AGENDA D-1(f)
DECEMBER 2004

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver
Executive Director

DATE: December 1, 2004

ESTIMATED TIME
8 HOURS
(all D-1 items)

SUBJECT: Final BSAI Groundfish Specifications for 2005 and 2006

ACTION REQUIRED

Final action to approve the 2005 BSAI/GOA EA, BSAI Final Stock Assessment and Fishery Evaluation (SAFE) report, and approve final BSAI groundfish specifications for 2005 and 2006:

1. Acceptable Biological Catch (ABC), and annual Total Allowable Catch (TAC);
2. Seasonal apportionment of the fixed gear Pacific cod TAC; and
3. Bycatch allowances, and seasonal apportionments of Pacific halibut, red king crab, Tanner crab, opilio crab, and herring to target fishery (PSC) categories.
4. Approve halibut discard mortality rates for 2005 CDQ groundfish fisheries.

BACKGROUND

At this meeting, the Council makes final recommendations on groundfish and bycatch specifications as listed above to manage the 2005 and 2006 Bering Sea/Aleutian Islands (BSAI) groundfish fisheries.

BSAI SAFE Document

The BSAI Groundfish Plan Team met in Seattle on November 16-19, 2004 to prepare the final BSAI SAFE report. Minutes from the meeting are attached as Item D-1(f)(1). This SAFE report forms the basis for BSAI groundfish specifications for the 2005 and 2006 fishing years. Note that there are three sections to the SAFE report: a stock assessment section, a fishery evaluation section ("economic SAFE report"), and an ecosystems considerations section. These three sections, together with the GOA SAFE report, are incorporated into the Environmental Assessment for the 2005and 2006 groundfish specifications. The SAFE reports and EA were mailed in late November. SSC and AP recommendations will be provided to the Council during the meeting.

The BSAI Plan Team also recommended that the Council initiate an amendment to the BSAI Groundfish FMP to allow sharks, skates, sculpins, and octopus to be broken out of the "other species" category as soon as practicable.

ABCs, TACs, and Apportionments

At this meeting, the Council will establish final catch specifications for the 2005 and 2006 fisheries. Item D-1(f)(2) reports BSAI Plan Team recommendations for overfishing levels (OFLs) and Allowable Biological

Catches (ABCs) for 2005 and 2006. This table should be used instead of the tables in the EA, which report slightly different estimates due to differences in rounding. The sum of the recommended ABCs for 2005 is 3,100,609 mt, approximately 560,000 mt below the sum of the 2004 ABCs, but is about 1.1 million mt above the 2 million mt OY limit. Total biomass for 2005 (17.5 million mt) is down about 12% since last year. Overall, the status of the stocks continues to appear relatively favorable, although some stocks are declining due to poor recruitment in recent years.

The 2004 Eastern Bering Sea (EBS) bottom trawl survey estimated a *pollock* biomass of 3,750,000 m, a decrease of 54% relative to the all-time high estimate obtained in 2003. An age-structured model for the Aleutian Islands (AI) pollock stock was used for the first time this year, which resulted in this stock moving from Tier 5 to Tier 3. Considerable uncertainty in the results of the two preferred models resulted in a recommendation for setting the ABC at a value below the maximum permissible level.

The 2003 bottom trawl survey resulted in a *Pacific cod* biomass estimate that is down 1% from the 2003 estimate and near the minimum for the time series. Model estimates of abundance are much lower than last year's assessment due to added age, growth, and length data, but have reduced some of the uncertainties in the assessment. Estimated 2005 spawning biomass for the BSAI stock is down about 32% from 2004 and about 21% from last year's projection for 2005. Due to this declining trend in abundance, the Plan Team concurred with the authors' recommendation to set the 2005 ABC below the maximum permissible level.

The *sablefish* survey abundance index decreased 5% from 2003 and follows an 8% decrease between 2002 to 2003. Spawning biomass is projected to decrease slightly (2%) from 2004 to 2005.The Plan Team and authors acknowledged large uncertainties in the *Greenland turbot* assessment and both agreed to set the ABC at a value less than the maximum permissible. Both the EBS and AI *arrowtooth flounder* biomass estimates are peaking. This year's EBS bottom trawl survey resulted in a *northern rock sole* biomass estimate that was 18% higher than last year. Nevertheless, the stock is expected to decline, as are several other flatfish stocks, due to low recruitment in the last decade. *Pacific ocean perch* biomass estimates from the AI bottom trawl survey increased 23% over the 2002 estimate and is the second highest estimate for the time series. This year's EBS slope bottom trawl survey resulted in an increased biomass estimate up 47% from the 2002 estimate. The recommended 2005 ABC for *Atka mackerel* is 86% higher than the 2004 ABC. Incorporating new age data doubled the estimated size of the 1999 year class from last year's assessment, and suggests that it is the largest year class on record. None of the BSAI groundfish stocks are overfished or approaching an overfished condition.

NMFS prepared a discussion paper on management issues regarding breaking out individual species from assemblage management for Council consideration (Item D-1(f)(3). When setting TACs to not exceed the 2 million mt cap, the Council also may wish to consider that the 2004 catch exceeded TAC for five categories in 2004: AI pollock, BSAI arrowtooth flounder, BSAI rock sole, BSAI other flatfish, and central AI POP.

Adopt Seasonal Apportionments of the Pacific Cod TAC Allocated to Fixed Gear

Since 1997, 2% of the TAC is reserved for jig gear, 51% for fixed gear, and 47% for trawl gear. The trawl apportionment is split equally between catcher vessels and catcher processors. In 2000, the fixed gear apportionment was allocated as follows: 80% to freezer longline vessels; 0.3% to longline catcher vessels; 18.3% to pot gear vessels; and 1.4% to catcher vessels (longline or pot) less than 60 feet length overall. In 2004, the pot allocation was split: 3.3% to catcher processors and 15% to catcher vessels.

For non-trawl gear the first season is allocated 60 percent of the TAC and the second season is allocated 40 percent of the TAC. No seasonal harvest constraints are imposed for catcher vessels less than 60 feet (18.3 m) LOA using hook-and-line or pot gear. For trawl gear, the first season is allocated 60 percent of the TAC

and the second and third seasons are each allocated 20 percent of the TAC. The trawl catcher vessel allocation is further allocated as 70 percent in the first season, 10 percent in the second season and 20 percent in the third season. The trawl catcher/processor allocation is allocated 50 percent in the first season, 30 percent in the second season and 20 percent in the third season. Any unused portion of a seasonal Pacific cod allowance will be reapportioned to the next seasonal allowance. Season dates in 2003 for longline and jig gear were January 1 - June 10 and June 10 - December 31. Season dates for pot gear were January 1 - June 10 and September 1 - December 31. Item D-1(f)(4) lists the 2004 gear and seasonal apportionments of the Pacific cod TAC.

Adopt Prohibited Species Catch limits of Pacific halibut, crab, and herring

Halibut Trawl Fisheries: A 3,675 mt limit on halibut mortality has been established for trawl gear. This limit can be apportioned to the trawl fishery categories as shown in the adjacent box. The trawl halibut PSC mortality cap for Pacific cod is limited to 1,600 mt.

Categories used for prohibited species catch (PSC) apportionment in trawl fisheries

1. Greenland turbot, arrowtooth flounder and sablefish
2. rock sole and "other flatfish"
3. yellowfin sole
4. rockfish
5. Pacific cod
6. pollock, Atka mackerel and "other species"

Halibut Fixed Gear Fisheries: A 900 mt non-trawl gear halibut mortality can be apportioned to the fishery categories listed in the adjacent box. The hook-and-line halibut PSC mortality cap for Pacific cod is capped at 900 mt. Item D-1(f)(5) lists the 2004 PSC allocations and seasonal apportionments for the trawl and non-trawl fisheries. Item D-1(f)(6) is a current summary of PSC bycatch accounting for BSAI non-CDQ fisheries.

Categories used for PSC apportionment in non-trawl fisheries

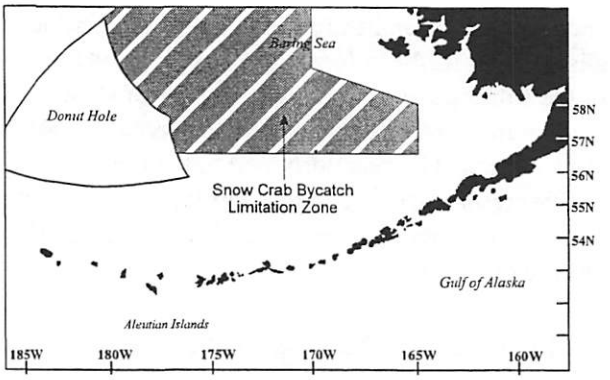
1. Pacific cod
2. Other non-trawl (longline sablefish and rockfish, and jig gear)
3. Groundfish pot (exempt in recent years)

Crab: Prescribed bottom trawl fisheries in specific areas are closed when PSC limits of *C. bairdi* Tanner crab, *C. opilio* crab, and red king crab are taken. A stair step procedure for determining PSC limits for red king crab taken in Zone 1 trawl fisheries based on abundance of Bristol Bay red king crab as shown in the adjacent table was implemented in 1997. In 1999, red king crab bycatch was reduced by an additional 3,000 crabs. Based on the 2004 estimate of effective spawning biomass (61.9 million pounds), the PSC limit for 2005 is 197,000 red king crabs. The regulations also specify that up to 35% of the PSC apportioned to the rock sole fishery can be used in the 56° - 56°10'N strip of the Red King Crab Savings Area. The red king crab cap has generally been allocated among the pollock/mackerel/other species, Pacific cod, rock sole, and yellowfin sole fisheries. Once a fishery exceeds its red king crab PSC limit, Zone 1 is closed to that fishery for the remainder of the year, unless further allocated by season.

PSC limits for red king crab and *C. bairdi* Tanner crab

Species	Zone	Crab Abundance	PSC Limit
Red King Crab	Zone 1	< threshold or 14.5 million lb effective spawning biomass (ESB)	33,000
		> threshold, but < 55 million lb of ESB	97,000
		> 55 million lb of ESB	197,000
Tanner Crab	Zone 1	0-150 million crabs	0.5% of abundance
		150-270 million crabs	750,000
		270-400 million crabs	850,000
		> 400 million crabs	1,000,000
Tanner Crab	Zone 2	0-175 million crabs	1.2% of abundance
		175-290 million crabs	2,100,000
		290-400 million crabs	2,550,000
		> 400 million crabs	3,000,000

Since 1997, PSC limits for *bairdi* in Zones 1 and 2 have been based on total abundance of *bairdi* crab as indicated by the NMFS trawl survey. Based on 2004 abundance (437.41 million crabs), and an additional reduction implemented in 1999, the PSC limit for *C. bairdi* in 2005 will be 980,000 (1,000,000 minus 20,000) *bairdi* crabs in Zone 1 and 2,970,000 (3,000,000 minus 30,000) crabs in Zone 2.



Location of the *C. opilio* bycatch limitation zone

In 1998, PSC limits for snow crab (*C. opilio*) are be based on total abundance of *opilio* crab as indicated by the NMFS standard trawl survey. The snow crab PSC cap is set at 0.1133% of the Bering Sea snow crab abundance index, with a minimum PSC of 4.5 million snow crab and a maximum of 13 million snow crab. This number was further reduced by 150,000 crabs in 1999. The 2003 survey estimate of 2.63 billion crabs resulted in a 2004 *opilio* crab PSC limit of 4,350,000 snow crabs (4,500,000 minus 150,000). Results of the 2004 survey will be provided by NMFS staff during the meeting.

Snow crab taken within the "Snow Crab Bycatch Limitation Zone"accrue towards the PSC limits established for individual trawl fisheries. Upon attainment of a snow crab PSC limit apportioned to a particular trawl target fishery, that fishery is prohibited from fishing within the snow crab zone.

Herring: The overall herring PSC bycatch cap is set at 1 percent of the EBS biomass of herring. This cap is apportioned to the same six PSC fishery categories listed above, plus a seventh group, mid-water pollock. Assessments for herring are still in progress. ADF&G staff reports that no substantial changes are expected for 2005. ADF&G staff will provide a revised herring biomass estimate prior to the Council action.

Seasonal Apportionment of bycatch limits

The Council may also seasonally apportion the bycatch allowances. Regulations require that seasonal apportionments of bycatch allowances be based on information listed in the adjacent box.

Factors to be considered for seasonal apportionment of bycatch allowances.

1. Seasonal distribution of prohibited species;
2. Seasonal distribution of target groundfish species relative to prohibited species distribution;
3. Expected prohibited species bycatch needs on a seasonal basis relevant to change in prohibited species biomass and expected catches of target groundfish species;
4. Expected variations in bycatch rates throughout the fishing year;
5. Expected changes in directed groundfish fishing seasons;
6. Expected start of fishing efforts; and
7. Economic effects of establishing seasonal prohibited species apportionments on segments of the target groundfish industry.

Halibut Discard Mortality Rates

Pacific halibut discard mortality rates (DMRs) in the Alaskan groundfish fisheries are estimated from viability data collected by the NMFS Observer Program. The DMRs for the non-CDQ fisheries are in place through 2006. The DMRs for the CDQ fisheries are adopted annually. Analysis by staff of the International Pacific Halibut Commission (IPHC) results in recommendations for managing halibut bycatch for the 2005 Community Development Quota (CDQ) fisheries (Item D-1(f)(7)).

BSAI Groundfish Plan Team
AFSC- Seattle, WA
November 16-19, 2004

Loh-Lee Loh (AFSC), Chair
Mike Sigler (AFSC), Vice Chair
Grant Thompson (AFSC), Rapporteur
Jane DiCosimo (NPFMC), Coordinator
Dave Carlile (ADF&G)
Andy Smoker (AKRO)
Brenda Norcross (UAF)
Lowell Fritz (NMML)
Ivan Vining (ADF&G)
Kerim Aydin (AFSC)
Bill Clark (IPHC)
Kathy Kuletz (USFWS), absent

The BSAI Groundfish Plan Team met at the Alaska Fisheries Science Center from November 16 to 19, 2004, to review the 2004 stock assessment author SAFE documents and to make OFL and ABC recommendations to the Council. The Plan Team OFL and ABC recommendations are attached.

In September 2004, preliminary projections of ABC and OFL for 2005 and 2006 were made on the basis of 2003 stock assessments. At this meeting, the Plan Team revised most of those projections. These revisions are typically due to the development of new models; collection of new catch, survey, age composition, or size composition data; or use of new methodology for recommending ABC. In the case of nearly all stocks managed under Tier 3, 2005 and 2006 projections are based on the output for Scenarios 1 or 2 (ABC) and 6 (OFL) of the standard projection model. For Aleutian Islands walleye pollock, the Plan Team's ABC recommendations for 2005 and 2006 do not correspond to any of the standard scenarios, but the OFL recommendations follow the projections under Scenario 6. For EBS walleye pollock, the one stock managed under Tier 1, the Plan Team's recommended 2005 ABC and OFL do not appear in the assessment chapter's projection table, because the standard projection model does not include an option for stocks managed under Tier 1. Nevertheless, the EBS pollock chapter's projections for 2006 under Scenarios 1 and 6 were used to recommend 2006 ABC and OFL, because no better estimates were available. As a precautionary measure, the standard projection model estimates 2005 catch at levels that are likely higher than the catch that will actually be achieved in 2005, meaning that the 2006 ABC and OFL projections for all Tier 1-3 stocks are likely to be biased downward. In the case of stocks managed under Tiers 4-6, 2006 projections are set equal to the Plan Team's recommended values for 2005. The ABC and OFL values recommended in the 2005 SAFE report are likely to differ from this year's projections for 2006, for the same reasons that the projections in this SAFE report differ from the projections made in September. No BSAI groundfish stock in the EBS is overfished or approaching an overfished condition.

Bering Sea Pollock The team concurred with the authors' recommendations for OFL and ABC, based on Model 1. This is the same model that was accepted last year, except for incorporating new data from the 2004 EIT and bottom trawl surveys and from the 2003 commercial fishery. While the author, Plan Team, and SSC agree that pollock is managed appropriately under Tier 1, some team members expressed concern regarding the usefulness of MSY-based reference points in cases where environmental regime shifts can have major impacts on the productivity of the stock.

Since 2002, the senior assessment author, Plan Team, and SSC recommended setting ABC at the maximum permissible value. For 2005, the authors recommended setting ABC at the $F_{40\%}$ level rather than at the maximum permissible value. However, the Plan Team does not find any compelling reason to depart from the past approach, and recommended setting the 2005 ABC at the maximum permissible level of 1,960,000 t. The 2001, 2002, and 2003 year classes are estimated to be well below average and ABC recommendations in the next few years are expected to be substantially lower than the 2005 recommendation.

Aleutian Islands Pollock In 2003, the authors provided preliminary explorations of several age-structured models, all of which focused on the portion of the stock to the west of 174°W. The team reviewed five alternative age-structured models that were developed in 2004:

1. Model 1Bb short term projection
2. Model 1B long term projection
3. Model 1
4. Model 1 plus expansion
5. Tier 5 for another year, using last survey only

Model 1 uses fishery and survey data from the portion of the Aleutian Islands management area west of 174°W only. Model 1B uses the same data as Model 1, except that it also includes survey data from the areas east of 174°W. These two models result in very different biomass levels. While the authors recommended Model 1, the Plan Team recommended using Model 1B because the time series of survey biomass estimates for the entire AI management area tends to show greater consistency than the time series for the portion west of 174°W. Because of concerns about the considerable uncertainty of the value of the trawl survey catchability coefficient, the Team recommended setting 2005 ABC below the maximum permissible level. Average fishing mortality (based on catch) could not be used to project ABC because the fishery has been closed for several years. Instead, the Team set ABC at the equilibrium level associated with an $F_{40\%}$ harvest rate.

Bogoslof Pollock Traditionally, the Team has recommended setting Bogoslof pollock ABC at the maximum permissible level, while the SSC has used a more conservative approach. The Team again recommended setting the ABC at the maximum permissible level.

Pacific cod The 2004 assessment is a substantial revision of last year's assessment, incorporating recent age and growth data and slope survey length data which greatly improved the model. The revised model resulted in lower abundance estimates. However, the Team is still concerned about the large difference in shelf trawl survey biomass estimates and the model estimates of age-3+ biomass. The Plan Team agreed with the author's recommendations to use the revised model (Model 2) for estimating ABC.

The team has been concerned that Pacific cod abundance is overestimated. The symptoms are that age-3^+ biomass is much greater than observed shelf survey biomass and selectivity for the shelf survey is strongly dome-shaped. The authors met two requests by the Plan Team to address our concern. First, they incorporated age data to address uncertainty in natural mortality, growth, and dome-shaped selectivity. Second, they incorporated slope survey length data to provide information about the degree of dome-shape for the shelf survey compared to the slope survey. These additions helped reduce uncertainties about the Pacific cod assessment. The authors found that , on average, the estimates of age-3^+ biomass exceed the observed survey biomass by about 110% in the case of Model 1 (model before additions) and 87% in the case of Model 2 (model after additions). A recent publication by Somerton provides evidence that the assumption of survey catchability equal to one is reasonable, thus removing another source of uncertainty.

Nevertheless a substantial discrepancy remains between estimated age-3^+ biomass and observed survey biomass. The team recommended that the authors explore the following three questions to understand this difference: 1) The model estimates that large fish are more available to the longline and especially trawl fishery. Are the fisheries concentrated in areas or times where large fish are concentrated? 2) The observed length range for the shelf survey is similar to that for the slope survey, longline fishery, and trawl fishery, yet the selectivity estimated for the shelf survey is strongly dome-shaped. Why? 3) What is the sensitivity of the biomass estimates and selectivity estimates to the assumed value of natural mortality?

Yellowfin Sole The present assessment is a straightforward update of the 2003 assessment, incorporating new catch and survey information. The Team agreed with the authors' recommendation for setting ABC. The authors responded to SSC recommendations to analyze stock-recruitment (S-R) data to consider assessment of yellowfin sole under Tier 1, but both the authors and the Team were concerned about the reliability of the stock-recruitment fit because the estimated S-R parameters changed substantially when using different time-series. The Plan Team also had concerns about the current estimates of the S-R relationship. The Team did not recommend management of this stock under Tier 1.

Greenland Turbot The 2004 model is a straightforward update of the 2003 assessment, incorporating new catch and length frequency data from the fishery and from the EBS slope and shelf surveys, and an updated aggregated longline survey index. Turbot have been difficult to model because of a lack of a long-time series of slope trawl survey data. The Team and authors acknowledged large uncertainties in the assessment and agreed to set the 2005 ABC at a value less than the maximum permissible, using a 5-year average. The senior author noted that the juvenile portion of the population may be at the end of its range.

Arrowtooth Flounder The 2004 assessment is a straightforward update of last year's assessment, incorporating new data from the EBS shelf and slope trawl surveys, the 2003 and 2004 fisheries. The assessment adds an ecosystem component by representing catchability of the EBS shelf trawl survey as an exponential function of average bottom temperature during the EBS shelf trawl survey. The Team concurred with the authors' ABC recommendation.

Northern Rock Sole The 2004 assessment is a straightforward update of the 2003 assessment, incorporating 2003 fishery age composition, 2003 northern rock sole survey age composition, and the 2004 northern rock sole trawl survey biomass point estimate and standard error, and updated 2003 and 2004 catch data. The Team commended the authors' effort to improve the model by investigating catchability and natural mortality parameters. The Team concurred with the authors' ABC recommendation.

Flathead Sole The 2004 assessment is a straightforward update of the 2003 assessment, incorporating updated catch, survey biomass, length composition, and age composition data and revised estimates of the growth schedule, maturity schedule, and age-to-length conversion matrix. The Team concurred with the authors' ABC recommendation. The authors examined the S-R relationship for flathead sole. The Team concurred with the authors' recommendation not to move the stock from Tier 3 to Tier 1, because the stock-recruitment parameters changed substantially depending on the time series used for estimation.

Alaska Plaice The 2004 assessment is a straightforward update of the 2004 assessment, which includes updated catch, survey biomass, length composition, and age composition data and revised estimates of the growth schedule, maturity schedule, and age-to-length conversion matrix. The authors examined the S-R relationship for plaice. The Team did not believe that the estimates of productivity implied by these stock-recruitment relationships are accurate and did not recommend moving this stock to Tier 1.

Other Flatfish Complex The 2004 assessment incorporates 2002 and 2003 total catch and discard data, a preliminary 2004 catch estimate, and 2004 trawl survey information. The Team concurred with the authors' recommendations for setting ABC.

Pacific Ocean Perch The 2004 assessment added new survey and age composition data. The Team concurred with the authors' recommendation for setting ABC and for area apportionments based on combined survey biomass. The authors presented an appendix containing the results of an SSC-recommended analysis of the $F_{40\%}$ harvest strategy for POP. The Team commended the authors for their work examining the possibility that older females contribute disproportionately (per unit biomass) to recruitment. The Team suggested that the authors continue their inquiry and further examine the approach published by Steve Berkeley for black rockfish, with the understanding that such efforts might be referred to the "Management Strategy Evaluation" group.

Northern Rockfish The 2004 assessment included new data on fisheries catch, survey estimates for 2004, and age composition for 2000 and 2003. The Team reviewed a number of model runs prepared by the authors. The authors and Plan Team recommended use of the more conservative, constrained-q alternative. The authors' reasons for this choice appear valid: "Experimental evidence indicates that survey catchability is greater than 1.0 for rock sole; 2) improved fit; and 3) a value of 1.0 is unlikely based on the likelihood profile for catchability." The estimates of survey catchability and natural mortality appear well-defined. The reason that these parameters are estimable may be because the age data provide consistent information on year class strength.

Shortraker/Rougheye Rockfish The 2004 assessment is a straightforward update from 2003. In 2003, the authors developed a Kalman filter approach to estimate biomass and possibly lead to management under a higher tier. This year, the model was updated with 2004 survey data, but the authors noted that confidence intervals for population parameters were uninformative for making projections. The Team concurred with the authors' recommendation that the primary use of the model is to provide smoothed estimates of survey biomass. The Plan Team recommended that the SSC retain Tier 5 management for these stocks.

The authors investigated the possibility of using Bering Sea slope survey data but noted low biomass and high variance from these surveys. The Plan Team concurred with not incorporating slope survey biomass estimates into the model.

In 2004, the NMFS Regional Office and Observer Program developed a catch accounting program that separates shortraker and rougheye rockfishes. While the authors recommended separate BS and AI ABCs, the Team recommended retaining BSAI-wide ABCs and OFLs for each species.

Other Rockfish Complex The 2004 assessment includes new survey data for the Aleutian Islands, southern Bering Sea, and eastern Bering Sea slope; updated catches in the EBS and AI; and updated length frequency data. The authors followed recommendations made by the Team in 2004 for their 2005 proposed ABCs and OFLs. For 2005, the authors recommended separating thornyheads from the remaining 7 rockfish species within the "other rockfish" complex for the purposes of setting ABCs and OFLs.

The team commended the authors for attempting to raise the Tier level used to recommend ABCs for "other rockfish" model as recommended by the Team and SSC.
The authors developed a Schaefer surplus production model for shortspine thornyheads. The model resulted in unrealistic estimates of carrying capacity. The Team commended the authors for their efforts, but suggested that biomass dynamic modeling for this stock is not appropriate given the limited number of survey data points available (6) and the number of parameters to estimate (4). The Team would welcome an age-based modeling approach for this stock once age data become available. The Plan Team recommended that ABCs for other rockfish continue to be set using the Tier 5 method.

The Team encouraged the authors to explore alternative methods for computing average survey biomass. Currently, equal weights are given to each of the survey biomass estimates back through 1991. One alternative is to consider giving more recent survey results more weight than older data. The authors are encouraged to continue exploration of the use of the Kalman filter to estimate current and past biomass.

Atka mackerel The 2004 assessment is an updated and slightly revised form of 2003 assessment that utilized the AMAK model in the NMFS Stock Assessment Toolbox. New data include catch updates, the 2004 Aleutian Island bottom trawl survey results (biomass estimate and length frequency), 2003 fishery age composition, and 2002 Aleutian Islands survey age composition. The authors recommended, and the Plan Team accepted, the model formulation that included all of the proposed changes (Model 4). The recommended 2005 ABC is 86% higher than the 2004 ABC. This increase is based primarily on new age data that improved the estimate of the size of the 1999 year class.

The Team concurred with the authors' use of a weighted average of the 4 most recent survey estimates of the biomass distribution to allocate the ABC among Aleutian Islands management areas, where the greatest weight is assigned to the 2004 survey. The Plan noted several ABC considerations listed by the author. Some considerations are positive (model is conservative relative to survey biomass estimates; age data reveal continued presence of a relatively strong 1998 year class along with the very large 1999 and above average 2000 year classes), while others are negative (spawning biomass is projected to drop below $B_{40\%}$ for 2007-2010 under an $F_{40\%}$ strategy; trawl survey biomass estimates have sometimes been highly variable).

The authors presented an expanded analysis of predators and prey. The Team was encouraged that the analysis allowed for a more informed discussion of predator/prey interactions, and suggested that such additions would be

welcome in other assessments. The Team noted that the construction of an age-structured Atka mackerel/Pacific cod predation model could inform future stock assessments, especially given the limited scope of the Aleutian component of the current BSAI Pacific cod assessment.

Squid and Other Species Complex The SSC has determined that a reliable catch history from 1978 through 1995 exists for squid, thereby qualifying this stock complex for management under Tier 6. Under Tier 6, OFL is set equal to the average catch unless an alternative value is established by the SSC on the basis of the best available scientific information, and ABC is constrained to be no greater than 75% of OFL. Therefore, the Plan Team's recommend 2005 OFL, based on average squid catch from 1978 through 1995, is 2,620 t. The maximum permissible value of ABC for 2005 is 1,970 t, which is the Plan Team's recommended value

The Team agreed with the SSC that Tier 6 may be applied to squid and that Tier 5 is the appropriate classification for the other four component species groups.

The Team agreed with the authors' recommendation for setting group-specific ABCs. However, the Team acknowledged that the BSAI Groundfish FMP does not allow such a break out for 2005. The Team therefore recommended that the "other species" complex be placed on bycatch-only status. The Team recommends that the Council initiate a plan amendment to allow four groups to be broken out of the other species category as soon as practicable. This FMP amendment should focus on short-term management goals pertaining to the "other species" complex and should not await completion of a more general amendment addressing long-term management goals for all non-target groundfish species.

Pacific Halibut Discard Mortality Rates for 2005 CDQ fisheries The Team concurred with the IPHC staff recommendations for halibut discard mortality rates for the 2005 CDQ fisheries.

General recommendations to authors. Authors should follow the guideline to authors for consistency in presentation style of their chapters, particularly in the introductory section. A table that summarizes all the needed information for the introductory chapter of the BSAI SAFE Report (see Table 5 and 6) should be included. Authors should revise previous year end catch data in their models.

The Plan Team request that time be scheduled for RACE staff present results of trawl surveys at the September BSAI Plan Team meetings.

Table 1. BSAI Plan Team November 2004 Groundfish OFL and ABC Recommendations for the 2005-2006 Fisheries (Revised 12/2/04)

Species	Area	2004				Recommended 2005			Recommended 2006		
		OFL	ABC	TAC	Catch**	OFL	ABC	TAC	OFL	ABC	TAC
Pollock	EBS	2,740,000	2,560,000	1,492,000	1,248,817	2,100,000	1,960,000		1,480,000	1,420,000	
	Aleutian Islands	52,600	39,400	1,000	1,128	99,300	43,200		69,100	43,200	
	Bogoslof District	39,600	2,570	50	0	39,600	29,700		39,600	29,700	
Pacific cod	BSAI	350,000	223,000	215,500	166,776	265,000	206,000		226,000	195,000	
Sablefish	BS	4,020	3,000	2,900	748	2,950	2,440		2,690	2,310	
	AI	4,620	3,450	3,100	912	3,170	2,620		2,880	2,480	
Yellowfin sole	BSAI	135,000	114,000	86,075	68,822	148,000	124,000		133,000	114,000	
Greenland turbot	Total	19,300	4,740	3,500	2,136	19,200	3,930		11,100	3,600	
	BS	—	3,162	2,700	1,730		2,720			2,500	
	AI	—	1,578	800	406		1,210			1,100	
Arrowtooth flounder	BSAI	142,000	115,000	12,000	17,130	132,000	108,000		103,000	88,400	
Rock sole	BSAI	166,000	139,000	41,000	47,875	157,000	132,000		129,000	111,000	
Flathead sole	BSAI	75,200	61,900	19,000	16,611	70,200	58,500		56,100	48,400	
Alaska plaice	BSAI	258,000	203,000	10,000	7,624	237,000	189,000		115,000	109,000	
Other flatfish	BSAI	18,100	13,500	3,000	4,669	28,500	21,400		28,500	21,400	
Pacific Ocean perch	BSAI	15,800	13,300	12,580	11,032	17,300	14,600		17,408	14,600	
	BS	—	2,128	1,408	701		2,920			2,920	
	AI total	—	11,172	11,172	10,331		11,680			11,680	
	WAI	—	5,187	5,187	4,998		5,305			5,305	
	CAI	—	2,926	2,926	2,970		3,165			3,165	
	EAI	—	3,059	3,059	2,363		3,210			3,210	
Northern rockfish	BSAI	8,140	6,880	5,000	4,166	9,810	8,260		9,480	8,040	
Shortraker rockfish	BSAI	701	526	526	207	794	596		794	596	
Rougheye rockfish	BSAI	259	195	195	189	298	223		298	223	
Other rockfish	BSAI					1,870	1,400		1,870	1,400	
	BS	1,280	960	460	304		810			810	
	AI	846	634	634	309		590			590	
Atka mackerel	Total	78,500	66,700	63,000	54,789	147,000	124,000		94,300	89,200	
	WAI	—	24,360	20,660	17,341		46,620			33,540	
	CAI	—	31,100	31,100	27,832		52,830			38,000	
	EAI/BS	—	11,240	11,240	9,616		24,550			17,660	
Squid	BSAI	2,620	1,970	1,275	814	2,620	1,970		2,620	1,970	
Other species	BSAI	81,150	46,810	27,205	21,795	91,750	68,770		91,750	68,770	
Sharks	BSAI	**	**	**	**	1,590	1,200		1,590	1,200	
Skates	BSAI	**	**	**	**	47,800	35,800		47,800	35,800	
Sculpins	BSAI	**	**	**	**	39,200	29,400		39,200	29,400	
Octopus	BSAI	**	**	**	**	3,160	2,370		3,160	2,370	
Total	**BSAI**	**4,193,736**	**3,620,535**	**2,000,000**	**1,676,853**	**3,573,362**	**3,100,609**		**2,614,490**	**2,373,289**	

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

AGENDA D-1(f)(3)
DECEMBER 2004

November 12, 2004

Stephanie Madsen, Chair
North Pacific Fishery Management Council
605 W. 4th Avenue, Suite 306
Anchorage, Alaska 99501

Dear Ms. Madsen:

In support of the North Pacific Fishery Management Council's (Council) harvest recommendations in December 2004, we have prepared a discussion paper on considerations regarding the "breakout" of individual species which were previously managed as a component of a larger species group or complex (enclosed). Adequate time is needed to identify, analyze, and develop management measures for a species that is moved from group or complex management to individual management. The time period between the December recommendations by the Council and the effective date of the final groundfish harvest specifications usually does not allow enough time for NMFS and the public to prepare for these management changes.

Accurate accounting of individual species removed from a group or complex may require programming code changes, new observer sampling procedures, and in some cases, an amendment to a fishery management plan (FMP) and/or regulatory amendments. Any regulatory or FMP amendment would likely require analysis under the National Environmental Policy Act and other statutes and executive orders. The participants in the fisheries may be subject to new and relatively small total allowable catch amounts and over fishing levels. As a result they may need time to develop strategies to respond to challenges of harvesting target and non-target species within available quotas.

If a serious conservation issue related to individual species management is identified, the agency can respond in a more expedited manner through emergency rulemaking. In most cases, however, a year-long analysis and rulemaking process would be used to ensure adequate management measures are in place before the start of the fishery and to work with the industry to minimize fishery disruption and loss of revenue.

Sincerely,

For James W. Balsiger
Administrator, Alaska Region

Enclosure

Considerations when Changing Combined Species Management to Separate Species Management

November 2004

Developed by Sustainable Fisheries, Alaska Region

Based on recommendations from the North Pacific Fishery Management Council, the National Marine Fisheries Service (NMFS) has taken action in the past to separate out species of concern from species complexes for distinct management under species specific total allowable catch (TAC), acceptable biological catch (ABC) and over fishing levels (OFL). NMFS also has taken action to separate or combine a particular species within subareas or regulatory areas of a fishery management plan (FMP). These actions typically are initiated by a question of whether or not the species of concern is being properly managed. NMFS Alaska Regional office (Region) and NMFS North Pacific Observer Program (Observer Program) staff have found that implementing these species "breakouts" during the annual harvest specification process does not allow enough time for NMFS and the affected industry to respond. Implementation of management provisions and other related issues for species that are identified for separate management may require up to a year, or even longer period between the time when the Council recommends the separation and the time that rulemaking and management changes are completed.

