	2,588	59,349	47,652	59,349	47,652
Shallow water flatfish	W		26,360	4,500	95		26,360		26,360
	C		29,873	13,000	5,477		29,873		29,873
	WYAK		3,333	3,333	1		3,333		3,333
	SEO		1,423	1,423	0		1,423		1,423
	Total	74,364	60,989	22,256	5,573	74,364	60,989	74,364	60,989
Arrowtooth flounder	W		30,148	8,000	1,393		29,843		29,843
	C		164,251	30,000	17,977		162,591		162,591
	WYAK		14,908	2,500	43		14,757		14,757
	SEO		12,205	2,500	37		12,082		12,082
	Total	261,022	221,512	43,000	19,450	258,397	219,273	258,397	219,273
Sablefish	W		1,640	1,640	1,162		1,523		1,523
	C		4,990	4,990	4,357		4,625		4,625
	WYAK		1,784	1,784	1,650		1,645		1,645
	SEO		2,746	2,746	2,287		2,544		2,544
	WYAK+SEO		4,530	4,530	3,937		4,189		4,189
	Total	13,190	11,160	11,160	9,456	12,321	10,337	12,321	10,337

Sources: 2009 OFLs, ABCs, and TACs and 2010 OFLs and ABCs from the specifications adopted by the Council in December 2008; 2011 OFLs and ABCs equal to 2010; individual other species from December 2008 SSC minutes, minor modifications from Council 2008 recommendations to other species and BSAI totals to conform to SSC other species recommendations; 2009 catches through August 29 from AKR Catch Accounting.

Proposed September GOA Plan Team OFL and ABC Recommendations (metric tons) for 2009-'10 (Page 2)

Species	Area	2009 OFL	2009 ABC	2009 TAC		2010 OFL	2010 ABC	2011 OFL	2011 ABC
Pacific ocean perch	W	4,409	3,713	3,713	3,804	4,405	3,710	4,405	3,710
	C	9,790	8,246	8,246	6,211	9,782	8,239	9,782	8,239
	WYAK		1,108	1,108	1,088		1,107		1,107
	SEO		2,044	2,044	1		2,042		2,042
	E (subtotal)	3,741	3,152	3,152	1,089	3,738	3,149	3,738	3,149
	Total	17,940	15,111	15,111	11,104	17,925	15,098	17,925	15,098
Shortraker	W		120	120	149		120		120
	C		315	315	179		315		315
	E		463	463	186		463		463
	Total	1,197	898	898	514	1,197	898	1,197	898
Rougheye	W		125	125	79		126		126
	C		833	833	81		842		842
	E		326	326	90		329		329
	Total	1,545	1,284	1,284	250	1,562	1,297	1,562	1,297
Other slope rockfish	W		357	357	390		357		357
	C		569	569	357		569		569
	WYAK		604	604	58		604		604
	SEO		2,767	200	9		2,767		2,767
	Total	5,624	4,297	1,730	814	5,624	4,297	5,624	4,297
Northern rockfish	W		2,054	2,054	1,944		1,965		1,965
	C		2,308	2,308	1,764		2,208		2,208
	E		0	0	0		0		0
	Total	5,204	4,362	4,362	3,708	4,979	4,173	4,979	4,173
Pelagic shelf rockfish	W		819	819	711		765		765
	C		3,404	3,404	1,894		3,179		3,179
	WYAK		234	234	160		219		219
	SEO		324	324	1		302		302
	Total	5,803	4,781	4,781	2,766	5,420	4,465	5,420	4,465
Thornyhead rockfish	W		267	267	217		267		267
	C		860	860	248		860		860
	E		783	783	127		783		783
	Total	2,540	1,910	1,910	592	2,540	1,910	2,540	1,910
Big skate	W		632	632	63		632		632
	C		2,065	2,065	1,286		2,065		2,065
	E		633	633	79		633		633
	Total	4,439	3,330	3,330	1,428	4,439	3,330	4,439	3,330
Longnose skate	W		78	78	44		78		78
	C		2,041	2,041	734		2,041		2,041
	E		768	768	152		768		768
	Total	3,849	2,887	2,887	930	3,849	2,887	3,849	2,887
Other skates	GW	2,806	2,104	2,104	764	2,806	2,104	2,806	2,104
Demersal shelf rockfish	SEO	580	362	362	117	580	362	580	362
Atka mackerel	GW	6,200	4,700	2,000	2,207	6,200	4,700	6,200	4,700
Other species	GW	8,720	6,540	4,500	1,691	8,756	6,540	8,756	6,540
Squid	GW					1,527	1,145	1,527	1,145
Octopus	GW					298	224	298	224
Sharks	GW					1,036	777	1,036	777
Sculpin	GW					5,895	4,394	5,895	4,394
Total	GOA	632,498	516,055	242,727	124,052	722,170	562,762	722,170	562,762

Sources: 2009 OFLs, ABCs, and TACs and 2010 OFLs and ABCs from the specifications adopted by the Council in December 2008; 2011 OFLs and ABCs equal to 2010; individual other species from December 2008 SSC minutes, minor modifications from Council 2008 recommendations to other species and BSAI totals to conform to SSC other species recommendations; 2009 catches through August 29 from AKR Catch Accounting.

