

## Minutes of the Joint Plan Teams for the Groundfish Fisheries of the Gulf of Alaska (GOA) and Bering Sea Aleutian Islands (BSAI)

November 18 - 22, 2013

**North Pacific Fishery Management Council  
605 W 4th Avenue, Suite 306  
Anchorage, AK 99501**

BSAI Team		GOA Team	
Mike Sigler	AFSC (BSAI co-chair)	Jim Ianelli	AFSC REFM (GOA co-chair)
Grant Thompson	AFSC REFM (BSAI co-chair)	Diana Stram	NPFMC (GOA co-chair)
Kerim Aydin	AFSC REFM	Sandra Lowe	AFSC REFM
Lowell Fritz	AFSC NMML	Chris Lunsford	AFSC ABL
Chris Siddon	ADF&G	Jon Heifetz	AFSC ABL
Alan Haynie	AFSC REFM	Mike Dalton	AFSC REFM
Jane DiCosimo	NPFMC (Coordinator)	Kristen Green	ADF&G
Bill Clark	IPHC (retired)	Obren Davis	NMFS AKRO
Brenda Norcross	UAF	Mark Stichert	ADF&G
Mary Furuness	NMFS AKRO Juneau	Paul Spencer	AFSC REFM
David Barnard	ADF&G	Nancy Friday	AFSC NMML
Leslie Slater	USFWS	Leslie Slater	USFWS
Dana Hanselman	AFSC ABL	Craig Faunce	AFSC FMA
Liz Chilton	AFSC FMA	Jan Rumble	ADF&G
		Ian Stewart	IPHC

### Introduction

The joint meeting of the Gulf of Alaska (GOA) and Bering Sea Aleutian Islands (BSAI) Groundfish Plan Teams convened Monday November 18, 2013 at 9:00 am at the Alaska Fisheries Science Center in Seattle, Washington to review joint stock assessments for sablefish and grenadiers and discuss other management issues. Chris Siddon, Brenda Norcross, Craig Faunce, and Ian Stewart were absent. Approximately 30 people attended part(s) or all of the joint meeting. The Joint Groundfish Plan Teams adopted a revised agenda.

## **Council update**

### **Board of Fisheries actions**

Mark Stichert reported on Alaska Board of Fisheries (BOF) changes to state Pacific cod management in the GOA and BSAI and Atka mackerel in the AI. The western GOA Pacific cod GHL was increased from 25% to 30%. Consideration was given to increasing the central GOA allocation but no change was made. A Bering Sea Pacific cod pot allocation was created at 3% of the BSAI ABC. If the BS and AI Pacific cod specifications are split in 2014, this allocation would occur off the aggregate BSAI ABC. The BOF also created a new Atka mackerel seine fishery in the eastern Aleutian Islands and set a GHL of 10% of the ABC in the EAI; the Board is scheduled to reconsider this decision on November 26, 2013.

### **Revised assessment plans**

Due to the government shutdown in October 2013, stock assessments for an abbreviated suite of model runs were required only for Steller sea lion prey species (pollock, Pacific cod, Bering Sea/Aleutian Islands Atka mackerel), and species where a conservation concern has been noted. In such "abbreviated" assessments, authors were not required to include alternative models and were not required to respond to SSC or Team comments, among other things. For all other Tier 1-3 stocks, updated projections from last year using 2013 catch data were required at a minimum, with results presented in executive summaries using the "off-year" format for stocks on biennial assessment cycles. For stocks managed in Tiers 4-6, executive summaries using the "off-year" format for biennial assessment cycles were required.

### **Stock structure and spatial management policy**

Grant Thompson relayed the Council's October 2013 policy on stock structure and spatial management of North Pacific stocks and stock complexes:

1. As soon as preliminary scientific information indicates that further stock structure separation or other spatial management measures may be considered, the stock assessment authors, plan teams (groundfish, crab, scallop), and SSC should advise the Council of their findings and any associated conservation concerns.
2. With input from the agency, the public, and its advisory bodies, the Council (and NMFS) should identify the economic and management implications and potential options for management response to these findings and identify the suite of tools that could be used to achieve conservation and management goals. In the case of crab and scallop management, ADF&G needs to be part of this process.
3. To the extent practicable, further refinement of stock structure or other spatial conservation concerns and potential management responses should be discussed through the process described in recommendations 1 and 2 above.
4. Based on the best information available provided through this process, the SSC should continue to recommend OFLs and ABCs that prevent overfishing of stocks.

Prior to The Team meeting, discussions between Council member John Henderschedt and members of the SSC, Plan Teams, and Council staff focused on three questions:

- A. Are the steps in the Council process in chronological order? The answer appears to be, "Yes," except as noted immediately below.
- B. Can the order of the steps be changed in the event of an emergency? The answer appears to be, "Yes."
- C. What is the Council's expectation as to the typical amount of time that Steps 2 and 3 will take? The answer appears to be, "About a year."

Grant presented the following two interpretations of the Council policy stemming from these discussions.

Interpretation #1

1. The SSC will discuss the available evidence for stock structure each December
2. The SSC will then rule on whether or not there is compelling evidence to necessitate separate stock management
3. If the Council wanted to try to continue to manage the separate stocks under a single ABC, then it would request a management response from industry that would demonstrate how the separate stocks could be managed sustainably under a common ABC
4. The SSC would review this plan in February:
  - If the proposed management response does achieve the goal of maintaining catch at a sustainable level for both stocks, then management would continue under a single ABC
  - If success cannot be demonstrated within a reasonable period of time, then the SSC would manage separate stocks

Interpretation #2

1. When the Team receives new information regarding the existence of stock structure or the impacts of fishing on stock structure, the Team would evaluate the extent to which this information causes concern about the way the stock/s is/are being managed (this is Step 1 in the Council's process)
2. A possible scale of concern (all actions are contingent on SSC concurrence):
  - a. Little or no concern, in which case no action needs to be taken
  - b. Moderate concern, in which case special monitoring (e.g., frequent updating of the template) is required at a minimum and Steps 2 and 3 of the Council's process *may* be activated
  - c. Strong concern, in which case Steps 2 and 3 of the Council's process *must* be activated
  - d. "Emergency," in which case the Team will recommend separate harvest specifications at the ABC level, the OFL level, or both, for the next season (straight to Step 4 of the Council policy)

The Teams discussed how well the two interpretations mesh with the Council policy, given the answers to questions A-C above:

- A. Interpretation #1 does not follow the chronological order of the Council policy, whereas Interpretation #2 does.
- B. Both interpretations allow for moving straight to specification of separate ABCs, OFLs, or both in the case of an emergency.
- C. Interpretation #1 does not allow for Steps 2 and 3 of the Council process to take the anticipated time of approximately one year, whereas Interpretation #2 does.