The implications of these actions fall into three general categories: (1) analysis and rulemaking, (2) restructuring of the catch accounting process to support separate management, and (3) understanding and responding to implications of the new TACs on our management programs and fisheries in general. The last two tasks are usually done concurrent with the analytical development once the Council's preferred alternative is identified.

Analytical Requirements and Rulemaking

A change in the management of a species will require the completion of National Environmental Policy Act (NEPA) analysis. This analysis may be included in the NEPA document that analyzes the harvest specifications if no additional rulemaking is required beyond the harvest specifications. If an FMP amendment is required, a separate NEPA analysis may be needed to support agency action. Regulatory amendments are usually required with the FMP amendments to provide for the management of incidental catch of the individual species in other targeted groundfish fisheries and/or for incidental catch of other groundfish in the target fishery for the individual species. Depending on the potential effects of the action, a NEPA analysis may require several months to develop as the Council recommends alternatives for analysis and develops a preferred alternative. Developing and implementing FMP and regulatory amendments, including preparation and finalization of required NEPA documents, usually takes up to a year or longer depending on the complexity of issues being addressed.

In the case of a conservation emergency, rulemaking can be completed more rapidly with an emergency rule. However even an emergency rule and its attendant NEPA analysis typically require up to 3 months to complete.

Catch accounting

Creating a new species management category can be a simple or complex process depending on the species involved. If the species is currently reported as a unique species and then aggregated with its constituents of a larger group, creating its own category is relatively simple in terms of data processing.

However, if a species is identified in the Regional data base only to the level of family or genus, then steps must be taken to assign it a unique code for reporting and data processing. Determining a new code is a detailed process requiring coordination among three entities; the Observer Program, the Region, and the Alaska Department of Fish and Game. A new species code that triggers new industry reporting requirements compels rulemaking that can take months to complete. New codes also change the programing requirements for observer data and therefore impact third party software vendors.

In some cases new codes might not be required, but a new methodology to determine the best way to distinguish two similar species may need to be developed. Once that procedure is developed, the time involved in training the people who have to make the determination, including both the fishing industry and observers, requires several months. Due to the complexity of the observer duties and training schedules, any new sampling protocols for observers are established only on an annual basis.

The level of identification that a species has at the time it is recommended for individual management determines the complexity of the process necessary to implement the change. Two recent examples of splitting out species, for which the change in accounting procedures were fairly complex, follow:

Shortraker and rougheye rockfish were co-managed in the Bering Sea and Aleutian Islands (BSAI) with a single TAC up until 2004. In the years leading up to the division of this group into distinct species categories, shortraker and rougheye were reported either individually or as a group so that any one of three identifiers might have been used to assign a fish to this species group. Patterns of sampling by observers had been developed, particularly in hook-and-line fleets, that made use of the group code. Several staff members over the period of a year identified sampling problems and developed a solution that could be taught to the observers as part of their regular training. Reporting requirements for shore plants were changed, which required regulatory action to deactivate codes and have them removed from the reporting manual.

The second example addresses the removal of skates from the 'other species' group in mid 2004 in the Gulf of Alaska (GOA). This action required completion of an analysis to support an amendment to the FMP. Skates previously were part of a species category

defined in the FMP that could not be reversed except by FMP amendment. In addition to identifying skates as a distinct category for management, two major skate species being targeted by fishermen now are managed as a separate group in the Central GOA. Identification of what amounted to two new species groups in this case took about a year. Identification of a new set of codes required about six months. Currently, and until these new codes can be included in the reporting regulations, NMFS is requesting their voluntary use by the industry. Training for observers and plant personnel also was required so that the appropriate species groups were identified and reported to the Regional office.

Observer Program

Inseason management activities rely heavily on near real-time data and information provided to the Region by the Observer Program. In some cases, current sampling activities and protocols provide data at a resolution that allows inseason managers to accommodate changes in the species management goals of the Council. In other cases, significant effort is required to evaluate whether these information goals can be met within current Observer Program practices. If not, plans must be developed to implement new practices to accommodate the data needs of inseason managers. The following describes some of the time sensitive issues which the Observer Program staff must address after the Council's TAC recommendations and before actual data collection can be implemented.

Observer Program policy establishes sampling protocols that include species identification resolution. Observers are instructed and trained to identify some animals to the family level or group level, while others are identified to the species level. Implementing management provisions requiring observers to collect more detailed information than currently is collected may require a special project involving substantial time in the field to evaluate the feasibility of additional data collection. Observer program staff work closely with the industry to determine whether a difference in data collection can be accommodated within the logistical, time, and space constraints of sampling on a commercial fishing vessel. Often, a change in sampling duties require Observer Program staff to work with data users to evaluate the tradeoffs between existing and proposed data collection duties within available sampling time.

Implementation of sampling protocols may require a series of changes within the Observer Program. All sampling protocols must be described in the North Pacific Groundfish Observer Manual (manual), which can be viewed at http://www.afsc.noaa.gov/refm/observers/Manual_pages/MANUAL_pdfs/Manual2004.pdf. The manual is printed annually and incorporates revisions and updates for all aspects of observer sampling including: data collection, data reporting, life at sea, and health and safety. Additionally, Observer Program and University of Alaska Anchorage Observer Training Center staff meet annually to discuss changes to the manual and training exercises. Changes to the manual begin in June of each year with a deadline of mid-October. The annual training staff meeting occurs in mid-October. Any significant

changes to observer sampling protocol must occur within this time frame. The Observer Program has found that mid-season changes can confuse observers and result in an increase of improperly collected data. Additional changes within the observer program may include programing changes to the observer program database and in the application used by observers at sea to enter data and transmit them to NMFS. The time frame for changing and implementing these processes is extensive.

Program management issues

While some implications of creating a new management category can be anticipated, the repercussions for management are only revealed once the species is distinctly identified and reported.

Potential restrictions on other target fisheries typically is a consideration when new species TAC categories are established. In the case of the skate fisheries in the GOA, the management of two new species categories was implemented in 2004. At the time when skates first were proposed to be separated from the "other species" category, the level of impact of the species split was not known. To date, the harvest amounts in the new skate fisheries have not limited other directed groundfish fisheries.

In contrast, the break out of species in the BSAI can have more complex implications that tend to have a common pattern. Often rockfish have been identified as candidates for single species management. When a single species constitutes a large portion of the biomass of a larger species group, as in the above example of skates, the management problems may not be severe. However, when the species involved constitutes a small portion of the larger group, the stock assessment often yields very low OFL, ABC, and subsequent TAC values. In the case of BSAI rockfish, these species are not a target species in the sense they are large volume, but they may (or may not) be of high value as an incidental catch. If they are of high value, the tendency of fishermen to maximize the catch of a low volume species may exacerbate problems associated with OFLs. Current fishing practices may not be selective enough to prevent catching them. The OFL for the new species category may be limiting enough that the TACs for some higher volume target groups cannot be fully harvested. If the change from a group to a single species management strategy occurs over a very short amount of time (e.g. early December to January 1), the fisheries managers and participants do not have time to respond with new tactics. For example those strategies might include adjusting maximum retainable amounts or identifying areas where incidental catch is high and creating seasonal or annual localized harvest limits or area closures. These types of actions require analysis and rulemaking.

IFQ fisheries are particularly vulnerable to incidentally caught species that have relatively low OFLs. For example, if the catch of an incidental species approaches the OFL, a widespread closure of the IFQ fishery could occur prior to the participants taking their individual quotas. If the fishermen have little time to learn of the change in

management and adjust their fishing practices to minimize the incidental catch of the species of concern, fishing revenue may be unnecessarily forgone.

In addition to breaking out a single species from a group, many of the same issues apply when species are subdivided by TAC, ABC or OFL within subareas or regulatory areas of an FMP. For example, the Council currently is developing a recommendation regarding the subdivision of BSAI Pacific cod into separate ABCs for the Bering Sea and Aleutians Islands subareas. The implications of that subdivision have to be considered within the context of the current management structure for Pacific cod and whether that structure is appropriate when applied to the Aleutian Islands subarea alone. Likewise, if a rockfish species is subdivided by area into separate ABCs and OFLs, one of the subareas may have an ABC and OFL combination that could be highly restrictive to large target fisheries that incidentally take that species.

CDQ

The issues associated with managing new small quotas within the larger groundfish fisheries outlined above are magnified in the CDQ program. The struggle to manage small quotas for some species within the CDQ program has been long identified as a particular problem. The 'squid box' and the 'skate box' for the CDQ trawl pollock and hook-and-line Pacific cod fisheries in the BSAI are well documented examples. The 'squid box' refers to a situation where a single species, squid, has a relatively low annual TAC level (1,275 mt in 2004), of which 7.5 percent would have been allocated to the CDQ program. This amount would have been further divided among six CDQ groups resulting in very small squid allocations to support larger target groundfish allocations. Squid is principally taken as incidental catch in the pollock fishery. When the allocation of pollock to the CDQ program increased from 7.5 percent to 10 percent of the annual BSAI pollock TAC, the small allocation of squid to the CDQ program in 2001 could likely constrain the ability of the CDQ groups to fully harvest their allocations of pollock. Subsequently, squid was removed from the CDQ allocations of groundfish.

The 'skate box' refers to the allocation of 'other species' to the CDQ program. The incidental catch of skates, a component of the 'other species' category, is highest in the hook-and-line fishery targeting Pacific cod. For CDQ groups, the incidental catch of skates in this fishery could have easily exhausted their 'other species' allocation for the year before their allocations of Pacific cod could have been harvested. For this reason individual CDQ group allocations of 'other species' were pooled into a commonly held CDQ reserve.

When new species in the Bering Sea and Aleutian Islands are identified for management, CDQ groups may receive allocations of as little as one or two metric tons. The expectation that CDQ groups should be able to harvest their target species while not exceeding very small allocations of non target species may be difficult to realize. The 'squid box' and 'skate box' examples discussed above illustrate how the Council has recommended different approaches that relax some of the restrictions that accounting for

those species impose on the attainment of the remaining CDQ allocations. As mentioned above, changing the structure of the management categories with short notice allows no time for developing new strategies to deal with the change.

Conclusion

Identifying new species categories will result in a spectrum of complex responses to identify and accurately record the new category, to respond to analytical and regulatory requirements, and to adjust management and fishing strategies. The current expectation is that NMFS can make these changes in a very short amount of time. In the case where an acute conservation issue is associated with the split, then as rapid a response as the process can muster can still be applied. However a more measured and thought out response to the changes that result in minimization of disruption and loss of revenue can be realized if the process assumes a new species category will not be implemented until completion of analysis and rulemaking. The Council should plan for at least a year from the time that the change is recommended, or even longer in the most complex instances, before a well considered implementation of a separate species management occurs.

TABLE 5.—2004 GEAR SHARES AND SEASONAL APPORTIONMENTS OF THE BSAI PACIFIC COD TAC
[Amounts are in metric tons]

Gear sector	Percent	Share of gear sector total	Subtotal percentages for gear sectors	Share of gear sector total	Seasonal apportionment [1]	
					Date	Amount
Total hook-and-line and pot gear allocation of Pacific cod TAC	51	101,662				
Incidental catch allowance				500		
Processor and Vessel subtotal		101,162				
Hook-and-line Catcher/Processors			80	80,930	Jan 1–Jun 10	46,558
					Jun 10–Dec 31	32,372
Hook-and-line Catcher Vessels			0.3	303	Jan 1–Jun 10	182
					Jun 10–Dec 31	121
Pot Catcher/Processors			3.3	3,338	Jan 1–Jun 10	2,003
					Sept 1–Dec 31	1,335
Pot Catcher Vessels			15	15,174	Jan 1–Jun 10	9,105
					Sept 1–Dec 31	6,070
Catcher Vessels <60 feet LOA using hook-and-line or pot gear			1.4	1,416		
Trawl gear total	47	93,589				
Trawl Catcher Vessel			50	46,844	Jan 20–Apr 1	32,791
					Apr 1–Jun 10	4,684
					Jun 10–Nov 1	9,369
Trawl Catcher/Processor			50	46,844	Jan 20–Apr 1	23,422
					Apr 1–Jun 10	14,053
					Jun 10–Nov 1	9,369
Jig	2	3,987			Jan 1–Apr 30	1,595
					Apr 30–Aug 31	797
					Aug 31–Dec 31	1,595
Total	100	199,338				

[1] For most non-trawl gear the first season is allocated 60 percent of the ITAC and the second season is allocated 40 percent of the ITAC. For jig gear, the first season and third seasons are each allocated 40 percent of the ITAC and the second season is allocated 20 percent of the ITAC. No seasonal harvest constraints are imposed for the Pacific cod fishery by catcher vessels less than 60 feet (18.3 m) LOA using hook-and-line or pot gear. For trawl gear, the first season is allocated 60 percent of the ITAC and the second and third seasons are each allocated 20 percent of the ITAC. The trawl catcher vessels' allocation is further allocated as 70 percent in the first season, 10 percent in the second season and 20 percent in the third season. The trawl catcher/processors' allocation is allocated 50 percent in the first season, 30 percent in the second season and 20 percent in the third season. Any unused portion of a seasonal Pacific cod allowance will be reapportioned to the next seasonal allowance.

TABLE 7.—2004 PROHIBITED SPECIES BYCATCH ALLOWANCES FOR THE BSAI TRAWL AND NON-TRAWL FISHERIES

Prohibited species and zone	Trawl Fisheries					
	Halibut mortality (mt) BSAI	Herring (mt) BSAI	Red King Crab (animals) Zone 1[1]	*C. opilio* (animals) COBLZ[2]	*C. bairdi* (animals) Zone 1[1]	*C. bairdi* (animals) Zone 2[1]
Yellowfin sole	886	171	33,843	2,776,981	340,844	1,788,459
January 20—April 1	262					
April 1—May 21	195					
May 21—July 4	49					
July 4—December 31	380					
Rock sole/other flat/flathead sole[4]	779	25	121,413	969,130	365,320	596,154
January 20—April 1	448					
April 1—July 4	164					
July 4—December 31	167					
Turbot/arrowtooth/sablefish[5]		11		40,238		
Rockfish						
July 4—December 31	69	9		40,237		10,988
Pacific cod	1,434	25	26,563	124,736	183,112	324,176
Midwater trawl pollock		1,456				
Pollock/Atka mackerel/other[6]	232	179	405	72,428	17,224	27,473
Red King Crab Savings Subarea[3] (non-pelagic trawl)			42,495			
Total trawl PSC	3,400	1,876	182,225	4,023,750	906,500	2,747,250
Non-trawl Fisheries						
Pacific cod—Total	775					
January 1—June 10	320					
June 10—August 15	0					
August 15—December 31	455					
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					
PSQ reserve[7]	342		14,775	326,250	73,500	222,750
PSC Grand total	4,575	1,876	197,000	4,350,000	980,000	2,970,000

[1] Refer to § 679.2 for definitions of areas.
[2] *C. opilio* Bycatch Limitation Zone. Boundaries are defined at 50 CFR part 679, Figure 13.
[3] In December 2003, the Council proposed limiting red king crab for trawl fisheries witnin the Red King Crab Savings Subarea (RKCSS) to 35 percent of the total allocation to the rock sole, flathead sole, and other flatfish fishery category (*see* § 679.21(e)(3)(ii)(B)).
[4] "Other flatfish" for PSC monitoring includes all flatfish species, except for halibut (a prohibited species), greenland turbot, rock sole, yellowfin sole and arrowtooth flounder.
[5] Greenland turbot, arrowtooth flounder, and sablefish fishery category.
[6] Pollock other than pelagic trawl pollock, Atka mackerel, and "other species" fishery category.

Bering Sea Aleutian Islands Prohibited Species Report

Through: 20-NOV-04

National Marine Fisheries Service
Alaska Region, Sustainable Fisheries
Catch Accounting

Chinook Salmon

Trawl Gear

Sea-sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pollock (Pelagic)	Count	51,094	26,825	-24,269	190%	0
Total:			**51,094**	**26,825**	**-24,269**	**190%**	**0**

Halibut Mortality

Non-Trawl Gear

Sea-sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
X	Pacific Cod (Hook-and-Line)	MT	411	775	364	53%	19
	Non-Pacific Cod (Hook-and-Line)	MT	24	58	34	41%	0
Total:			**435**	**833**	**398**	**52%**	**19**

Trawl Gear

Sea-sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	MT	1,519	1,434	-85	106%	0
	Rockfish	MT	57	69	12	82%	0
X	Rock Sole, Flathead Sole, Other Flatfish (Trawl)	MT	823	779	-44	106%	0
	Pollock, Atka Mackerel, Other Species	MT	141	232	91	61%	0
X	Yellowfin Sole (Trawl)	MT	560	886	326	63%	0
	Turbot/Sablefish/Arrowtooth Flounder	MT	85	0	-85	0%	0
Total:			**3,185**	**3,400**	**215**	**94%**	**0**

Herring

Trawl Gear

Sea-sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	MT	8	25	17	33%	0
	Rockfish	MT	0	9	9	0%	0
	Rock Sole, Flathead Sole, Other Flatfish	MT	7	25	18	29%	0
	Pollock, Atka Mackerel, Other Species	MT	33	179	146	19%	0
	Pollock Pelagic	MT	964	1,456	492	66%	0
	Yellowfin Sole	MT	80	171	91	47%	0
	Greenland Turbot, Arrowtooth, Sablefish	MT	1	11	10	8%	0
Total:			**1,094**	**1,876**	**782**	**58%**	**0**

Opilio (Tanner) Crab - COBLZ

Trawl Gear

Report run on: November 26, 2004 6:27 AM

Opilio (Tanner) Crab - COBLZ

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	51,627	124,736	73,109	41%	0
	Rockfish	Count	0	40,237	40,237	0%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	102,064	969,130	867,066	11%	0
	Pollock, Atka Mackerel, Other Species	Count	9,537	72,428	62,891	13%	0
	Yellowfin Sole	Count	1,529,875	2,776,981	1,247,106	55%	0
	Greenland Turbot, Arrowtooth, Sablefish	Count	0	40,238	40,238	0%	0
Total:			**1,693,102**	**4,023,750**	**2,330,648**	**42%**	**0**

Bairdi Crab, Zone 1

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	60,429	183,112	122,683	33%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	128,154	365,320	237,166	35%	0
	Pollock, Atka Mackerel, Other Species	Count	696	17,224	16,528	4%	0
	Yellowfin Sole	Count	19,012	340,844	321,832	6%	0
Total:			**208,292**	**906,500**	**698,208**	**23%**	**0**

Bairdi Crab, Zone 2

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	135,295	324,176	188,881	42%	0
	Rockfish	Count	194	10,988	10,794	2%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	126,211	596,154	469,943	21%	0
	Pollock, Atka Mackerel, Other Species	Count	3,206	27,473	24,267	12%	0
	Yellowfin Sole	Count	119,074	1,788,459	1,669,385	7%	0
Total:			**383,980**	**2,747,250**	**2,363,270**	**14%**	**0**

Red King Crab, Zone 1

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	665	26,563	25,898	3%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	31,910	121,413	89,503	26%	0
	Pollock, Atka Mackerel, Other Species	Count	26	406	380	6%	0

Red King Crab, Zone 1

Trawl Gear

Sea-sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Yellowfin Sole	Count	36,587	33,843	-2,744	108%	0
Total:			**69,188**	**182,225**	**113,037**	**38%**	**0**

This report does not include the CDQ allocated catch.

"Other flatfish" for PSC monitoring: all flatfish species, except for Pacific halibut (a prohibited species), Greenland turbot, rock sole, yellowfin sole, arrowtooth flounder.

COBLZ: C. Opilio Crab Bycatch Limitation Zone. 50 CFR 679.21(e) and Figure 13.

Zone 1: Federal Reporting Areas 508, 509, 512, 516.

Zone 2: Federal Reporting Areas 513, 517, 521.

Data is based on observer reports, extrapolated to total groundfish harvest. Estimates for all weeks may change due to incorporation of late or corrected data.

Summary of recommended Pacific halibut discard mortality rates (DMRs) for calculating bycatch mortality in the 2005 CDQ groundfish fisheries off Alaska.

	Used in 2002	Recommendation for 2005
CDQ Trawl		
Atka mackerel	85	85
Bottom pollock	85	85
Flathead sole	90	87
Pelagic pollock	89	90
Rockfish	90	89
Yellowfin sole	82	84
CDQ Longline		
Pacific cod	11	10
Turbot	7	15
CDQ Pot		
Pacific cod	5	6
Sablefish	36	33

TABLE 8.—2004 ASSUMED HALIBUT DISCARD MORTALITY RATES FOR THE BSAI FISHERIES—Continued

Fishery	Preseason assumed mortality (percent)
Pacific cod	68
Rockfish	74
Rock sole	77
Sablefish	49
Yellowfin sole	78
Pot gear fisheries	
Other species	8
Pacific cod	8
CDQ trawl fisheries	
Atka mackerel	85
Flathead sole	90
Nonpelagic pollock	85
Pelagic pollock	89
Rockfish	90
Yellowfin sole	82
CDQ hook-and-line fisheries	
Greenland turbot	4
Pacific cod	11
CDQ pot fisheries	
Pacific cod	2
Sablefish	36

AGENDA D-1(f)
Supplemental
DECEMBER 2004

TRADEX

December 1, 2004

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Stephanie Madsen, Council Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501-2252
FAX: 907 271-2817

Re: Agenda Item D-1, 2005-2006 Final Specifications for BSAI

Dear Chair Madsen,

As major buyers of Yellow Fin Sole, we respectfully request consideration of the proposed BSAI 2005 and 2006 TACs. Specifically, we request readjustment of the increases in to Cod, Pollock and BS POP to fund additional Yellow Fin Sole instead. Based on the following, we see no scientific justification for the increase in the Cod and Pollock TAC's recommended by the Council at the October meeting.

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The flatfish TAC's are under funded. All flatfish are on PSC status, except Alaska Plaice and Yellow Fin, which have been on a by-catch status since April and June respectively. (Turbot is the exception, there is 800 MT remaining but can only by by-catch for the trawlers.

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Due to the full harvest of the Yellow Fin Sole directed fishery before the first half of this year, and the loss of the important late Summer and Fall YFS fishery, coupled with the un-harvested Pollock quota at the end of the year, we respectively ask the Council to increase the YFS TAC for 2005 and 2006 by at least 25,000 MT.

The TAC increases being sought will help in correcting the supply imbalances in the demand for raw materials in our affiliated processing plants in China and what is currently available . With the current levels of YFS available as a raw material, we find it difficult to maintain the flow of finished products that is needed for the consumers in the U.S. markets. If this downward supply trend continues, we will not be able to maintain those business relationships that have been established here and abroad.

Sincerely,

Robert Reierson
President/CEO

Tradex Foods Inc.
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GTI

GOLDEN-TECH INTERNATIONAL, INC. • 2461 152nd Ave. N.E. • Redmond, WA U.S.A. 98052-5573 • (425) 869-1461 / 1462 • Fax: (425) 867-1368

December 1, 2004

Stephanie Madsen, Council Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
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Sincerely yours,

John Bae
Director

NICHIMO CO., LTD.

2-2-20, Higashishinagawa,
Shinagawa-ku, Tokyo
140-0002, Japan

Tel:(03) 3458 3020
Fax:(03) 3458 3088

December 1, 2004

Stephanie Madsen, Council Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501-2252
FAX: 907 271-2817

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Sincerely,

Masato Sasaki

HAI YANG INT'L INC.

124 Merton St., Suite 306
Toronto, Ontario, Canada M4S 2Z2
TEL: (416)486-7616 FAX: (416)486-7838
E-MAIL: brian.xiao@haiyangseafoods.com

December 1, 2004

Stephanie Madsen, Council Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501-2252
FAX: 907 271-2817

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The TAC increases being sought will help in correcting the supply imbalances with the demand for raw materials in our affiliated processing plants in China and what is currently available . With virtually no YFS available as raw processing materials, we are unable to maintain the flow of finished products that is needed for the consumers in the U.S. markets. If this downward supply trend continues, we will not be able to maintain those business relationships that have been established here and abroad.

Sincerely,

Brian H.Xiao

President
Hai Yang International Inc.

Groundfish Forum

4241 21st Avenue West, Suite 200
Seattle, WA 98199
(206) 213-5270 Fax (206) 213-5272
www.groundfishforum.org

December 1, 2004

Ms. Stephanie Madsen, Chairman
North Pacific Fishery Management Council
605 West 4th Ave.
Anchorage, AK 99501
FAX: 907-271-2817

Re: Agenda Item D-1: 2005 BSAI Specifications

Dear Madam Chair,

Groundfish Forum is a trade organization representing 19 'head-and-gut' (H&G) trawl catcher processors which target non-pollock species in the Bering Sea, Aleutian Islands and Gulf of Alaska. We represent 90% of the capacity of the non-AFA trawl catcher-processor sector. We are writing to you regarding the 2005 Total Allowable Catch specifications for the Bering Sea and Aleutian Islands, which will be finalized at the upcoming Council meeting.

For the past several years, as the pollock ABC has continued to increase, our sector has agreed to lower TACs on our primary target fisheries such that the ITACs (the amount of fish left after deduction for CDQ and non-specific reserves) are actually *below* the catch for the previous year. We did this as part of an industry-wide agreement, so that pollock TACs could increase while remaining under the BSAI 2.0 million ton OY cap. The industry agreement was that non-AFA trawl CPs could use the reserves (7.5% set aside from most flatfish species and from the 'other species' component) to fund any shortfall which occurred as a result of the reduction in TAC. This agreement worked well when it was first implemented.

In 2004, through a combination of cooperative efforts within the H&G fleet and good fishing conditions, we were able to use all of the ITACs and the reserves. As we demonstrated at the October Council meeting (and as shown on the attached sheet), flatfish fisheries closed down extremely early this year. Yellowfin sole closed to directed harvest in June (compared to October/November in previous years). By the end of July there was no directed fishing on any flatfish species, and by September everything except yellowfin sole and Alaska plaice was on 'prohibited species' (PSC) status and had to be discarded. None of these stocks approached ABC, but the fisheries were closed to prevent the possibility of over-running the 2.0 million ton OY for the BSAI as a whole.

As species went on PSC, we were forced to throw them back even though markets and processing capacity still existed. Regulatory discards increased as the year progressed.

We hope that the industry and NMFS will be able to develop a management approach that limits the amount of regulatory discards which are required in the future.

We also note that, as stated, previous industry agreements included an understanding that reserves would be used to fund any shortfalls in flatfish TACs. If, in the future, reserves are managed in a different manner, we will clearly need to increase the TACs to make up for this change.

At this time, the industry is still working on TAC setting negotiations and we hope to have a manageable approach to present to the Council. However, we want to be sure that the Council understands that our sector has worked hard to meet the mandate of decreased bycatch and increased cooperation. As a result of doing exactly what the Council requested, we are now underfunded in our fisheries. Over 200 tons of halibut were left at the end of the 2004 season, which would have funded an additional 25,000 to 30,000 tons of flatfish harvest had the TAC been available.

We ask the Council to also consider that the H&G fleet has repeatedly accommodated increases in the pollock TAC at the expense of flatfish TACs. This year our primary fisheries closed mid-year, while it appears that there will be over 20,000 tons of fish left unharvested under the 2.0 million ton cap. We believe that increases in our TACs are appropriate.

We appreciate the opportunity to comment, and are hopeful that industry negotiations will bring forward an agreed proposal for Council consideration.

Sincerely,

T. Edward Luttrell
Executive director

Attachment: Bering Sea flatfish fisheries 2004

Bering Sea Flatfish Fisheries 2004

Targets	Directed fishing ends	PSC status
Rock sole	*April 1*	*August 14*
Yellowfin sole	*June 4*	
Flathead sole	*July 31*	*September 4*
Secondary		
Arrowtooth Flounder	*January 1*	*July 28*
Alaska Plaice	*April 10*	
Other flatfish	*June 4*	*August 14*

From the NPFMC web site

Prepared by Groundfish Forum
December 1, 2004

PUBLIC TESTIMONY SIGN-UP SHEET FOR AGENDA ITEM D-1(f) BSAI Specifications

		NAME (PLEASE PRINT)	AFFILIATION
1	4	THORN SMITH	NPLA
2	4	ED RICHARDSON	POLLOCK CONSERVATION COOPERATIVE
3		[illegible]	[illegible]
4	4	[illegible]	APICC
5	4	[illegible]	[illegible]
6	3	SUSAN ROBINSON	Fishermen's Finest
7	4	LORI SWANSON / ED	GFF
8			
9			
10			
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NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person " to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.

D-1(f) Supplemental
December 2004

Subject: Re: Bering Sea Herring PSC Limit
Date: Fri, 03 Dec 2004 17:34:14 -0600
From: Fritz Funk <fritz_funk@fishgame.state.ak.us>
To: Jane DiCosimo <Jane.DiCosimo@noaa.gov>

Herring: In 1991, an overall herring PSC bycatch cap of 1 percent of the EBS biomass of herring was implemented. This cap is apportioned to the same six PSC fishery categories listed above, plus a seventh group, mid-water pollock. The herring assessments for 2005 are complete for the Yukon/Kuskokwim areas. For the largest stock (Togiak) herring assessments for 2005 are still in progress, but analysis to date indicates little change from the 2004 abundance estimates. Using the completed 2005 assessments for the Yukon/Kuskokwim areas and the 2004 assessment for Togiak, the herring biomass estimate for the eastern Bering Sea is 201,180 mt. The corresponding herring PSC limit for 2005 at 1% of this amount would be 2,012 mt. ADF&G will advise the Council if there are substantial changes made to the assessments for 2005.

Bering05.xls	**Name:** Bering05.xls **Type:** Microsoft Excel Worksheet (application/vnd.ms-excel) **Encoding:** base64

Table 1. Summary of preliminary 2005 forecast run biomass, and threshold levels for eastern Bering Sea herring.

	Forecast Run Biomass		Threshold
Fishery	(metric tons)	(short tons - 2,000 lbs)	
Port Moller	136	150	1,000
Bristol Bay (Togiak)	129,840	143,124	35,000
Kuskokwim Area			
Security Cove	16,504	18,192	1,200
Goodnews Bay	12,165	13,410	1,200
Cape Avinof	3,064	3,377	500
Nelson Island	4,028	4,440	3,000
Nunivak Island	4,338	4,782	1,500
Cape Romanzof	3,071	3,385	1,500
Norton Sound	28,035	30,903	7,000
Total:	**201,180**	**221,763**	
PSC Limit (at 1% of run biomass):	**2,012**		

D-1(f) Supplemental
December 2004

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center
REFM Division
7600 Sand Point Way N.E., Bin C15700
Seattle, Washington 98115-0070

December 3, 2004

MEMORANDUM FOR: NPFMC

FROM: F/AKC, James Ianelli

SUBJECT: Alternative projections for 2006 ABC specifications

In November 2004 the Plan Teams recommended ABC levels for 2006 based on BSAI catch levels in 2005 that are likely to be much lower. The original levels of catch presented and used by the Plan Teams for selected species most likely to be affected are presented in italics under the columns labeld "*SAFE*". Alternative 2006 ABC's are in bold and boxed; OFL's are in bold and shaded under the columns labeled "Alt". Units are thousands of metric tons.

Yield		Atka mackerel		Pacific cod		Rock sole		Pollock	
	Year	*SAFE*	Alt	*SAFE*	Alt	*SAFE*	Alt	*SAFE*	Alt
MaxPermissible	2004	*63*	63	*216*	216	*41*	41	*1,492*	1,492
	2005	*124*	63	*227*	206	*132*	41	*1,897*	1,474
	2006	*89*	107	*207*	214	*111*	122	*1,415*	1,617
	2016	*70*	70	*239*	239	*83*	84	*1,649*	1,649
AuthorsF	2004	*63*	63	*216*	216	*41*	41	*1,492*	1,492
	2005	*124*	63	*206*	206	*132*	41	*1,897*	1,474
	2006	*89*	**107**	*195*	**195**	*111*	**122**	*1,415*	**1,617**
	2016	*70*	70	*229*	229	*83*	84	*1,649*	1,649
HalfMax	2004	*63*	63	*216*	216	*41*	41	*1,492*	1,492
	2005	*68*	63	*119*	206	*68*	41	*1,032*	1,474
	2006	*58*	59	*125*	113	*61*	63	*1,010*	882
	2016	*53*	53	*167*	167	*61*	61	*1,272*	1,272
5-yr AvgF	2004	*63*	63	*216*	216	*41*	41	*1,492*	1,492
	2005	*75*	63	*179*	206	*25*	41	*1,300*	1,474
	2006	*63*	65	*174*	170	*23*	23	*1,250*	1,212
	2016	*57*	57	*211*	210	*28*	28	*1,439*	1,439
OFL	2004	*63*	63	*216*	216	*41*	41	*1,492*	1,492
	2005	*147*	63	*265*	206	*157*	41	*2,325*	1,474
	2006	*94*	**127**	*226*	**251**	*129*	**145**	*1,481*	**1,944**
	2016	*74*	74	*252*	252	*86*	87	*1,743*	1,743

APPENDIX A

STOCK ASSESSMENT AND FISHERY EVALUATION REPORT FOR THE GROUNDFISH RESOURCES OF THE BERING SEA/ALEUTIAN ISLANDS REGIONS

Compiled by

The Plan Team for the Groundfish Fisheries
of the Bering Sea and Aleutian Islands

With Contributions by

K. Aydin, S. Barbeaux, J. Boldt, D. Chen, D. Courtney, J. DiCosimo, M. Dorn, J. Fujioka, S. Gaichas, K. Goldman, J. Hoff, T. Honkalehto, J. Ianelli, R. Lauth, Y. Lee, S. Lowe, C. Lunsford, B. Matta, M. Nelson, D. Nichol, R. Reuter, T. Sample, M. Sigler, P. Spencer, T. TenBrink, G. Thompson, C. Tribuzio, G. Walters, T. Wilderbuer, G. Williams, N. Williamson, H. Zenger

November 2004

North Pacific Fishery Management Council
605 West 4th Ave., Suite 306
Anchorage, AK 99501

Stock Assessment and Fishery Evaluation Report
for the Groundfish Resources
of the Bering Sea/Aleutian Islands Region

Table of Contents

SUMMARY

by
The Plan Team for the Groundfish Fisheries
of the Bering Sea and Aleutian Islands

INTRODUCTION

The Guidelines for Fishery Management Plans published by the National Marine Fisheries Service (NMFS) require that a stock assessment and fishery evaluation (SAFE) report be prepared and reviewed annually for each fishery management plan (FMP). The SAFE reports are intended to summarize the best available scientific information concerning the past, present, and possible future condition of the stocks, marine ecosystems, and fisheries being managed under Federal regulation, thereby providing information to the Councils for determining annual harvest levels from each stock, documenting significant trends or changes in the resource, marine ecosystems, and fishery over time, and assessing the relative success of existing state and Federal fishery management programs. In the case of the FMP for the Groundfish Fishery of the Bering Sea and Aleutian Islands (BSAI) Area, the SAFE report is published in three sections: a "Stock Assessment" section, which comprises the bulk of the present document, and "Fishery Evaluation" and "Ecosystem Considerations" sections, which are bound separately.