TABLE 1—FINAL 2009 ABCS, TACS, AND OFLS OF GROUNDFISH FOR THE WESTERN/CENTRAL/WEST YAKUTAT (W/C/WYK), WESTERN (W), CENTRAL (C), EASTERN (E) REGULATORY AREAS, AND IN THE WEST YAKUTAT (WYK), SOUTHEAST OUTSIDE (SEO), AND GULFWIDE (GW) DISTRICTS OF THE GULF OF ALASKA—Continued

[Values are rounded to the nearest metric ton]

Species	Area/district [1]	ABC	TAC	OFL
	C	6,630	6,630	n/a
	WYK	513	513	n/a
	SEO	846	846	n/a
Total		8,996	8,996	11,756
Flathead sole	W	13,010	2,000	n/a
	C	29,273	5,000	n/a
	WYK	3,531	3,531	n/a
	SEO	650	650	n/a
Total		46,464	11,181	57,911
Flatfish [5] (shallow-water)	W	26,360	4,500	n/a
	C	29,873	13,000	n/a
	WYK	3,333	3,333	n/a
	SEO	1,423	1,423	n/a
Total		60,989	22,256	74,364
Arrowtooth flounder	W	30,148	8,000	n/a
	C	164,251	30,000	n/a
	WYK	14,908	2,500	n/a
	SEO	12,205	2,500	n/a
Total		221,512	43,000	261,022
Sablefish [6]	W	1,640	1,640	n/a
	C	4,990	4,990	n/a
	WYK	1,784	1,784	n/a
	SEO	2,746	2,746	n/a
Subtotal	E (WYK and SEO)	4,530	4,530	n/a
Total		11,160	11,160	13,190
Pacific ocean perch [7]	W	3,713	3,713	4,409
	C	8,246	8,246	9,790
	WYK	1,108	1,108	n/a
	SEO	2,044	2,044	n/a
Subtotal	E (WYK and SEO)	3,152	3,152	3,741
Total		15,111	15,111	17,940
Shortraker rockfish [8]	W	120	120	n/a
	C	315	315	n/a
	E	463	463	n/a
Total		898	898	1,197
Rougheye rockfish [9]	W	125	125	n/a
	C	833	833	n/a
	E	326	326	n/a
Total		1,284	1,284	1,545
Other rockfish [10 11]	W	357	357	n/a
	C	569	569	n/a
	WYK	604	604	n/a
	SEO	2,767	200	n/a
Total		4,297	1,730	5,624
Northern rockfish [11 12]	W	2,054	2,054	n/a
	C	2,308	2,308	n/a
	E	0	0	n/a
Total		4,362	4,362	5,204

TABLE 1—FINAL 2009 ABCS, TACS, AND OFLS OF GROUNDFISH FOR THE WESTERN/CENTRAL/WEST YAKUTAT (W/C/WYK), WESTERN (W), CENTRAL (C), EASTERN (E) REGULATORY AREAS, AND IN THE WEST YAKUTAT (WYK), SOUTHEAST OUTSIDE (SEO), AND GULFWIDE (GW) DISTRICTS OF THE GULF OF ALASKA—Continued

[Values are rounded to the nearest metric ton]

Species	Area/district [1]	ABC	TAC	OFL
Pelagic shelf rockfish [13]	W	819	819	n/a
	C	3,404	3,404	n/a
	WYK	234	234	n/a
	SEO	324	324	n/a
Total		4,781	4,781	5,803
Thornyhead rockfish	W	267	267	n/a
	C	860	860	n/a
	E	783	783	n/a
Total		1,910	1,910	2,540
Big skates [14]	W	632	632	n/a
	C	2,065	2,065	n/a
	E	633	633	n/a
Total		3,330	3,330	4,439
Longnose skates [15]	W	78	78	n/a
	C	2,041	2,041	n/a
	E	768	768	n/a
Total		2,887	2,887	3,849
Other skates [16]	GW	2,104	2,104	2,806
Demersal shelf rockfish [17]	SEO	362	362	580
Atka mackerel	GW	4,700	2,000	6,200
Other species [18]	GW	6,540	4,500	8,720
Total		516,055	242,727	632,498

[1] Regulatory areas and districts are defined at 50 CFR 679.2. (W=Western Gulf of Alaska; C=Central Gulf of Alaska; E=Eastern Gulf of Alaska; WYK=West Yakutat District; SEO=Southeast Outside District; GW=Gulf-wide).