Team members suggested that the following issues merit further clarification or guidance:

- How much time is allowed for acceptance (by the Council or SSC) of an industry response to a management concern? Interpretation #1 sets a hard deadline of two months for submission of a management response, but the only limit on the amount of time required for demonstrating the plan's success is that it be "reasonable." Interpretation #2 sets no limit on the amount of time taken by Steps 2 and 3 in the Council policy. Either interpretation could be amended by specifying a limit on the amount of time. Also, both interpretations allow for moving directly to separate harvest specifications at any time, in the event that the SSC determines the rate of progress to be insufficient.

- What is the relationship between evidence of stock structure and degree of concern? One possibility, which is most consistent with Interpretation #1, is that degree of concern is synonymous with strength of evidence of stock structure. Another possibility, which is most consistent with Interpretation #2, is that degree of concern is a function of both the strength of evidence of stock structure and the extent to which the fishery is impacting that structure.
- How can the process for passing stock structure information to the SSC be improved? The Team minutes attempt to document all presentations made at the Team meetings, but it is not always clear which other documents from the September Team meetings get forwarded to (or reviewed by) the SSC, and the time available for the Team report at the October SSC meeting is sometimes short. Moreover, to keep the Team reports of reasonable length, they tend to focus on those items for which the Team(s) made some sort of recommendation, so it is possible that stock structure information is not being emphasized in those cases (if any) where the Team made no recommendation. It would be helpful if the SSC minutes consistently acknowledged receipt of information on stock structure.

The procedure used by the BSAI Team in evaluating stock structure information during this year's September meeting was similar to that described in Interpretation #2. In following this procedure, the BSAI Team communicated to the SSC both the evidence of stock structure and the rationale for the Team's determination of the associated level of conservation concern.

The Teams will continue to review case studies of the stock structure template. In September 2014 the GOA Team is scheduled to review northern and southern rock sole, deepwater flatfish (Dover sole), arrowtooth flounder, octopus, and skates. The BSAI Team is scheduled to review eastern Bering Sea pollock, arrowtooth flounder, flathead sole, and other rockfish. Review of the stock structure template for BSAI Pacific ocean perch will be scheduled for September 2015. In addition, the previously completed case studies can be compiled for SSC consideration if the SSC indicates an interest in reviewing this information at a future SSC meeting.

## **Economic SAFE Report**

Ron Felthoven and Ben Fissel of AFSC presented the Economic Stock Assessment and Fishery Evaluation (SAFE) report to the Joint Plan Team. Ron Felthoven summarized the document, new elements, and on-going research efforts by the Economics and Social Sciences Research Program. New sections this year include aggregate data from the National Catch Shares Report for Alaska catch share fisheries and 2008-2012 information from the Amendment 80 economic data report (EDR).

Ben Fissel presented changes in index share across the GOA and BSAI for ex-vessel and wholesale markets for catcher vessels and catcher processors. These indices provide insight into: 1) how product value is changing from year to year; and 2) to what degree changes in price versus quantity impacted the change in value.

Individuals (Team members and members of the public) suggested that it would be helpful to receive more information on the following topics in the future:

- Halibut catch, value, etc. because halibut is such an important topic for Council action. While not part of the groundfish FMP, it is managed in part by the Council, along with groundfish target species.
- Information on crab and salmon, because processors and harvesters make decisions about groundfish in part in connection with the market and resources conditions of these populations.
- Values by management group (e.g., different rock fish species and/or species groups).

- Tables on how much production by species goes to fish meal.

**The Teams discussed whether it would be helpful to include information from the Economic SAFE Report in individual stock assessments. The Teams recommended that this discussion be continued at the September 2014 meeting. It may be helpful to compare how information from the Ecosystem Considerations section is (or should be, or should not be) included in individual stock assessments.**

## Sablefish

Dana Hanselman presented the sablefish assessment. The new assessment included the following new data: the 2012 final catch and new catch for 2013; relative abundance for the 2012 longline survey, the 2013 longline survey, and the 2013 Gulf of Alaska (GOA) trawl survey; ages from the 2012 longline survey and fishery; and lengths for the 2012 longline fishery, the 2013 longline survey, the 2012 trawl fishery, and the 2013 GOA trawl survey. There were no model changes and no whale sensitivity analysis.

Abundance indices have dropped from peak levels: the domestic RPN is down 20%, the IFQ fishery down 15%, and the GOA trawl survey down 65% from the respective long-term means. All three indices are at their lowest levels. Declines in survey indices are due either to declines in the stock or some other unidentified mechanism. The authors investigated possible causes such as fish moving out of survey depths, temperature changes, prey density, bad bait, and whale depredation, but none seemed likely. Killer whale depredation was up slightly in the Bering Sea and Aleutian Islands, and sperm whale depredation was similar to 2012. Longline survey RPNs were stable for the western GOA, the Aleutian Islands, and Bering Sea, and down in the central and eastern GOA which are at time series lows. Model fits to the longline survey RPNs were consistent with the survey results. The 2013 GOA trawl survey was also down and has been dropping since 2002; there were few young fish found during the survey. Logbook and observer data show similar trends to those listed above. The gully index was down and has the same trend as the slope survey. Currently the gully index is not included in the assessment model. The IPHC survey index, which is not included in the assessment model, showed some increase in 2011 followed by a sharp decrease of about 28% from 2011 to 2012.

Model results show that biomass has been decreasing since 2003. Spawning biomass had leveled off and is now trending downward. The authors developed an aggregate normalized index using all three abundance indices, which was well correlated with the model estimates of biomass. Model estimates of recruitment were above average for the 1997, 2000, and 2008 year classes, with 2008 being just above average in the current assessment. The 2000 year class comprises about 20% of the spawning biomass and the 2008 year class comprises about 10% of the spawning biomass. This year class is larger than average but is still not showing up as strong as expected. The 2014 projected spawning biomass is at  $B_{34\%}$  which puts sablefish in Tier 3b. The 2014 ABC is estimated to be 13,722 t and represents a 15% decrease relative to the 2013 ABC. The biomass is projected to decline for several years.

Apportionment of the sablefish ABC has two goals: 1) to take into account the actual changes in the distribution of the population, and 2) to reduce inter-annual variability in area ABCs. These goals are not being met because recent changes in apportionment are too large to reflect actual distributional shifts. The problem is thought to be due to the approach not taking into account measurement error, leading to rapid changes in some area estimates and large swings in apportionments. As an example, the status quo apportionment would increase the 2014 Bering Sea ABC by 20% although ABCs for all the other areas would decline by 15–20%. There is higher uncertainty in the data for the Bering Sea because this area is only surveyed every other year and fishery CPUE is estimated with limited observer and logbook data. A possible solution

is to use a random effects model, which the authors will explore next year. Two options were proposed for this year's assessment: 1) go with the model ABC and standard apportionment, or 2) use the model ABC and fix apportionment at the same values as used last year and apply a 15% decrease across the board, which the authors recommended. This would be an interim measure to smooth ABC variability until more analyses are completed.