The Stock Assessment section of the SAFE report for the BSAI groundfish fisheries is compiled by the BSAI Groundfish Plan Team from chapters contributed by scientists at NMFS Alaska Fisheries Science Center (AFSC) and includes a recommended acceptable biological catch (ABC) and an overfishing level (OFL) for each stock and stock complex managed under the FMP. The ABC recommendations are reviewed by the Scientific and Statistical Committee (SSC), which may confirm the Plan Team recommendations or develop its own. The ABC recommendations, together with social and economic factors, are considered by the North Pacific Fishery Management Council (Council) in determining total allowable catches (TACs) and other measures used to manage the fisheries.

The BSAI groundfish FMP requires that a draft of the SAFE report be produced each year in time for the December meeting of the Council. Each stock or stock complex is represented in the report by a chapter containing the latest stock assessment. New or revised stock assessment models are generally previewed at its September Plan Team meeting, and considered by the Plan Team at its November meeting for setting specifications for the following fishing year.

Members of the Plan Team who compiled this SAFE report were Loh-lee Low (chair), Jane DiCosimo (BSAI FMP coordinator), Kerim Aydin, David Carlile, William Clark, Lowell Fritz, Brenda Norcross, Michael Sigler, Andrew Smoker, Grant Thompson, and Ivan Vining.

BACKGROUND INFORMATION

Management Areas and Species

The BSAI management area lies within the 200-mile U.S. Exclusive Economic Zone (EEZ) of the United States (Figure 1). International North Pacific Fisheries Commission (INPFC) statistical areas 1 and 2 make up the EBS. The Aleutian Islands (AI) region is INPFC area 5.

Five categories of finfishes and invertebrates have been designated for management purposes (see below). They are prohibited species (species which must be returned to the sea when caught), target species (species for which an individual TAC is established), other species (species for which an aggregate TAC is established), forage fish, and non-specified species (all species not included in one of the other categories). This SAFE report describes the status of the stocks in the target species and "other species" categories only. For finfish, the species categories other than non-specified species are populated as follow:

Prohibited Species	Target Species	Other Species	Forage Fish
Salmon	Walleye pollock	Sculpins	Eulachon
Pacific halibut	Pacific cod	Sharks	Capelin
Pacific herring	Sablefish	Skates	Sandlance
Steelhead trout	Yellowfin sole		Myctophids
	Greenland turbot		Bathylagids
	Arrowtooth flounder		Sandfish
	Rock sole		Pholids
	Flathead Sole		Stichaeids
	Alaska plaice		Gonostomatids
	Other flatfish		
	Pacific ocean perch		
	Northern rockfish		
	Shortraker and rougheye rockfish		
	Other rockfish		
	Atka mackerel		

For invertebrates, the species categories other than non-specified species are populated as follow:

Prohibited Species	Target Species	Other Species	Forage Fish
King crab	Squid	Octopus	
Tanner crab			

Historical Catch Statistics

Catch statistics since 1954 are shown for the EBS subarea in Table 2. The initial target species was yellowfin sole. During the early period of these fisheries, total catches of groundfish reached a peak of 674,000 metric tons (t) in 1961. Following a decline in abundance of yellowfin sole, other species (principally walleye pollock) were targeted, and total catches rose to 2.2 million t in 1972. Walleye pollock is now the principal fishery, with recent catches approximately 1.4-1.5 million t in 2001-2004. After the Magnuson Fishery Conservation and Management Act was adopted in 1976, catch restrictions and other management measures were placed on the fishery and all-species catches have since varied from one to two million t.

Catches in the Aleutian region have always been much smaller than those in the EBS. Target species have also been different (Table 3). Pacific ocean perch (POP) was the initial target species. As POP abundance declined, the fishery diversified to other species. During the early years of exploitation, overall catches of Aleutian groundfish reached a peak of 112,000 t in 1965. Atka mackerel is the largest fishery (51,700 t in 2003) in the AI, followed by Pacific cod (32,500 t in 2003). Total catches from the Aleutians in recent years have been about 100,000 t annually, after peaking at 191,000 t in 1996. Total 2004 BSAI catches through November 13 were 1.99 million t. Table 4 provides total EBS and AI catches, 1954 through November 13, 2004.

Recent Total Allowable Catches

Amendment 1 to the BSAI Groundfish FMP provides the framework to manage the groundfish resources as a complex. Maximum sustainable yield (MSY) for this complex was originally estimated at 1.8 to 2.4 million t. The optimum yield (OY) range was set at 85% of the MSY range, or 1.4 to 2.0 million t. The sum of the TACs equals OY for the BSAI groundfish complex, which is currently constrained by the 2.0 million t cap.

Fifteen percent (15%) of the total TACs is set aside as a reserve (except for pollock, squid, and hook-and-line and pot gear allocation of sablefish), which may be released during the season by the NMFS Regional Administrator. The ITAC, or initial TAC, for each species or complex is the remainder of the TAC after the subtraction of the reserve. Except as noted above, one half of the reserve, or 7.5 percent, is designated as a Community Development Quota (CDQ) reserve for use by CDQ participants. The reserve is released to directed fishing later in the fishing year. Ten percent of the pollock TAC is allocated as a directed fishing allowance for CDQ participants.

Definition of Acceptable Biological Catch and the Overfishing Level

Amendment 56 defined ABC and OFL for the BSAI groundfish fisheries. The definitions are shown below, where the fishing mortality rate is denoted F, stock biomass (or spawning stock biomass, as appropriate) is denoted B, and the F and B levels corresponding to MSY are denoted F_{MSY} and B_{MSY} respectively.

Acceptable Biological Catch is a preliminary description of the acceptable harvest (or range of harvests) for a given stock or stock complex. Its derivation focuses on the status and dynamics of the stock, environmental conditions, other ecological factors, and prevailing technological characteristics of the fishery. The fishing mortality rate used to calculate ABC is described following the next paragraph.

Overfishing is defined as any amount of fishing in excess of the maximum fishing mortality threshold (MFMT). This MFMT is prescribed through a set of six tiers which are listed below in descending order of preference, corresponding to descending order of information availability. The SSC will have final authority for determining whether a given item of information is "reliable" for the purpose of this definition, and may use either objective or subjective criteria in making such determinations. For Tier 1, a "pdf" refers to a probability density function. For Tiers 1-2, if a reliable pdf of B_{MSY} is available, the preferred point estimate of B_{MSY} is the geometric mean of its pdf. For Tiers 1-5, if a reliable pdf of B is available, the preferred point estimate is the geometric mean of its pdf. For Tiers 1-3, the coefficient α is set at a default value of 0.05, with the understanding that the SSC may establish a different value for a specific stock or stock complex as merited by the best available scientific information. For Tiers 2-4, a designation of the form "$F_{X\%}$" refers to the F associated with an equilibrium level of spawning per recruit (SPR) equal to X% of the equilibrium level of spawning per recruit in the absence of any fishing. If reliable information sufficient to characterize the entire maturity schedule of a species is not available, the SSC may choose to view SPR calculations based on a knife-edge maturity assumption as reliable. For Tier 3, the term $B_{40\%}$ refers to the long-term average biomass that would be expected under average recruitment and $F=F_{40\%}$.

1) Information available: Reliable point estimates of B and B_{MSY} and reliable pdf of F_{MSY}.

1a) Stock status: $B/B_{MSY} > 1$

$F_{OFL} = \mu_A$, the arithmetic mean of the pdf

$F_{ABC} \leq \mu_H$, the harmonic mean of the pdf

1b) Stock status: $\alpha < B/B_{MSY} \leq 1$

$F_{OFL} = \mu_A \times (B/B_{MSY} - \alpha)/(1 - \alpha)$

$F_{ABC} \leq \mu_H \times (B/B_{MSY} - \alpha)/(1 - \alpha)$

1c) Stock status: $B/B_{MSY} \leq \alpha$

$F_{OFL} = 0$

$F_{ABC} = 0$

2) Information available: Reliable point estimates of B, B_{MSY}, F_{MSY}, $F_{35\%}$, and $F_{40\%}$.

2a) Stock status: $B/B_{MSY} > 1$

$F_{OFL} = F_{MSY}$

$F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%})$

2b) Stock status: $\alpha < B/B_{MSY} \leq 1$

$F_{OFL} = F_{MSY} \times (B/B_{MSY} - \alpha)/(1 - \alpha)$

$F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%}) \times (B/B_{MSY} - \alpha)/(1 - \alpha)$

2c) Stock status: $B/B_{MSY} \leq \alpha$

$F_{OFL} = 0$

$F_{ABC} = 0$

3) Information available: Reliable point estimates of B, $B_{40\%}$, $F_{35\%}$, and $F_{40\%}$.

3a) Stock status: $B/B_{40\%} > 1$

$F_{OFL} = F_{35\%}$

$F_{ABC} \leq F_{40\%}$

3b) Stock status: $\alpha < B/B_{40\%} \leq 1$

$F_{OFL} = F_{35\%} \times (B/B_{40\%} - \alpha)/(1 - \alpha)$

$F_{ABC} \leq F_{40\%} \times (B/B_{40\%} - \alpha)/(1 - \alpha)$

3c) Stock status: $B/B_{40\%} \leq \alpha$

$F_{OFL} = 0$

$F_{ABC} = 0$

4) Information available: Reliable point estimates of B, $F_{35\%}$, and $F_{40\%}$.

$F_{OFL} = F_{35\%}$

$F_{ABC} \leq F_{40\%}$

5) Information available: Reliable point estimates of B and natural mortality rate M.

$F_{OFL} = M$

$F_{ABC} \leq 0.75 \times M$

6) Information available: Reliable catch history from 1978 through 1995.

OFL = the average catch from 1978 through 1995, unless an alternative value is established by the SSC on the basis of the best available scientific information

$ABC \leq 0.75 \times OFL$

OVERVIEW OF "STOCK ASSESSMENT" SECTION

Summary and Use of Terms

Plan Team recommendations for 2005 ABCs are summarized in Tables 5 and 6. The sum of the recommended ABCs for 2005 is about 3,100,000 t, approximately 560,000 t below the sum of the 2004 ABCs. This is about 1.1 million t above the 2 million t TAC cap employed by the Council as a conservation measure. Overall, the status of the stocks continues to appear relatively favorable, although some stocks are declining due to poor recruitment in recent years. Total biomass for 2005 (17.5 million t) is down about 12% since last year. Stock status is summarized, ABC recommendations are given, and OFLs presented on a species-by-species basis in the remainder of this Overview, with the following conventions observed:

1) "Fishing mortality rate" refers to the full-selection F (i.e., the rate that applies to fish of fully selected sizes or ages), except in the case of the EBS walleye pollock assessment. For EBS walleye pollock, the fishing mortality rate consists of the ratio between catch (in biomass) and age 3+ biomass at the start of the year.
2) "Projected age+ biomass" refers to the total biomass of all cohorts of ages greater than or equal to some minimum age, as projected for January 1 of the coming year. The minimum age varies from species to species. When possible, the minimum age corresponds to the age of recruitment listed in the respective stock assessment. Otherwise, the minimum age corresponds to the minimum age included in the assessment model. When a biomass estimate from the trawl survey is used as a proxy for projected age+ biomass, the minimum age is equated with the age of recruitment, even though the survey may not select that age fully and undoubtedly selects fish of younger ages to some extent.
3) "Exploitation rate" refers to the ratio between catch (in numbers) and start-of-year stock size (also in numbers). Where information is lacking, the exploitation rate is sometimes multiplied by start-of-year biomass to compute ABC.
4) Projected ABC, OFL, and biomass levels are reported to three significant digits, except when quoting a Council-approved value with more than three significant digits or when a stock-specific ABC is apportioned among areas on a percentage basis, in which case four significant digits may be used if necessary to avoid rounding error. Fishing mortality rates are reported to two significant digits.
5) The figures listed as last year's ABCs correspond to the values approved by the Council. The figures listed as future ABCs correspond to the Plan Team's recommendations.

Projection Scenarios and Status Determination

A standard set of projections is required for each stock managed under tiers 1, 2, or 3 of Amendment 56. This set of projections encompasses seven harvest scenarios designed to satisfy the requirements of Amendment 56, the National Environmental Policy Act, and the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA).

For each scenario, the projections begin with the vector of 2004 numbers at age estimated in the assessment. This vector is then projected forward to the beginning of 2005 using the schedules of natural mortality and selectivity described in the assessment and the best available estimate of total (year-end) catch for 2004. In each subsequent year, the fishing mortality rate is prescribed on the basis of the spawning biomass in that year and the respective harvest scenario. In each year, recruitment is drawn from a distribution whose parameters consist of maximum likelihood estimates determined from the time series of recruitments estimated in the assessment. Because an environmental regime shift appears to have occurred around 1977, only year classes spawned after 1976 are included in this time series. Spawning biomass is computed in each year based on the time of peak spawning and the maturity and weight schedules described in the assessment. Total catch is assumed to equal the catch associated with the respective harvest scenario in all years. This projection scheme is run 1000 times to obtain distributions of possible future stock sizes, fishing mortality rates, and catches.

Five of the seven standard scenarios will be used in an Environmental Assessment prepared in conjunction with the final SAFE. These five scenarios, which are designed to provide a range of harvest alternatives that are likely to bracket the final TAC for 2005, are as follow ("max F_{ABC}" refers to the maximum permissible value of F_{ABC} under Amendment 56):

Scenario 1: In all future years, F is set equal to max F_{ABC}. (Rationale: Historically, TAC has been constrained by ABC, so this scenario provides a likely upper limit on future TACs.)

Scenario 2: In all future years, F is set equal to a constant fraction of max F_{ABC}, where this fraction is equal to the ratio of the F_{ABC} value for 2005 recommended in the assessment to the max F_{ABC} for 2005. (Rationale: When F_{ABC} is set at a value below max F_{ABC}, it is often set at the value recommended in the stock assessment.)

Scenario 3: In all future years, F is set equal to 50% of max F_{ABC}. (Rationale: This scenario provides a likely lower bound on F_{ABC} that still allows future harvest rates to be adjusted downward when stocks fall below reference levels.)

Scenario 4: In all future years, F is set equal to the average F from the period 1999-2003. (Rationale: For some stocks, TAC can be well below ABC, and recent average F may provide a better indicator of F_{TAC} than F_{ABC}.)

Scenario 5: In all future years, F is set equal to zero. (Rationale: In extreme cases, TAC may be set at a level close to zero.)

Two other scenarios are needed to satisfy the MSFCMA's requirement to determine whether a stock is currently in an overfished condition or is approaching an overfished condition. These two scenarios are as follow (for Tier 3 stocks, the MSY level is defined as $B_{35\%}$):

Scenario 6: In all future years, F is set equal to F_{OFL}.

Scenario 7: In 2005 and 2006, F is set equal to max F_{ABC}, and in all subsequent years, F is set equal to F_{OFL}.

Harvest scenarios #6 and #7 are intended to permit determination of the status of a stock with respect to its minimum stock size threshold (MSST). Any stock that is below its MSST is defined to be overfished. Any stock that is expected to fall below its MSST in the next two years is defined to be approaching an overfished condition. Harvest scenarios #6 and #7 are used in these determinations as follows:

Is the stock overfished? This depends on the stock's estimated spawning biomass in 2005:

(1) If spawning biomass for 2005 is estimated to be below ½ $B_{35\%}$, the stock is below its MSST. If spawning biomass for 2005 is estimated to be above $B_{35\%}$, the stock is above its MSST.

(2) If spawning biomass for 2005 is estimated to be above ½ $B_{35\%}$ but below $B_{35\%}$, the stock's status relative to MSST is determined by referring to harvest scenario #6. If the mean spawning biomass for 2015 is below $B_{35\%}$, the stock is below its MSST. Otherwise, the stock is above its MSST.

Is the stock approaching an overfished condition? This is determined by referring to harvest scenario #7:

(1) If the mean spawning biomass for 2007 is below ½ $B_{35\%}$, the stock is approaching an overfished condition.

(2) If the mean spawning biomass for 2007 is above $B_{35\%}$, the stock is not approaching an overfished condition.

(3) If the mean spawning biomass for 2007 is above ½ $B_{35\%}$ but below $B_{35\%}$, the determination depends on the mean spawning biomass for 2017. If the mean spawning biomass for 2017 is below $B_{35\%}$, the stock is approaching an overfished condition. Otherwise, the stock is not approaching an overfished condition.

It is currently impossible to evaluate the status of stocks in Tiers 4 through 6 with respect to their MSSTs because stocks qualify for management under these tiers only if reference stock levels (such as MSST) cannot be estimated reliably.

Two-Year Ahead ABC and OFL Projections

In September of this year, preliminary projections of ABC and OFL for 2005 and 2006 were made on the basis of last year's stock assessments. In this SAFE report, the Plan Team has revised most of those projections (Table 1). Such revisions are typically due to the development of new models; collection of new catch, survey, age composition, or size composition data; or use of new methodology for recommending ABC. In the case of nearly all stocks managed under Tier 3 (Aleutian Islands walleye pollock is an exception), 2005 and 2006 projections are based on the output for Scenarios 1 or 2 (ABC) and 6 (OFL) of the standard projection model. For Aleutian Islands walleye pollock, the Plan Team's ABC recommendations for 2005 and 2006 do not correspond to any of the standard scenarios, but the OFL recommendations follow the projections under Scenario 6. For the one stock managed under Tier 1, EBS walleye pollock, the Plan Team's recommended 2005 ABC and OFL do not appear in the assessment chapter's projection table, because the standard projection model does not include an option for stocks managed under Tier 1. Nevertheless, the EBS pollock chapter's projections for 2006 under Scenarios 1 and 6 were used to recommend 2006 ABC and OFL, because no better estimates were available. As a precautionary measure, the standard projection model estimates 2005 catch at levels that are likely higher than the catch that will actually be achieved in 2005, meaning that the 2006 ABC and OFL projections for all Tier 1-3 stocks are likely to be biased downward. In the case of stocks managed under Tiers 4-6, 2006 projections are set equal to the Plan Team's recommended values for 2005. It should be emphasized that the ABC and OFL values recommended in next year's SAFE report are likely to differ from this year's projections for 2006, for the same reasons that the projections in this SAFE report differ from the projections made in September.

Uncertainty / Ecosystem Considerations / Research

Statistical uncertainty is addressed in the individual assessments, and to some degree is addressed by the tiers used to establish ABCs. In three cases, statistical uncertainty or natural variability in the stock led the Plan Team to recommend 2005 ABC values lower than the maximum permissible level: In the case of Aleutian pollock, the Plan Team's recommended ABC is 46% below the maximium permissible level; in the case of Pacific cod, the Plan Team's recommended ABC is 9% below the maximum permissible level; and in the case of Greenland turbot, the Plan Team's recommended ABC is 75% below the maximum permissible level.

Ecosystem considerations are also addressed in the stock assessment chapters. In several assessments (walleye pollock, yellowfin sole, arrowtooth flounder, northern rock sole, flathead sole), attempts are made to estimate relationships between bottom trawl survey catchability and bottom temperature. In some assessments (Pacific cod, rock sole, flathead sole, Alaska plaice), potential effects of a possible 1989 regime shift on the stock-recruitment relationship are investigated (the yellowfin sole included a similar analysis for the 1978 regime shift). In the Pacific cod assessment, correlations between recruitment and annual values of the Pacific Decadal Oscillation are computed. In the Atka mackerel assessment, many new results based on ecosystem models are presented. Although the Team was unable to identify any cases where these or other ecosystem considerations suggested a need to adjust ABC, the Team encourages further development

of ecosystem considerations. A review of ecosystem status and trends is provided in the Ecosystem Considerations chapter.

Walleye Pollock

Status and catch specifications (t) of **pollock** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 3+ Bio.	OFL	ABC	TAC	Catch
EBS	2003	11,100,000	3,530,000	2,330,000	1,491,760	1,490,095
	2004	11,000,000	2,740,000	2,560,000	1,492,000	1,480,021
	2005	8,410,000	2,100,000	1,960,000	n/a	n/a
	2006	n/a	1,480,000	1,420,000	n/a	n/a
AI	2003	175,000	52,600	39,400	1,000	1,653
	2004	175,000	52,600	39,400	1,000	1,150
	2005	344,000	99,300	43,200	n/a	n/a
	2006	n/a	69,100	43,200	n/a	n/a
Bogoslof	2003	227,000	45,300	4,070	50	24
	2004	198,000	39,600	2,570	50	0
	2005	198,000	39,600	*29,700	n/a	n/a
	2006	n/a	39,600	*29,700	n/a	n/a

* The approach used by the Plan Team for recommending Bogoslof ABC in 2005-2006 differs from the approach used by the SSC and Council in 2003-2004.

Eastern Bering Sea:

The present assessment is a straightforward update of last year's assessment, incorporating new data from the 2004 EIT and bottom trawl surveys and from the 2003 fishery. The 2004 EIT survey estimated a biomass of 3,310,000 t, a decrease of 8% relative to the 2002 estimate. The 2004 bottom trawl survey estimated a biomass of 3,750,000 t, a decrease of 54% relative to the all-time high estimate obtained in 2003 but within the range of the 1999-2002 estimates. The estimates of average weight at age from the fishery were also revised.

Six alternative models are presented in the chapter, all of which follow the statistical age-structured approach that has been used for the last several years. All of these models give point estimates of 2005 spawning biomass in the range 2,580,000 t to 3,310,000 t. One of the models (Model 4) explicitly addressed the possibility that an environmental covariate (summer bottom temperature) had an effect on trawl survey catchability, but failed to find a statistically significant relationship. Concurring with the assessment authors, the Plan Team based its recommendations for 2005 on the reference model (Model 1), which is identical to last year's model. The current assessment provides estimates of the biomass time series that are slightly lower than those provided in last year's assessment (Figure 1.32).

The SSC has determined that reliable estimates of B_{MSY} and the probability density function for F_{MSY} exist for this stock, and that EBS walleye pollock therefore qualify for management under Tier 1. The senior

assessment author continues to feel that the Tier 1 reference points are reliably estimated given the structure of the model, a conclusion with which the Plan Team concurs, although some Plan Team members expressed concern regarding the usefulness of MSY-based reference points in cases where environmental regime shifts can have major impacts on the productivity of the stock. The updated estimate of B_{MSY} from the present assessment is 2,230,000 t, compared to 2,470,000 t from last year's assessment. The projected spawning biomass for 2005 is 2,870,000 t, placing EBS walleye pollock in sub-tier "a" of Tier 1. As in last year's assessment, the maximum permissible ABC harvest rate was based on the ratio between MSY and the equilibrium age 3+ biomass corresponding to MSY. The harmonic mean of this ratio from this year's assessment is 0.233, identical to the value obtained in last year's assessment. This ratio is multiplied by the geometric mean of the projected age 3+ biomass for 2005 (8,410,000 t) to obtain the maximum permissible ABC for 2005, which is 1,960,000 t. This ABC is about 3% higher than the 2005 yield corresponding to an $F_{40\%}$ strategy, which is 1,900,000 t. In each of the last three years, the senior assessment author, Plan Team, and SSC all recommended setting ABC at the maximum permissible value. This year, the assessment authors recommend setting ABC at the $F_{40\%}$ level rather than at the maximum permissible value. However, the Plan Team does not find any compelling reason to depart from the approach used to recommend ABC for the last three years, and so recommends setting the 2005 ABC at the maximum permissible level of 1,960,000 t. At the same time, the Plan Team notes that the 2001, 2002, and 2003 year classes are all estimated to be well below average and that ABC recommendations for the near future are expected to be substantially lower than the 2005 recommendation.

Given that TAC will necessarily be set below the recommended ABC, the assessment also provides alternative harvest scenarios, including the seven standard scenarios analyzed in all age-structured assessments and two constant catch scenarios (1,300,000 t and 1,500,000 t).

The OFL harvest ratio under Tier 1a is 0.250, the arithmetic mean of the ratio between MSY and the equilibrium age 3+ biomass corresponding to MSY. The product of this ratio and the geometric mean of the projected age 3+ biomass for 2005 (8,410,000 t) gives the OFL for 2005, which is 2,100,000 t. The walleye pollock stock in the EBS is not overfished and is not approaching an overfished condition.

Aleutian Islands:

For many years, the Aleutian Islands pollock stock has lacked an age-structured model and the SSC has determined that the stock qualified for management under Tier 5. In last year's assessment, preliminary explorations of several age-structured models were provided, all of which focused on the portion of the stock to the west of 174°W. In this year's assessment, five alternative age-structured models were developed and evaluated. The chapter focuses on two of those models, one of which (Model 1) uses data only from the portion of the stock to the west of 174°W, and the other of which (Model 1B) includes survey data from the entire Aleutian Islands management area. The authors recommend use of Model 1. However, the Plan Team recommends use of Model 1B, largely because the time series of survey biomass estimates for the entire Aleutian Islands management area tends to show greater year-to-year consistency than the time series for the portion west of 174°W. For example, the 2002 and 2004 estimates for the entire Aleutian Islands management area are 175,283 t and 130,451 t, respectively, whereas the corresponding estimates for the portion west of 174°W are 121,915 t and 19,201 t, respectively.

If the SSC determines that the Aleutian pollock stock now qualifies for management under Tier 3 using Model 1B, the estimates of 2005 spawning biomass, $B_{40\%}$, and $F_{40\%}$ would be 131,000 t, 77,000 t, and 0.35, respectively. The maximum permissible 2005 ABC would be 80,500 t. Although the Plan Team feels that Model 1B makes better use of the available information than Model 1, the assessment authors feel that considerable uncertainty exists as to the value of the trawl survey catchability coefficient, a conclusion with which the Plan Team concurs. For this reason, the Plan Team recommends setting 2005 ABC at a value

below the maximum permissible level. Because the fishery for pollock in the Aleutian Islands has been closed for several years, using recent average fishing mortality to project ABC is not an option. Instead, the Plan Team recommends setting 2005 ABC at the equilibrium level associated with an $F_{40\%}$ harvest rate, which is 43,200 t. If the SSC determines that the Aleutian pollock stock qualifies for management only under Tier 5, the Plan Team recommends computing the maximum permissible ABC for 2005 as the product of the most recent survey biomass estimate (130,451 t) and 75% of the natural mortality rate (0.30), giving a value of 29,400 t.

If the SSC determines that the Aleutian pollock stock now qualifies for management under Tier 3 using Model 1B, the 2005 OFL would be 99,300 t. According to Model 1B, the stock is not overfished and is not approaching an overfished condition. If the SSC determines that the Aleutian pollock stock qualifies for management only under Tier 5, the 2005 OFL would be 39,100 t. As a Tier 5 stock, it would not be possible to determine whether Aleutian pollock is overfished or whether it is approaching an overfished condition.

Bogoslof:

The 2003 hydroacoustic survey of the Bogoslof region resulted in a biomass estimate of 198,000 t. There was no survey of the Bogoslof region this year. Last year, the SSC determined that Bogoslof pollock qualified for management under Tier 5. The maximum permissible ABC under Tier 5 is 75% of the product of the natural mortality rate (0.20) and biomass, giving a value of 29,700 t, which is the Plan Team's recommendation for 2005 ABC. For several years, the Plan Team has recommended setting ABC for this stock at the maximum permissible level while the SSC has used a much more conservative approach. If the formula used by the SSC is applied, the resulting fishing mortality rate is 0.014, giving a 2005 ABC of 2,570 t. The overfishing level under Tier 5 is the product of the natural mortality rate and biomass, giving an OFL of 39,600 t for 2004. As a Tier 5 stock, it is not possible to determine whether Bogoslof pollock is overfished or whether it is approaching an overfished condition.

Pacific Cod

Status and catch specifications (t) of **Pacific cod** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 3+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	1,680,000	324,000	223,000	207,500	209,114
	2004	1,660,000	350,000	223,000	215,500	195,529
	2005	1,290,000	265,000	206,000	n/a	n/a
	2006	n/a	226,000	195,000	n/a	n/a

The present assessment is a substantial revision of last year's assessment, incorporating recent age and growth data and slope survey length data. This year's EBS shelf bottom trawl survey resulted in a biomass estimate of 597,000 t, down 1% from the 2003 estimate and near the minimum for the time series (534,000 t). The Aleutian Islands and EBS slope also were surveyed in 2004. Model estimates of abundance are much lower than last year's assessment due to the added age, growth, and length data. Estimated 2005 spawning biomass for the BSAI stock is 295,000 t, down about 32% from last year's estimate for 2004 and down about 21% from last year's $F_{40\%}$ projection for 2005. The added data have reduced some of the uncertainties in the

Pacific cod assessment. The Plan Team recommends that the revised model (Model 2) results be used for estimating ABC.

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, and that this stock therefore qualifies for management under tier 3. The updated point estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ from the present assessment are 304,000 t, 0.36 and 0.43, respectively. Pacific cod qualify for management under sub-tier "b" of tier 3 because projected biomass for 2005 is about 3% below $B_{40\%}$. Fishing at an instantaneous rate of 0.35 is projected to result in a 2005 catch of 227,000 t, which is the maximum permissible ABC under Amendment 56. The ABC for 2005 recommended by the authors is 206,000 t based on an alternative approach that considers the tradeoff between average yield and variability in yield. This ABC results in a 2005 F_{ABC} of 0.31 and is about 8% from last year's estimate for 2004 and down about 8% from last year's F_{ABC} projection for 2005.

The Plan Team concurs with the authors' recommendation to set 2005 ABC at 206,000 t, 9% below the maximum permissible ABC of 227,000 t.

The Plan Team's recommended OFL was determined from the tier 3b formula, where fishing at a rate of 0.42 gives a 2005 value of 265,000 t, down about 24% from last year's estimate for 2004. Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

Sablefish

Status and catch specifications (t) of **sablefish** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 4+ Bio.	OFL	ABC	TAC	Catch
EBS	2003	31,000	4,290	2,900	2,900	1,066
	2004	32,000	4,020	3,000	2,900	977
	2005	34,000	2,950	2,440	n/a	n/a
	2006	n/a	2,690	2,310	n/a	n/a
AI	2003	39,000	4,590	3,100	3,100	1,081
	2004	39,000	4,620	3,450	3,100	918
	2005	34,000	3,170	2,620	n/a	n/a
	2006	n/a	2,880	2,480	n/a	n/a

The present assessment is a straightforward update of last year's assessment, incorporating recent age, length and abundance data from the sablefish longline survey and fishery. The survey abundance index decreased 5% from 2003 to 2004 and follows an 8% decrease from 2002 to 2003. These decreases follow recent increases, so that relative abundance in 2004 is 4% higher than in 2000. The fishery abundance index decreased 12% from 2002 to 2003 (2004 data are not available yet). The decrease follows recent increases, so that relative abundance in 2003 is 6% lower than in 2000.

Spawning biomass is projected to decrease slightly (2%) from 2004 to 2005. Sablefish abundance is moderate; projected 2005 spawning biomass is 37% of unfished biomass. Abundance has increased from a low of 33% of unfished biomass during 1998 to 2000. The 1997 year class is an important part of the total

biomass and is projected to account for 23% of 2005 spawning biomass. The 2000 year class also appears above average, although more years of data are needed to confirm its strength.

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ existed for this stock, and that this stock therefore qualifies for management under tier 3. The updated point estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ from this assessment are 223,000 t (combined across the EBS, AI, and GOA), 0.112, and 0.136, respectively. Projected spawning biomass (combined areas) for 2005 is 204,000 t (92% of $B_{40\%}$), placing sablefish in sub-tier "b" of Tier 3. The maximum permissible value of F_{ABC} under Tier 3b is 0.10. A fishing mortality rate of 0.10 translates into a 2005 catch (combined areas) of 21,000 t, which would be the maximum permissible ABC under Amendment 56 and is the Plan Teams recommended 2005 ABC. A 5-year exponential weighting of longline survey relative abundance may be used to apportion the combined 2005 ABC among regions, resulting in the following values: EBS: 2,440 t, AI: 2,620 t, and GOA: 15,940 t.

The OFL fishing mortality rate under Tier 3b is 0.12. A fishing mortality rate of 0.12 translates into a 2005 OFL (combined areas) of 25,400 t. Using the survey-based apportionment scheme described above, 2005 OFL also may be apportioned among regions and results in the following values: EBS: 2,950 t, AI: 3,170 t, and GOA: 19,280 t. Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

The Plan Team's recommended 2005 ABC represents a decrease of 9% from the 2004 ABC of 23,000 t and is similar to the 2003 ABC of 20,900 t. Spawning biomass is projected to decrease from 2004 to 2005 by about 2%.

The risk that maximum permissible yield will reduce spawning biomass below the replacement level is low. During the next three years, the probability of spawning biomass falling below the estimated threshold of $B_{18\%}$ is nil. The probability of falling below $B_{30\%}$ in three years is small (6%). The long-term probability depends on future recruitment, but will be updated each year as new data becomes available.

Yellowfin Sole

Status and catch specifications (t) of **yellowfin sole** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 2+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	1,550,000	136,000	114,000	83,750	74,418
	2004	1,560,000	135,000	114,000	86,075	73,931
	2005	1,560,000	148,000	124,000	n/a	n/a
	2006	n/a	133,000	114,000	n/a	n/a

The present assessment is a straightforward update of last year's assessment, incorporating new catch and survey information. This year's EBS bottom trawl survey resulted in a biomass estimate of 2,530,000 t, an increase of 13% from last year's survey. It was noted by the Plan Team that the ages from the 2003 EBS bottom trawl survey had the lowest estimates of 7 year old and younger fish in the entire time series of the trawl survey. In last year's assessment, the authors allowed their estimate of survey catchability to differ from 1.0 by including a linear temperature effect; however this year the temperature effect was modeled exponentially.

Reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying yellowfin sole for management under Tier 3. The updated point estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ from the present assessment are 388,000 t, 0.11, and 0.14, respectively. Given that the projected 2005 spawning biomass of 494,000 t exceeds $B_{40\%}$, the Plan Team's ABC and OFL recommendations for 2005 were calculated under sub-tier "a" of Tier 3. The Plan Team recommends setting F_{ABC} at the $F_{40\%}$ (0.11) level, which is the maximum permissible level under Tier 3a. Projected harvesting at the $F_{40\%}$ level gives a 2005 ABC of 124,000 t.