[2] Pollock is apportioned in the Western/Central Regulatory Areas among three statistical areas. During the A season, the apportionment is based on an adjusted estimate of the relative distribution of pollock biomass of approximately 32 percent, 43 percent, and 25 percent in Statistical Areas 610, 620, and 630, respectively. During the B season, the apportionment is based on the relative distribution of pollock biomass at 32 percent, 54 percent, and 14 percent in Statistical Areas 610, 620, and 630, respectively. During the C and D seasons, the apportionment is based on the relative distribution of pollock biomass at 43 percent, 21 percent, and 35 percent in Statistical Areas 610, 620, and 630, respectively. Tables 5 and 6 list the 2009 and 2010 seasonal apportionments of pollock. In the WYK District and SEO Districts of the Eastern Regulatory Area, pollock is not divided into seasonal allowances.

[3] The annual Pacific cod TAC is apportioned 60 percent to an A season and 40 percent to a B season in the Western and Central Regulatory Areas of the GOA. Pacific cod is allocated 90 percent for processing by the inshore component and 10 percent for processing by the offshore component in the Western and Central Regulatory Areas of the GOA. Tables 7 and 8 list the 2009 and 2010 seasonal apportionments and component allocations of the Pacific cod TAC.

[4] "Deep-water flatfish" means Dover sole, Greenland turbot, and deepsea sole.

[5] "Shallow-water flatfish" means flatfish not including "deep water flatfish," flathead sole, rex sole, or arrowtooth flounder.

[6] Sablefish is allocated to trawl and hook-and-line gears for 2008 and to trawl gear in 2009. Tables 3 and 4 list the 2008 and 2009 allocations of sablefish.

[7] "Pacific ocean perch" means *Sebastes alutus*.

[8] "Shortraker rockfish" means *Sebastes borealis*.

[9] "Rougheye rockfish" means *Sebastes aleutianus* (rougheye) and *Sebastes melanostictus* (blackspotted).

[10] "Other rockfish" in the Western and Central Regulatory Areas and in the WYK District means slope rockfish and demersal shelf rockfish. The category "other rockfish" in the SEO District means slope rockfish.

[11] "Slope rockfish" means *Sebastes aurora* (aurora), *S. melanostomus* (blackgill), *S. paucispinis* (bocaccio), *S. goodei* (chilipepper), *S. crameri* (darkblotch), *S. elongatus* (greenstriped), *S. variegatus* (harlequin), *S. wilsoni* (pygmy), *S. babcocki* (redbanded), *S. proriger* (redstripe), *S. zacentrus* (sharpchin), *S. jordani* (shortbelly), *S. brevispinis* (silvergrey), *S. diploproa* (splitnose), *S. saxicola* (stripetail), *S. miniatus* (vermilion), and *S. reedi* (yellowmouth). In the Eastern Regulatory Area only, slope rockfish also includes northern rockfish, *S. polyspinis*.

[12] "Northern rockfish" means *Sebastes polyspinis*. The 2 mt ABC for northern rockfish in the Eastern Regulatory Area has been combined with the ABC for slope rockfish in the WYK District.

[13] "Pelagic shelf rockfish" means *Sebastes variabilis* (dusky), *S. entomelas* (widow), and *S. flavidus* (yellowtail).

[14] Big skate means *Raja binoculata*.

[15] Longnose skate means *Raja rhina*.

[16] Other skates means *Bathyraja* spp.

[17] "Demersal shelf rockfish" means *Sebastes pinniger* (canary), *S. nebulosus* (china), *S. caurinus* (copper), *S. maliger* (quillback), *S. helvomaculatus* (rosethorn), *S. nigrocinctus* (tiger), and *S. ruberrimus* (yelloweye).

[18] "Other species" means sculpins, sharks, squid, and octopus.

TABLE 11—FINAL 2009 AND 2010 PACIFIC HALIBUT PSC LIMITS, ALLOWANCES, AND APPORTIONMENTS

[Values are in metric tons]

Trawl gear		Hook-and-line gear [1]			
		Other than DSR		DSR	
Season	Amount	Season	Amount	Season	Amount
January 20–April 1	550 (27.5%)	January 1–June 10	250 (86%)	January 1–December 31	10 (100%)
April 1–July 1	400 (20%)	June 10–September 1	5 (2%)		
July 1–September 1	600 (30%)	September 1–December 31.	35 (12%)		
September 1–October 1	150 (7.5%)	n/a	n/a		
October 1–December 31	300 (15%)	n/a	n/a		
Total	2,000 (100%)	n/a	290 (100%)		10 (100%)

[1] The Pacific halibut PSC limit for hook-and-line gear is allocated to the demersal shelf rockfish (DSR) fishery and fisheries other than DSR. The hook-and-line sablefish fishery is exempt from halibut PSC limits.