A Ph.D. student at UAF is working on a sablefish spatial model to evaluate apportionment strategies which will maximize spawning biomass, minimize volatility, and consider economic yield. The project will give guidance on apportionment by September 2015. Industry seemed to support the status quo 2013 apportionment applied to the 2014 ABC. As a clear biological concern has not been raised for either allocation scheme, the Team will provide both options.

**The Teams recommended following the authors' approach for apportionment as an interim measure (-15% across all areas). The Teams also recommended that the standard approach (used in previous year's assessments) be presented to the SSC and Council and noted that work is underway to select an improved apportionment approach.**

## **Grenadiers**

Pete Hulson presented an update of the grenadier assessment. Giant grenadier, the most abundant species of the complex, is used as a proxy for the remainder of the group. The Tier 5 recommendations of ABC and OFL for the eastern Bering Sea, Aleutian Islands, and Gulf of Alaska are the same values as for the last assessment. Total catch Alaska-wide was about 15,000 t for each of the last two years. The authors presented a preliminary random effects model for the Gulf of Alaska. This model was applied to the time series of grenadier survey biomass and accounts for missing data for the years that the survey did not sample the deep depth strata. The Teams did not recommend an OFL or ABC, as this stock complex is not managed under the groundfish FMPs. Final action to include this complex in the FMPs is scheduled for February 2014. If grenadiers are included "in the fishery," then harvest specifications would not be in effect until 2015, at the earliest.

## **Alternative statistical models for survey data**

The Teams discussed the rockfish CIE recommendation of exploring alternative methods to estimate biomass with trawl survey data. The CIE suggested that standard random sampling estimators were not well suited for use with patchy or rare distributions. The Teams determined that this was an important recommendation for rockfish, but is also applicable to all stocks that use the trawl surveys to assess stocks.

**The Teams recommended that the Science Center explore modeling approaches such as generalized linear models and hurdle models such as the delta-lognormal in order to obtain more accurate estimates of survey biomass and the variance. The Science Center may wish to consider organizing a study group composed of assessment and survey scientists to evaluate various methodologies.**

## **Meeting dates for 2014**

Tentative meeting dates for next year are September 22-25, 2014 (as needed) and November 17-21, 2014.

## **Adjourn**

The meeting adjourned at approximately 2:30 pm on Monday, November 18, 2013.

## Minutes of the Bering Sea Aleutian Islands Groundfish Plan Team

North Pacific Fishery Management Council  
605 W 4th Avenue, Suite 306  
Anchorage, AK 99501

November 18-22, 2013

Mike Sigler	AFSC (Co-chair)	Grant Thompson	AFSC REFM (Co-chair)
Jane DiCosimo	NPFMC (Coordinator)	Lowell Fritz*	AFSC NMML
Kerim Aydin	AFSC REFM	Alan Haynie	AFSC REFM
Chris Siddon*	ADF&G	Dana Hanselman	AFSC ABL
Brenda Norcross*	UAF	Mary Furuness	NMFS AKRO
David Barnard	ADF&G	Bill Clark	IPHC
Leslie Slater*	USFWS	Liz Chilton	AFSC FMA

\*attended part(s) of the meeting

The BSAI Groundfish Plan Team convened on Monday, November 22, 2013, at 3:00 pm to review 25 stock assessments; updates to the Ecosystem Considerations chapter, Economic SAFE Report, and BSAI forage fish assessment; and other management issues.

All members attended; some attended only parts of the meeting. As many as 65 people attended part(s) of the meeting.

### Effects of October government shutdown

Due to the government shutdown in October 2013, stock assessments for an abbreviated suite of model runs were required only for Steller sea lion prey species (pollock, Pacific cod, Atka mackerel), and species where a conservation concern has been noted. For all other Tier 1-3 stocks, updated projections from last year using 2013 catch data were required at a minimum, with results presented in executive summaries using the “off-year” format for stocks on biennial assessment cycles (i.e., some flatfishes, all rockfishes, all non-target species). In such “abbreviated” assessments, authors were not required to include alternative models and were not required to respond to SSC or Team comments, among other things. For stocks managed in Tiers 4-6, executive summaries using the “off-year” format for biennial assessment cycles were required.

Under normal circumstances, the Team expects to receive a full assessment in November of the current year before accepting a change in either model *structure* or model *inputs* (with the exception of routine updating of time series, such as adding a new catch datum to the end of the catch time series). However, for the special case of this “furlough year,” the Team left open the options of:

1. accepting a change in model *structure* for *Tier 3* stocks/complexes without receiving a full assessment in November *if* the Team reviewed and approved the change after receiving a full assessment in September;
2. accepting a change in model *structure* for *Tier 5* stocks/complexes without receiving a full assessment in November *if*, after evaluating alternative approaches, the authors recommend adoption of the Survey Averaging Working Group's random effects model; and
3. accepting a change in model *inputs* without receiving a full assessment in November *if* those changes were reviewed and approved in September, even if a full assessment was not received in September.

## BSAI fishery crab PSC

Diana Stram summarized a Council request for the Team to consider an annual review of crab PSC levels to assist efforts by ADF&G to determine appropriate crab TACs that are below the federal ABC and allow a sufficient buffer for crab PSC in the groundfish fisheries, with particular application to St. Matthew blue king crab, Tanner crab, and Bristol Bay red king crab. The Council requested information on PSC trends based upon potential changes in fishery behavior or management in the groundfish fisheries.

The Team noted the mismatch between crab PSC reporting in the groundfish stock assessments (by FMP or regulatory area) compared with State management districts, as stock assessments for groundfish and PSC reported therein often cover more than one crab stock. The Team commented on the statistical difficulties of projecting trends of any PSC removals.

**The Team recommended that the Council recommend to ADF&G that it consult with NMFS AKRO In-Season Management Division and the AFSC FMA Division when ADF&G meets to discuss setting TACs. NMFS staff would provide reports on changes in groundfish management and fisheries operations that may affect crab PSC in groundfish fisheries.**

The Team also suggested that crab stock assessment authors include information in their assessments on the PSC removals of each crab stock by groundfish target fisheries. Currently assessments include only bycatch by gear type without any target information included.

## Eastern Bering Sea pollock

Jim Ianelli presented the EBS pollock assessment.