The Plan Team's OFL was determined from the Tier 3a formula, where an $F_{35\%}$ value of 0.14 gives a 2005 OFL of 148,000 t. Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

In response to SSC recommendations, the authors analyzed stock-recruitment data to consider assessment of yellowfin sole under Tier 1. The authors fit a Ricker stock-recruitment curve using two different time-series of data (1954-1999 and 1978-1999) inside the model. However, the assessment authors and Plan Team were concerned about the reliability of the stock-recruitment fit because the estimated stock-recruitment parameters changed substantially when using different time-series. The Plan Team also had concerns about the current estimates of the stock-recruitment relationship. The Plan Team therefore concluded that management of this stock under Tier 1 is not advisable at this time.

Greenland Turbot

Status and catch specifications (t) of **Greenland turbot** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Year	Area	Age 1+ Bio.	OFL	Subarea	ABC	TAC	Catch
2003	BSAI	112,000	17,800		5,880	4,000	3,017
				EBS	3,920	2,680	2,368
				AI	1,960	1,320	649
2004	BSAI	132,000	19,300		4,740	3,500	2,215
				EBS	3,162	2,700	1,805
				AI	1,578	800	410
2005	BSAI	98,300	19,200		3,930		
				EBS	2,720	n/a	n/a
				AI	1,210	n/a	n/a
2006	BSAI	n/a	11,100		3,600		
				EBS	2,500	n/a	n/a

This year's model is a straightforward update of last year's assessment. This year's model incorporated new catch and length frequency data from the fishery. It also included an updated aggregated longline survey index. Biomass and length composition data were also included from the EBS slope and shelf surveys. Reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock. Updated point estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ from the present assessment are 51,600 t, 0.39, and 0.50, respectively. Projected spawning biomass for 2005 is 55,600 t. Greenland turbot therefore qualify for management under Tier 3a. The maximum permissible value of F_{ABC} under this tier translates into a 2005 catch of 15,500 t.

The Plan Team and authors acknowledged large uncertainties in the assessment. Additional slope trawl surveys will improve measurement of abundance trend and estimates of biomass. The Team discussed the possibility that the area of the survey does not adequately encompass the juvenile distribution raising questions about the reliability of recruitment estimates from the model. Because of these uncertainties the Plan Team agrees with the authors' recommendation to set the 2005 ABC at a value less than the maximum permissible. Using F_{ABC} = 5-year average results in a 2005 ABC of 3,930 t corresponding to a full selection fishing mortality rate of 0.07. The OFL fishing mortality rate is computed under Tier 3a, $F_{OFL} = F_{35\%} = 0.50$, and translates into a 2005 OFL of 19,200 t.

Arrowtooth Flounder

Status and catch specifications (t) of **arrowtooth flounder** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 1+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	597,000	139,000	112,000	12,000	12,834
	2004	696,000	142,000	115,000	12,000	17,953
	2005	684,000	132,000	108,000	n/a	n/a

The present assessment is a straightforward update of last year's assessment, incorporating new data from the EBS shelf and slope trawl surveys, the 2003 and 2004 fisheries. The assessment adds an ecosystem component by representing catchability of the EBS shelf trawl survey as an exponential function of average bottom temperature during the EBS shelf trawl survey. This year's EBS shelf bottom trawl survey resulted in a biomass estimate of 547,000 t. This year an EBS slope trawl survey was conducted resulting in a biomass estimate of 68,600 t for the EBS slope. When the EBS shelf and slope trawl survey results are combined the biomass estimate is 616,000 t for the EBS, which is the highest estimate for the EBS since the start of the surveys. Also, the Aleutian Islands trawl survey biomass estimate of 135,000 t, is the highest for the Aleutian Islands.

More female arrowtooth flounder are caught than males. As in last year's assessment, the model was evaluated using a range of male natural mortality rates between 0.28 and 0.35. The authors felt most comfortable with the model run in which the male natural mortality rate was fixed at 0.32. As in past assessments, the female natural mortality rate was fixed at 0.20.

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying arrowtooth flounder for management under Tier 3. The updated point estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ from the present assessment are 235,000 t, 0.26, and 0.33, respectively. Given that the projected 2005 spawning biomass of 505,000 t exceeds $B_{40\%}$, the Plan Team's ABC and OFL recommendations for 2005 were calculated under sub-tier "a" of Tier 3. The Plan Team recommends setting F_{ABC} at the $F_{40\%}$ (0.26) level, which is the maximum permissible level under Tier 3a. Projected harvesting at the $F_{40\%}$ level gives a 2005 ABC of 108,000 t.

The OFL fishing mortality rate under Tier 3a is $F_{35\%}$ (0.33), translating into a 2005 OFL of 132,000 t. Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

Currently, the arrowtooth flounder fishery is not a directed fishery in the BSAI. It was noted by the authors that arrowtooth flounder continue to have a fairly high discard rate (>50%).

Northern Rock Sole

Status and catch specifications (t) of **rock sole** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 2+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	877,000	132,000	110,000	44,000	35,832
	2004	1,160,000	166,000	139,000	37,925	47,729
	2005	1,380,000	157,000	132,000	n/a	n/a
	2006	n/a	129,000	111,000	n/a	n/a

The present assessment is a straightforward update of last year's assessment. The authors changed the name of this chapter from "Rock Sole" to "Northern Rock Sole." This change reflects the fact that two species of rock sole, northern (*Lepidopsetta polyxystra*) and southern (*Lepidopsetta bilineata*) inhabit the Bering Sea. Northern rock sole are dominant, although approximately 2% of the commercial catch may be southern rock sole. Commercial catch data include both species. The northern rock sole chapter is in some ways analogous -to the arrowtooth flounder and flathead sole chapters, where the assessment focuses on a single dominant species even though small catches of a morphologically similar species (Kamchatka flounder in the case of arrowtooth flounder, Bering flounder in the case of flathead sole) are included in the fishery data and counted against the TAC.

Changes to input data in this analysis include addition of 2003 rock sole (both northern and southern) fishery age composition, 2003 northern rock sole survey age composition, and the 2004 northern rock sole trawl survey biomass point estimate and standard error. Aleutian Islands survey biomass estimates (about 3% of the combined EBS and AI survey biomass estimates) were not used in the assessment. Catch data from 2003 were updated and a preliminary 2004 catch estimate was included.

A natural mortality estimate of 0.16 was found to give a better fit to the data than the value of 0.18 used previously. The model's estimate of survey catchability was influenced by a prior distribution based on results from a trawl herding experiment. Model results indicate that survey catchability of northern rock sole does not vary with bottom termperature.

This year's EBS bottom trawl survey resulted in a biomass estimate of 1,380,000 t, an 18% increase relative to last year's estimate of 1,170,000 t. Nevertheless, the rock sole stock is expected to decline, as are several other flatfish stocks, due to low recruitment in the last decade.

Reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying the stock for management under Tier 3. The updated point estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ from the present assessment are 205,000 t, 0.15, and 0.18, respectively. Given that the projected 2005 spawning biomass of 429,000t exceeds $B_{40\%}$, the Plan Team's ABC and OFL recommendations for 2005 were calculated under sub-tier "a" of Tier 3. The Plan Team recommends setting F_{ABC} at the $F_{40\%}$ (0.15) level, which is the maximum permissible level under Tier 3a. Projected harvesting at the $F_{40\%}$ level gives a 2005 ABC of 132,000 t.

The Plan Team's OFL was determined from the Tier 3a formula, where an $F_{35\%}$ value of 0.18 gives a 2005 OFL of 157,000 t. Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

This is a stable fishery that is lightly exploited, partly because it is usually constrained by Pacific halibut bycatch. However, the 2004 fishery was different in that it was not limited by Pacific halibut bycatch. The catch of rock sole in 2004 exceeded the TAC by 26%. This is not a biological concern, however, because the TAC was set much lower than the ABC.

Flathead Sole

Status and catch specifications (t) of **flathead sole** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 3+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	550,000	81,000	66,000	20,000	14,053
	2004	505,000	75,200	61,900	19,000	17,307
	2005	560,000	70,200	58,500	n/a	n/a

The present assessment is a straightforward update of last year's assessment. The present assessment includes updated catch, survey biomass, length composition, and age composition data. The growth schedule, maturity schedule, and age-to-length conversion matrix were re-estimated. This year's EBS shelf survey biomass estimate of 617,000 t was about 16% higher than last year's survey biomass estimate of 530,000 t. Prior to this increase, survey biomass had been relatively stable over the period 2001-2003 compared to the decrease observed from 1998-2000. This year's assessment again examined the relationship between bottom temperature the trawl survey catchability coefficient. This addition had an effect on survey biomass estimates since 1998, during which time temperature fluctuations were relatively large.

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying the stock for management under Tier 3. The updated point estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ from the present assessment are 113,800, 0.30, and 0.37, respectively. Given that the projected 2005 spawning biomass of 198,000 t exceeds $B_{40\%}$, the Plan Team's ABC and OFL recommendations for 2005 were calculated under sub-tier "a" of Tier 3. The Plan Team recommends setting FABC at the $F_{40\%}$ (0.30) level, which is the maximum permissible level under Tier 3a. Projected harvesting at the $F_{40\%}$ level gives a 2005 ABC of 58,500 t. The Plan Team's OFL was determined from the Tier 3a formula, where an $F_{35\%}$ value of 0.37 gives a 2005 OFL of 70,200 t.

Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

At the request of the SSC, the authors evaluated stock productivity and F_{MSY} by fitting stock-recruitment (S-R) models within the assessment model. Ricker and Beverton-Holt S-R models were evaluated for post-1976 data and for post-1988 data, the second data series start at 1989 corresponding to the time of a potential regime shift. While a Ricker S-R model fit the post-1976 data reasonably well, it was unclear whether this was due to, or in spite of, a 1989 regime shift. The range of spawning biomass data for the post-1988 period does not bracket the B_{MSY} values estimated by either the post-1976 or post-1988 Ricker S-R models, indicating that the post-1988 model might also be inadequate to estimate MSY and related

parameters. Because of these problems, the Plan Team agrees with the authors in recommending that the results of the S-R models not be used for managing flathead sole at the present time.

Alaska Plaice

Status and catch specifications (t) of **Alaska plaice** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 3+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	1,080,000	165,000	137,000	10,000	9,896
	2004	1,060,000	258,000	203,000	9,250	7,570
	2005	913,000	237,000	189,000	n/a	n/a
	2006	n/a	115,000	109,000	n/a	n/a

Note: Biomass for 2003 represents age 1+.

The present assessment is a straightforward update of last year's assessment. The present assessment includes updated catch, survey biomass, length composition, and age composition data. The growth schedule, maturity schedule, and age-to-length conversion matrix were re-estimated. This year's EBS shelf survey biomass estimate of 488,000 t was about 4% higher than last year's survey biomass estimate of 467,000 t. The estimated age at 50% selection increased in this year's assessment from 10.3 years to 10.9 years. Survey catchability of Alaska plaice does not appear to be affected by temperature. Recruitment of Alaska plaice appears to have been relatively stable since the late 1970s.

Reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock complex, thereby qualifying the stock for management under Tier 3a. The updated point estimates are $B_{40\%}$ = 118,000 t, $F_{40\%}$ = 0.76, and $F_{35\%}$ = 1.06. The reference fishing mortality rates for this stock are fairly high relative to natural mortality (0.25) because the age at 50% selection (10.9 years) is more than 2 years greater than the age at 50% maturity (8.5 years). Given that the projected 2005 spawning biomass of 203,000 t exceeds $B_{40\%}$, the Plan Team's ABC and OFL recommendations for 2005 were calculated under sub-tier "a" of Tier 3. Projected harvesting at the $F_{40\%}$ level gives a 2005 ABC of 189,000 t. The Plan Team's OFL was determined from the Tier 3a formula, which gives a 2005 OFL of 237,000 t. Model projections indicate that this species is neither overfished nor approaching an overfished condition.

The authors also analyzed stock-recruitment data to consider assessment of Alaska plaice under Tier 1. The authors fit both Ricker and Beverton-Holt stock recruitment curves using two different time series of data. The full time series (1979 – 2001) and the portion of the time series since the possible 1989 regime shift (1989-2001) were examined. Neither stock-recruitment curve fit the data well. Both curves imply that Alaska plaice is highly unproductive and that even a small fishery could not be maintained. Although the stock size may be decreasing somewhat, the authors and the Plan Team do not feel that the estimates of productivity implied by these stock-recruitment relationships are accurate, and therefore conclude that management of Alaska plaice under Tier 1 is not advisable at this time.

Other Flatfish Complex

Status and catch specifications (t) of **other flatfish** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Area	Year	Age 1+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	107,000	21,400	16,000	3,000	2,818
	2004	90,300	18,100	13,500	2,775	4,874
	2005	143,000	28,500	21,400	n/a	n/a
	2006	n/a	28,500	21,400	n/a	n/a

With the removal of Alaska plaice from this category in 2002, the species currently collected in the "other flatfish" category in the Eastern Bering Sea survey are arctic flounder, butter sole, curlfin sole, deepsea sole, Dover sole, English sole, longhead dab, Pacific sand dab, petrale sole, rex sole, roughscale sole, sand sole, slender sole, starry flounder, and Sakhalin sole. The species currently collected in the "other flatfish" category in the Aleutian Islands survey are Dover sole, rex sole, starry flounder, butter sole and English sole. Starry flounder, rex sole and butter sole comprise the majority of the species landed; a negligible amount of other species is landed. Of those, starry flounder and rex sole comprised 95% of the other flatfish catch in 2004.

Because of insufficient data, age-structured modeling of these species is not feasible at present. This year's assessment incorporates 2002 and 2003 total catch and discard data, a preliminary 2004 catch estimate, and 2004 trawl survey information. The 2004 EBS and AI bottom trawl surveys resulted in a combined BSAI biomass estimate of 143,000 t. Both the EBS and AI surveys showed substantial increases from their previous biomass estimates (EBS up 41% from 2003 and AI up 70% from 2002).

Since the removal of Alaska plaice from this category, "other flatfish" has been managed as a Tier 5 species complex with an assumed natural mortality rate of 0.20. Projected harvesting at the $0.75M$ level gives a 2005 catch of 21,400 t, which is the maximum permissible value under Tier 5 and the Plan Team's recommended ABC. Under Tier 5, F_{OFL} is equal to M, giving a 2005 OFL of 28,500 t. It is not possible to determine whether the "other flatfish" complex is overfished or approaching an overfished condition because it is not managed under Tiers 1-3.

The fishery for "other flatfish" is usually closed prior to attainment of TAC due to bycatch of Pacific halibut, a prohibited species. However, the 2004 fishery was different in that it was not limited by Pacific halibut bycatch. The catch of "other flatfish" in 2004 exceeded the TAC by 68%. This is not a biological concern, however, because the TAC was set much lower than the ABC.

Pacific Ocean Perch (POP)

Status and catch specifications (t) of **Pacific ocean perch**. Biomass corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Year	Area	Age 3+ Bio	OFL	Subarea	ABC	TAC	Catch
2003	BSAI	375,000	17,900		15,100	14,100	14,645
				EBS	2,410	1,410	1,196
				Eastern AI	3,500	3,500	3,934
				Central AI	3,340	3,340	3,120
				Western AI	5,850	5,850	6,395
2004	BSAI	349,000	15,800		13,300	12,220	11,883
				EBS	2,128	1,048	718
				Eastern AI	3,059	3,059	2,536
				Central AI	2,926	2,926	3,143
				Western AI	5,187	5,187	5,486
2005	BSAI	379,000	17,300		14,600		
				EBS	2,920	n/a	n/a
				Eastern AI	3,210	n/a	n/a
				Central AI	3,165	n/a	n/a
				Western AI	5,305	n/a	n/a
2006	BSAI	n/a	17,400		14,600		
				EBS	2,920	n/a	n/a
				Eastern AI	3,210	n/a	n/a
				Central AI	3,165	n/a	n/a

Overall this assessment is a straightforward update of last year, adding the most recent survey and age composition data. This year's Aleutian Islands bottom trawl survey resulted in a biomass estimate of 579,000 t, a 23% increase over the 2002 estimate and the second highest estimate for the time series. This year's EBS slope bottom trawl survey resulted in a biomass estimate of 112,000 t, up about 47% from the 2002 estimate.

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying Pacific ocean perch for management under Tier 3. The current estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ are 142,000 t, 0.048, and 0.058 respectively. Given the projected spawning biomass of 133,000 t is below $B_{40\%}$, the Plan Team's ABC and OFL recommendations were calculated under sub-tier "b". The Plan Team recommends setting F_{ABC} at the adjusted $F_{40\%}$ (0.045) and F_{OFL} at the adjusted $F_{35\%}$ of 0.054 This gives an ABC of 14,600 t, which is the authors' and Plan Team's recommendation. The team concurs with the authors' recommendation that ABCs be set regionally based on the proportions in combined survey biomass as follows: BS = 2,920 t, Eastern Aleutians (Area 541) = 3,210 t, Central Aleutians (Area 542) = 3,165 t, Western Aleutians (Area 543) = 5,305 t. The OFL is computed under Tier 3b as 17,300 t. The OFL for BSAI is not regionally apportioned.

The authors presented an Appendix containing the results of an SSC-recommended analysis of an $F_{40\%}$ policy for POP, examing the possibility that older females contribute disproportionately (per unit biomass) to recruitment. The results include an index of viable larvae that reflects differences in larval survival based

upon spawner age. The stock-recruitment analysis using viable larvae as an index of stock reproductive capacity produced results similar to those obtained from using spawning stock biomass, indicating that age truncation is not evident in the data. The Plan Team commended the analysis but suggested that the authors continue this line of investigation, possibly within the context of a larger "Management Strategy Evaluation."

Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

Northern Rockfish

Status and catch specifications (t) of **Northern rockfish**. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch is reported through 11/06/04.

Year	Area	Age 3+ Bio.	OFL	Subarea	ABC	TAC	Catch
2003	BSAI	156,000	9,468		7,100		
				BS		121	72
				AI		5,879	4,582
2004	BSAI	142,000	8,140		6,880	5,000	4,683
2005	BSAI	200,000	9,810		8,260	n/a	na
2006	BSAI	n/a	9,480		8,040	n/a	n/a

For the most part, the methodology in this year's assessment was the same as last year, with new data on fisheries catch, survey estimates for 2004, and age composition for 2000 and 2003. The combined BS and AI survey biomass for 2004 was 192,000 t, up 9% from 176,000 t in 2002.

Difficulties with fitting the model led the authors to present alternative model runs, both with and without constraints on survey catchability q. The authors and Plan Team noted that the model with the unconstrained q led to a near doubling of the biomass estimate between 2004 and 2005, which the authors attributed in part to difficulties in modelling incoming year classes at late ages (age 10+). In all models, the increase in biomass estimates from 2004 to 2005 was due to the recruitment of a strong 1994 year class. The authors and Plan Team recommended use of the more conservative, constrained-q alternative. For future assessments, the authors plan to explore the possibility of reducing the recruitment age of the model below age 10, to mitigate changes in ABC and OFL that result from fish entering the model at older ages. The Plan Team recommends setting a combined BSAI OFL and ABC due to the difficulty of managing low quotas (<50 t) which would result from subregional splitting.

The SSC has determined that this stock qualifies for management under Tier 3 due to the availability of reliable estimates for $B_{40\%}$ (45,900 t), $F_{40\%}$ (0.048), and $F_{35\%}$ (0.058). Since the female spawning biomass of 66,600 is greater than $B_{40\%}$, sub-tier "a" would be applicable, with $F_{ABC} = F_{40\%}$ and $F_{OFL} = F_{35\%}$. Under Tier 3a, the maximum permissible ABC would be 8,260 t, which is the authors' and Plan Team's recommendation for the 2005 ABC. Under Tier 3a, the 2005 OFL would be 9,810 t for the Bering Sea/Aleutian Islands combined.

Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

Shortraker/Rougheye Rockfish

Status and catch specifications (t) of **shortraker/rougheye** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Species or complex	Year	Area	Survey Bio.	OFL	ABC	Subarea	TAC	Catch
shortraker/rougheye	2003	BSAI	45,200	1,290	967			
						EBS	137	112
						AI	830	298
shortraker	2004	BSAI	23,400	701	526		526	240
	2005	BSAI	26,500	794	596		n/a	n/a
	2006	BSAI	n/a	794	596		n/a	n/a
rougheye	2004	BSAI	10,400	259	195		195	203

The assessment methodology used here is a straightforward update of last year. The SSC has previously determined that reliable estimates of biomass and natural mortality exist for shortraker and rougheye rockfish, qualifying the species for management under Tier 5. Last year, the assessment authors developed a Kalman filter approach to estimate biomass and possibly lead to management under a higher Tier. This year, the model was updated with 2004 survey data, but the authors noted that confidence intervals for population parameters were uninformative for making projections. The Plan Team concurs with the authors' recommendation that the primary use of the model is to provide smoothed estimates of survey biomass. At the present time, the Plan Team recommends that the SSC retain Tier 5 management for these stocks. The Plan Team recommends setting F_{ABC} at the maximum permissible level under Tier 5, which is 75% of M. Accepted values for M for these stocks are: rougheye rockfish--0.025, shortraker rockfish--0.030, resulting in F_{ABC} values of 0.019 and 0.023 for rougheye and shortraker respectively.

In 2001, the Plan Team, SSC, AP, and Council recommended separating shortraker and rougheye rockfish species and setting BSAI area-wide ABCs and TACs for 2002. However, NMFS was unable to implement those recommendations because of the difficulty of species identification, and instead set separate BS and AI TACs for the combined shortraker/rougheye rockfishes category. In 2004, the NMFS Regional Office and Observer Program developed a catch accounting program that separates shortraker and rougheye rockfishes. With this improvement, concerns over management of small OFLs led to recombining regions into a BSAI-wide quota for each species. For 2005, the authors presented separate BS and AI recommendations. However, the Plan Team recommends retaining BSAI-wide ABCs and OFLs for each species.

The authors investigated the possibility of using Bering Sea slope survey data but noted low biomass and high variance from these surveys. The Plan Team noted that not including the surveys was a conservative option, and so recommended the continued use of Bering Sea shelf and Aleutian Islands surveys only.

The biomass estimates for 2005 are 26,500 t for shortraker and 11,900 t for rougheye, leading to an BSAI OFLs of 794 t for shortraker and 298 t for rougheye, and ABCs of 596 t for shortraker and 223 t for rougheye. It is not possible to determine whether these species are overfished or whether they are approaching an overfished condition because they are managed under Tier 5.

Other Rockfish Complex

Status and catch specifications (t) of **other rockfish** (primarily thornyheads) in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/06/04.

Year	Area	Subarea	Survey Bio.	OFL	ABC	TAC	Catch
2003	BSAI						
		BS	18,300	1,280	960	960	324
		AI	12,100	846	634	634	401
2004	BSAI						
		BS	18,300	1,280	960	960	308
		AI	12,100	846	634	634	333
2005	BSAI		26,600	1,870			
		BS	15,400		810	n/a	n/a
		AI	11,200		590	n/a	n/a
2006	BSAI		n/a	1,870			
		BS	n/a		810	n/a	n/a

The BSAI "other rockfish" assessment considers the 8 species that have been caught at least once during AFSC research surveys or appeared in more than 1% of observed fishery hauls between 1990 and 2001. This year's assessment includes new survey data for the Aleutian Islands, southern Bering Sea, and eastern Bering Sea slope; updated catches in the EBS and AI; and updated length frequency data. The authors followed recommendations made by the Plan Team in 2004 for their 2005 proposed ABCs and OFLs. For 2005, the authors recommended separating thornyheads (*Sebastolobus* spp.) from the remaining 7 rockfish species within the "other rockfish" complex for the purposes of setting ABCs and OFLs. This recommendation was based on the fact that thornyheads are the most abundant and valuable species in the complex and inhabit deeper regions of the shelf and slope than the others.

The Plan Team commended the authors for providing separate ABC and OFL recommendations for thornyheads (primarily shortspine thornyheads) and the remaining "other rockfish" species. The Tier 5 ABCs and OFLs for thornyheads were based on biomass estimates that the Plan Team and the author considered reliable. However, biomass estimates for the remaining "other rockfish" did not appear to be reliable. The actual catches of the remaining "other rockfish" species have been much larger (by a factor of 6) than the OFLs would have been had this species group been managed under Tier 5 in 1992-2002. This, combined with the fact that the Aleutian Island area survey biomass estimates for this group have generally increased for the last 13 years, suggested that the biomass estimates for this group are unreliable. Using Tier 6 criteria for the remaining "other rockfish" resulted in an OFL that was similar to catches for 1999-2002. As with Tier 5, the Plan Team considered the Tier 6 OFL for this subgroup to be inappropriate (i.e., it seemed unlikely that biomass would keep increasing for 13 years if catches had equaled or exceeded OFL

on average). Therefore, the Plan Team recommends against splitting thornyheads from the "other rockfish" complex at this time.

For 2005, the Plan Team recommends that ABC and OFL be set for the entire "other rockfish" complex including thornyheads. The Plan Team recommends setting F_{ABC} at the maximum value allowable under Tier 5, which is 75% of M (0.07), or 0.053. Multiplying this rate by the best estimates of "other rockfish" biomass yields 2005 ABCs of 809 t in the EBS and 590 t in the AI. The Plan Team recommended that OFL be set for the entire BSAI area, which under Tier 5 is calculated by multiplying the best estimate of total biomass for the area by M (0.07), which yields an OFL of 1,870 t.

Using trawl survey data collected since 1991, the authors developed a Schaefer surplus production model for shortspine thornyheads, the principal "other rockfish" species. The Plan Team commends the authors for their efforts, but suggests that biomass dynamic modeling for this stock is not appropriate at this time given the limited number of survey data points available (6) and the number of parameters to estimate (4). As such, the Plan Team did not use the model results or projections to recommend ABCs or OFLs for the "other rockfish" complex. Once age data become available for thornyheads, the Plan Team would welcome an age-based modeling approach for this stock.

The Plan Team encourages the authors to explore alternative methods for computing average survey biomass. Currently, equal weights are given to each of the survey biomass estimates back through 1991. One alternative is to consider giving more recent survey results more weight than older data. In addition, the authors are encouraged to continue exploration of the use of the Kalman filter to estimate current and past biomass.

Atka mackerel

Status and catch specifications (t) of **Atka mackerel** in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data for 2004 are current through 11/06/04.

Area	Year	Age 3+ Bio.	OFL	ABC	TAC	Catch
BSAI	2003	358,000	99,700	51,000	60,000	50,238
	2004	286,000	78,500	66,700	63,000	60,454
	2005	486,000	147,000	124,000	n/a	n/a
	2006	n/a	94,300	89,200	n/a	n/a

The present assessment is an updated and slightly revised form of last year's assessment that utilized the AMAK model in the NMFS Stock Assessment Toolbox. New data include catch updates, the 2004 Aleutian Island bottom trawl survey results (biomass estimate and length frequency), 2003 fishery age composition, and 2002 Aleutian Islands survey age composition. Relative to past model formulations, the authors explored three changes: allowance for within-year mortality to the month that the survey occurs (July) to compute modeled survey abundance, use of a lognormal distribution to describe error in survey biomass estimates instead of a normal distribution, and allowing the model to estimate survey catchability (q) within the constraints of a prior. The authors recommended, and the Plan Team accepted, the model formulation that included all of the proposed changes (Model 4).

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying Atka mackerel for management under Tier 3. The current estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ are 96,900 t, 0.52, and 0.64, respectively. Projected spawning biomass for 2005 is 151,000 t, placing Atka mackerel in sub-tier "a" of Tier 3. The assessment authors recommend setting F_{ABC} at the maximum permissible level, which would give a 2005 ABC of 124,000 t. The Plan Team agrees with the authors' recommendation.

The recommended 2005 ABC is 86% higher than the 2004 ABC. This increase is based primarily on new age data that improved the estimate of the size of the 1999 year class. Incorporating this new information doubled the estimated size of the 1999 year class from last year's assessment, and suggests that it is the largest year class on record. Last year, female spawning biomass was projected to be 86,000 t in 2004; this year, the 2004 estimate increased to 137,000 t and it is projected to increase to 151,000 t in 2005. Changes in model formulation and adding new data also increased the estimated sizes of all other year classes in the time series, but particularly those spawned recently (e.g., the 1999 and 2000 year classes).

The OFL was determined from the Tier 3a formula, where an $F_{35\%}$ value of 0.64 gives a 2005 OFL of 146,900 t. Model projections indicate that this stock is neither overfished nor approaching an overfished condition.

To apportion ABCs among areas, the authors used a weighted average of the 4 most recent survey estimates of the biomass distribution, where the greatest weight is assigned to the 2004 survey. When applied to the recommended ABC of 124,000 t, this formula gives the following subarea-specific ABCs: Eastern Bering Sea and Eastern Aleutians = 24,550 t (19.8%), Central Aleutians = 52,830 t (42.6%), and Western Aleutians = 46,620 t (37.6%).

The Plan Team noted several ABC considerations listed by the author. Some of these considerations are positive (model is conservative relative to survey biomass estimates; age data reveal continued presence of a relatively strong 1998 year class along with the very large 1999 and above average 2000 year classes), while others are negative (spawning biomass is projected to drop below $B_{40\%}$ for 2007-2010 under an $F_{40\%}$ strategy; trawl survey biomass estimates have sometimes been highly variable).

The authors presented an expanded analysis of Atka mackerel predators and prey, highlighting the major components of predation on Atka mackerel, primarily Pacific cod and Steller sea lions. The Plan Team was encouraged that the analysis allowed for a more informed discussion of predator/prey interactions, and suggested that such additions would be welcome in other assessments. Specific to Atka mackerel, the Plan Team noted that, since projections associated with the recommended ABC indicate an increase in the availability Atka mackerel to all predators, the author's recommended levels would not decrease the effectiveness of Steller sea lion mitigation measures already in place. The Plan Team noted that the construction of an age-structured Atka mackerel/Pacific cod predation model could inform future stock assessments, especially given the limited scope of the Aleutian component of the current BSAI Pacific cod assessment.

Squid and Other Species Complex

Status and catch specifications (t) of **squid and other species** (sharks, skates, sculpins, octopus) in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2005 and 2006 are those recommended by the Plan Team. Catch data are current through 11/08/04.

Squid

Area	Year	Biomass	OFL	ABC	TAC	Catch
BSAI	2003	n/a	2,620	1,970	1,970	1,274
	2004	n/a	2,620	1,970	1,275	1,016
	2005	n/a	2,620	1,970	n/a	n/a
	2006	n/a	2,620	1,970	n/a	n/a

Other species

Area	Year	Survey Bio.	OFL	ABC	TAC	Catch
BSAI	2003	695,000	81,100	43,300	32,309	27,597
	2004	73,0280	81,150	46,810	27,205	27,266
	2005: sharks	17,700	1,590	1,200	n/a	n/a
	2005: skates	478,000	47,800	35,800	n/a	n/a
	2005: sculpins	206,000	39,200	29,400	n/a	n/a
	2005: octopus	6,320	3,160	2,370	n/a	n/a
	2005: Total	708,020	91,750	68,770	n/a	n/a
	2006: sharks	17,700	1,590	1,200	n/a	n/a
	2006: skates	478,000	47,800	35,800	n/a	n/a
	2006: sculpins	206,000	39,200	29,400	n/a	n/a
	2006: octopus	6,320	3,160	2,370	n/a	n/a
	2006: Total	708,020	91,750	68,770	n/a	n/a

The SSC has determined that a reliable catch history from 1978 through 1995 exists for squid, thereby qualifying this stock complex for management under Tier 6. Under Tier 6, OFL is set equal to the average catch unless an alternative value is established by the SSC on the basis of the best available scientific information, and ABC is constrained to be no greater than 75% of OFL. Therefore, the Plan Team's recommend 2005 OFL, based on average squid catch from 1978 through 1995, is 2,620 t. The maximum permissible value of ABC for 2005 is 1,970 t, which is the Plan Team's recommended value. It is not possible to determine whether the squid complex is overfished or whether it is approaching an overfished condition because it is managed under Tier 6.

The SSC has determined that reliable estimates of the natural mortality rate and biomass exist for all major components of the "other species" complex, thereby qualifying this complex for management under Tier 5. The Plan Team agrees that Tier 5 is the appropriate classification for all four component species groups. The Plan Team recommends that the natural mortality rates for sharks, skates, sculpins and octopus be estimated at values of 0.09, 0.10, 0.19 and 0.50, respectively, and that biomass be estimated by summing the average

biomass estimates from the surveys that have occurred over the last 10 years in the EBS shelf trawl survey, the EBS slope trawl survey, and the AI trawl survey.

The Plan team agrees with the authors' recommendation for setting group-specific ABCs. The Plan Team's recommended 2005 ABCs for the four groups constituting the "other species" complex are: sharks–1,200 t, skates–35,800 t, sculpins–29,400 t, and octopus–2,370 t, which are the maximum permissible values under Tier 5. However, the Plan Team recognizes that the current structure of the FMP will not allow group-specific ABCs to be set for 2005. The Plan Team therefore recommends that the "other species" complex be placed on bycatch-only status. The Plan Team agrees with the authors' recommendation to discontinue setting a complex-level "other species" ABC as soon as possible and encourages the development of a plan amendment to do so. This FMP amendment should focus on short-term management goals pertaining to the "other species" complex and should not await completion of a more general amendment addressing long-term management goals for all non-target groundfish species.

The Plan Team also agrees with the authors' recommendation for setting group-specific OFLs and the author's recommendation that use of the complex-level "other species" OFL be discontinued. The Plan Team's recommended 2005 OFLs for the four groups constituting the "other species" complex are: sharks–1,590 t, skates–47,800 t, sculpins–39,200 t, and octopus–3,160 t, which are the values under obtained under the Tier 5 formula. It is not possible to determine whether the "other species" complex is overfished or whether it is approaching an overfished condition because it is not managed under Tiers 1-3.

Pacific Halibut Discard Mortality Rates for 2005 CDQ fisheries (Appendix A)

Pacific halibut discard mortality rates (DMRs) in the Alaskan groundfish fisheries are estimated from viability data collected by the NMFS Observer Program. Analysis by staff of the International Pacific Halibut Commission (IPHC) results in recommendations to the North Pacific Fishery Management Council for managing halibut bycatch for the 200f Community Development Quota (CDQ) fisheries (Appendix A).

CDQ trawl effort in 2003 was focused on pollock, Atka mackerel, and yellowfin sole. IPHC staff calculated the mean DMR for these targets using all available data, and recommend that the 2005 CDQ trawl fisheries be managed using these mean DMRs. The 2005 DMR for bottom trawl pollock is recommended to remain the same as was used in 2004. The remaining targets that occur in 2005 should be managed using the open access 2004-2006 long-term means.

CDQ longline fishing in 2003 was directed primarily at cod and resulted in a DMR of 0.09. As with the CDQ trawl fisheries, we calculated a mean DMR for the cod fishery of 0.10 and recommend that this be used in 2005. As with trawls, too few halibut were examined to provide meaningful results for the other targets. Longline targets other than cod should use the open access long-term mean DMRs.