TABLE 12—FINAL 2009 AND 2010 APPORTIONMENT OF PACIFIC HALIBUT PSC TRAWL LIMITS BETWEEN THE TRAWL GEAR DEEP-WATER SPECIES COMPLEX AND THE SHALLOW-WATER SPECIES COMPLEX

[Values are in metric tons]

Season	Shallow-water species complex	Deep-water species complex [1]	Total
January 20–April 1	450	100	550
April 1–July 1	100	300	400
July 1–September 1	200	400	600
September 1–October 1	150	Any remainder	150
Subtotal January 20–October 1	900	800	1,700
October 1–December 31 [2]	n/a	n/a	300
Total	n/a	n/a	2,000

[1] Vessels participating in cooperatives in the Central Gulf of Alaska Rockfish Pilot Program will receive a portion of the third season (July 1–September 1) deep-water category halibut PSC apportionment. At this time, this amount is unknown but will be posted later on the Alaska Region Web site at *http://www.alaskafisheries.noaa.gov* when it becomes available.

[2] There is no apportionment between shallow-water and deep-water fishery complexes during the 5th season (October 1–December 31).

TABLE 14—FINAL 2009 AND 2010 HALIBUT DISCARD MORTALITY RATES FOR VESSELS FISHING IN THE GULF OF ALASKA

[Values are percent of halibut bycatch assumed to be dead]

Gear	Target fishery	Mortality rate (%)
Hook-and-line	Other species	14
	Skates	14
	Pacific cod	14
	Rockfish	10
Trawl	Arrowtooth flounder	69
	Atka mackere	l60
	Deep-water flatfish	53
	Flathead sole	61
	Non-pelagic pollock	59
	Other species	63
	Skates	63
	Pacific cod	63
	Pelagic pollock	76
	Rex sole	63
	Rockfish	67
	Sablefish	65
	Shallow-water flatfish	71
Pot	Other species	16
	Skates	16
	Pacific cod	16

Joint Groundfish/Crab Plan Team Report

September 16, 2009
Alaska Fisheries Science Center
Seattle, WA

A joint meeting of the BSAI and GOA groundfish Plan Teams and the Crab Plan Team convened Wednesday, September 16h at 8:30 am at the Alaska Fisheries Science Center in Seattle, Washington.

Bering Sea/Aleutian Islands Groundfish	
Loh-Lee Low	AFSC REFM(Chair)
Mike Sigler	AFSC (Vice chair)
Kerim Aydin	AFSC REFM
Lowell Fritz	AFSC NMML
David Carlile	ADF&G
Alan Haynie	AFSC
Jane DiCosimo	NPFMC (Coordinator)
Yuk W. (Henry) Cheng	WDFW
Brenda Norcross	UAF
Mary Furuness	NMFS AKRO Juneau
Grant Thompson	AFSC REFM
Dave Barnard	ADF&G
Leslie Slater	USFWS
Dana Hanselman	AFSC
Bill Clark	IPHC

Gulf of Alaska Groundfish	
Jim Ianelli	AFSC REFM (Co-chair)
Diana Stram	NPFMC (Co-chair)
Sandra Lowe	AFSC REFM
Jeff Fujioka	AFSC ABL
Jon Heifetz	AFSC ABL
Mike Dalton	AFSC
Cleo Brylinsky	ADF&G
Tom Pearson	NMFS AKRO Kodiak
Nick Sagalkin	ADF&G
Paul Spencer	AFSC
Leslie Slater	USFWS
Nancy Friday	AFSC NMML
Yuk W. (Henry) Cheng	WDFW
Steven Hare	IPHC

Crab	
Ginny Eckert	UAF/UAS, Vice-Chair/Acting Chair
Diana Stram	NPFMC (Coordinator)
Doug Pengilly	ADF&G-Kodiak
Gretchen Harrington	NMFS AKRO Juneau
Wayne Donaldson	ADF&G-Kodiak
Jack Turnock	AFSC-Seattle
Shareef Siddeek	ADF&G-Juneau
Herman Savikko	ADF&G-Juneau
Lou Rugolo	AFSC-Seattle
André Punt	UW
Bill Bechtol	UAF
Bob Foy	AFSC-Kodiak
Brian Garber-Yonts	AFSC-Seattle

Members of the Plan Teams present for the meeting included those listed below. Plan Team members who were absent included Ken Goldman (GOA Plan Team, ADF&G), Forrest Bowers (Crab Plan Team, ADF&G), and Josh Greenberg (Crab Plan Team, UAF).

Introductions and overview information

The teams approved the agenda (attached).

Current Council activities

Jane DiCosimo provided a written overview of current Council activities (NPFMC 2009 Highlights handout). She noted that she updates this document annually and it is posted on the Council website.