Highlights from recent data:

- This year there was more fishing than usual around Pribilof Islands during roe season.
- Roe recovery rates have been lower in 2011-2013 than in earlier in the past decade. In 2013, the spatial distribution of the winter fishery was out of the CVOA. Members of the public expressed that they believed this was due in part to high concentrations of fish to the north, cold conditions, and Chinook bycatch avoidance.
- Size composition in the fishery shifted from bimodal in 2012 to unimodal in 2013, with the upper mode dropping out.
- Summer fishery CPUE was higher in 2013 than in 2011 or 2012.
- Mean weights at age are higher in 2009-2012 than previously, except that weights of 3- and 4-year-olds from the 2008 year class are the *lowest* in the time series (see "Future directions," below).
- The survey observed significant concentrations of pollock inside the "cold pool," which is unusual.

- The number of 5-year-olds estimated by this year's bottom trawl survey was the highest ever.

Highlights from this year's model explorations:

- Models in the "Mod0.x" series explore the effects of adding one piece of new data at a time, cumulatively, to last year's model. For example, addition of the 2012-2013 acoustic vessels of opportunity data caused an increase in the biomass estimates. Mod0.4 incorporates all of the new data, and is the authors' recommended model.
- Models in the "Mod1.x" series explore the method for estimating  $s_R$  that was recommended by the Recruitment Working Group. The resulting estimate of  $s_R$  appears reasonable, and the corresponding estimates of cohort strengths did not change appreciably, but the corresponding estimate of stock-recruitment steepness *did* change appreciably. Due to time limitations resulting from the October government shutdown, the authors felt that they did not have enough time to evaluate these impacts, and therefore do not recommend moving to this model at present.
- Mod2.0 explores the use of the "Kotwicky index." This method, which was presented to The Team in September, attempts to correct for the effect of fish density on the efficiency of the net used in the shelf bottom trawl survey. In general, the method estimates that efficiency varies inversely with density. Because fish density varies with space, so does the effect. Overall, high survey estimates tend to get corrected upward, and low survey estimates tend to get corrected downward. Coefficients of variation are higher than for the raw (uncorrected) estimates. Age composition data also get revised as a result of this method. The authors view Mod2.0 as preliminary, and do not recommend moving to this model at present.

Highlights from assessment results:

- The estimated strengths of the 2006 and 2008 year classes are very similar to last year's estimates, with the 2006 year class estimated to be slightly above average and the 2008 year class estimated to be about twice the average level. More recent year classes are all estimated to be slightly below average.
- Spawning biomass is projected to be 23% above  $B_{MSY}$  in 2014.
- Annual surplus production for 2014 is estimated at about 1.1 million t, maximum permissible ABC for 2014 is 2.528 million t, and the authors' recommended ABC for 2014 (based on the most recent 5-year average fishing mortality rate) is 1.369 million t. If the stock were managed under Tier 3, the maximum permissible ABC for 2014 would be 1.465 million t.

The Team accepted the authors' recommended model and harvest specifications for 2014-2015, noting that use of the 5-year average fishing mortality rate has been the accepted practice for setting ABC for this stock consistently since the 2010 assessment.

Future directions:

- In this year's assessment, projections are based on the assumption that weights at ages 6 and 7 will equal the lowest values in the historic weight-at-age time series, because these ages correspond to the 2008 year class in the two most important projection years (2014 and 2015) and, as noted above, the 2008 year class appears to have weights at age that are far below average. For the future, Jim would like Team guidance regarding the possibility of using a matrix of cohort-specific weights at age for projection (the current procedure uses a single vector of weights at age for all future years).
- The author also asked for Team guidance regarding issues pertaining to Tier 1 status and estimation of stock-recruitment parameters.

**The Team recommended that the authors explore the use of a matrix of cohort-specific weights at age for making projections.**

**The Team also recommended that the authors consider the recommendations of the Recruitment Working Group, once final recommendations have been accepted by the Teams and SSC.**

### **Aleutian Islands pollock**

Steve Barbeaux presented AI pollock assessment. The stock assessment covers areas 541, 542 and 543, excluding the northern part of each area. The most recent survey occurred in 2012; the value from that survey was a historic low. The only change in the assessment model from last year's assessment was to remove the pre-1991 survey estimates (which were previously included, but given extremely low emphasis). As a result, the new model results were very similar to last year's results. The stock is in Tier 3b with a 2014 ABC recommendation of about 35,000 t. However, ABC for this stock is limited by statute to 19,000 t.

### **Bogoslof pollock**

Jim Ianelli presented the Bogoslof pollock assessment. No new survey was conducted this year; the last survey occurred in 2012. As a result, the ABC and OFL recommendations remained the same as recommended last year.

### **Eastern Bering Sea Pacific cod**

Grant Thompson presented the EBS Pacific cod assessment. This was an "abbreviated" full assessment, consisting of running the model adopted in 2011 and 2012 (last year's Model 1) with the latest data. A number of alternative models had been discussed and requested by the Team and SSC in September/ October but Grant had been unable to implement them because of the government shutdown in October. The Team supports the use of last year's model for 2014 stock specifications.

Dave Somerton questioned the model's estimate of a steeply domed survey selectivity, as he and others have done for years. The group viewed survey and commercial catch compositions, which have little overlap. Commercial length compositions have a mode around 60-70 cm, whereas survey catches contain few fish larger than 60 cm. In the view of some Team members, it is this feature of the catch composition data that inevitably results in a domed survey selectivity and asymptotic commercial selectivity.

The Team discussed future work on the assessment. At the September meeting we had reviewed four models, of which one was Model 1 and the others were all variants of an exploratory model (called Model 4 last year and in September) that incorporated a number of improved features. Model 2 was Model 4 with survey selectivity and catchability estimated freely. Model 3 was Model 4 with survey selectivity forced asymptotic and a prior on survey catchability centered on 0.47 (based on archival tag data). Both Model 2 and Model 3 produced quite high estimates of survey catchability (1.37 in Model 2 and 1.27 in Model 3, despite the prior). They both also showed very high (unlikely) values of F in the 1980s.

For the current assessment, in September the Team requested six models (including Models 1 and 4), and the SSC added two more models to the list at its October meeting. Grant expressed some disappointment with the large number of models requested, noting that the purpose of the two stages in the preliminary review process (with Team/SSC meetings in May/June and September/October) is to *reduce* the number of models at each step, but this year the number

increased from three models requested in May/June to eight models requested in September/October.

**The Team recommended that Grant fit the following candidate models for next year's September meeting:**

Model	Description	Rationale
1	2011-12 standard	Standard practice
2b	Model 4 with fixed M, free survey selectivity, and annually varying survey Q (freely estimated mean and dev vector)	Grant has argued persuasively that the survey data simply cannot be fitted with a constant survey Q.
3a	Model 4 with fixed M, asymptotic survey selectivity, and Q=1.	An asymptotic candidate; one of the models requested by the SSC.
3b	Like Model 3a but with M estimated.	A check on the effect of freeing M.