The pot fishery DMR for sablefish CDQ fishing was 0.22 in 2003, lower than in past years. Again, the long-term mean DMR was calculated to be 0.33 and this value is recommended to be used for 2005. Pot fishery targets other than cod that occur in 2005 should use the open access long-term mean DMR until data from those fisheries can be collected and analyzed, and DMRs identified. The IPHC recommendations are included in the following summary table.

Summary of recommended Pacific halibut discard mortality rates (DMRs) for calculating bycatch mortality in the 2005 CDQ groundfish fisheries off Alaska.

	Used in 2002	Recommendation for 2005
CDQ Trawl		
Atka mackerel	85	85
Bottom pollock	85	85
Flathead sole	90	87
Pelagic pollock	89	90
Rockfish	90	89
Yellowfin sole	82	84
CDQ Longline		
Pacific cod	11	10
Turbot	7	15
CDQ Pot		
Pacific cod	5	6
Sablefish	36	33

Table 1. BSAI Plan Team November 2004 Groundfish OFL and ABC Recommendations for the 2005-2006 Fisheries

Species	Area	2004				Recommended 2005			Recommended 2006		
		OFL	ABC	TAC	Catch**	OFL	ABC	TAC	OFL	ABC	TAC
Pollock	EBS	2,740,000	2,560,000	1,492,000	1,248,817	2,104,000	1,960,000		1,480,000	1,420,000	
	Aleutian Islands	52,600	39,400	1,000	1,128	99,300	43,200		69,100	43,200	
	Bogoslof District	39,600	2,570	50	0	39,600	29,700		39,600	29,700	
Pacific cod	BSAI	350,000	223,000	215,500	166,776	265,000	206,000		226,000	195,000	
Sablefish	BS	4,020	3,000	2,900	748	2,950	2,440		2,690	2,310	
	AI	4,620	3,450	3,100	912	3,170	2,620		2,880	2,480	
Yellowfin sole	BSAI	135,000	114,000	86,075	68,822	148,000	124,000		133,000	114,000	
Greenland turbot	Total	19,300	4,740	3,500	2,136	19,200	3,930		11,100	3,600	
	BS	—	3,162	2,700	1,730		2,720			2,500	
	AI	—	1,578	800	406		1,210			1,100	
Arrowtooth flounder	BSAI	142,000	115,000	12,000	17,130	132,000	108,000		103,000	88,400	
Rock sole	BSAI	166,000	139,000	41,000	47,875	157,000	132,000		129,000	111,000	
Flathead sole	BSAI	75,200	61,900	19,000	16,611	70,200	58,500		56,100	48,400	
Alaska plaice	BSAI	258,000	203,000	10,000	7,624	237,000	189,000		115,000	109,000	
Other flatfish	BSAI	18,100	13,500	3,000	4,669	28,500	21,400		28,500	21,400	
Pacific Ocean perch	BSAI	15,800	13,300	12,580	11,032	17,300	14,600		17,408	14,600	
	BS	—	2,128	1,408	701		2,920			2,920	
	AI total	—	11,172	11,172	10,331		11,680			11,680	
	WAI	—	5,187	5,187	4,998		5,305			5,305	
	CAI	—	2,926	2,926	2,970		3,165			3,165	
	EAI	—	3,059	3,059	2,363		3,210			3,210	
Northern rockfish	BSAI	8,140	6,880	5,000	4,166	9,810	8,260		9,480	8,040	
Shortraker rockfish	BSAI	701	526	526	207	794	596		794	596	
Rougheye rockfish	BSAI	259	195	195	189	298	223		298	223	
Other rockfish	BSAI					1,870	1,400		1,870	1,400	
	BS	1,280	960	460	304		810			810	
	AI	846	634	634	309		590			590	
Atka mackerel	Total	78,500	66,700	63,000	54,789	147,000	124,000		94,300	89,200	
	WAI	—	24,360	20,660	17,341						
	EAI/BS	—	11,240	11,240	9,616						
	CAI	—	31,100	31,100	27,832						
Squid	BSAI	2,620	1,970	1,275	814	2,620	1,970		2,620	1,970	
Other species	BSAI	81,150	46,810	27,205	21,795	91,750	68,770		91,750	68,770	
Sharks	BSAI	**	**	**	**	1,590	1,200		1,590	1,200	
Skates	BSAI	**	**	**	**	47,800	35,800		47,800	35,800	
Sculpins	BSAI	**	**	**	**	39,200	29,400		39,200	29,400	
Octopus	BSAI	**	**	**	**	3,160	2,370		3,160	2,370	
Total	**BSAI**	**4,193,736**	**3,620,535**	**2,000,000**	**1,676,853**	**3,583,362**	**3,100,609**		**2,614,490**	**2,373,289**	

Table 2. Groundfish catches (metric tons) in the eastern Bering Sea, 1954-2004.

Year	Pollock	Pacific Cod	Sablefish	Yellowfin Sole	Greenland Turbot	Arrowtooth Flounder/a	Rock Sole/c	Other Flat Fish	Alaska Plaice	Pacific Ocean Perch Complex/b	Pacific Ocean Perch	Northern Rockfish	Shortraker Rockfish	Rougheye Rockfish	Other Rock Fish	Atka Mackerel	Squid	Other Species
1954				12,562														
1955				14,690														
1956				24,697														
1957				24,145														
1958	6,924	171	6	44,153														147
1959	32,793	2,864	289	185,321														380
1960			1,861	456,103	36,843					6,100								
1961			15,627	553,742	57,348					47,000								
1962			25,989	420,703	58,226					19,900								
1963			13,706	85,810	31,565			35,643		24,500								
1964	174,792	13,408	3,545	111,177	33,729			30,604		25,900								736
1965	230,551	14,719	4,838	53,810	9,747			11,686		16,800								2,218
1966	261,678	18,200	9,505	102,353	13,042			24,864		20,200								2,239
1967	550,362	32,064	11,698	162,228	23,869			32,109		19,600								4,378
1968	702,181	57,902	4,374	84,189	35,232			29,647		31,500								22,058
1969	862,789	50,351	16,009	167,134	36,029			34,749		14,500								10,459
1970	1,256,565	70,094	11,737	133,079	19,691	12,598		64,690		9,900								15,295
1971	1,743,763	43,054	15,106	160,399	40,464	18,792		92,452		9,800								13,496
1972	1,874,534	42,905	12,758	47,856	64,510	13,123		76,813		5,700								10,893
1973	1,758,919	53,386	5,957	78,240	55,280	9,217		43,919		3,700								55,826
1974	1,588,390	62,462	4,258	42,235	69,654	21,473		37,357		14,000								60,263
1975	1,356,736	51,551	2,766	64,690	64,819	20,832		20,393		8,600								54,845
1976	1,177,822	50,481	2,923	56,221	60,523	17,806		21,746		14,900								26,143
1977	978,370	33,335	2,718	58,373	27,708	9,454		14,393		2,654					311		4,926	35,902
1978	979,431	42,543	1,192	138,433	37,423	8,358		21,040		2,221					2,614	831	6,886	61,537
1979	913,881	33,761	1,376	99,017	34,998	7,921		19,724		1,723					2,108	1,985	4,286	38,767
1980	958,279	45,861	2,206	87,391	48,856	13,761		20,406		1,097					459	4,955	4,040	34,633
1981	973,505	51,996	2,604	97,301	52,921	13,473		23,428		1,222					356	3,027	4,182	35,651
1982	955,964	55,040	3,184	95,712	45,805	9,103		23,809		224					276	328	3,838	18,200
1983	982,363	83,212	2,695	108,385	43,443	10,216		30,454		221					220	141	3,470	15,465
1984	1,098,783	110,944	2,329	159,526	21,317	7,980		44,286		1,569					176	57	2,824	8,508
1985	1,179,759	132,736	2,348	227,107	14,698	7,288		71,179		784					92	4	1,611	11,503
1986	1,188,449	130,555	3,518	208,597	7,710	6,761		76,328		560					102	12	848	10,471
1987	1,237,597	144,539	4,178	181,429	6,533	4,380		50,372		930					474	12	108	8,569
1988	1,228,000	192,726	3,193	223,156	6,064	5,477		137,418		1,047					341	428	414	12,206
1989	1,230,000	164,800	1,252	153,165	4,061	3,024		63,452		2,017					192	3,126	300	4,993
1990	1,353,000	162,927	2,329	80,584	7,267	2,773		22,568		5,639					384	480	460	5,698
1991	1,268,360	165,444	1,128	94,755	3,704	12,748	46,681	30,401		4,744					396	2,265	544	16,285
1992	1,384,376	163,240	558	146,942	1,875	11,080	51,720	34,757		3,309					675	2,610	819	29,993
1993	1,301,574	133,156	669	105,809	6,330	7,950	63,942	28,812		3,763					190	201	597	21,413
1994	1,362,694	174,151	699	144,544	7,211	13,043	60,276	29,720		1,907					261	190	502	23,430
1995	1,264,578	228,496	929	124,746	5,855	8,282	54,672	34,861		1,210					629	340	364	20,928
1996	1,189,296	209,201	629	129,509	4,699	13,280	46,775	35,390		2,635					364	780	1,080	19,717
1997	1,115,268	209,475	547	166,681	6,589	8,580	67,249	42,374		1,060					161	171	1,438	20,997
1998	1,101,428	160,681	586	101,310	8,303	14,985	33,221	39,940		1,134					203	901	891	23,156
1999	889,589	134,647	646	67,307	5,205	9,827	39,934	33,042		609					135	2,008	393	17,045
2000	1,132,736	151,372	742	84,057	5,888	12,071	49,186	36,813		704					239	239	375	23,098
2001	1,387,452	142,452	863	63,563	4,252	12,836	28,949	27,693		1,148					296	264	1,761	23,148
2002	1,481,815	166,552	1,143	74,956	3,150	10,821	40,700	30,229		858					401	572	1,334	26,639
2003	1,489,997	176,659	969	79,961	2,515	12,292	35,003	16,929	9,964	1,341					328	5,368	1,198	26,305
2004/d	1,480,398	172,293	983	74,776	1,811	17,276	47,802	22,234	7,867		717	116	119	22	314	7,052	1,003	26,275

a/ Arrowtooth flounder included in Greenland turbot catch statistics, 1960-69.
b/ Includes POP shortraker, rougheye, northern and sharpchin.
c/ Rocksole prior to 1991 is included in other flatfish catch statistics.
d/ Data through November 13, 2004.
Note: Numbers don't include fish taken for research.

Table 3. Groundfish catches (metric tons) in the Aleutian Islands, 1954-2004.

Year	Pollock	Pacific Cod	Sablefish	Yellowfin Sole	Greenland Turbot	Arrowtooth Flounder/a	Rock Sole/c	Other Flat Fish	Alaska Plaice	Pacific Ocean Perch Complex/b	Pacific Ocean Perch	Northern Rockfish	Shortraker Rockfish	Rougheye Rockfish	Other Rock Fish	Atka Mackerel	Squid	Other Species	Total (All Species)
1954																			0
1955																			0
1956																			0
1957																			0
1958																			0
1959																			0
1960																			0
1961																			0
1962										200									200
1963			664		7					20,800									21,471
1964		241	1,541		504					90,300								66	92,652
1965		451	1,249		300					109,100								768	111,868
1966		154	1,341		63					85,900								131	87,589
1967		293	1,652		394					55,900								8,542	66,781
1968		289	1,673		213					44,900								8,948	56,023
1969		220	1,673		228					38,800								3,088	44,009
1970		283	1,248		285	274				66,900						949		10,671	80,610
1971		2,078	2,936		1,750	581				21,800								2,973	32,118
1972		435	3,531		12,874	1,323				33,200						5,907		22,447	79,717
1973		977	2,902		8,666	3,705				11,800						1,712		4,244	34,006
1974		1,379	2,477		8,788	3,195				22,400						1,377		9,724	49,340
1975		2,838	1,747		2,970	784				16,600						13,326		8,288	46,553
1976		4,190	1,659		2,067	1,370				14,000						13,126		7,053	43,465
1977	7,625	3,262	1,897		2,453	2,035				8,080					3,043	20,975	1,808	16,170	67,348
1978	6,282	3,295	821		4,766	1,782				5,286					921	23,418	2,085	12,436	61,092
1979	9,504	5,593	782		6,411	6,436				5,487					4,517	21,279	2,252	12,934	75,195
1980	58,156	5,788	274		3,697	4,603				4,700					420	15,533	2,332	13,028	108,531
1981	55,516	10,462	533		4,400	3,640				3,622					328	16,661	1,763	7,274	104,199
1982	57,978	1,526	955		6,317	2,415				1,014					2,114	19,546	1,201	5,167	98,233
1983	59,026	9,955	673		4,115	3,753				280					1,045	11,585	510	3,675	94,617
1984	81,834	22,216	999		1,803	1,472				631					56	35,998	343	1,670	147,022
1985	58,730	12,690	1,448		33	87				308					99	37,856	9	2,050	113,310
1986	46,641	10,332	3,028		2,154	142				286					169	31,978	20	1,509	96,259
1987	28,720	13,207	3,834		3,066	159				1,004					147	30,049	23	1,155	81,364
1988	43,000	5,165	3,415		1,044	406				1,979					278	21,656	3	437	77,383
1989	156,000	4,118	3,248		4,761	198				2,706					481	14,868	6	108	186,494
1990	73,000	8,081	2,116		2,353	1,459				14,650					864	21,725	11	627	124,886
1991	78,104	6,714	2,071	1,380	3,174	938		88		2,545					549	22,258	30	91	117,942
1992	54,036	42,889	1,546	4	895	900	236	68		10,277					3,689	46,831	61	3,081	164,513
1993	57,184	34,234	2,078	0	2,138	1,348	318	59		13,375					495	65,805	85	2,540	179,659
1994	58,708	22,421	1,771	0	3,168	1,334	308	55		16,959					301	69,401	86	1,102	175,614
1995	64,925	16,534	1,119	6	2,338	1,001	356	47		14,734					220	81,214	95	1,273	183,862
1996	28,933	31,389	720	654	1,677	1,330	371	61		20,443					278	103,087	87	1,720	190,750
1997	26,872	25,166	779	234	1,077	1,071	271	39		15,687					307	65,668	323	1,555	139,049
1998	23,821	34,964	595	5	821	694	446	54		13,729					385	56,195	25	2,448	134,182
1999	965	27,714	565	13	422	746	577	53		17,619					630	51,636	9	1,633	102,582
2000	1,244	39,684	1,048	13	1,086	1,157	480	113		14,893					601	46,990	8	3,010	110,327
2001	824	34,207	1,074	15	1,060	1,220	526	97		15,587					610	61,296	5	4,029	120,550
2002	1,177	30,801	1,118	29	485	1,032	1,165	150		14,996					551	44,722	10	1,980	98,216
2003	1,653	32,455	1,119	0	993	987	972	81		18,306					411	51,742	36	1,411	110,166
2004/c	1,150	28,847	941	9	410	801	815	70			11,165	4,567	121	181	335	53,402	14	1,842	104,670

a/ Arrowtooth flounder included in Greenland turbot catch statistics, 1964-69.

b/ Includes POP shortraker, rougheye, northern and sharpchin rockfish until 2004.

c/ Data through November 13, 2004.

Note: Numbers don't include fish taken for research.

Table 4. Groundfish catches (metric tons) in the Bering Sea and Aleutian Islands, 1954-2004.

Year	Pollock	Pacific Cod	Sablefish	Yellowfin Sole	Greenland Turbot	Arrowtooth Flounder/a	Rock Sole/c	Other Flatfish	Alaska Plaice	Pacific Ocean Perch Complex/b	Pacific Ocean Perch	Northern Rockfish	Shortraker Rockfish	Rougheye Rockfish	Other Rockfish	Atka Mackerel	Squid	Other Species
1954	0	0	0	12,562	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	14,690	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	24,697	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	24,145	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	6,924	171	6	44,153	0	0	0	0	0	0	0	0	0	0	0	0	0	147
1959	32,793	2,864	289	185,321	0	0	0	0	0	0	0	0	0	0	0	0	0	380
1960	0	0	1,861	456,103	36,843	0	0	0	0	6,100	0	0	0	0	0	0	0	0
1961	0	0	15,627	553,742	57,348	0	0	0	0	47,000	0	0	0	0	0	0	0	0
1962	0	0	25,989	420,703	58,226	0	0	0	0	20,100	0	0	0	0	0	0	0	0
1963	0	0	14,370	85,810	31,572	0	0	35,643	0	45,300	0	0	0	0	0	0	0	0
1964	174,792	13,649	5,086	111,177	34,233	0	0	30,604	0	116,200	0	0	0	0	0	0	0	802
1965	230,551	15,170	6,087	53,810	10,047	0	0	11,686	0	125,900	0	0	0	0	0	0	0	2,986
1966	261,678	18,354	10,846	102,353	13,105	0	0	24,864	0	106,100	0	0	0	0	0	0	0	2,370
1967	550,362	32,357	13,350	162,228	24,263	0	0	32,109	0	75,500	0	0	0	0	0	0	0	12,920
1968	702,181	58,191	6,047	84,189	35,445	0	0	29,647	0	76,400	0	0	0	0	0	0	0	31,006
1969	862,789	50,571	17,682	167,134	36,257	0	0	34,749	0	53,300	0	0	0	0	0	0	0	13,547
1970	1,256,565	70,377	12,985	133,079	19,976	12,872	0	64,690	0	76,800	0	0	0	0	0	949	0	25,966
1971	1,743,763	45,132	18,042	160,399	42,214	19,373	0	92,452	0	31,600	0	0	0	0	0	0	0	16,469
1972	1,874,534	43,340	16,289	47,856	77,384	14,446	0	76,813	0	38,900	0	0	0	0	0	5,907	0	33,340
1973	1,758,919	54,363	8,859	78,240	63,946	12,922	0	43,919	0	15,500	0	0	0	0	0	1,712	0	60,070
1974	1,588,390	63,841	6,735	42,235	78,442	24,668	0	37,357	0	36,400	0	0	0	0	0	1,377	0	69,987
1975	1,356,736	54,389	4,513	64,690	67,789	21,616	0	20,393	0	25,200	0	0	0	0	0	13,326	0	63,133
1976	1,177,822	54,671	4,582	56,221	62,590	19,176	0	21,746	0	28,900	0	0	0	0	0	13,126	0	33,196
1977	985,995	36,597	4,615	58,373	30,161	11,489	0	14,393	0	10,734	0	0	0	0	3,354	20,975	6,734	52,072
1978	985,713	45,838	2,013	138,433	42,189	10,140	0	21,040	0	7,507	0	0	0	0	3,535	24,249	8,971	73,973
1979	923,385	39,354	2,158	99,017	41,409	14,357	0	19,724	0	7,210	0	0	0	0	6,625	23,264	6,538	51,701
1980	1,016,435	51,649	2,480	87,391	52,553	18,364	0	20,406	0	5,797	0	0	0	0	879	20,488	6,372	47,661
1981	1,029,021	62,458	3,137	97,301	57,321	17,113	0	23,428	0	4,844	0	0	0	0	684	19,688	5,945	42,925
1982	1,013,942	56,566	4,139	95,712	52,122	11,518	0	23,809	0	1,238	0	0	0	0	2,390	19,874	5,039	23,367
1983	1,041,389	93,167	3,368	108,385	47,558	13,969	0	30,454	0	501	0	0	0	0	1,265	11,726	3,980	19,140
1984	1,180,617	133,160	3,328	159,526	23,120	9,452	0	44,286	0	2,200	0	0	0	0	232	36,055	3,167	10,178
1985	1,238,489	145,426	3,796	227,107	14,731	7,375	0	71,179	0	1,092	0	0	0	0	191	37,860	1,620	13,553
1986	1,235,090	140,887	6,546	208,597	9,864	6,903	0	76,328	0	846	0	0	0	0	271	31,990	868	11,980
1987	1,266,317	157,746	8,012	181,429	9,599	4,539	0	50,372	0	1,934	0	0	0	0	621	30,061	131	9,724
1988	1,271,000	197,891	6,608	223,156	7,108	5,883	0	137,418	0	3,026	0	0	0	0	619	22,084	417	12,643
1989	1,386,000	168,918	4,500	153,165	8,822	3,222	0	63,452	0	4,723	0	0	0	0	673	17,994	306	5,101
1990	1,426,000	171,008	4,445	80,584	9,620	4,232	0	22,568	0	20,289	0	0	0	0	1,248	22,205	471	6,325
1991	1,346,464	172,158	3,199	96,135	6,878	13,686	46,681	30,489	0	7,289	0	0	0	0	945	24,523	574	16,376
1992	1,438,412	206,129	2,104	146,946	2,770	11,980	51,956	34,825	0	13,586	0	0	0	0	4,364	49,441	880	33,074
1993	1,358,758	167,390	2,747	105,809	8,468	9,298	64,260	28,871	0	17,138	0	0	0	0	685	66,006	682	23,953
1994	1,421,402	196,572	2,470	144,544	10,379	14,377	60,584	29,775	0	18,866	0	0	0	0	562	69,591	588	24,532
1995	1,329,503	245,030	2,048	124,752	8,193	9,283	55,028	34,908	0	15,944	0	0	0	0	849	81,554	459	22,201
1996	1,218,229	240,590	1,349	130,163	6,376	14,610	47,146	35,451	0	23,078	0	0	0	0	642	103,867	1,167	21,437
1997	1,142,140	234,641	1,326	166,915	7,666	9,651	67,520	42,413	0	16,747	0	0	0	0	468	65,839	1,761	22,552
1998	1,125,249	195,645	1,181	101,315	9,124	15,679	33,667	39,994	0	14,863	0	0	0	0	588	57,096	916	25,604
1999	890,554	162,361	1,211	67,320	5,627	10,573	40,511	33,095	0	18,228	0	0	0	0	765	53,644	402	18,678
2000	1,133,980	191,056	1,790	84,070	6,974	13,228	49,666	36,926	0	15,597	0	0	0	0	840	47,229	383	26,108
2001	1,388,276	176,659	1,937	63,578	5,312	14,056	29,475	27,790	0	16,735	0	0	0	0	906	61,560	1,766	27,177
2002	1,482,992	197,353	2,261	74,985	3,635	11,853	41,865	30,379	0	15,854	0	0	0	0	952	45,294	1,344	28,619
2003	1,491,650	209,114	2,088	79,961	3,508	13,279	35,975	17,010	9,964	19,647	0	0	0	0	739	57,110	1,234	27,716
2004/d	1,481,548	201,140	1,924	74,785	2,221	18,077	48,617	22,304	7,867		11,882	4,683	240	203	649	60,454	1,017	28,117

a/ Arrowtooth flounder included in Greenland turbot catch statistics, 1960-69.

b/ Includes POP shortraker, rougheye, northern and sharpchin.

c/ Rocksole prior to 1991 is included in other flatfish catch statistics.

d/ Data through November 13, 2004.

Note: Numbers don't include fish taken for research.

Table 5. Summary of stock abundance (biomass), overfishing level (OFL), acceptable biological catch (ABC), the fishing mortality rate corresponding to ABC (F_{ABC}), and the fishing mortality rate corresponding to OFL (F_{OFL}) for the eastern Bering Sea (EBS), Aleutian Islands (AI), and Bogoslof district as projected for 2005. "Biomass" corresponds to projected January 2005 abundance for the age+ range reported in the summary section. Stock-specific biomass, OFL, and ABC are in metric tons, reported to three significant digits (four significant digits are used when a stock-specific ABC is apportioned among areas on a percentage basis). Fishing mortality rates are reported to two significant digits.

Species or Complex	Area	Biomass	OFL	ABC	F_{OFL}	F_{ABC}
Walleye pollock	EBS	8,410,000	2,100,000	1,960,000	0.25	0.23
Walleye pollock	AI	344,000	99,300	43,200	0.21	0.20
Walleye pollock	Bogoslof	198,000	39,600	29,700	0.20	0.15
Pacific cod	BSAI	1,290,000	265,000	206,000	0.43	0.31
Sablefish	EBS	34,000	2,950	2,440	0.12	0.10
Sablefish	AI	34,000	3,170	2,620	0.12	0.10
Yellowfin sole	BSAI	1,560,000	148,000	124,000	0.14	0.11
Greenland turbot	BSAI	98,300	19,200	3,930	0.50	0.07
	EBS			2,720		
	AI			1,210		
Arrowtooth flounder	BSAI	684,000	132,000	108,000	0.33	0.26
Rock sole	BSAI	1,380,000	157,000	132,000	0.18	0.15
Flathead sole	BSAI	560,000	70,200	58,500	0.37	0.30
Alaska plaice	BSAI	913,000	237,000	189,000	1.06	0.76
Other flatfish	BSAI	143,000	28,500	21,400	0.20	0.15
Pacific ocean perch	BSAI	382,000	17,300	14,600	0.058	0.045
	EBS			2,920		
	Area 541			3,210		
	Area 542			3,165		
	Area 543			5,305		
Northern rockfish	BSAI	200,000	9,810	8,260	0.058	0.048 [a]
Shortraker rockfish	BSAI	26,500	794	596	0.030	0.023 [a]
Rougheye rockfish	BSAI	11,900	298	223	0.025	0.019 [a]
Other rockfish	BSAI	26,600	1,870	1,400	0.070	.053
	EBS	15,400		810		
	AI	11,200		590		
Atka mackerel	AI	486,000	147,000	124,000	0.64	0.52
	Area 541			24,550		
	Area 542			52,830		
	Area 543			46,620		
Squids	BSAI	n/a	2,620	1,970	n/a	n/a
Sharks	BSAI	17,700	1,590	1,200	**0.09**	0.068
Skates	BSAI	478,000	47,800	35,800	0.10	0.075
Sculpins	BSAI	206,000	39,200	29,400	0.19	0.143
Octopus	BSAI	6,320	3,160	2,370	0.50	0.375
TOTAL		17,489,320	3,573,362	3,100,609		

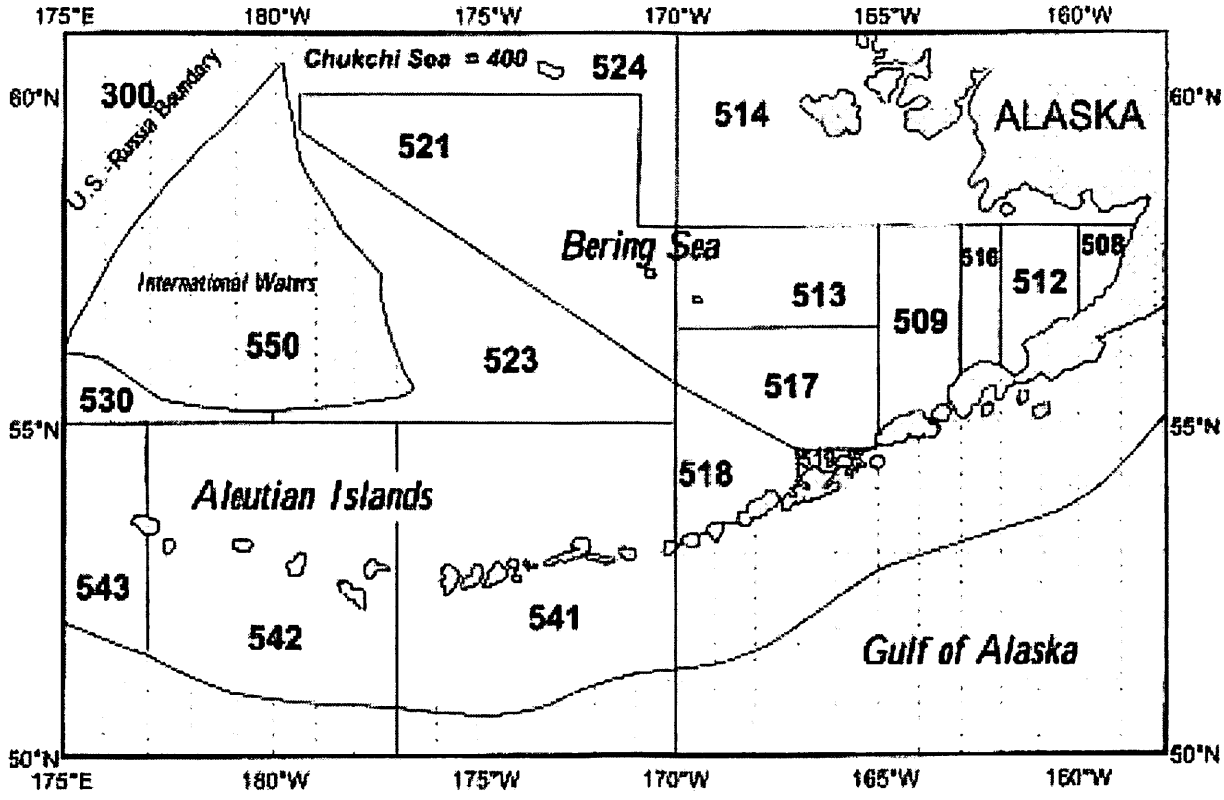
a/ previously combined into other red rockfish complex
b/ based on natural mortality rate for shortspine thornyhead

Table 6. Summary of BSAI groundfish tier designations under Amendment 56, maximum permissible ABC fishing mortality rate (max F_{ABC}), the Plan Team's recommended tier designation, ABC fishing mortality rate (F_{ABC}), the maximum permissible value of ABC (max ABC), the Plan Team's recommended ABC, and the percentage reduction (% Red.) between max ABC and the Plan Team's recommended ABC. Stock-specific *max* ABC and ABC are in metric tons, reported to three significant digits (four significant digits are used when a stock-specific ABC is apportioned among areas on a percentage basis). Fishing mortality rates are reported to two significant digits. In cases where *max* ABC and the Plan Team's recommended ABC are equal, the percentage reduction is left blank. All values pertain to the 2005 fishing year.