Accounting for total removals

Mary Furuness informed the teams on progress towards including total removals in groundfish catch accounting in order to meet ACL requirements. Plan team members noted that the removals currently do not account for mortality in the halibut fishery and requested clarification on how these additional mortality sources will be included. Sarah Gaichas noted that authors have already begun to incorporate these removals in assessments where bycatch likely plays a significant factor. However, there should be a more comprehensive consideration on approaches that can be done consistently for these assessments.

Tom Pearson updated the teams on calculations and necessary assumptions made in order to account for removals of Pacific cod targeted for bait in crab fisheries. Team members requested that the crab observer program do some sampling of bait to assist in calculating the total removals from baiting pot gear. Brian Garber-Yonts commented that economic reports have some information on bait. Ed Poulson commented that crab fishermen now have maximum limit (10) on the number of pots fishing for cod as bait but it would be difficult to estimate effort prior to the season. Pre-season effort also depends on which crab fishery is considered (i.e., bait is caught for snow crab pre-season but bait purchased for king crab). It would be useful to have state observers collect additional information on this. Grant noted that further information on total removals of Pacific cod due to baiting of pots will be discussed under the P. cod agenda item on Thursday.

Some research catches are reported in some SAFE chapters. The main issues outside of this are bycatch of groundfish in halibut fishery and cod removals as bait in crab fisheries. Henry Cheng questioned how uncertainty is incorporated in the estimation of these removals. Sarah Gaichas commented that similar issues regarding assessing uncertainty arise in lumping data from difference sources in ecosystem modeling. Grant noted that in assessment models the most common assumption is that total catch is considered measured without error. Jack Turnock noted that while retained catch for crab fisheries are well estimated discarded catch is estimates are less certain. Some stocks with higher discards could be a higher percentage of the overall catch--sometimes as high as 20% of total catch. New catch numbers accounting for total crab removals are to be employed this year in this stock assessment cycle.

Role of economists in Council plan teams

Mike Dalton and Alan Haynie presented a proposal from the current plan team economists for an approach to incorporating greater socioeconomic analysis into the plan team process and reports. Noting that a substantial quantity of social and economic analysis is performed in the course of Council decision-making, the SAFE documents themselves are comprised almost entirely of stock assessment material. In response to SSC recommendations made about the 2007 Economic SAFE, a variety of directives in both the BSAI Crab and BSAI/GOA Groundfish FMP's, and NMFS FMP and national standards guidelines, greater development of a socioeconomic fishery evaluation component of the respective SAFE documents is needed. Although this has been recognized for some time, progress has been limited due to the time constraints in the plan teams' schedules. There is also a lack of critical mass of social/economic scientists on any one plan team, and lack of specificity in regard to scientific and analytical objectives for fisheries evaluation relative to the biological metrics specified in the stock assessment process. To improve this process, the plan team economists propose that they form a working group to provide guidance to the plan teams on specific economic and social science products to be included in the SAFE documents and to serve as a technical review panel for socioeconomic science in the plan team process. It is anticipated that the ecosystem considerations appendices to the SAFE chapters will be used initially as a model for social and economic analyses to be produced for the plan teams. The working group will meet in November to develop a work plan and schedule for the next year, and will meet periodically as needed to complete

analytical and reporting tasks on an annual basis. It is likely that the efforts of the group will be produced for the September plan team meeting, but more consideration will be given to the most effective timing of the group's efforts.

Essential Fish Habitat

Diana Evans and Matt Eagleton presented the planning for the 5 year review of EFH, due to the NPFMC in April 2010. Reviews of the EFH FMP text that have been requested of groundfish stock assessment authors are being collated, and will be discussed in November by the groundfish plan teams for a recommendation as to whether they warrant Council action. The EFH FMP text includes a description of EFH for each managed species, as well as an assessment of the habitat information available for that species; general information about distribution; life history; habitat, biological, and predator/prey associations; the fishery; reference literature; and a summary of the conclusions of the effects of fishing on that species' habitat. Crab stock assessment authors will be requested to review the Crab EFH FMP text in October, and the reviews will be discussed at the March 2010 crab plan team meeting. The NPFMC will see the summary report in April and will decide if revisions to or reevaluations of EFH are necessary. Any change to the EFH text will require an FMP amendment and associated analysis, and the need for an EIS will be assessed in April. The original model assessing the effects of fishing on EFH will not be re-run, but changes in patterns of fishery distribution and intensity or specific model parameters will be reviewed for the 2003-2007 period and compared to the 2005 EIS analysis, which looked at 1998-2002. The summary report will highlight new information that may warrant changes in EFH or additional EFH or HAPC conservation measures.