One of the models requested by the SSC in October is not on the list: a version of Model 2 with Q=1 or with the mean of an annually varying Q fixed at one. In addition to the list above, it is understood that the author may bring forward other models (e.g. Model 4 itself). If the SSC settles on a list of models at its December meeting, it may not be necessary to hold the customary discussions of EBS cod models in May/June.

**The Team also repeated its previous recommendation that studies of the vertical distribution of Pacific cod continue in order to test the previous finding that the average product of survey catchability and selectivity across the 60-81 cm size range is 0.47 (based on vertical distribution from archival tags). These studies should include: 1) analysis of existing fish acoustic data (as recommended by Bob Lauth); and 2) depending on the results of that analysis, repeat the 2012 experiment in an area where Pacific cod are distributed farther off bottom and using an acoustic buoy to measure vertical response to the passing vessel.**

## **Aleutian Islands Pacific cod**

Grant Thompson presented the AI Pacific cod assessment.

The SSC has announced its intention to set a separate 2014 OFL and ABC for cod in the Aleutians, and to that end a separate AI assessment has been in development for some time. Grant Thompson had reported on fits of three models in September but none produced acceptable results, so at this meeting there was no accepted model or even tier for this stock. Grant presented two new Tier 3 assessments and two Tier 5 assessments.

Like the models shown in September, the Tier 3 models were simpler than the EBS model, with just one fishery and no season divisions. Selectivity was modeled using Stock Synthesis selectivity pattern 17, which is empirical rather than parametric. Two versions were fitted: Model 1, with survey selectivity free and survey Q=1; and Model 2, with survey selectivity asymptotic and a prior on log survey Q centered at zero with standard deviation 0.11. (The estimated value of Q in the model fit was 0.78.) The Tier 5 models used standard survey averaging methods (Kalman filter and the random effects model) to estimate present survey biomass.

The Tier 3 models fitted the data reasonably well but had some questionable features, including a very rapid increase in abundance in the 1980s, an extremely peaked estimate of survey

selectivity (Model 1), and difficulty reconciling the sustained downward trend in survey CPUE with the sustained upward trend in fishery lengths. In view of these features, and the lack of previous experience with selectivity pattern 17, Grant did not believe that the Tier 3 models could be relied on for determining 2014 OFL and ABC. The Tier 5 models, being entirely empirical, naturally fitted the survey time series satisfactorily. All of the models produced very similar values for ABC (around the level of recent catches), so Grant recommended using one of the Tier 5 models until a credible Tier 3 model emerged. The Team agreed.

Some members of the public voiced deep doubts about the reliability of the survey for estimating cod abundance, pointing out that the survey is conducted in summer when cod are scarce in the region while the fishery is conducted in the winter, when cod are apparently much more abundant. The Team shares this concern. Setting an OFL and ABC for 2014 therefore comes down to choosing between a questionable Tier 3 model and a questionable Tier 5 model. Fortunately the OFL/ABC numbers are similar, but questionable nonetheless.

**For continued development of a Tier 3 assessment, the Team recommended: 1) forcing the regime change recruitment offset to zero, 2) examining the usefulness of IPHC longline survey data, and 3) continuing to monitor commercial CPUE.**

## **Yellowfin sole**

Tom Wilderbuer presented the yellowfin sole assessment. There were no changes made to the stock assessment this year, but the model was updated with most current survey and fishery data available. In general the model fits the survey biomass estimates quite well. Yellowfin sole female spawning biomass is ~1.5 times above Bmsy, but declining since the 1980s. However, total biomass is trending upwards due to a strong 2003 age class. Additionally, the average exploitation rate is only 0.05 and the catch is only, on average, 75% of the ABC.

There was some discussion about smoothing the weight-at-age data requested by the SSC and a suggestion to consider a median smoother (among others) in the future. It was also noted that fishing effort was relatively high late into the season this year, but this was not a change in fishing behavior that warranted further discussion. Also noted was a near 50/50 sex ratio and a very large discrepancy between average ages of fish caught in the fishery versus those caught in the survey; just reiterating the ability of the fleet to target older (i.e., larger) fish.

## **Greenland Turbot**

Steve Barbeaux presented the Greenland Turbot assessment. Due to the federal government shutdown, no new models were explored. However, EBS shelf and ABL longline survey biomass, survey length frequency data, shelf survey age data, total catch, and fishery length frequency data were updated in the model. Model results projected a 2014 spawning biomass of 22,010 t, which was a 17% decline from last year's 2014 projection. A second model was run, which included an autocorrelation parameter, but the authors felt that there was not sufficient time to review its adequacy. For the early part of the time series (where no size composition or age composition data are available), the autocorrelation model allows recruitment to occur over multiple years rather than forcing a strong recruitment pulse into one year. This second model fit better than the model actually used for this year's stock assessment and will be examined fully in the upcoming year. The very strong 2008 and 2009 year classes are expected to increase the female spawning biomass significantly.

## Generic rockfish research priorities

For assessments involving age-structured models, this year's CIE review of BSAI and GOA rockfish assessments included three main recommendations for future research:

1. Selectivity/fit to plus group (e.g., explore dome-shaped selectivity, cubic splines)
2. Reevaluation of natural mortality
3. Alternative statistical models for survey data (e.g., GAM, GLM, hurdle models)

**The Team agreed that development of alternative survey estimators is a high priority, but concluded that this priority is not specific to rockfish, and should be explored in a Center-wide initiative (see “Alternative statistical models for survey data” under Joint Team minutes). For the remaining two items, the Team recommended that selectivity and fit to the plus group should be given priority over reevaluation of the natural mortality rate.**

## Pacific ocean perch

Paul Spencer presented the Pacific ocean perch assessment. The assessment model was not run, but the projection model was re-run with updated catch data. The estimated catches for 2012 and 2013 were within 2% of actual values. The estimates are based on the ratio of the proportion of remaining ABC that has been taken in Oct-Dec in the last 3 years added to the current year catch. The area apportionment was based on the standard method of a weighted average of the last three surveys. He also presented the random effects model which gave similar results as the standard approach.

Paul discussed future research plans based on SSC and CIE comments (see “Generic rockfish research priorities” above). Paul showed some of the fits to the survey age compositions and noted that dome-shaped selectivity could help the fit to the plus group. Plan Team members suggested that simulations could be done to see what the plus group should look like with the high fishing mortality that occurred in the 1960s. Another suggestion was to examine the compositions beyond the plus group to see if these ages look like an exponential decline. Paul said that the assessment used to have a slight dome-shape, but was later changed to be asymptotic. Another suggestion was to estimate the natural mortality rate freely, but Paul said that the tendency is for  $M$  to increase, which would not help the fit to the plus group.