Species or Complex	Area	Tier	*max* F_{ABC}	F_{ABC}	*max* ABC	ABC	% Red.
Walleye pollock	EBS	1a	0.23	0.23	1,960,000	1,960,000	
Walleye pollock	AI	3a	0.35	0.20	80,500	43,200	46
Walleye pollock	Bogoslof	5	0.15	0.15	29,700	29,700	
Pacific cod	BSAI	3b	0.35	0.31	227,000	206,000	9
Sablefish	BS	3b	0.11	0.10	2,440	2,440	
Sablefish	AI	3b	0.11	0.10	2,620	2,620	
Yellowfin sole	BSAI	3a	0.11	0.11	124,000	124,000	
Greenland turbot	BSAI	3a	0.39	0.07	15,500	3,930	75
	EBS					2,720	
	AI					1,210	
Arrowtooth flounder	BSAI	3a	0.26	0.26	108,000	108,000	
Rock sole	BSAI	3a	0.15	0.15	132,000	132,000	
Flathead sole	BSAI	3a	0.30	0.30	58,500	58,500	
Alaska plaice	BSAI	3a	0.76	0.76	189,000	189,000	
Other flatfish	BSAI	5	0.15	0.15	21,400	21,400	
Pacific ocean perch	BSAI	3b	0.045	0.045	14,600	14,600	
	EBS					2,920	
	Area 541					3,210	
	Area 542					3,165	
	Area 543					5,305	
Northern rockfish	BSAI	3a	0.048	0.048	8,260	8,260	
Shortraker rockfish	BSAI	5	0.023	0.023	596	596	
Rougheye rockfish	BSAI	5	0.019	0.019	223	223	
Other rockfish	BSAI	5	.053	.053	1,400	1,400	
	EBS				810	810	
	AI				590	590	
Atka mackerel	BSAI	3a	0.52	0.52	124,000	124,000	
	Area 541					24,550	
	Area 542					52,830	
	Area 543					46,620	
Squid	BSAI	6	n/a	n/a	1,970	1,970	
Sharks	BSAI	5	0.068	0.068	1,200	1,200	
Skates	BSAI	5	0.075	0.075	35,800	35,800	
Sculpins	BSAI	5	0.143	0.143	29,400	29,400	
Octopi	BSAI	5	0.375	0.375	2,370	2,370	
Total					3,170,479	3,100,609	

Figure 1

BSAI Statistical and Reporting Areas



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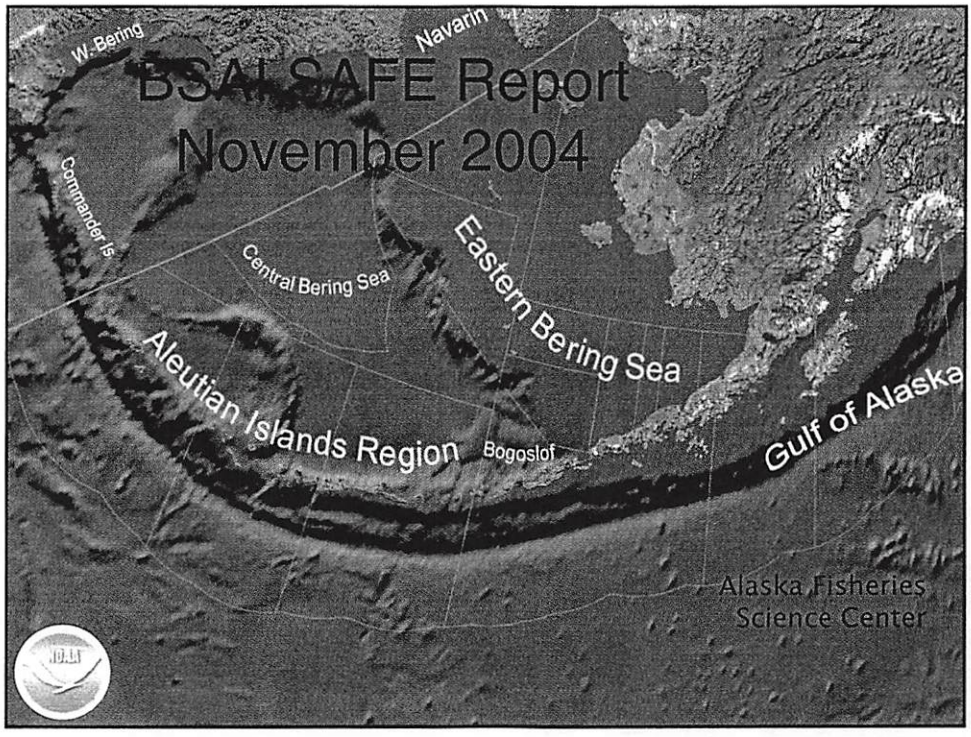
Dr Loh Lee Low
12.14.04 8AM



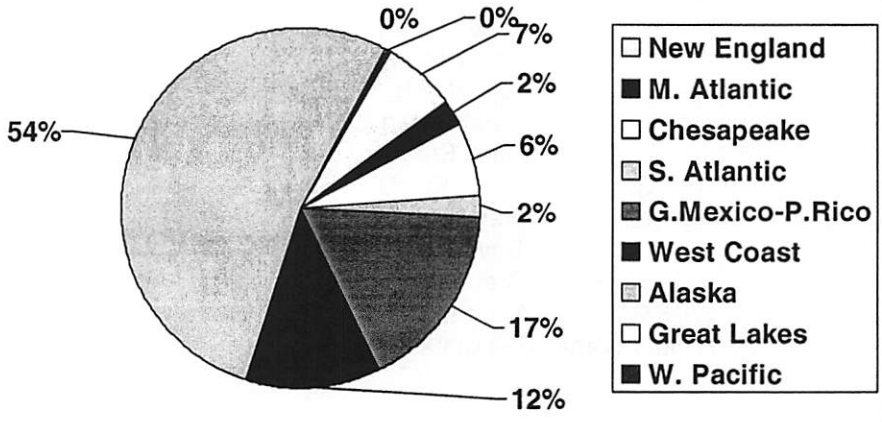
BSAI Plan Team Members
(12 Members)

NPFMC --	Jane DiCosimo (Plan Coordinator)
NMFS --	Loh-Lee Low (Chair)
	Mike Sigler (Vice Chair)
	Grant Thompson
	Lowell Fritz
	Kerim Aydin
	Andy Smoker
USF&W --	Kathy Kuletz
ADF&G --	Ivan Vining
	Dave Carlile
Univ.Alaska--	Brenda Norcross
WDF&W --	Vacant
Halibut Comm--	Bill Clark

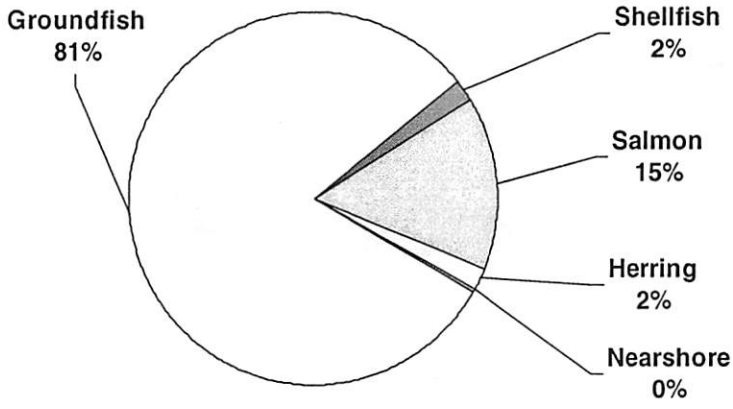
Nov 2004 BSAI SAFE Reports
Many Contributors from Various Agencies and Universities

32	Authors for Status of Stocks Section
106	Contributors to Ecosystems Section
4	Authors for Economics Chapter

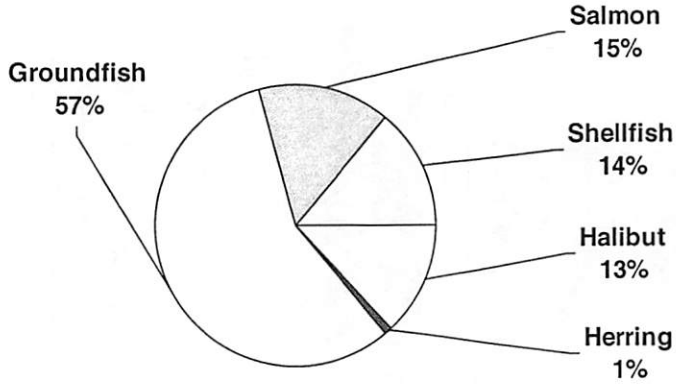
Total U.S.Landings
4.3 million mt (2001)
(From NOAA Fisheries 2001 Report, Our Nation's Living Resources)



Alaska Landings
2.5 million mt (1998-2001)
(From OLO, 4 Yr Average)

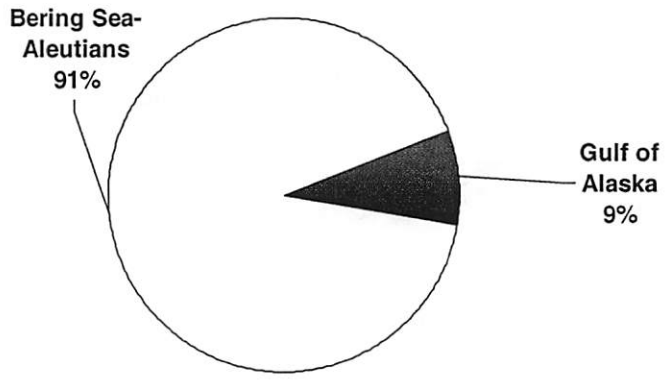


Ex-Vessel Value of All Alaska Landings
$1.08 Billion (2001-2003 Average)
(From Table 2.1 of Economic Chapter)



Alaska Groundfish Landings
2.088 million mt (2001-2003)

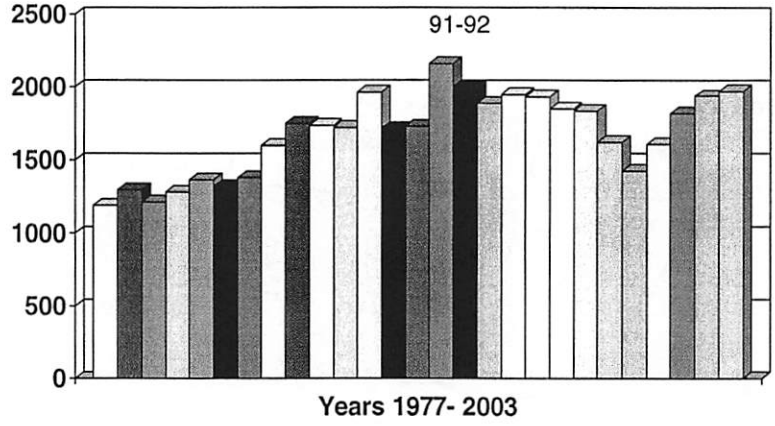
(from Table 1, Economics Section, 3 Yr Average)



Bering Sea-Aleutians Groundfish Catch

26 Year History (in thousands of mt)

(from Table 1, Economics Section)



BSAI SAFE

1. Assessment Theme
2. Overview
3. Species-by-Species Review
4. Summary of Changes

Assessment Theme

Definition of ABC and Overfishing Levels

Plan Team Summary, Pages 5-6

ABC or Overfshing Level = Biomass x Exploitation Rate

1. Determine Biomass from
   - **-- Surveys....Hydroacoustics, Trawls**
   - **-- Models.....Age or Length-Structure Models**
2. Determine Exploitation Rates
   (By Catch Control Rules of 6-Tier System)
   - -- F ***overfishing*** **..... Example F *35%***
   - -- F ***abc*** **..... Example F *40%***

Exploitation Rates by Fishing Control Rules

Quality of Information about Population Dynamics of the Stocks determine Use Catch Control Rules according to 6 Tiers of Data Quality

(Pages 5-6 of SAFE Summary)

Tier 1 -- Reliable B, Bmsy, pdf of Fmsy

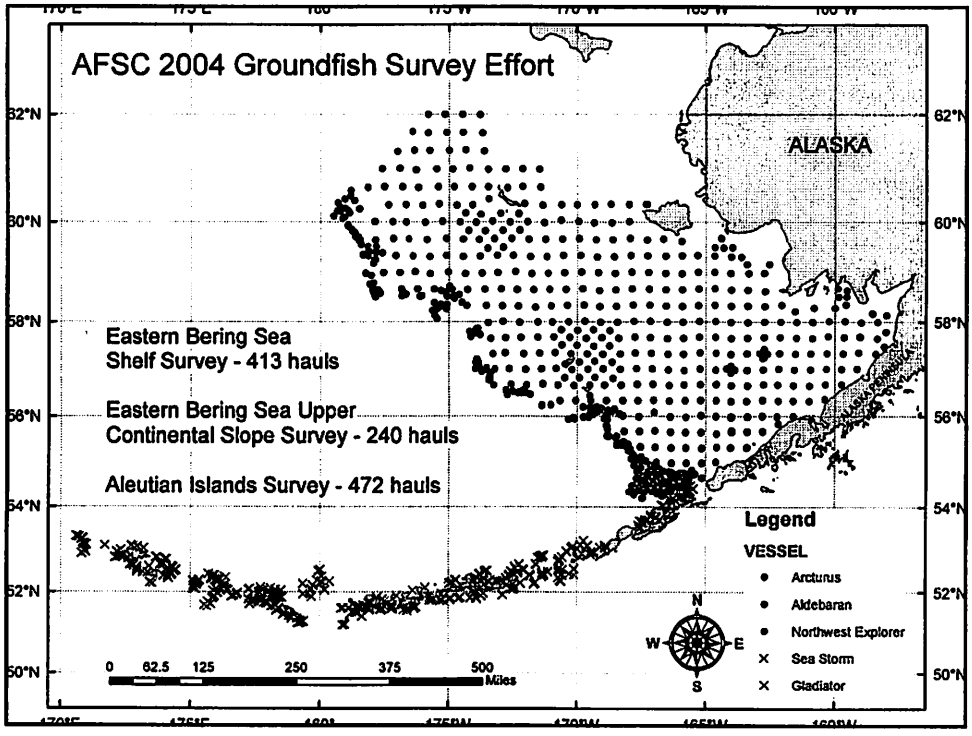
Tier 2 -- Reliable B, Bmsy, Fmsy, F35, F40

Tier 3 – reliable B, B40, F35, F40

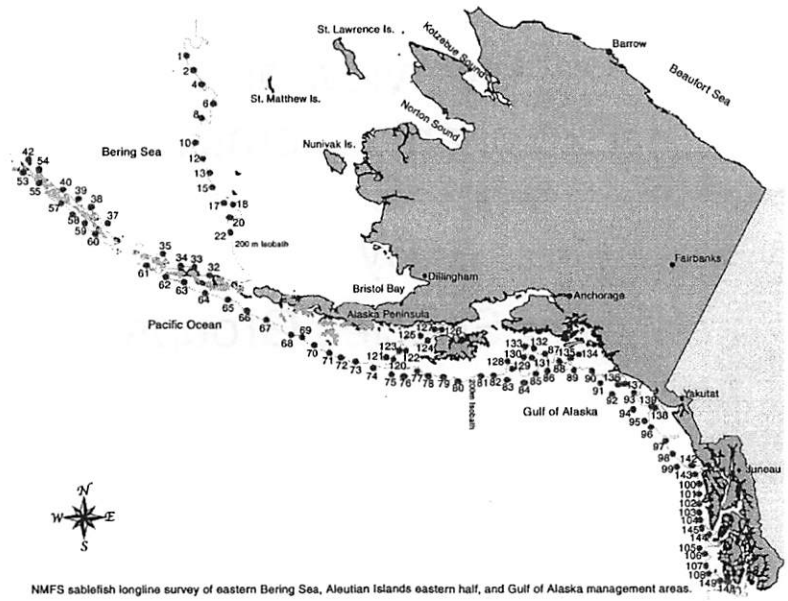
Tier 4 – reliable B, F35, F40

Tier 5 -- reliable B and M

Tier 6 – reliable Catch History Data

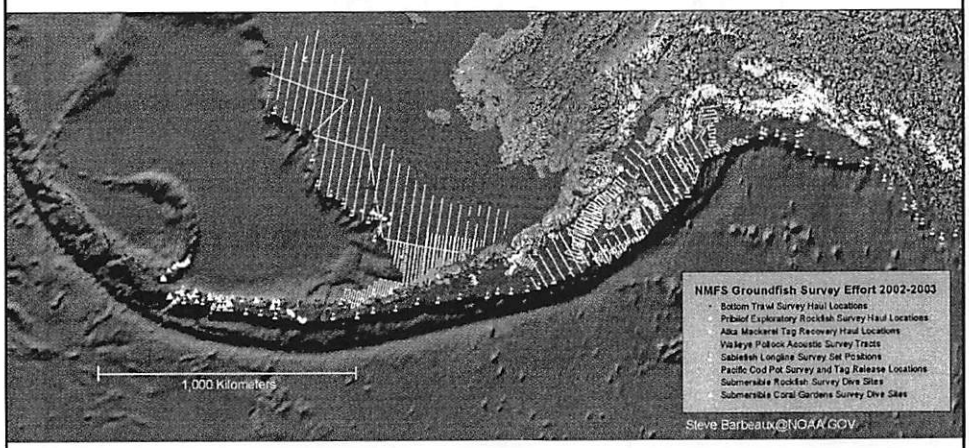


Sabelfish Longline Survey



NMFS sablefish longline survey of eastern Bering Sea, Aleutian Islands eastern half, and Gulf of Alaska management areas.

Series of Surveys by AFSC, 2002-2003



Overview of Exploitable Biomass

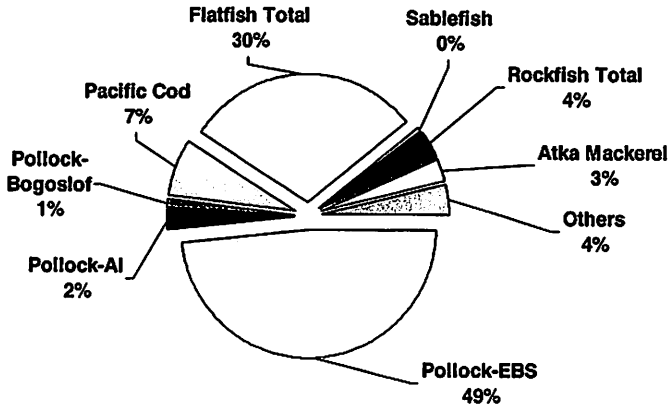
By Major Species Groups

Nov 2004 Assessment

BSAI Exploitable Biomass

Year 2005 Total = 17.741 MMT

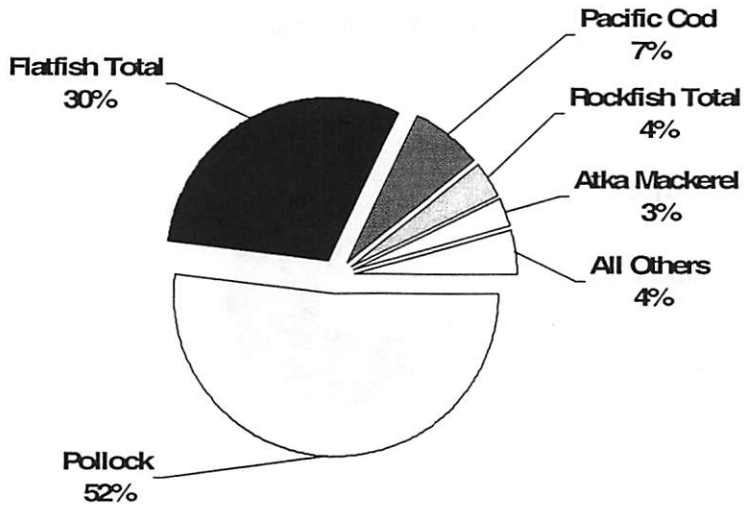
(down 212,820 mt from last year)



Nov 2004 Assessment

BSAI Biomass

By Major Groups

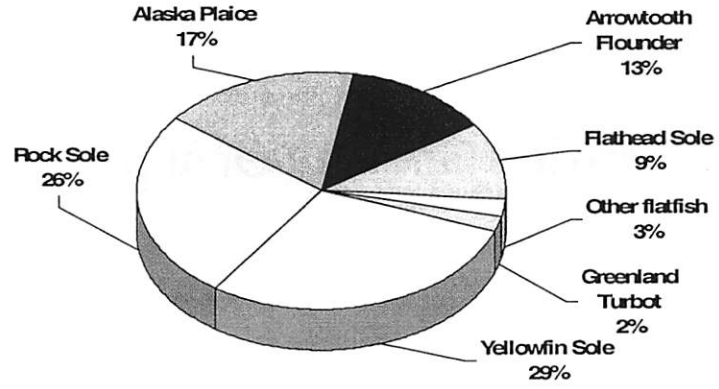


Nov 2004 Assessment

BSAI Flatfish Complex Biomass

Year 2004 Total = 5.338 MMT

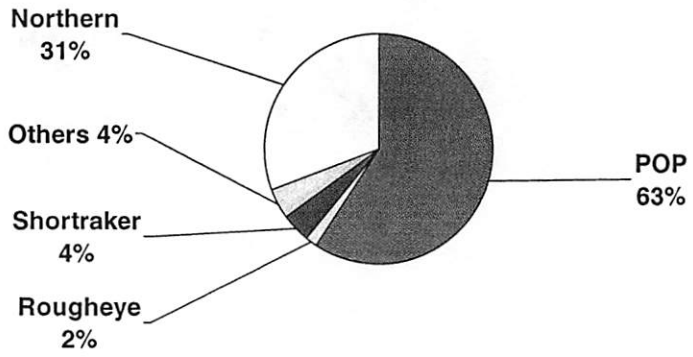
(up 145,300 mt from last year)



Nov 2004 Assessment

BSAI Rockfish Complex Biomass
Yr 2003 Total = 555,200 MT

(up 91,770 mt from last year)



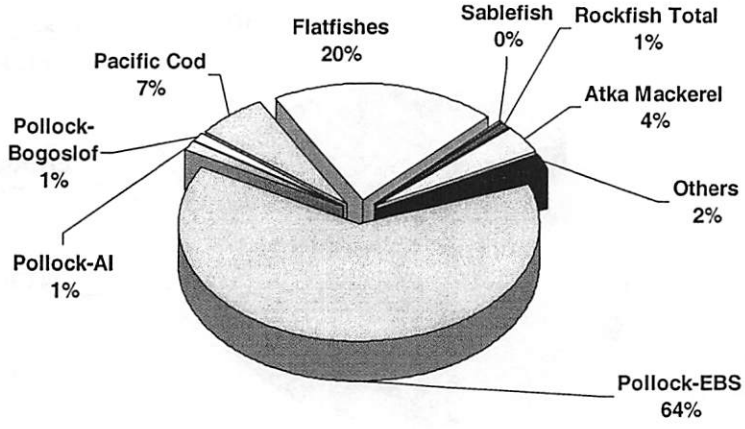
Overview of Plan Team Estimated ABCs

By Major Species Groups

Nov 2004 Assessments

BSAI Groundfish Complex ABCs
Year 2005 Total = 3.1 MMT

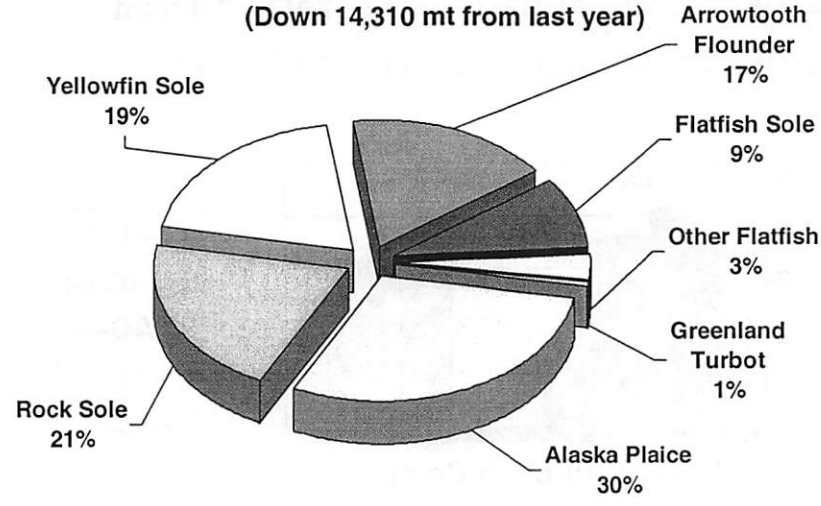
(Down 0.5 mmt from last year, mostly from EBS Pollock)



Nov 2004 Assessment

BSAI Flatfish Complex ABC
Year 2005 Total = 636,830 MT

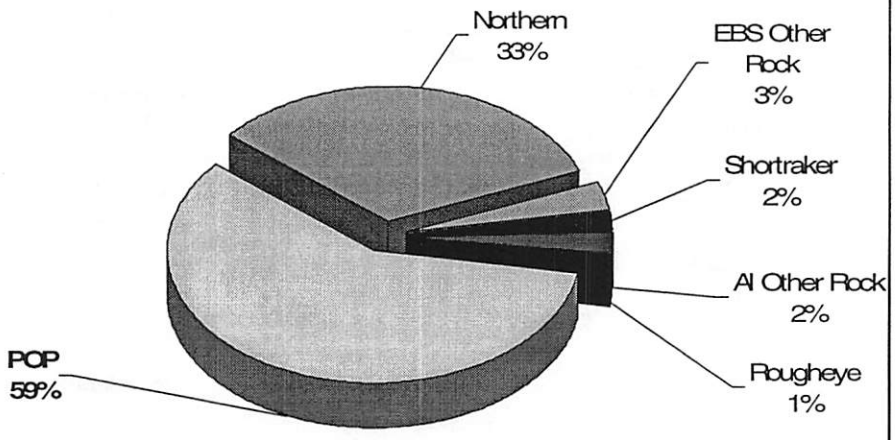
(Down 14,310 mt from last year)



Nov 2004 Assessment

BSAI Rockfish Complex ABCs
Year 2005 Total = 25,079 MT

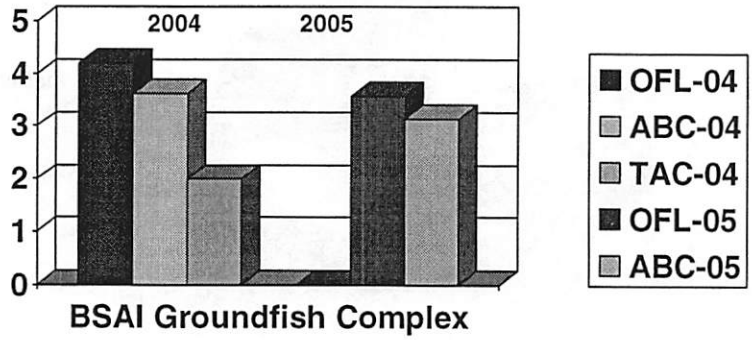
(up 2,584 mt from last year)



BSAI Groundfish Complex

Yr 2004 OFL = 4.19 ABC = 3.6 mmt TAC = 2.0 mmt

Yr 2005 OFL = 3.57 ABC = 3.1 mmt TAC = ???

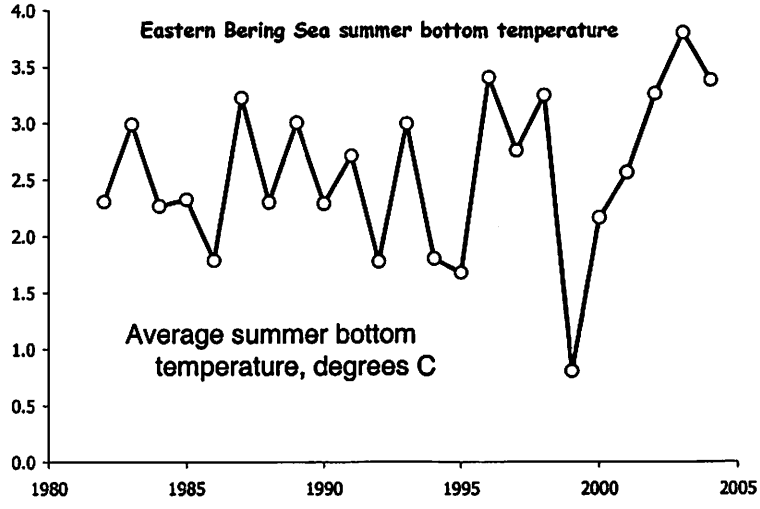


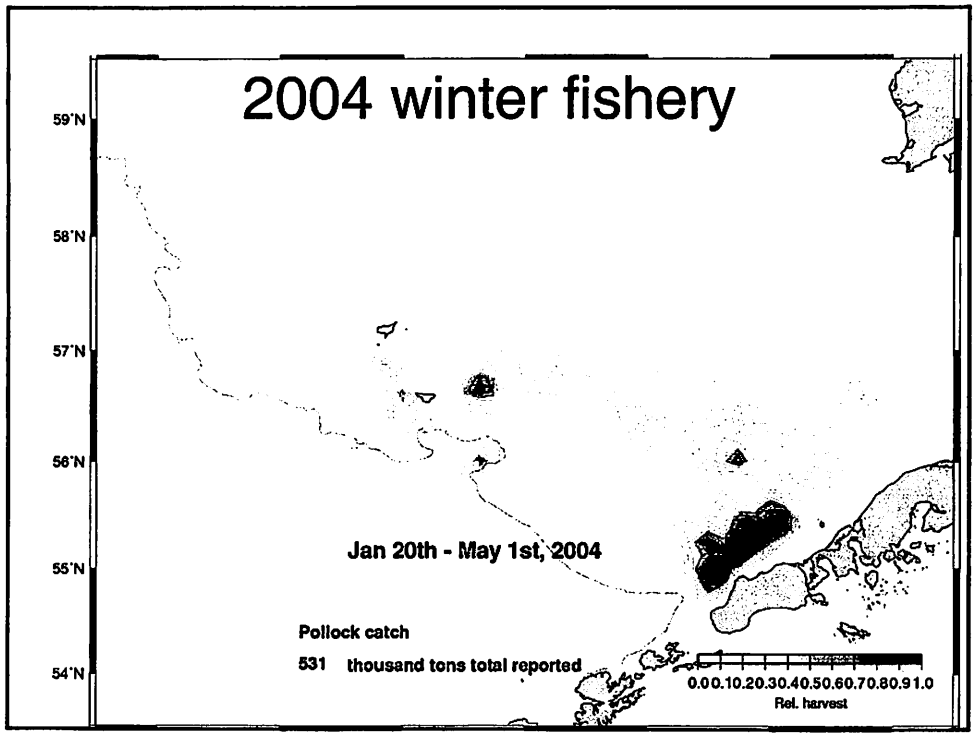
Description

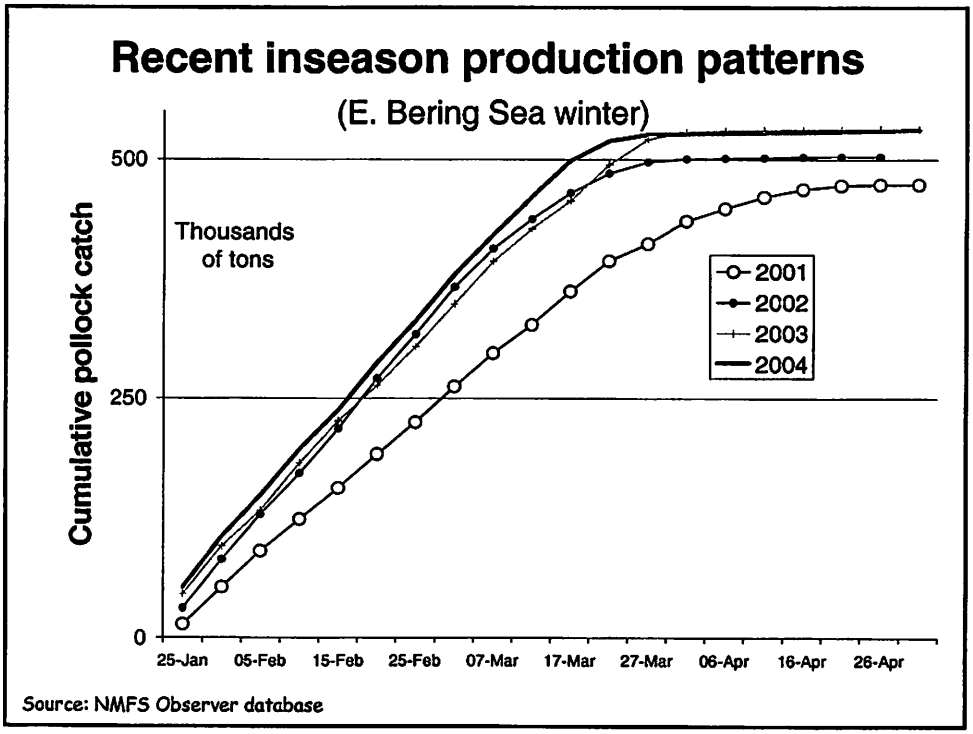
Species-by-Species

Temperature trends

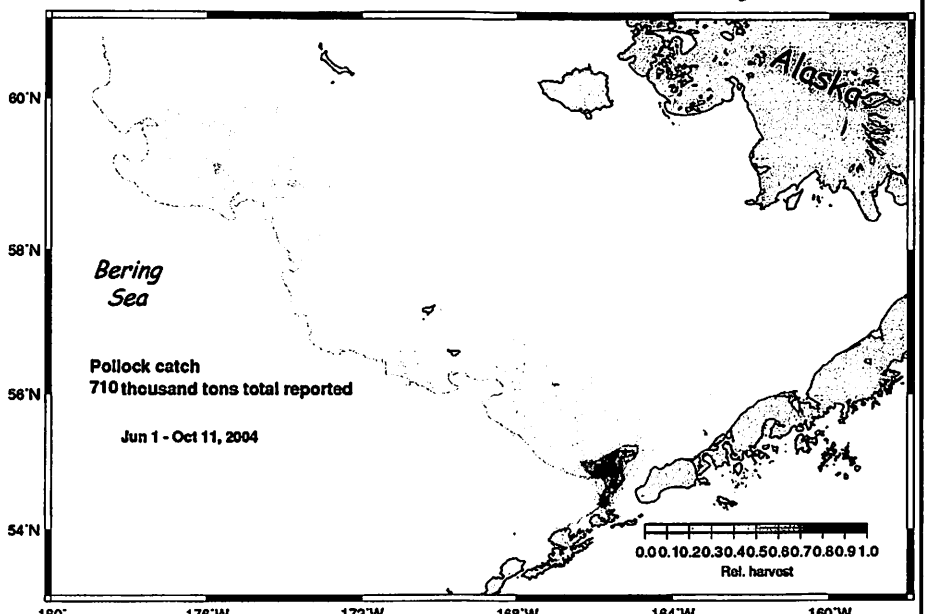
Still warm in 2004




2004 winter fishery
59°N
58°N
57°N
56°N
55°N
54°N
Jan 20th - May 1st, 2004
Pollock catch
531 thousand tons total reported
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
Rel. harvest

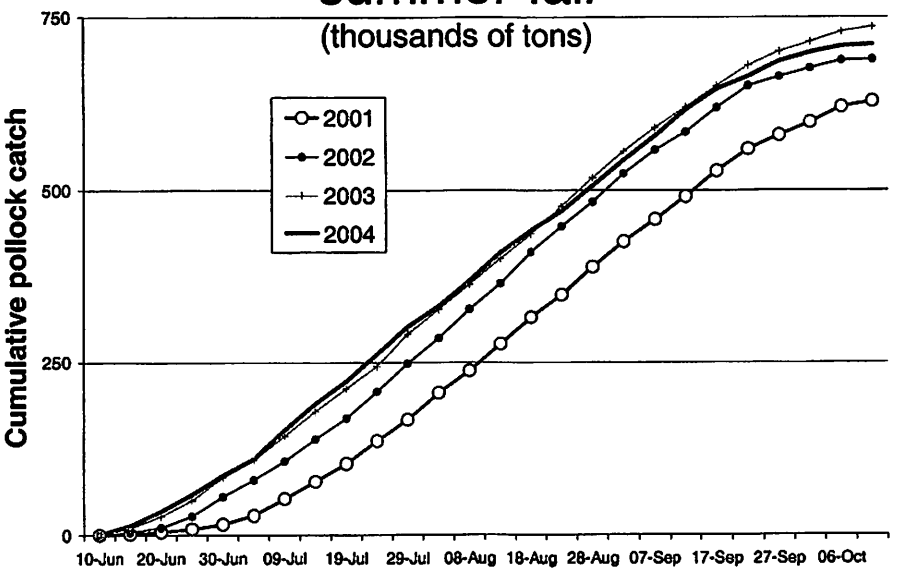

Recent inseason production patterns
(E. Bering Sea winter)
Cumulative pollock catch
Thousands of tons
500
250
0
2001
2002
2003
2004
25-Jan
05-Feb
15-Feb
25-Feb
07-Mar
17-Mar
27-Mar
06-Apr
16-Apr
26-Apr
Source: NMFS Observer database

2004 summer-fall fishery



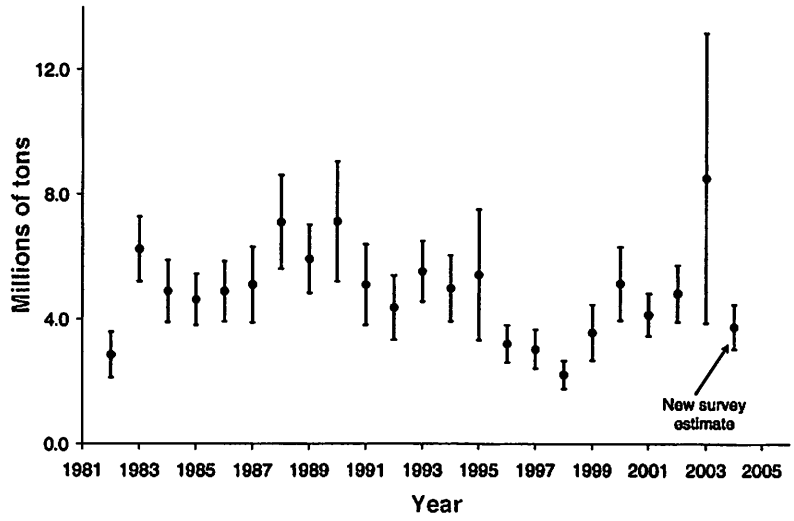
Source: NMFS Observer database

Cumulative weekly catch summer-fall

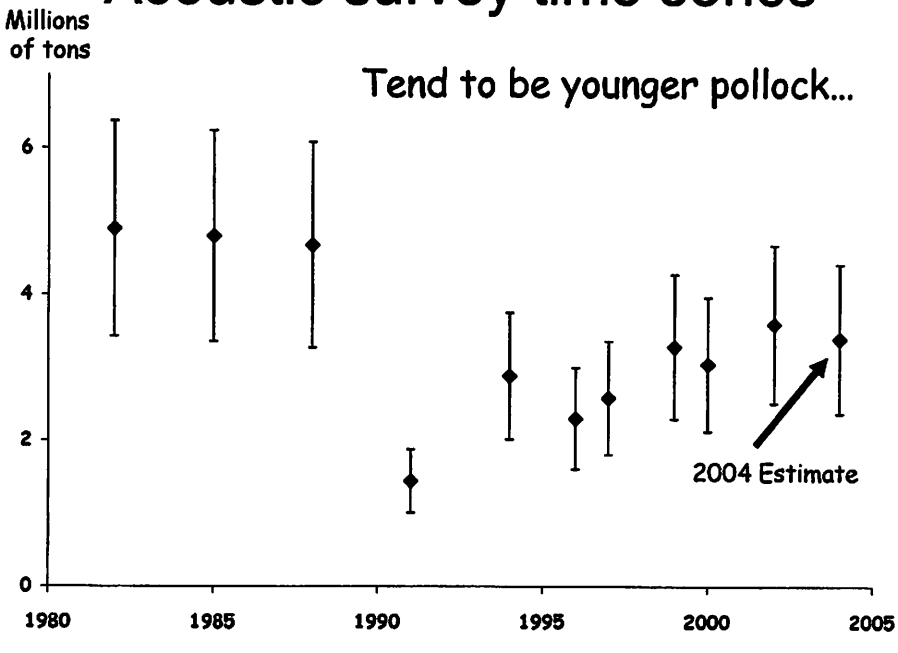


Source: NMFS Observer database

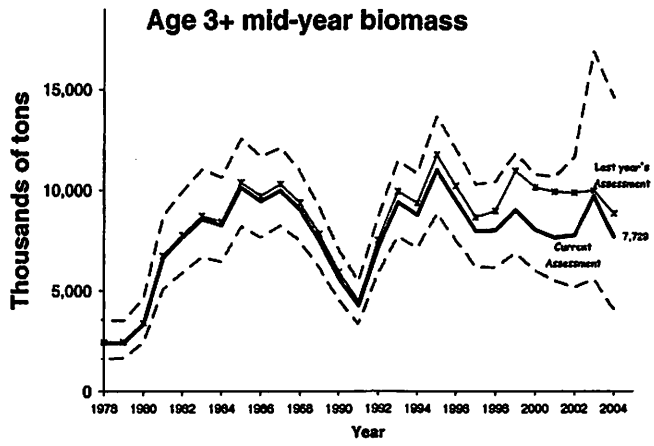
Survey Pollock Biomass
- Summer Bottom Trawling -