The Teams recommended that the stock assessment author be the lead for the stock-specific EFH review, and that s/he is encouraged to work with habitat experts for their summaries. Some team members (who would be assigned this task) expressed concern about the timing of the request and impacts on their other responsibilities for November 2009. Team members discussed whether the author was the most appropriate expert to provide species-specific EFH reviews. Others thought the author would be the most appropriate person because the author is the most familiar with the scientific literature on his/her species, and would have access to habitat experts.

In the original EFH EIS, minimum stock size stock threshold was used to gauge whether fishing impacts on habitat have affected sustainability of groundfish. The teams discussed a concern that the EFH review should re-assess different ways to measure fishing impacts on habitat. Diana and Matt responded that the summary report will identify areas of progress in EFH research over the last 5 years, and that the Council will have the opportunity to consider whether these merit re-evaluation of fishing impacts on habitat during its review.

HAPC proposal evaluation criteria

Sandra Lowe presented a proposed new method for scoring HAPC proposals, for Plan Team review. The SSC and the Plan Teams both raised concerns about the criteria that were used to evaluate proposals during the 2004 HAPC process. The Council has identified that they will consider whether to set HAPC priorities, thus initiating a call for proposals for HAPC, in conjunction with the EFH 5-year review.

The proposed new method adds an additional option to rank a proposal as "0" for any of the four criteria, and tries to better define the scores within each criteria. Additionally, the new method changes the way data certainty is characterized in the proposal, using a red/green flagging system. The plan team suggested that 'structure', in the ecological importance column, be clarified as referring to three-dimensional structure. The Team also recommended that the data certainty system adopt an approach similar to that used by the National Standard 1 working group on vulnerability, and assign a data certainty rank to each individual criterion, but then use an average of the data certainty scores to assign color coding to the proposal. Finally, the Team also suggested that it might be worth going back and scoring the 2004 proposals with the new scoring method. The group discussed the rarity criterion, and whether it would be

appropriate to distinguish whether a habitat type was rare globally. Sandra pointed out that HAPC is supposed to be a subset of EFH in Alaska so that the global consideration of rarity does not really apply here.

Annual Catch Limits

Grant Thompson provided a summary of National Standard 1 guidelines they relate to ACL setting and ABC control rules. He then provided an overview of two main approaches to uncertainty-based buffers between ABC and OFL in groundfish: the decision theoretic (DT) approach and the Probability-only (PO or P*) approach. These approaches had been discussed in detail at the ACL workshop in May 2009 and the SSC had requested further analyses over the summer in order to refine these for possible use in establishing an ABC control rule for crab stocks which explicitly accounts for uncertainty. An ABC control rule for crab stocks will be necessary to comply with ACL requirements. When used to set the size of the buffer between ABC and OFL, neither approach considers uncertainty in catch estimation (this type of uncertainty would be incorporated into the ACL-ACT buffer instead).

The Teams discussed to what extent we are currently accounting sufficiently for uncertainty in groundfish. Two options were discussed:

1) Adopt the current accounting for uncertainty (and acknowledge future reevaluations would be forthcoming)
2) Propose immediate revision of current method to account for uncertainty.

The Teams noted that the current evaluation indicates that uncertainty is being accounted for sufficiently for Tier 1. Lowell Fritz commented that the current system looks at the risk of overfishing, but what about biomass-threshold risk? Grant noted that this has been studied to some extent, but not in conjunction with ACL evaluation.

André Punt provided a presentation on the application of these methods to crab stocks. In André's implementation, both methods, the probability-only (PO) and decision-theoretic (DT), are designed to account for variance but do not explicitly address the issue of bias (i.e. systematic differences between the true value for, for F_{MSY}, and the estimated value). The issue of bias may be important since retrospective analyses of crab biomass indicate that consistent overestimates for some stocks. The Teams discussed the uncertainty associated with an OFL and the need to characterize a distribution for the OFL, as required under the guidelines.

The Teams discussed the trade-off between using a constant buffer approach as compared to a constant P* between stocks. Uncertainty that is external to the assessment can begin to dominate the buffer.

André commented that the Pacific Council is not choosing to use the DT method to establish buffers for two reasons: the workload requirements and the methodology is difficult to understand and communicate. Furthermore the DT method fails to link directly to the wording in the NS-1 guidelines.

One approach under consideration by the Pacific Council is a modified P* approach that acknowledges a level of uncertainty in addition to that included in the assessment. The Teams discussed how to specify this additional uncertainty (CV_{extra}). The idea is that this term accounts for how abundance estimates change over time due to factors other than regular input data (such as survey values). For example, simply getting new biological information which is treated as known in the stock assessment or new software or different models can change stock estimates but this will not be reflected in a measure of precision based on a fitted model. CV_{extra} is intended to account for these, and other, sources of variability. CV_{extra} could be estimated from the variability in biomass estimates from historical assessments from different stocks in a type of meta-analysis. Team members noted that some implementation issues (e.g., including older assessments which had a number of limitations due to computing power etc) would have to be addressed.