Paul showed the increase in POP biomass in the EBS Slope survey for the last decade. He is considering ways to include this survey in the assessment model. One possibility would be simply to add the EBS slope and the AI survey values together, with the gaps in the biennial time series filled from a random effects model. AFSC RACE survey staff commented that the selectivity may not be the same, given the different footropes and the different habitat of each environment. Paul said that he was concerned that the two parts of the population may not move in synchrony. Paul said a comprehensive rockfish stock structure comparison would be useful, and volunteered to do the stock structure template for BSAI POP in 2015.

**In addition to the generic rockfish research priorities, the Team recommended that future POP research include exploratory use of the EBS slope index in the model.**

**The Team also recommended that the author present the stock structure template for this stock in September 2015.**

## Northern rockfish

Paul Spencer presented the northern rockfish assessment. The assessment model was not re-run, but the projection model was updated with new catches. The technique for projecting year-end catch for the current year was the same as in the BSAI POP assessment, and was almost

identical to the technique used for northern rockfish last year. The only difference is that a 5-year average was used last year for computing the proportion of the remaining October-December ABC that is caught by the end of the year, but this year Paul switched to a 2-year average, due to an apparent change in the way that the fishery has been prosecuted recently. The ABC and OFL are quite similar to last year's estimates. Paul discussed future research plans based on SSC and CIE comments, similar to those described under POP above. Paul noted that there are few northern rockfish found in either the EBS slope or the EBS shelf surveys, because their primary depths are in the seam between the two surveys. AFSC RACE survey staff confirmed the existence of a gap between the two surveys at depths of 175-200 m, where northern rockfish probably reside.

## **Blackspotted and Rougheye rockfish**

Paul Spencer presented the blackspotted and rougheye rockfish assessment.

For the Tier 5 portion of the stock, the authors recommended use of the random effects (RE) model that the Team and the Survey Averaging Working Group had asked authors to consider as an alternative. This change lowers the model estimates for biomass and OFL/ABC. In the document, only the RE results are shown for the Tier 5 portion of the stock. However, since there are no new data for the EBS slope or AI surveys this year, last year's biomass/OFL/ABC values for the Tier 5 portion of the stock could simply be rolled over if the SSC does not wish to use the results from the RE model.

The Team discussed whether to adopt the random effects model over the status quo method (weighted average of the last three surveys). Both were presented by the author (although not in the document). The CIE review raised the issue that we don't really know the CVs of the survey – they are an estimate. The author and Team discussed several ways to address process error in the RE model. For example, one could set a prior on the process error variance term. The author suggested that one could run the RE model with a common variance across surveys, which the status quo method implicitly assumes. These issues are not specific to blackspotted/rougheye rockfish, however.

For this assessment, the Team supports the authors' recommendation to use the RE model for the Tier 5 portion of the stock.

**The Team recommended that the authors continue to examine how the estimates of the random effects model (including process error variance) are impacted by changes in survey estimates and variances.**

**The Team also recommended reconsideration of split-tier management of this stock complex.**

### Blackspotted and rougheye rockfish spatial structure discussion

Paul Spencer revisited the spatial stock structure discussion that he had presented in September and in several previous Plan Team meetings. Although blackspotted/rougheye rockfish are managed in a two-species complex in the BSAI, rougheye rockfish are rarely found west of the eastern Aleutians; thus, the concern in the WAI pertains to blackspotted rockfish. Paul emphasized seven reasons for concern about fishing pressure on the Western Aleutian Island (WAI) component of the population.

- 1) Genetic information showing spatial structure at scales < 500 km, which is roughly the scale of one of the AI subareas.
- 2) High catch levels in the 1990s in the WAI that were followed by a sharp decline in WAI survey biomass estimates.

- 3) Estimated exploitation rates have exceeded UF35% (the biomass exploitation rate that would result from applying a fishing rate of F35% to the estimated beginning-year numbers at age) in 6 out of 10 years in the WAI from 2004-2013.
- 4) Overall, an 85% decline in survey biomass estimates in the WAI from 1991-2012, as estimated by a random effects time series model.
- 5) An increase in the proportion of survey tows which have not caught blackspotted/rougheye in the WAI, and within each WAI survey stratum deeper than 100 m.
- 6) A large percentage of the total harvest occurring in the WAI.
- 7) A decline in mean size in the WAI but not in other BSAI subareas.

The Team reiterated its key message from its September 2013 meeting minutes:

**The Team found the quantity and quality of the information presented to be compelling and commended the authors for compiling the information to document concerns regarding status quo management of the assemblage. The Team concurred with the authors' conclusions that the blackspotted/rougheye rockfish abundance has been reduced in the WAI. The Team has more concern over local overexploitation of this assemblage than other stocks that have been subjected to the stock structure template.**

**At this meeting, the Team repeated its "strong concern" about the WAI component of the stock (see Interpretation #2 in the Joint Team minutes on "Stock structure and spatial management policy"). If the SSC concurs with this level of concern, the Team anticipates a management response in 2014. The Team recommended that the authors update the 7 metrics (shown above) in time for the September 2014 meeting. At that meeting, the Team will review the WAI stock status again and evaluate the effect of any management response in 2014.**

## **Shortraker rockfish**

Ingrid Spies presented the shortraker rockfish assessment. This assessment is conducted on a two-year cycle to coincide with biennial Aleutian Islands surveys. The 2013 biomass estimate is based on survey data through 2012 and the estimated values for ABC and OFL in 2014 and 2015 are carried over from the 2012 assessment.

As of 11/09/13, the total catch of 420 t exceeded the ABC of 370 t, with the highest removal occurring in the WAI. This is the first year that shortraker rockfish bycatch was reported in the IFQ halibut fishery, based on observer data collected in the restructured observer program, which may have contributed to the TAC exceeding the ABC. The NMFS AK Regional Office may issue an OFL closure, but does not have the authority to close the IFQ halibut fishery on the basis of shortraker rockfish bycatch.

The assessment authors have used a surplus production model to estimate current biomass for several years, but suggest using the Survey Averaging Working Group's random effects model for future assessments.

**The Team recommended that the authors provide assessment estimates from both the existing surplus production model and the random effects model, with supporting details, in September 2014.**

## **Other rockfish**

Ingrid Spies presented the other rockfish assessment. She said that in 2012, she had not included unidentified rockfish in the catch data, but the amount of this component was very

small and changed the totals only slightly. The other rockfish assessment had no new survey data, so the recommendations repeat the prior assessment's results.