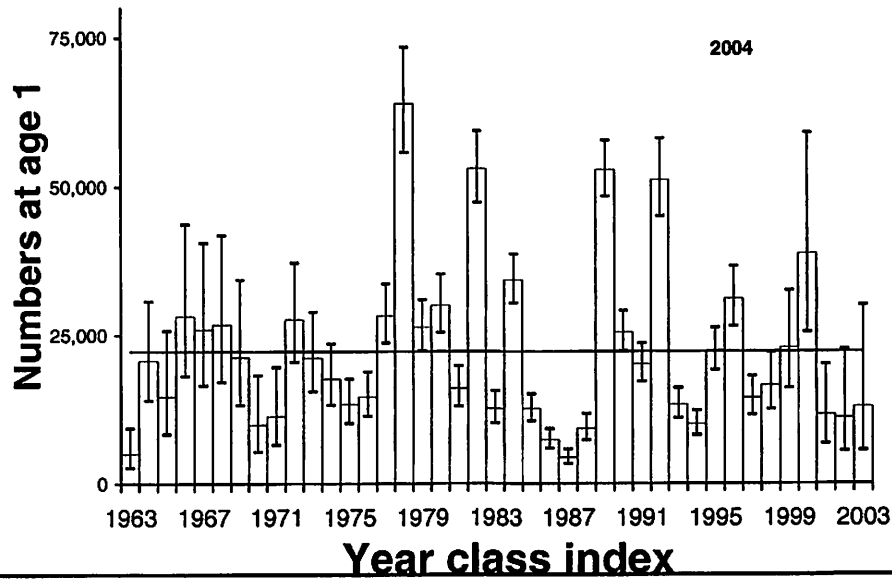
Acoustic survey time series



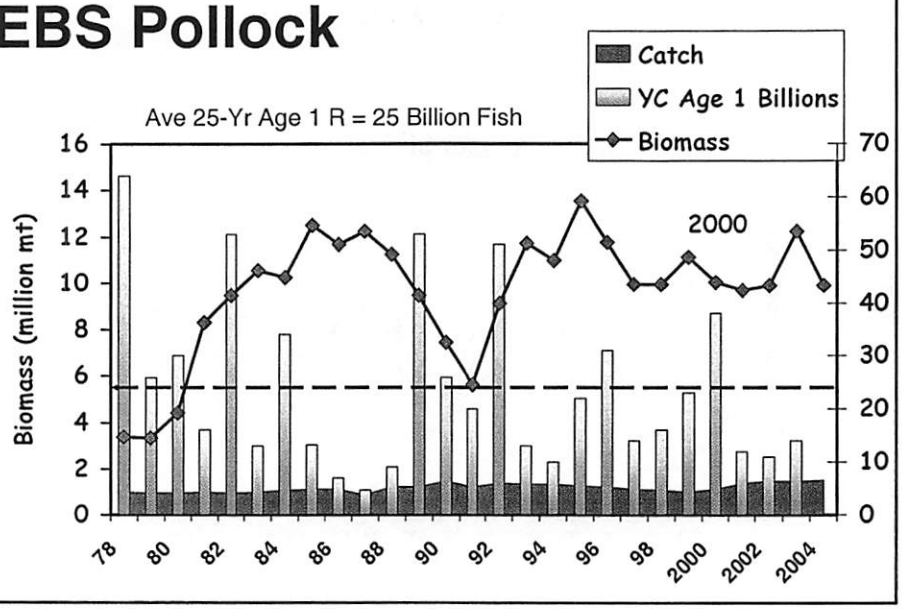
Model Biomass of Pollock
EBS, Age 3+



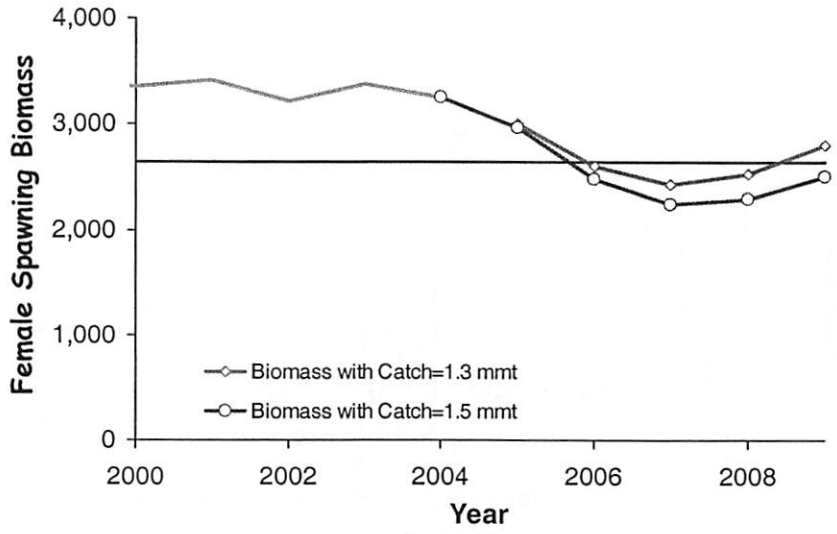
Recruitment estimates from Model



EBS Pollock



Near-term outlook



EBS Pollock Assessment
Notable Features

1. Year 2004 Surveys
   Bottom Trawl Biomass = 3.75 mmt, down 54% from 2003; but 2003 survey had high confidence limits & was a very warm year.

2. Combined with off-bottom component hydroacoustic estimates, 2004 biomass = 7.23 mmt, down 14 % from 2002

3. Year 2004 Models
   6 scenarios of Age-Structure Models, Used Model 1
   Age3+ Biomass for 2005 = 8.4 mmt, down from last year's estimate

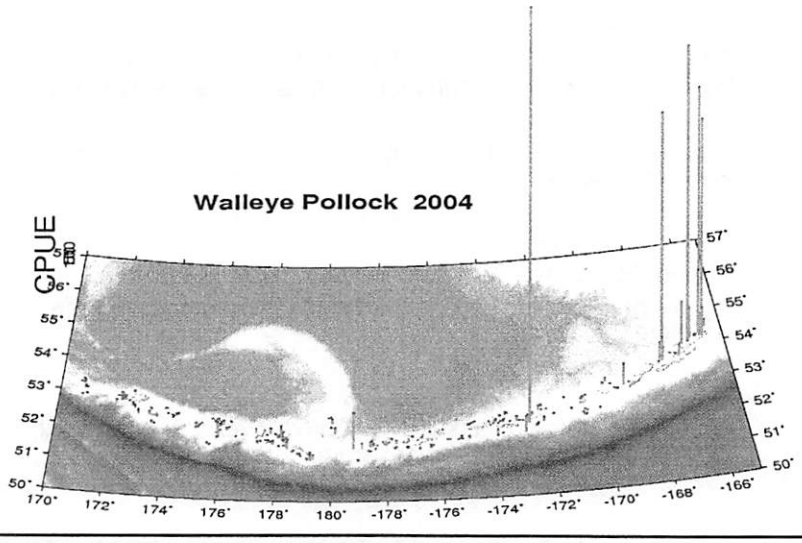
3. Recruitment
   1999 & 2000 Year Classes both Above Average, but 3 year classes after that are below average.

Next Pollock Stock
Aleutian Islands Region

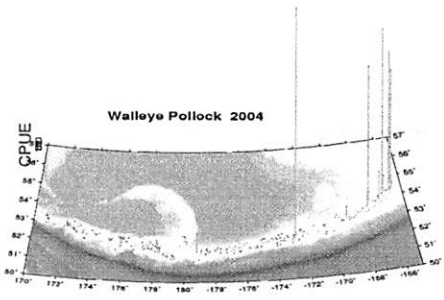
New Information

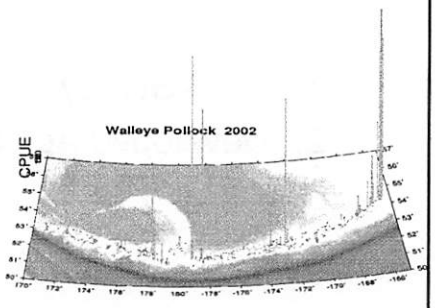
1. 2004 Survey
2. Developed Age Structured

Aleutian Islands Region
2004 Survey



Aleutian Islands Region
2004 versus 2002 Survey

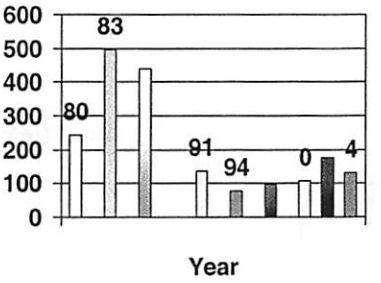




Aleutian Island Region Pollock Assessment

Near Is
Red Is
Is.

Survey Biomass (NRA Area)



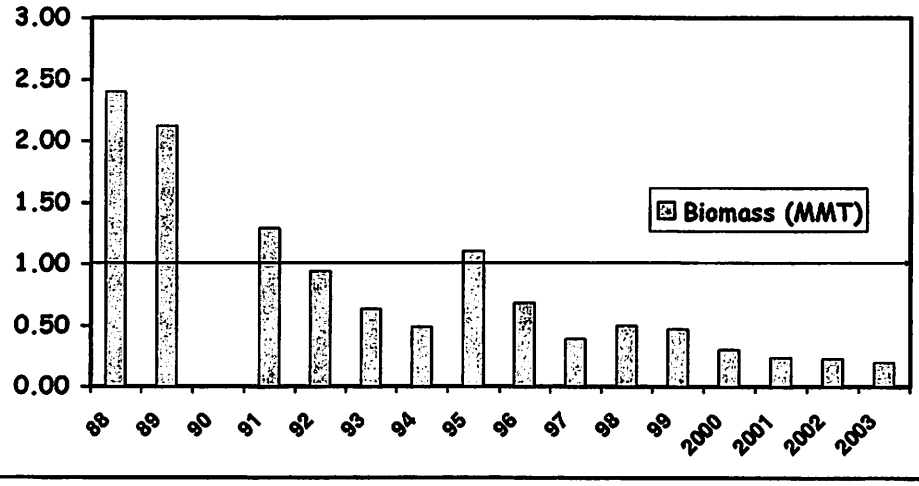
1. **Survey Biomass (NRA Area)**
   - 1991 137,000
   - 1994 77,500
   - 1997 97,500
   - 2000 105,600
   - 2002 175,000
   - 2004 130,500
2. **New age structured assessment**
3. **ABC from Tier 3 from Model = 43,200 mt**

Next Pollock Stock Bogoslof Region

No New Information

1. Using 2003 Survey Data by R/V Miller Freeman

Bogoslof Region
Pollock Stock Assessment
(No Survey for 2004)



Bogoslof Region Pollock ABC
Plan Team versus SSC Procedures

1. **Plan Team Method Uses Tier 5**
   ABC max permissible = Biomass x 0.75 M
   ABC = 29,700 mt

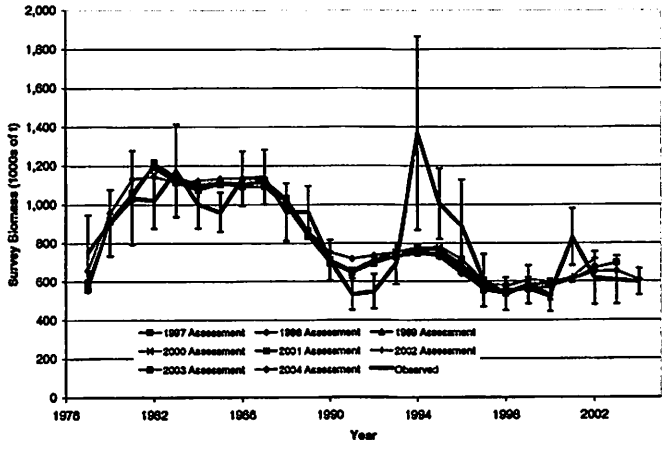
2. **SSC Method Uses 2 mmt as Target Biomass and since 2003 Biomass was less than 10% of Target**

   ABC was adjusted down by formula to 2,570 mt

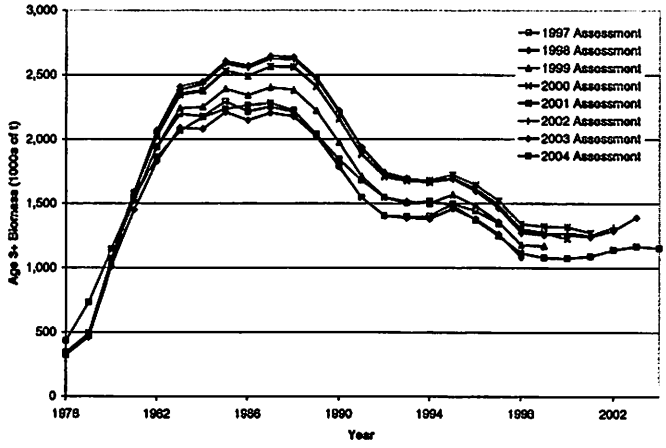
Pacific Cod Assessment
Notable Features

1. **Year 2004 Surveys**
   -- EBS Trawl Biomass = 597,000 mt, down 1%
2. **Year 2004 Model**
   -- Substantial revision of Last Year's Model
   -- Estimated 2005 Age 3+ Biomass = 1.29 mmt, down 22% from last year
   -- 2000 year class is clearly above average; but next 2 year classes are below average

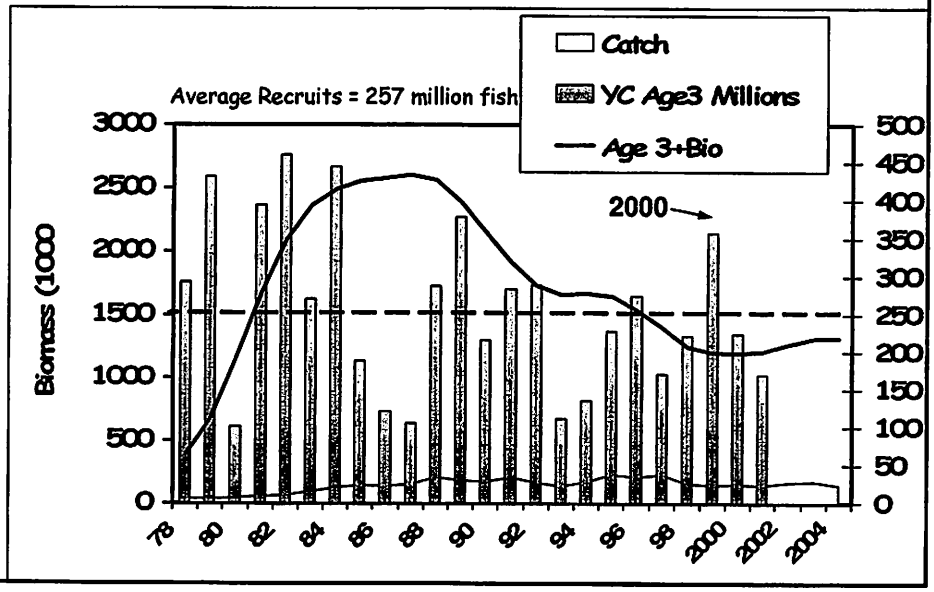
Pacific Cod Survey Biomass



Pacific Cod Model Biomass



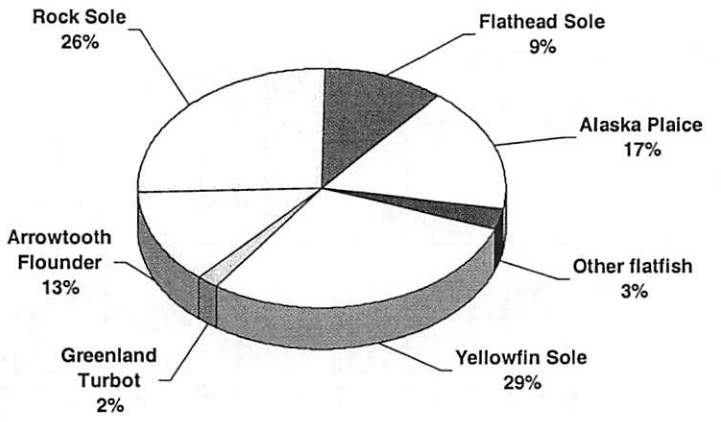
BSAI Pacific Cod



Nov 2004 Assessment

BSAI Flatfish Complex Biomass
Year 2004 Total = 5.338 MMT

(up 145,300 mt from last year)



Yellowfin Sole Assessment
Notable Features

1. **Survey Biomass**

-- Still relatively high biomass

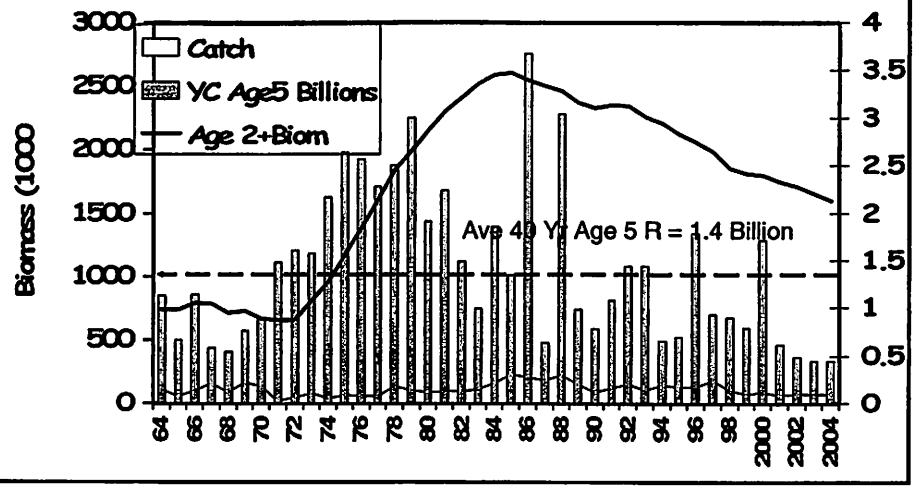
2. **Models**

-- Estimated 2004 Age 2+ Biomass = 1.56 mmt, up < 1% from last year

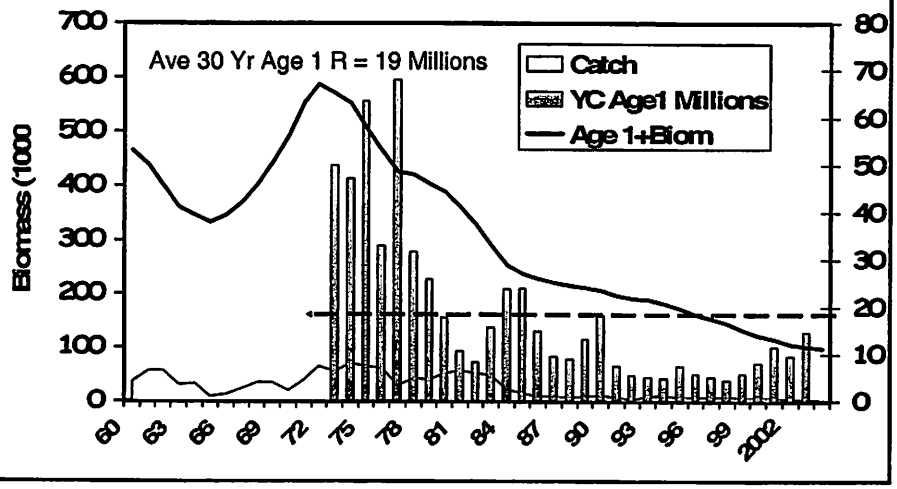
-- biomass is still high; but declining as strong year classes pass out of the population & recent recruitments have been weaker

-- Last 4 year classes (1996-1999 y. classes) have been substantially below average

EBS Yellowfin Sole



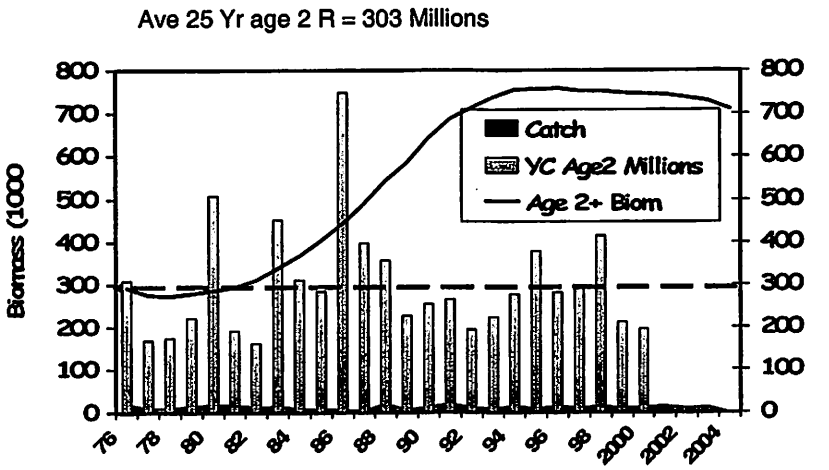
EBS Greenland Turbot



Arrowtooth Flounder Assessment
Notable Features

1. **Survey Biomass**
-- The 2004 shelf trawl survey estimate was 547,400 mt a 1% decrease from last year
2. **Models**
-- Estimated 2004 Age 2+ Biomass = 709,400 mt, 3% decrease from last years estimate.
3. **Recruitment**
-- Lower recruitment in recent years

EBS Arrowtooth Flounder



Northern Rock sole Assessment Notable Features

1. **Survey Biomass**

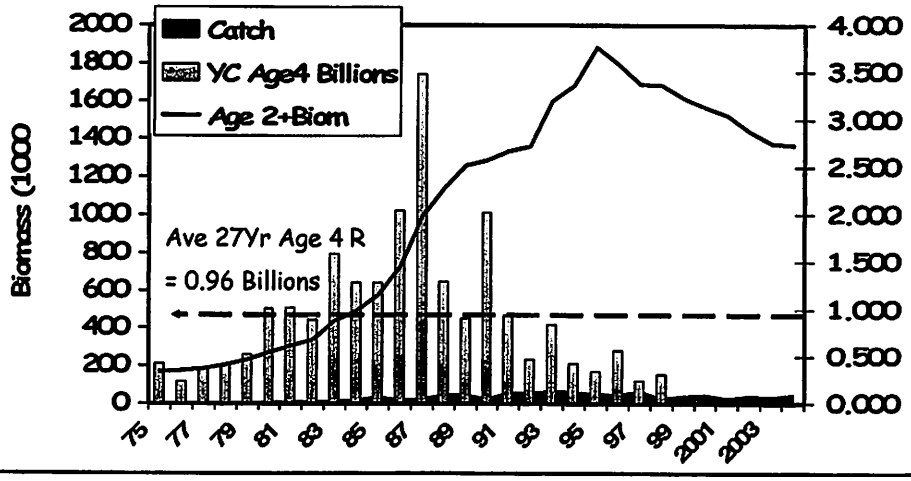
-- The 2004 shelf survey estimate was 2.1 mmt a 10% decrease from last year

2. **Models**

-- Still relatively high biomass

-- Declining recruitment

EBS Northern Rock Sole



Flathead sole Assessment

Notable Features

1. **Survey Biomass**

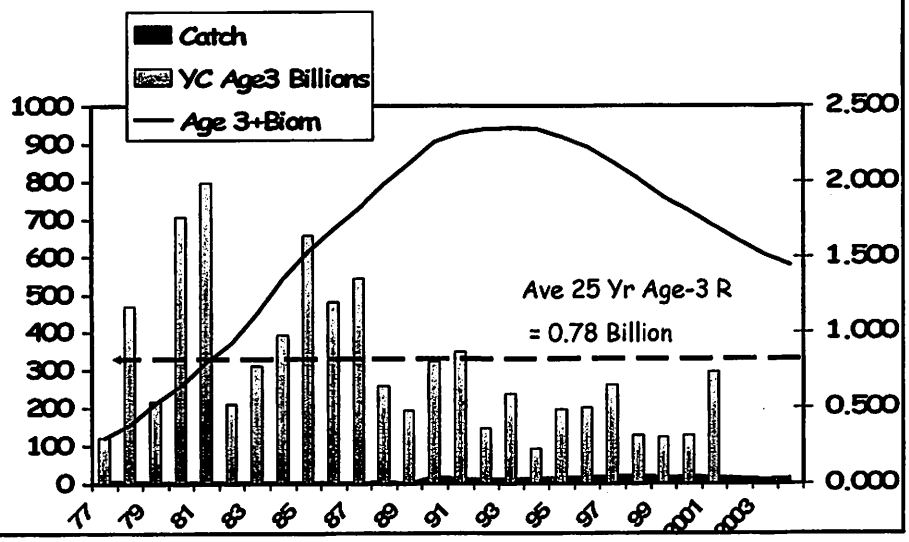
-- The 2004 shelf survey estimate was 616,600 mt a 16% increase from 2003

2. **Models**

-- Recent recruitment low

-- ABC 58,500 a 5% decrease from 2004

EBS Flathead Sole



Alaska Plaice Assessment
Notable Features

1. **Survey Biomass**

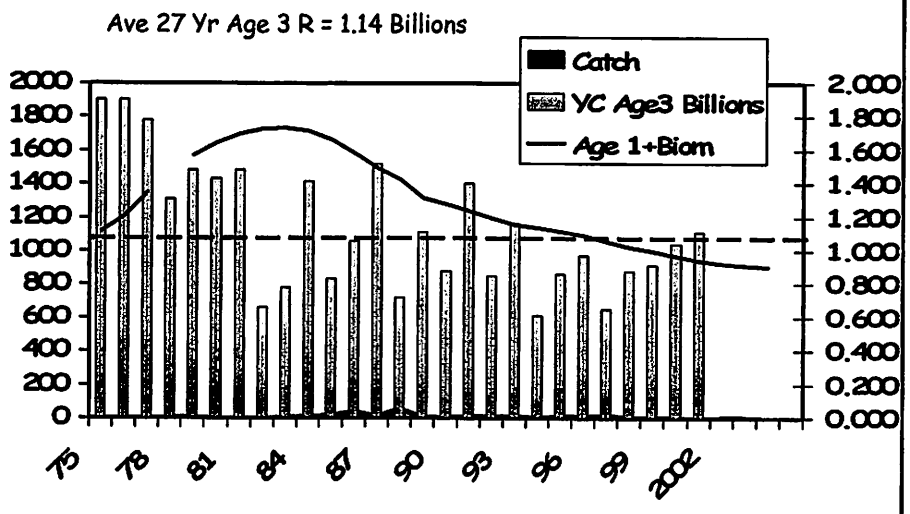
-- The 2004 shelf survey estimate was 488,000 mt a 4% increase from 2003

2. **Models**

-- Model Biomass relatively High & Stable

-- Recruitment slightly below average & Stable

EBS Alaska Plaice



Other Flatfish Assessment
Notable Features

1. Species Composition
   -- 15 species from EBS, minus Alaska Plaice
   -- 5 species from Aleutians
   -- 95% of catch are starry flounder and rex sole

2. Biomass Estimates from Surveys only
   -- Rather Stable to Increasing Trend in recent years in both regions

3. ABC Calculations
   -- Tier 5 where ABC = 0.75M * Biomass

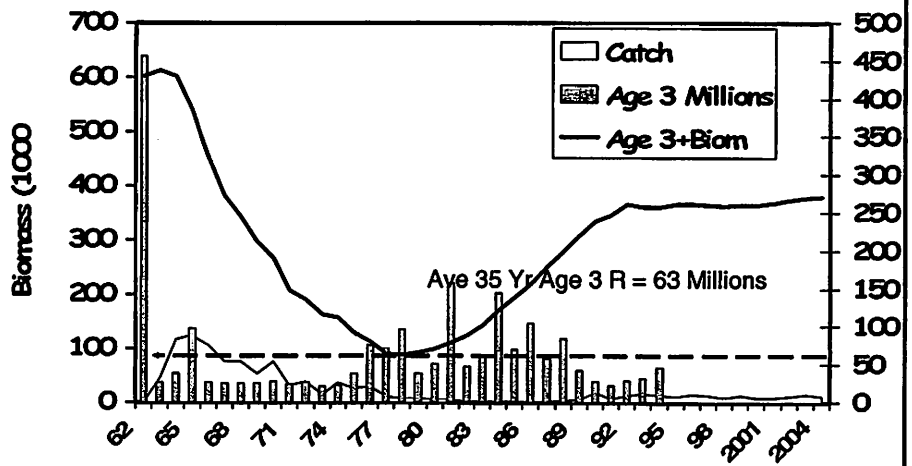
POP Assessment
Notable Features

1. **Present Assessment**
   -- Single Model to Combined BSAI Areas

2. **Biomass Trend**
   -- Rather Stable Trend in recent years after some rebuilding

3. **Recruitment**
   -- Rather Poor Recruitment in recent years
   -- 1988 YC was last above average year class

Bering Sea/Aleutians POP



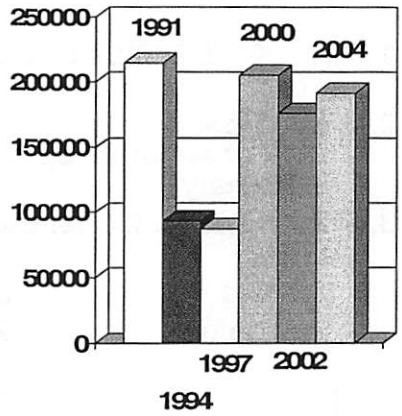
Other Red Rockfish Assessment (Species Split)

1. **Original Species Splits**
   - -- POP
   - -- Other Red Rockfish through Year 2000 (Northern/Sharpchin vs Shortraker/Rougheye)

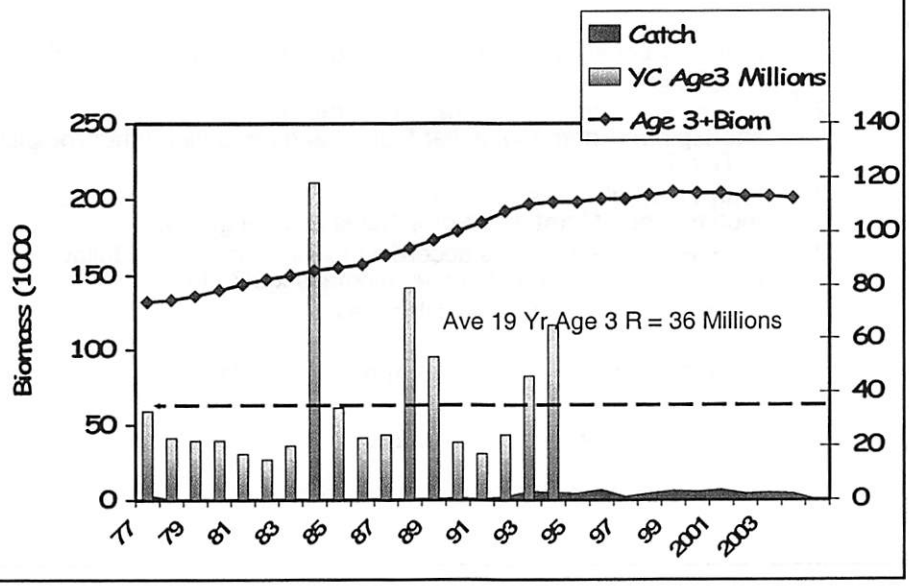
2. **New Splits**
   - -- Northern, Shortraker, Rougheye
   - -- Sharpchin is merged into Other Rockfish category

Northern Rockfish Assessment
Notable Features

1. **2nd Yr Model Assessment**
   --Shift to Tier 3 from Tier 5
2. **Biomass Trend Rather Stable**
3. **Good Recruitment in last 2 years**
   - (94-95 Y.Classes)



Bering Sea/Aleutians Northern Rockfish



Shortraker and Rougheye Assessements
Notable Features

1. **In 2001 & 2002, these species were managed as a group**
2. **Now Observer Program & NMFS now can keep track of separate species and manage them separately**
3. **Tier 5 ABC = Model Estimated biomass of 2005 x 0.75M**

Species	Biomass	ABC
Shortraker	26,4700 mt	596 mt
Rougheye	11,9130 mt	223 mt

Other Rockfish Assessments
Notable Features

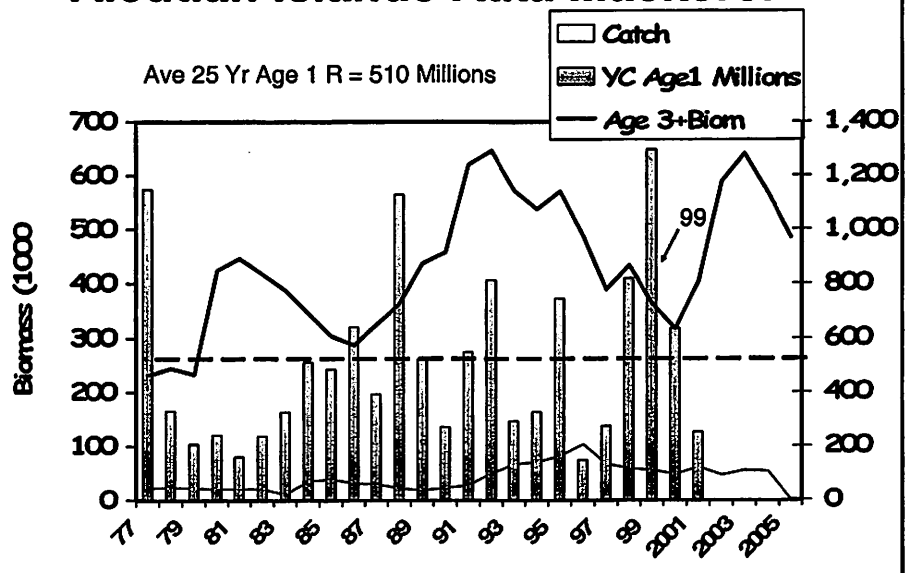
1. Formerly consisted of 28 species, now managed as a Complex (8 species)
2. Author Recommend separating out thornyheads (primarily shortspine) & manage as tier 5 and keep remaining other rockfish in Tier 6
3. Plan Team disagrees as biomass estimates are unreliable and recommends Mgmt as before; that is all as a group.
2. Thus Plan Team ABC is according to Tier 5 criteria as follows: ABC = Best estimate of survey biomass x 0.75 M