The Teams noted that F_{MSY} proxies (e.g., $F_{35\%}$) are used in OFL control rules but that, as implemented by André, the P* methods fail to account for the uncertain related to suitability of the proxy itself. If $F_{35\%}$ is

taken as a proxy for F_{msy}, would it be sensible to express the uncertainty in making this link? I.e., why not evaluate some alternative uncertainty scenarios with a distribution about the SPR_{Fmsy} assumption? André noted that for crab stocks, a proxy is always used for F_{msy} and suggested that it would be difficult to quantify the uncertainty of the proxy. A second issue is whether the F_{msy} proxy should be evaluated relative to a sloping control rule or whether the value of F_{msy} (or proxy) should be used directly. For the Alaskan crab scenario, since OFL is defined by a sloping control rule, the buffer alternatives follow this pattern (where $F_{OFL} << F_{msy}$ when stocks are below their target).

The Teams discussed ideas of grouping assessment CVs by evaluating the individual components in each assessment and the information available. A higher "CVextra" leads to a greater buffer. They also discussed the issue of splitting stocks into finer spatial and temporal units and the impact that doing so has on uncertainty. In cases where data are consistent, finer splits of stocks will generally increase uncertainty and hence increase the overall buffer.

Ideas were discussed regarding how to quantify some components in CVextra. If the CVextra approach were to be adopted, only those factors that will be applicable over the relevant frame should be included (e.g., for crab 1 yr ACL setting time frame so consider factors that are important over a one year period). The important consideration is then what can be quantified and what affects the ACL over the relevant time period.

Jack Turnock provided an overview presentation of his work on ACL estimation for Tier 4 crab stocks without a model. He showed tables of sources of uncertainty and the relationship between amount of uncertainty included in the analysis and the size of the buffer given pre-specified values for P*. It was surprising that the impact of the impact of having a CV on biomass and a (different) CV on M was not equivalent to a CV equal to the square root of the sum of the squares of the two CVs. Additional uncertainty is included by going down in Tier level.

Siddeek suggested fixing P* and then looking at the variability of buffer. Jack provided examples of fixing P*=0.12 and varying uncertainty. Grant requested clarification on why the probability of exceeding the OFL is so high with the Pribilof blue king crab stock and that it must have a specified OFL much higher than the median OFL. This would indicate that you can exceed the OFL more than half the time even if ABC is set far below the point estimate. Jack responded that the specified OFL was set at the mean rather than the median.

The Teams then discussed how to move forward with a P* approach for crab and the need to determine a buffer and sources of uncertainty to include.

Plan Team recommendations regarding ACL compliance

Groundfish The Teams agree that the current system is adequate to comply with current ACL requirements as they relate to NS-1 guidelines relative to incorporating uncertainty. However this determination was made with the understanding that further analysis and refinements to the groundfish FMP would be forthcoming sometime in the future. The Teams noted that uncertainty and sources of uncertainty should be assessed further and that this should proceed on an appropriate timeline unconstrained by the implementation timing requirements of the 2011 ACL requirements.

The Teams noted that lower tiers in particular should be evaluated in the future to attempt to incorporate uncertainty explicitly. The Teams also requested that the Council provide explicit direction on their objectives for risk aversion. The Teams agreed that providing the Council with results using a range of P* values would help in setting risk aversion decision points for the Council. Objectives would then be discussed by the Council in conjunction with selecting their preferred alternative.

Crab The CPT recommends moving forward with a P* approach for establishing maxABC. What the uncertainties are and how to move forward, practically speaking, with evaluating and defining these

sources of uncertainty by tier level is a priority, understanding that listing and quantifying uncertainty will be an on-going process.

The Team recommends evaluating a range of P* and buffer values (i.e., present one set of alternatives based on constant P* values and another set of alternatives based on constant buffer percentages) as well as a range of uncertainty incorporation. A range of alternative sources of uncertainty to evaluate could include:

1) assessment uncertainty only
2) assessment uncertainty + uncertainty on M
3) assessment uncertainty + uncertainty on M + additional sources of uncertainty (e.g., which years to use when defining B_{MSY} proxies) on relevant time frame as noted previously

It will be important to consider the practical aspects of how to evaluate uncertainty. For example, a "delphi-method" could be used to quantify uncertainty. Doug Pengilly suggested a process whereby the key dimensions of uncertainty (and the probabilities to be assigned to each state-of-nature) would be quantified by the CPT in May and this would be used when computing ABCs in September. Team members discussed how this could be accomplished. Suggestions included: voting, picking the centerpoint and distribution, and other methods. The Team noted that if agreement could be reached on the axis of uncertainty, then the other decision aspects were more of a process-type issue.