Ingrid presented some evidence of overexploitation of the non-shortspine thornyhead (non-SST) species of the other rockfish complex. The species complex is managed based on aggregate OFL and ABC values; there are no official OFL and ABC values for each species. However, hypothetical values of OFL for each species can be computed and used to evaluate whether overexploitation is occurring at the species level. The hypothetical OFL for shortspine thornyheads is quite large relative to the recent catch. In contrast, the hypothetical non-SST OFL was less than the catch in 2012. This overage has occurred for many years. The catch in 2013 was already larger than the hypothetical 2013 OFL of non-SST rockfish. The main constituent of the non-SST rockfish catch is dusky rockfish. The Amendment 80 fleet catches many of these dusky rockfish in the AI during the fishery for Atka mackerel. The fleet is aware of the issue and will be attempting to alleviate the problem.

**Because of the high harvest of the non-SST portion of the stock, the Team recommended that the stock structure template be completed for this assessment by September 2014. The Team also recommended that the authors report exploitation rates for individual species for the non-SST portion of the stock relative to hypothetical reference levels (e.g., ABC and OFL).**

## **Arrowtooth Flounder**

Ingrid Spies presented the arrowtooth flounder assessment. This is the first off-year assessment for this stock. The projection model was run, using as its basis last year's stock assessment model with a revised maturity schedule approved for use by the Team at its September 2013 meeting. The projection model included updates of catch for 2012 and projected catch for 2013 and 2014. The results of the 2013 shelf survey were not included in the assessment model.

The new maturity ogive had little effect on the total biomass, but resulted in a decrease in female spawning biomass for 2014. There was also a decrease in the OFL and ABC values for both 2014 and 2015.

The Team discussed which biomass and fishing mortality values from last year's assessment should be reported in the SAFE chapter summary table. Last year's method for estimating maturity parameters in that assessment was rejected. One option is to report the values from the 2011 assessment, which was accepted. A second option is to report the values as "n/a." A third option (preferred by the author), is to report the values from last year's rejected assessment. Unlike the harvest specifications (ABC and OFL), the biomass and fishing mortality values have no official standing (e.g., they do not appear in any Federal Register notice). The Team anticipated that the authors would work with Council staff to decide which values to report.

The Team accepted the authors' recommended OFLs and ABCs.

## **Kamchatka flounder**

Tom Wilderbuer presented the Kamchatka flounder assessment.

In 2011 and 2012, this stock was managed under Tier 5. An age-structured model was presented to the Team and SSC in September and October of 2012. The SSC did not accept the model, and recommended a large number of further evaluations. For 2013, the stock continued to be managed under Tier 5. The authors responded to the SSC's October 2013 recommendations in a preliminary assessment presented to the Team and SSC in September and October of this year. In September, the Team recommended that the model from the

preliminary assessment be used in the final assessment. The SSC had no comment on the preliminary assessment. The authors planned to provide a full assessment in November; however, as a result of the October government shutdown, only an executive summary was presented. The projection model was run, based on parameters and numbers at age from the age-structured model presented in the preliminary assessment.

The authors recommend setting ABC for 2014-2015 at the maximum permissible levels under Tier 3, based on the results of the projection model.

The Team held a lengthy discussion over whether it was appropriate to base harvest specifications on an assessment presented in “off-year” format that uses results from a preliminary analysis of an age-structured model that has not been approved by the SSC. Although this is clearly not an ideal scenario, the Team ultimately agreed to accept the author’s recommendations, citing the need for flexibility in light of the unusual circumstances surrounding this year’s assessments and the fact that a very complete analysis of the new model was reviewed in September (see “Effects of October government shutdown” above).

If the SSC concurs, Kamchatka flounder would be managed under Tier 3 for 2014. The Tier 3 results are not directly comparable to the Tier 5 results from last year. For example, the maximum permissible ABC for 2014 is 40% less than the 2013 ABC.

## **Northern rock sole**

Tom Wilderbuer presented the northern rock sole assessment.

In the 2011 and 2012 SAFE reports, the authors included an alternative (Model 7) that allowed survey catchability to vary with temperature. Model 7 was not accepted for use in either year, but in November 2012, the Team encouraged the authors to explore this alternative more fully. The SSC concurred, and in September of this year Tom gave an oral presentation indicating that Model 7 seemed to be statistically preferable to the base model (Model 1). As a Tier 1 stock, Northern rock sole was scheduled for a full assessment this year, but due to the October government shutdown, the final assessment was presented in “off-year” format only, with an executive summary based on two versions of the projection model. The projection models were, in turn, based on results from Models 1 and 7 in the 2012 assessment and an estimate of final 2013 catch.

The Team had a lengthy discussion of which model should be accepted for this year. On the one hand, it would be very unusual for the Team to recommend a change in model structure without a full, current-year assessment that includes the recommended change. On the other hand, the Team did receive full assessments that included this change in 2011 and 2012, but the change was not accepted in either of those years. The Team noted that the decision does not involve a conservation concern, as both models estimate that the stock is near  $B_0$  and is only lightly exploited. The discussion ended in a split decision. Given this split decision, the Team advises that Model 1 be retained for the purpose of setting 2014 harvest specifications (see also “Effects of October government shutdown” above).

**For November 2014, the Team recommended that the authors provide a full assessment including the temperature-dependent model with new data. At that time the Team requests that the model details be written out for documentation of change of model; the documentation should include a graph to compare the temperature-dependent Model 7 to the currently used Model 1.**

It was noted that survey biomass decreased 8% from 2012 to 2013. The survey can see younger age classes coming in, whereas the fishery does not see them until about age 11. The

exploitation rate remains at 4%; 93% of northern rock sole were retained 2012, a 9% increase. The bottom temperature in the EBS was below average in 2013, but not as cold as 2012.

## **Flathead sole**

Buck Stockhausen presented the flathead sole assessment. Flathead sole are managed as part of a stock complex along with Bering flounder. This is a Tier 3, age-structured assessment. This is the first “off-year” assessment of the complex, so there is no survey update; rather, the projection model was run using parameters from the 2012 model with updated catch data for 2012 and projected catch for 2013 and 2014. According to last year’s full assessment, the stock is in good shape with the biomass well above  $B_{35\%}$  and fishing mortality low relative to  $F_{OFL}$ . The author used a new catch estimation method relative to previous assessments. Previously, a linear regression of the recent weekly cumulative catch was used to arrive at a total catch for the year. For 2013, the ratio of the final catch in the previous year, 2012, to the corresponding week for 2012 was applied to the catch for the same week in 2013. The 2014 catch estimate is the same as the 2013 estimate. These catches do not include CDQ catches, which are small. The Team agreed that this is an improvement over the previous method.