Stock	Year	Survey Biomass	ABC
EBS	2004	15,400	810
AI	2004	11,200	590

Atka Mackerel Assessment
Notable Features, Chapter 15

1. Survey Biomass 2004 = 886,800 mt; up 15% from 2002
2. Yr 2004 Model 3+ biomass = 568,000 mt, down 11 % from Yr 2003; Projected 2005 Biomass = 485,700mt
3. Max Permissible F_{40} would yield ABC = 124,000 mt; a 85% increase from last year
4. Recruitment of 3 recent year classes (1998-2000) were above average
5. ABC is apportioned by 3 Aleutian Areas; Eastern (19.8%), Central (42.6%), and Western (37.6%)

Aleutian Islands Atka Mackerel



Squid and other species Assessment
Notable Features, Chapter 16

1 **Squid ABC is calculated under Tier 6**

.... average catch from 1977-1995

2. **Other species: author recommends managing by major taxonomic groups**

Species	Biomass (mt)	ABC (mt)
Sharks	17,700	1,200
Skates	478,000	35,800
Sculpins	206,000	29,400
Octopus	6,320	2,370
Total	708,020	68,770

Summary (From Table 5)
(Pollock)

Stock	Biomass (mt)	ABC (mt)	ABC Change from 2003
Pollock, EBS	8,570,000	1,960,000	Down 23%
Pollock, AI	344,000	43,200	Up 10%
Pollock, Bogoslof	198,000	29,700 (PT)	Same

Summary (fromTable 5) (Cod and Sablefish)

Stock	Biomass (mt)	ABC (mt)	ABC Change from 2002
Pacific Cod, BSAI	1,290,000	206,000	Down 10%
Sablefish, EBS	34,000	2,440	Down 19%
Sablefish, AI	34,000	3,170	Down 8 %

Summary (from Table 5) (Flatfishes)

Stock	Biomass (mt)	ABC (mt)	ABC Change from 2002
YellFn. Sole	1,560,000	124,000	Up 9%
Grn. Turbot	98,300	3,930	Down 17 %
Arrow. Fl	684,000	108,000	Down 6 %
Rock Sole	1,380,000	132,000	Down 5 %
Flathead S	560,000	58,500	Down 5 %
Alaska Plaice	913,000	189,000	Down 7 %
Other Flats	143,000	21,400	Up 59 %

Summary (from Table 5)
(Rockfishes)

Stock	Biomass (mt)	ABC (mt)	ABC Change from 2002
POP, BSAI	382,000	14,600	Up 10 %
Northern R	200,000	8,260	Up 20 %
ShortRaker	26,500	794	Up 51 %
Rougheye	11,900	223	Up 14 %
Other R, EBS	15,400	810	Down 16 %
Other R, AI	11,200	590	Down 7 %

Summary (from Table 5)
(Atka Mackerel & Other Species)

Stock	Biomass (mt)	ABC (mt)	ABC Change From 2002
Atka Mackerel	486,000	124,000	Up 86 %
Squid	NA	1,970	Same
Other Species	708,000	Various	Up 47 %

Adjustments of ABCs Below Max. Permissible Levels - due To Uncertainties -

Stock	Maximum Permissible ABC (mt)	Recommend ABC (mt)	Main Reasons for Adjustment
Pollock, Bogoslof	29,700 (Plan Team)	2,570 (SSC)	SSC Procedure

Adjustments to ABCs - due to Ecosystems

1. The Team did not make specific adjustments to ABCs for ecosystem concerns

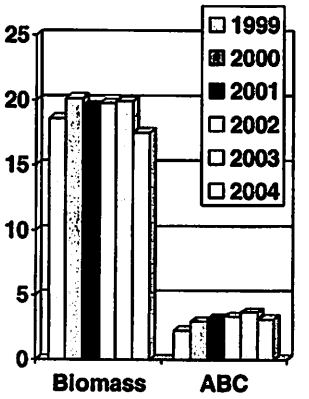
2. General Concerns about uncertainties have already been built into the Analyses

Differences of ABCs
Plan Team vs SSC

Stock	Plan Team	SSC	Main Reasons for Adjustment
Pollock, Bogoslof	29,700	2,570	B is 10% of B target of 2 mmt Diff = 27,130
Pollock AI	43200	29400	Tier 5 selection instead of Tier 3
Other Species	68,770	65890	At 7th yr of stair stepping up increase due to changing to Tier 5 procedure in 1998.

additional info on slide 6 pdf

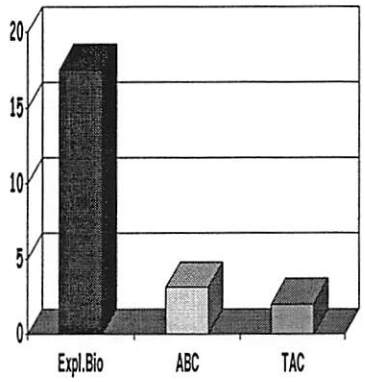
BSAI Groundfish Complex
Yr 1999 to Yr 2004



- Exploitable Biomass
  - 17.5 mmt for Yr 2004
  - Still Relatively High
- ABC
  - 3.1 mmt for Yr 2004
  - Still 50% above OY cap of 2 mmt

Assessment Year 2004 Summary

Applicable for 2005 Fishery

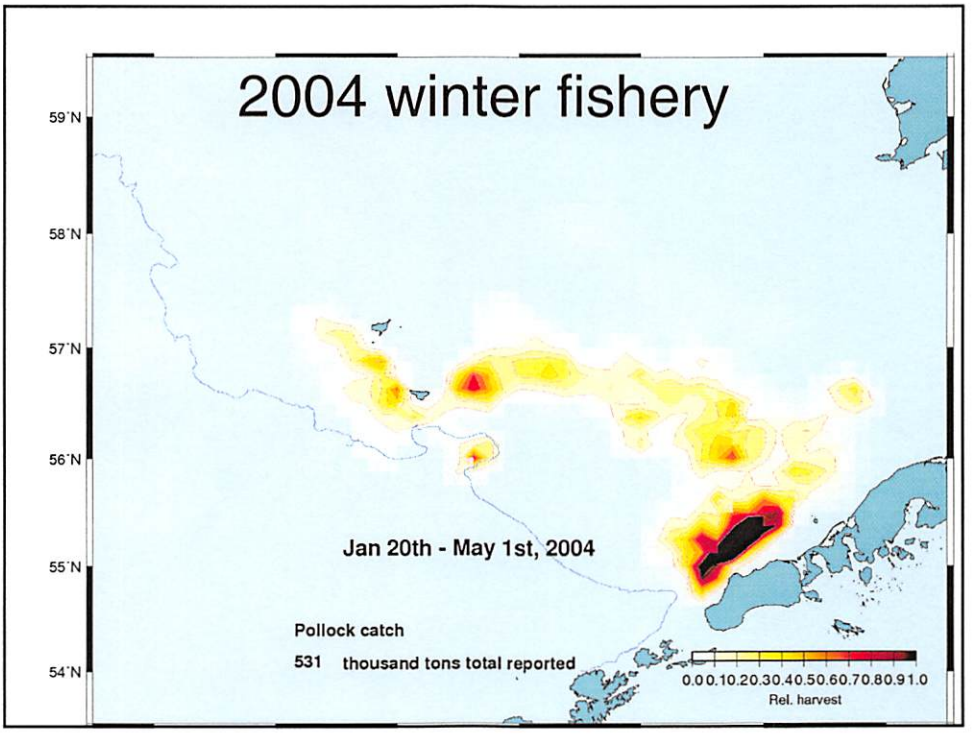


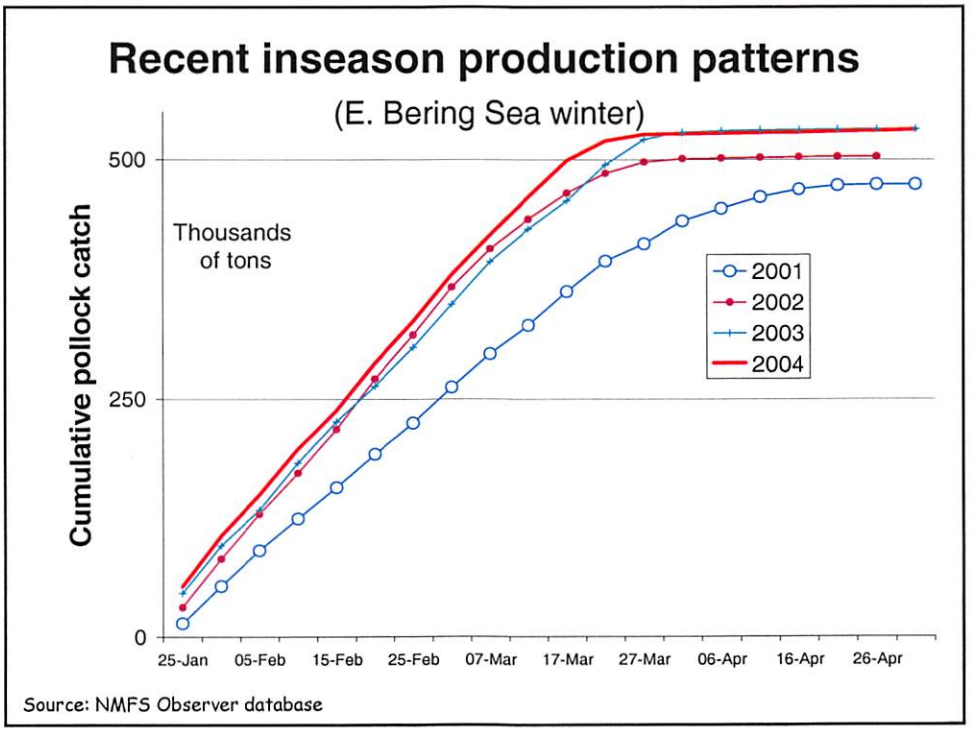
- Exploitable Biomass = 17.5 mmt
- ABC = 3.1 mmt
- Max TAC = 2 million mt
- Catch in 2004 thru Nov 13 = 1.68 mmt

Management Issues

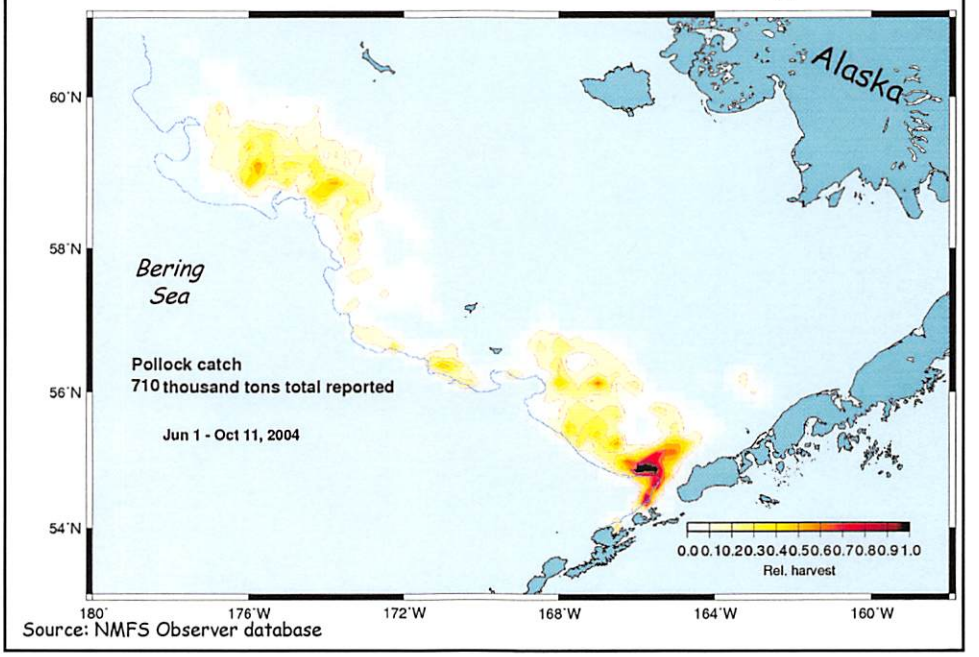
1. Status of Stocks Analyses are no longer an issue for most species; only an issue for low abundance component species
2. Rockfishes – Partitioning TACs for some rockfish species into Bering Sea versus Aleutian region TACs would result in TACs that would be too low to manage efficiently.
3. Other Species – Now, we manage by squid and other species category. When can we manage this group by species groups ? – sharks, skates, sculpins, and octopus; keeping in mind these are still subgroups of many species

D-1f Staff handout
Loh-lee Lozo 12-14-04
8am



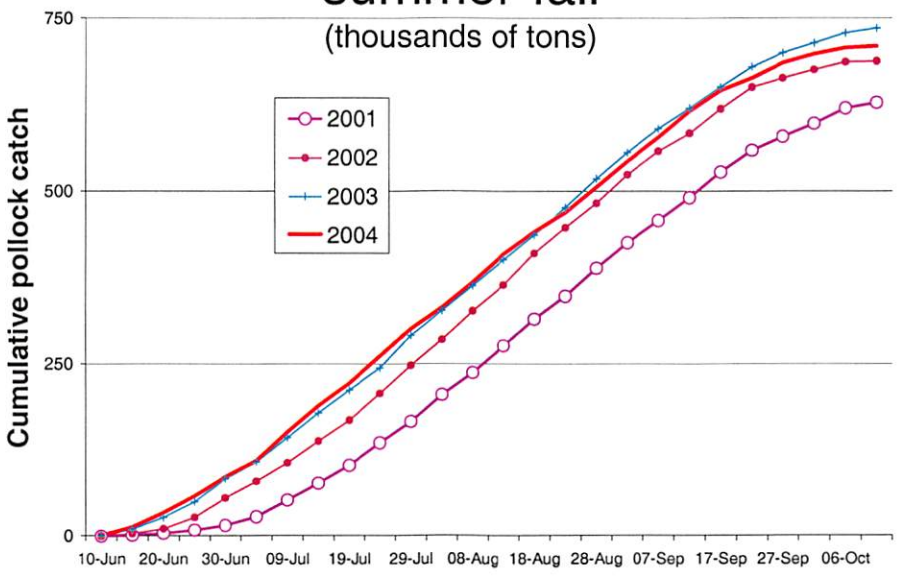


2004 summer-fall fishery



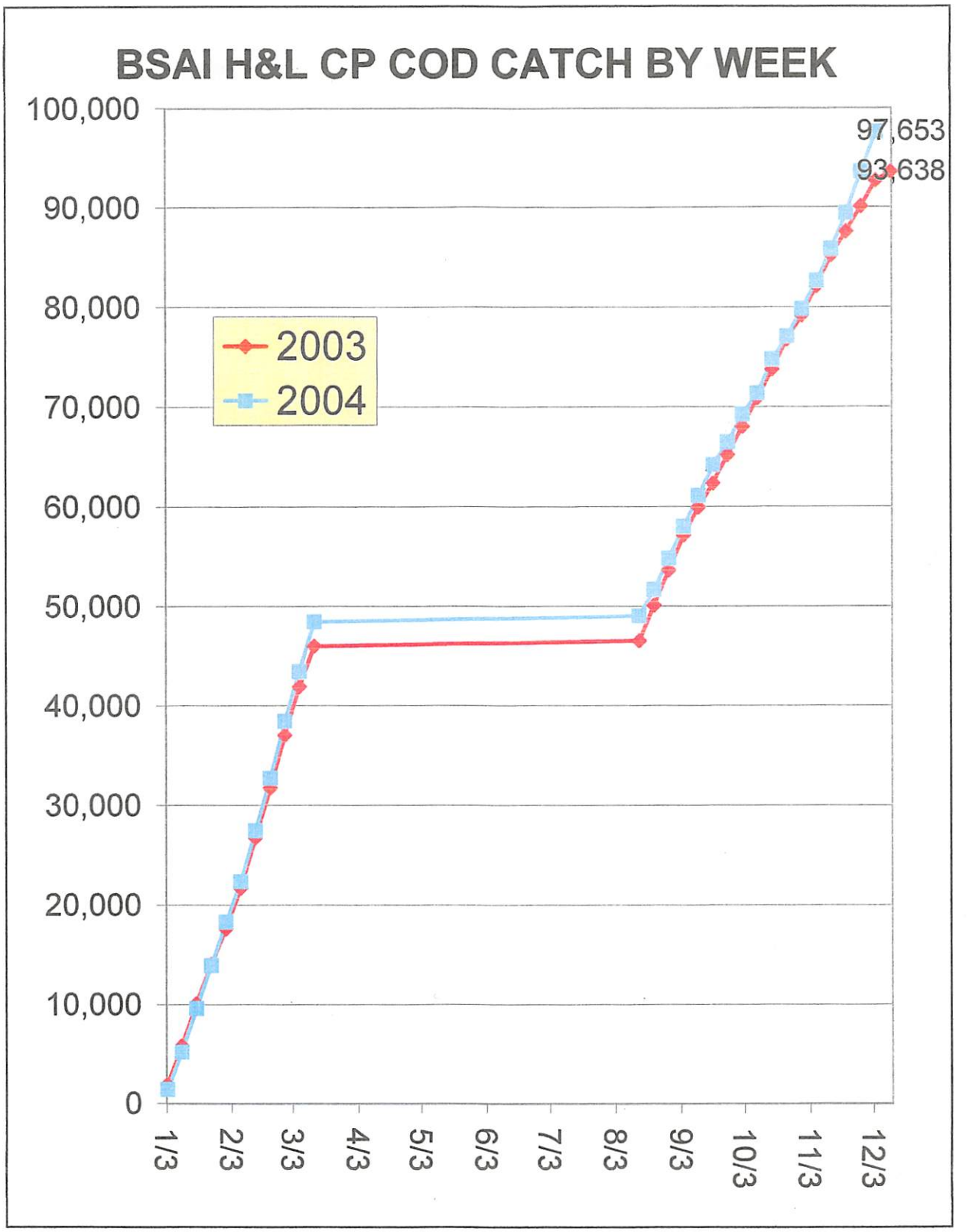
Source: NMFS Observer database

Cumulative weekly catch summer-fall

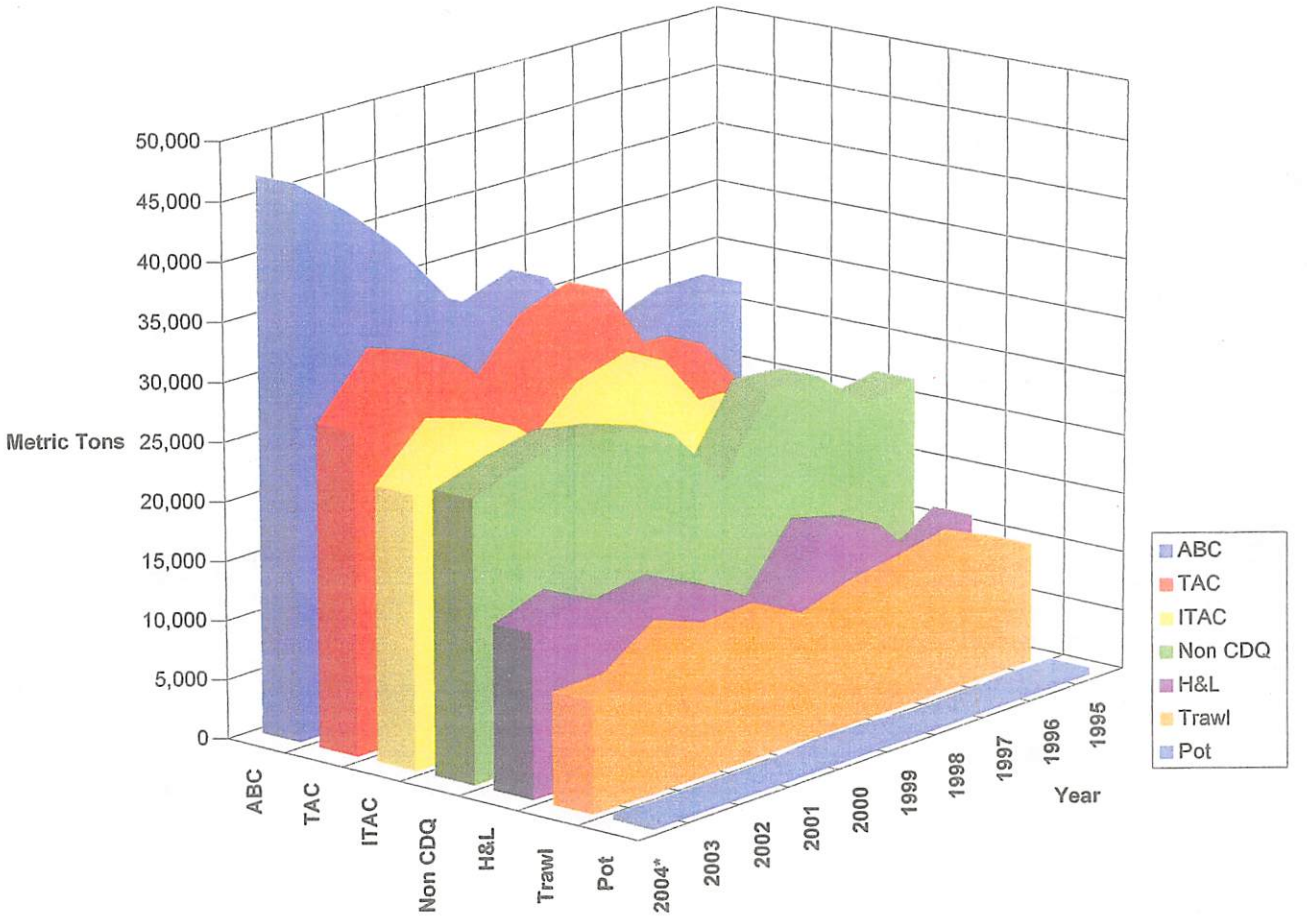


Source: NMFS Observer database

D-1(f) handout
Pub. Test. 12.14.04
Gerry Merrigan 9am



BSAI "Other Species", 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004*
ABC	27,600	27,600	25,800	25,800	32,860	31,360	33,600	39,100	43,300	46,810
TAC	20,000	20,125	25,800	25,800	32,860	31,360	26,500	30,825	32,309	27,205
ITAC	20,000	17,106	21,930	21,930	27,931	26,656	22,525	26,201	27,463	23,124
Non CDQ	22,213	21,440	25,019	25,377	18,677	24,030	25,482	26,296	25,373	23,852
H&L	11,485	8,792	13,482	14,608	8,899	11,889	13,950	13,215	15,467	13,925
Trawl	10,131	12,027	11,150	10,426	9,038	11,327	11,071	12,660	9,515	9,466
Pot	579	621	387	343	740	814	460	421	404	461

Table 16- 4. Estimated biomass (t) of BSAI other species from various AFSC surveys.

EBS shelf survey biomass estimates

Year	Sharks	Skates	Sculpins	Octopi
1975	0	24,349	111,160	6,129
1976				
1977				
1978				
1979	692	58,147	284,228	30,815
1980				
1981				
1982	0	164,084	340,877	12,442
1983	379	161,041	292,025	3,280
1984	0	186,980	252,259	2,488
1985	47	149,576	182,469	2,582
1986	0	251,321	303,671	480
1987	223	346,691	195,501	7,834
1988	4,058	409,076	233,169	9,846
1989	0	410,119	215,666	4,979
1990	0	534,556	219,020	11,564
1991	0	448,458	272,653	7,990
1992	2,564	390,466	239,947	5,326
1993	0	375,040	215,922	1,355
1994	5,012	414,235	260,994	2,183
1995	1,005	391,768	218,693	2,779
1996	2,804	423,913	187,817	1,746
1997	37	393,716	215,766	211
1998	2,378	354,188	197,675	1,225
1999	2,079	370,543	146,185	832
2000	1,487	325,292	161,350	2,041
2001	0	419,678	143,555	5,407
2002	5,602	410,573	176,728	2,435
2003	734	386,339	199,351	8,264
2004	3,121	427,713	210,509	4,902

EBS slope survey biomass estimates

Year	Sharks	Skates	Sculpins	Octopi
1979	0	3,056	4,555	729
1981	1	2,743	5,372	234
1982	23	2,723	3,261	180
1985	314	3,329	2,316	152
1988	1,967	3,271	4,944	138
1991	2,635	4,031	2,449	61
2000	*pilot survey, no official biomass estimate*			
2002	25,445	69,275	6,409	979
2004	2,260	33,182	5,488	1,957

AI trawl survey estimates

Year	Sharks	Skates	Sculpins	Octopi
1980	800	10,123	33,624	757
1983	0	16,259	24,570	440
1986	0	19,491	32,211	781
1991	2,927	14,987	15,904	1,148
1994	421	24,964	17,192	1,728
1997	2,497	28,902	13,680	1,219
2000	2,663	29,206	13,037	775
2002	1,557	34,412	14,248	1,384
2004	1,017	53,047	16,781	4,099

	Author ABC 2004	Author ABC 2005	% Δ
SHARKS	1980	1195	−40%
SKATES	36,284	35,894	−1%
SCULPINS	23,836	29,376	+23%
OCTOPUS	1120	2371	+112%
TOTAL	63,220	68,791	+8.8%

D-1 f Pub Test Handout
Gerry Merrigan
12-14-04 9am

'Twas the Night Before Christmas

'Twas the night before Christmas, and in the Bering Sea
The crew was still hauling with great intensity.
The hooks were all hung in magazines with care
In hopes for more codfish that soon would be there.

When out on the deck there arose such a clatter,
I sprang from the bunk to see what was the matter.
To the wheelhouse window I flew like a flash,
And there on the gear I saw a big splash.

The deck lights shone bright on an eerie tableau
Of the rollerman gazing at the objects below.
Coming out of the water, and up on the gear
Was a miniature sleigh with eight tiny reindeer.

The rollerman raised his gaff so to clear
A little old man and his sleigh off the gear.
All of sudden the observer said "Belay!"
"For I have no species code for a sleigh."

Over the roller came an old driver so quick
I knew in a moment it must be Saint Nick.
Right behind him, the reindeer came
And he whistled, and shouted, and called them by name.

"Now Dasher, now Dancer, now Prancer, and Vixen
On Comet, on Cupid, on Donder, and Blitzen!
To the top of the wheelhouse, to the top of the mast!
Don't be a discard, now dash away fast!"

And then in a twinkling, I heard on the roof
The prancing and pawing of each little hoof.
As I reached for the mike, and was turning around,
Into the wheelhouse, St. Nick came with a bound.

He was dressed in oilskins, from his head to his toe
And he gave out a big jolly "Ho, ho, ho, ho."
"Have you been good?" he said with a look,
"And if you please, let's see your logbook."

He checked all the coordinates with his GPS
And made certain of the presence of the VMS.
He checked out the plan for seabird avoidance,
And then St. Nick sighed with some annoyance.

"My work load has doubled as you plainly can see,
The government has placed me in Homeland Security.
I have to split my time with the TSA.
So please take off your shoes, and step right this way."

But he was chubby and plump, a right jolly old elf,
And I laughed when I saw him in spite of myself.
With a wink of his eye, and a twist of his head,
Soon gave me to know I had nothing to dread.

He dipped up some snoose, grabbed his bag from above,
And filled all the crew stockings and their work gloves.
He reached in his bag and pulled out some mail,
Then stepped out of the wheelhouse and into a gale.

He sprang to his sleigh, and turned on his strobe light,
And downwind they flew off into the night.
But I heard him exclaim, before he drove out of sight,
"MERRY CHRISTMAS TO ALL, AND TO ALL A GOOD NIGHT!"

BSAI Groundfish ABC, TAC and Non-CDQ Catch Statistics with Proposed TACS for 2005 and 2006

Species	2004		2005							2006			
	TAC	Catch***	ABC	TAC>ABC	Reallo-cation	Non-pollock Changes	GFF TAC	AP TAC	Difference GFF and AP	ABC	GFF TAC	AP TAC	Difference GFF and AP
POLLOCK													
Bering Sea	1,492,000	1,331,347	2,000,000		4,500		1,478,500	1,481,000	-2,500	1,600,000	1,480,950	1,487,756	-6,806
Aleutian Islands	1,000	1,150	43,200				19,000	19,000	0	29,500	19,000	19,000	0
Aleutian Islands (A season)							13,700						0
Aleutian Islands (B season)							5,300						0
*Bering Sea + AI B season***							*1,483,800*						0
Bogoslof	50	0	2,570				50	10	40		50	10	40
TOTAL POLLOCK	**1,493,050**	**1,332,497**	**2,045,770**		**4,500**	**0**	**1,497,550**	**1,500,010**	**-2,460**	**1,629,500**	**1,500,000**	**1,506,766**	**-6,766**
NON-POLLOCK													
Pacific Cod	215,500	189,929	206,000	-9,500			206,000	206,000	0	195,000	195,000	195,000	0
Sablefish BS	2,900	840	2,440	-460			2,440	2,440	0	2,310	2,310	2,310	0
Sablefish AI	3,100	927	2,620	-480			2,620	2,620	0	2,480	2,480	2,480	0
Atka mackerel	63,000	55,961	123,900				63,000	63,000	0	89,200	64,000	63,000	1,000
Yellowfin sole	86,075	68,998	124,300		4,500	500	91,075	87,486	3,589	114,000	94,575	90,000	4,575
Rock sole	41,000	47,733	131,900			500	41,500	41,000	500	111,000	43,050	42,000	1,050
Arrowtooth flounder	12,000	17,726	107,700				12,000	12,000	0	88,400	12,000	12,000	0
Flathead sole	19,000	16,829	58,458			500	19,500	19,000	500	48,400	22,000	20,000	2,000
Other flatfish	3,000	4,878	21,391			500	3,500	3,000	500	21,400	3,845	3,000	845
Alaska Plaice	10,000	7,570	188,595			-2,000	8,000	10,000	-2,000	109,000	8,000	10,000	-2,000
Greenland Turbot	3,500	2,163	3,930				3,500	3,500	0	3,600	3,500	3,500	0
POP BS	1,408	717	2,923				1,408	1,400	8	2,920	1,408	1,400	8
POP AI	11,172	10,493	11,692				11,172	11,200	-28	11,680	11,197	11,200	-3
Northern BS	5,000	4,280	8,689				5,000	5,000	0	8,040	5,000	5,000	0
Sharpchin/Northern AI									0				0
Shortraker BSAI	526	212	596			-26	500	596	-96	596	500	596	-96
Rougheye BSAI	195	200	223				195	223	-28	223	195	223	-28
Other Rockfish BS	460	311	809				460	460	0	810	460	460	0
Other Rockfish AI	634	318	590			-134	500	590	-90	590	500	590	-90
Squid	1,275	1,018	1,970				1,275	1,275	0	1,970	1,275	1,275	0
Other species	27,205	25,398	68,791		1,440	160	28,805	29,200	-395	68,770	28,705	29,200	-495
TOTAL NON-POLLOCK	**506,950**	**456,501**	**1,067,517**	**-10,440**	**5,940**	**0**	**502,450**	**499,990**	**2,460**	**880,389**	**500,000**	**493,234**	**6,766**
TOTAL	**2,000,000**	**1,788,998**	**3,070,087**	**-10,440**	**10,440**	**0**	**2,000,000**	**2,000,000**	**0**	**2,509,889**	**2,000,000**	**2,000,000**	**0**

**B Season Aleutian Islands ITAC will likely roll over to the Bering Sea pollock fishery, resulting in the number shown in italics.

***Catch as of November 20, 2004

Source: NMFS Alaska Region Website

D-1 f Pub Test handout 12.14.04 9:30a GRF Lori Swanson & Eeli Luttrell

PubTest handout
Thorn Smith
12-14-04 10am

Thorn Smith

From: "Andy Smoker" <Andy.Smoker@noaa.gov>
To: "Karl Haflinger" <karl@seastateinc.com>; "janet smoker" <fis@gci.net>; "Mary Furuness" <Mary.Furuness@noaa.gov>; "Andy Smoker" <Andy.Smoker@noaa.gov>; "Thorn Smith" <Thorndog@worldnet.att.net>
Sent: Friday, December 03, 2004 11:49 AM
Attach: otherspecprojection.xls
Subject: other specs projection

so here's my guess at the effect of the drop in the pcod TAC for incidental catch of other specie catch in 2005

I projected the remaining catch of ospecs
calculated the rate of other species in the h&l pcod fishery in 2004
calculated the proportion of h&L pcod catch attributed to other species.
for 2004 based on the projected catch
calculated the decrease in pcod TAC
applied the % decrease in pcod TAC to the calculated the proportion of h&L pcod catch of other species in 04
and came up with a decline of about 800 mt.

So if we think the fishery needs about 30,000 mt of other species based on the 2004 catch...and the 2005 pcod TAC is going to decline 4% then, assuming incidental catch rates are equal etc tc ... the fishery can get by in 2005 with 29,200 mt.

Page 1 of 1

Thorn Smith

From: "Andy Smoker" <Andy.Smoker@noaa.gov>
To: "Thorn Smith" <Thorndog@npla.net>
Sent: Tuesday, November 30, 2004 12:33 PM
Subject: Re: TAC-Setting, Other Species TAC Level

looks ok....My recommendation would be that the 2005 TAC be at least as high as the catch in 04.

As of today the other species catch for non-cdq is estimated at 25398 & the h&l guys are taking 500/week since thats the report for Nov 20 then we can assume we got another 1500 by the time we get the fishery shut down (its looking like the 6th or 7th..we'll announce by Thursday)

The CDQ catch is an additional 2955...and we can expect more catch as CDQ is closed out. I don't have a good estimte of what they can be expected to take by the end of the year. Sooooo we can get to 25400 + 1500 + 2955 = 29855 fairly easily right now without guessing what the December CDQ catch of ospecs is going to be like. That means the 30,000 is pretty much what we've taken this year.