The Team suggests the following uncertainties to consider (if possible) by Tier:

Tier 1-3-model uncertainty and external (e.g., between assessment year) assessment uncertainty

Tier 4 –those aspects that affect the annual ABC should be characterized.

These include:

Uncertainty in B, M and Bref	Additional Catch uncertainty	Uncertainty in Biomass only	Uncertainty in B only and B/Bmsy>1.0

Alternative P* values to be considered include a range from 0.1 - 0.5 (including 0.5 as an upper limit is for display purposes only since this option implies a buffer of zero). Such a range of P*s should assist with evaluating buffers. The Teams reiterated that the choice of P* value is a policy decision by the Council. Analysis would need to consider a range of values, with a final decision made by the Council.

The Teams noted that the buffer and P* are related one-to-one for any individual stock, which means that, given one of these two quantities, the other can be calculated. Citing the benefits of working with a constant buffer (less calculation involved and easy to communicate), the Team suggested that the Council consider a range of acceptable P* values and have the analysis find the buffer that consistently satisfies that range (or lower bound). I.e., a buffer setting ACL = 0.72 · OFL (or some other number) may satisfy an acceptable range of P*s for all crab stocks

Some Team members expressed concern that the final choice of a P* value may be driven by the results of the analysis rather than by an *a priori* determination of acceptable risk. It was noted that the selection of P* and/or a buffer (with P* in consideration) was at the Council's discretion and that it is a policy choice. Another alternative would be to establish a set of stock-specific buffers that would remain fixed for a specified number of years or until new information indicates that one or more buffers should be re-evaluated.

Attendance Members of the public, and State and Agency staff who signed the attendance list included: Julie Bonney (AGDB), Lori Swanson (GFF), Anne Vanderhoeven (BBEDC), Mike Szymanski (FCA), Kenny Down (Freezer Longline Coalition), John Gauvin (Best Use Coop), Donna Parker (Arctic Storm), Glenn Reed (PSPA), Mark Maunder (Quantitative Resource Associates), Jack Tagart (Freezer Longline

Coalition), Jason Anderson (Best Use Coop), Mike Perry (Blue North Fisheries), Bob Lauth (NOAA AFSC), Chris Rooper (AFSC), Phil Rigby (AFSC), Dave Clausen (AFSC), Cindy Tribuzio (AFSC), Cara Rodgveller (AFSC), Chris Lunsford (AFSC), Kalei Shotwell (AFSC), Steve Barbeaux (AFSC/REFM), Ed Richardson (APA), Mark Zimmerman (AFSC REFM), Anne Hollowed (AFSC REFM), Pat Livingston (AFSC REFM), Gary Stauffer (FSA), Craig Faunce (AFSC/FMA), William Stockhausen (AFSC REFM), Suzanne McDermott (AFSC REFM), Martin Loefflad (AFSC), Lisa Rotterman (NMFS PRD), Dana Seagars (NMFS PRD), Steve Whitney (NMFS AKR), Tom Wilderbuer (NMFS AFSC), Teresa A'mar (UW/AFSC), Stefanie Zador (NMFS AFSC), Olav Ormseth (NMFS AFSC), Neal Williamson (NMFS AFSC), Melanie Brown (NMFS AKR SF), Todd Loomis (Cascade Fishing), Beth Stewart (AEB), Dave Benson (Trident and NPFMC), Joe Childers (UFA/WGOAF), Taina Honkalehto (NMFS AFSC), Cody Szuwalski (UW), Jan Jacobs (American Sefoods), Craig Cross (Aleutian Spray Fisheries), John Hocevar (Greenpeace), David Witherell (NPFMC), Frank Kelty, Jon Warrenchuk (Oceana), Carwyn Hammond (NMFS), Laura Slater, Erik Olson (Northwest Farm Credit), Ron Felthoven (AFSC), Jennifer Mondragon (AFSC) Stefanie Moreland (ADF&G), Karla Bush (ADF&G), Ed Poulson (F/V Arctic Sea), Scott Miller (NOAA AKRO), Matt Eagleton (NMFS AKRO), John Olson (NMFS AKRO), Diana Evans (NPFMC), and Bill Wilson (NPFMC).

Adjourn The meeting adjourned after 5 pm.

Wednesday September 16 (Joint meeting Groundfish and Crab Plan Teams)		**Traynor Room**
8:30	Introductions	Introductions, joint agenda approval, Council/RO activities upcoming (other species), Review instructions to authors (ACL assessment removals, EFH by species, other), Role of economists on Council plan teams
9:30	EFH	5-year review process
10:45	**Break**	
11:15	HAPC	Review of HAPC criteria; recommendations for rating/proposal review
12:00	*Lunch*	
13:00	ACLs	Report from groundfish and crab analyses on progress towards application of uncertainty corrections
14:00		Proposed alternative ABC control rules for crab; direction for groundfish
15:00	*Break*	
15:15	ACLs (cont)	