The projection model results are similar to last year’s. Catch and survey biomass are up. The author recommended using the max ABC. The stock is not being overfished and is not approaching an overfished condition.

There was discussion about what how industry would respond if the catch was close to or at the ABC. It was also noted that the method of estimating catch for the current and next year, while acceptable, differed from methods used in other stocks.

## **Alaska plaice**

Tom Wilderbuer presented the Alaska plaice assessment. This is an “off-year” assessment. Although not used in the projection model, the chapter presents recent survey results, including the 2013 biomass point estimate (a 6% decrease in from 2012) and the 2012 age composition. The projection model output is only slightly changed from last year’s assessment. This is a lightly exploited stock, with exploitation rates of ~3 %. Alaska plaice is taken mostly as bycatch in the yellowfin sole fishery. Big year classes spawned in the early the 2000s should sustain the stock.

## **Other flatfish**

Tom Wilderbuer presented the “other flatfish” assessment. Although this stock complex was scheduled for an “off-year” assessment only, the authors provided more than an executive summary, including. 2013 catch and survey data. This is a Tier 5 stock complex. The 2014 biomass estimate decreased slightly (6%) since last year. The Team accepted the author’s recommended OFL and ABC.

## **Atka mackerel**

Sandra Lowe presented the Atka mackerel assessment. This assessment was a full update. New data included the 2012 fishery and survey age composition. Two assessment models were presented: last year’s model (Model 1), in which selectivity was held constant within each (of four) blocks of years, and an alternative (Model 2) that allowed fishery selectivity to vary annually, with the standard deviation of the changes estimated statistically. Prior to the 2008 assessment, selectivity had been allowed to vary annually, but the authors switched to the block format for the 2008-2012 assessments following a recommendation from the 2008 CIE review.

The new age data indicated that older year classes (1999-2001) are still prevalent in the population and increased the estimate of the 2007 year class. Under Model 2, which is the authors' recommended model, projected biomass and the maximum permissible ABC increased substantially, and the stock moved from Tier 3b to Tier 3a. For projections based on Model 2, average selectivity from the most recent 5-year period (2009-2013) was used.

The Team agreed with the authors' choice of model and their recommendations for OFLs and ABCs.

**The Team recommended plotting the average 2009-2013 fishery selectivity vector in Figure 17.13 for comparison purposes, along with selectivity from the terminal year.**

## Skates

Olav Ormseth presented the squid assessment. This was a scheduled "off-year" assessment. He provided an overview of the executive summary for BSAI skates. No changes were made to the assessment model for Alaska skate. The projection model was re-run with the most recent catch data. Results from the 2013 EBS shelf survey were presented but not used for making harvest recommendations. The 2014 and 2015 recommended OFLs and ABCs are slightly reduced from 2013, consistent with last year's projections. The author is planning to examine and respond to recommendations from the May 2013 CIE review in next year's full assessment.

## Sharks

Dana Hanselman presented the shark assessment. This was a scheduled "off-year" assessment. BSAI sharks are in Tier 6, with OFL and ABC set on the basis of maximum catch over the years 1997-2007. The recommended values for ABC and OFL in 2014 and 2015 are carried over from the 2012 assessment. As of 11/9/13, the shark complex catch of 85 t is well below the 2013 ABC of 1,020 t. Trawl survey data do not provide reliable estimates of abundance of sharks in the BSAI.

## Sculpins

Ingrid Spies presented the sculpin assessment. This was a scheduled "off-year" assessment. The 2013-2015 biomass estimate is based on survey data through 2012 and the recommended values for ABC and OFL in 2014 and 2015 are carried over from the 2012 assessment.

As of 11/9/13, the sculpin complex catch of 5,547 t is less than the total catch in 2012 and well below the 2013 ABC of 42,300 t. The biomass estimate for the six most abundant species on the EBS shelf has remained relatively stable and comprises 95% of the total biomass.

## Squids

Olav Ormseth presented the squid assessment. This was a scheduled "off-year" assessment.

Tier 6 recommendations are unchanged from last year. A CIE review in May 2013 concluded that the approach to recommending harvest specifications was consistent with Tier 6 but suggested that the most relevant time period should be chosen for reference, and that the foreign/joint venture era was not part of the most relevant time period. The authors are planning to examine and respond to CIE recommendations for next year's full assessment. Catch in 2013 was especially low, with a large reduction in the pollock fishery; the largest incidental catch was in the arrowtooth target fishery.

**The Team recommended that responses to CIE comments on the BSAI and GOA squid assessments be discussed in Joint Plan Team session in September 2014, to ensure common and consistent discussion of issues between teams.**

## Octopus

Liz Conners presented the octopus assessment. This was a scheduled “off-year” assessment. There were no changes to the predation-based estimate of octopus mortality from 1984-2008 survey data on Pacific cod diets, which is used as an alternative Tier 6 estimate. The consumption methodology is based on extensive diet data and includes estimation of uncertainty. The authors are planning to examine and respond to recommendations from the May 2013 CIE review in next year’s full assessment.

## Ecosystem Considerations

Stephani Zador presented the EBS and AI ecosystem assessments. No specific red flags were indicated by the tracked time series (summarized in the introduction). Future work will include extending 9-month climate projections to oceanography, plankton, and fish.

## Forage Fish

Olav Ormseth presented the forage fish assessment. The assessment was largely unchanged from the version presented in September. The format follows the GOA forage fish assessment, and will be an appendix to the BSAI SAFE report on a biennial basis. No new data were collected on forage fish during 2013, but catch stayed below the prohibited species catch limit as defined in the FMP. Forage fish catch occurs primarily as bycatch during the herring fishery and its bycatch was lower in 2013 than in 2012. The large 2012 catch was thought to have occurred in a narrow range (both temporally and spatially). It appears that the fishing fleet was able to avoid forage fish bycatch to a greater degree in 2013 than in previous years.

**The Team recommended that the BSAI forage fish assessment be scheduled for review at the Team’s September meeting in odd-numbered years.**

## Total current year removals

To ensure that it does not get overlooked, the Team noted that the following recommendation was made during the Joint Team session at the September meeting:

**“The Teams recommended that the Joint Teams schedule a review of how each stock assessment author(s) calculate total current year (and next year) removals. Following analysis of this inventory, the Teams will provide advice to authors on the appropriate methodology for calculating current year removals to ensure consistency across assessments and FMPs.”**

See September 2013 Joint Team minutes for more detail on the Teams’ discussion.

## Plan Team documents

**The Team recommended that the Council website include an archive of all documents prepared and reviewed at each September and November meeting.**

## Adjourn

The Team adjourned at approximately 4 pm on Thursday, November 21, 2013.