

D-100) 2006-2007

**Bering Sea Aleutian Islands SSC and AP OFL, ABC, and TAC Recommendations for the 2006-2007 Fisheries - DRAFT**

Species	Area	2005				2006			2007		
		OFL	ABC	AP	TAC	OFL	ABC	AP	OFL	ABC	TAC
Pollock	EBS	2,100,000	1,960,000	1,478,500	1,483,096	2,090,000	1,930,000	1,485,000	1,930,000	1,790,000	1,500,000
	Aleutian Islands	39,100	29,400	19,000	1,621	39,100	29,400	19,000	39,100	29,400	19,000
	Bogoslof District	39,600	2,570	10	0	50,600	5,500	10	50,600	5,500	10
Pacific cod	BSAI	265,000	206,000	206,000	183,020	230,000	194,000	194,000	176,000	148,000	148,000
Sablefish	BS	2,950	2,440	2,440	1,037	3,680	3,060	2,820	3,260	2,700	2,700
	AI	3,170	2,620	2,620	1,480	3,740	3,100	3,000	3,300	2,740	2,740
Yellowfin sole	BSAI	148,000	124,000	90,686	91,684	144,000	121,000	95,701	137,000	116,000	107,641
Greenland turbot	Total	19,200	3,930	3,500	2,530	14,200	2,740	2,740	13,400	2,630	2,630
	BS		2,720	2,700	2,105		1,890	1,890		1,815	1,815
	AI		1,210	800	425		850	850		815	815
Arrowtooth flounder	BSAI	132,000	108,000	12,000	13,888	166,000	136,000	13,000	174,000	142,000	18,000
Northern rock sole	BSAI	157,000	132,000	41,500	37,237	150,000	126,000	41,500	145,000	122,000	44,000
Flathead sole	BSAI	70,200	58,500	19,500	15,818	71,800	59,800	19,500	67,900	56,600	22,000
Alaska plaice	BSAI	237,000	189,000	8,000	11,183	237,000	188,000	8,000	231,000	183,000	15,000
Other flatfish	BSAI	28,500	21,400	3,500	4,466	24,200	18,100	3,500	24,200	18,100	5,000
Pacific Ocean perch	BSAI	17,300	14,600	12,600	10,360	17,600	14,800	12,600	17,600	14,800	14,800
	BS		2,920	1,400	811		2,960	1,400		2,960	2,960
	AI total		11,680	11,200	9,549		11,840	11,200		11,840	11,840
	WAI		5,305	5,085	4,725		5,372	5,085		5,372	5,172
	CAI		3,165	3,035	2,238		3,212	3,035		3,212	3,112
	EAI		3,210	3,080	2,586		3,256	3,080		3,256	3,156
Northern rockfish	BSAI	9,810	8,260	5,000	3,959	10,100	8,530	4,500	9,890	8,320	5,000
Shorthead	BSAI	794	596	596	166	774	580	580	774	580	580
Rougheye	BSAI	298	223	223	92	299	224	224	299	224	224
Other rockfish	BSAI	1,870	1,400	1,050	468	1,870	1,400	1,050	1,870	1,400	1,400
	BS		810	460	188		810			810	810
	AI		590	590	280		590			590	590
Atka mackerel	Total	147,000	124,000	63,000	61,958	130,000	110,000	63,000	107,000	91,000	63,000
	WAI		46,620	20,000	19,736		41,360	15,500		34,220	17,500
	CAI		52,830	35,500	35,105		46,860	40,000		38,760	38,000
	EAI/BS		24,550	7,500	7,133		21,780	7,500		18,020	7,500
Squid	BSAI	2,620	1,970	1,275	1,183	2,620	1,970	1,275	2,620	1,970	1,275
Other species	BSAI	87,920	53,860	29,000	24,666	89,404	58,882	29,000	89,404	62,950	27,000
<b>Total</b>	<b>BSAI</b>	<b>3,509,332</b>	<b>3,044,769</b>	<b>2,000,000</b>	<b>1,949,912</b>	<b>3,476,987</b>	<b>3,013,086</b>	<b>2,000,000</b>	<b>3,224,217</b>	<b>2,799,914</b>	<b>2,000,000</b>

2005-2007

\*\*2005 catch is through October 29, 2005 (includes CDQ).

2005 and 2006 Prohibited Species Bycatch Allowances for the BSAI Trawl and Non-Trawl Fisheries

Trawl Fisheries	Prohibited species and zone					
	Halibut mortality (mt) BSAI	Herring (mt) BSAI	Red King Crab (animals) Zone 1 <sup>1</sup>	<u>C. opilio</u> (animals) COBLZ <sup>1</sup>	<u>C. bairdi</u> (animals)	
					Zone 1 <sup>1</sup>	Zone 2 <sup>1</sup>
Yellowfin sole	886	152	33,843	4,108,752	340,844	1,788,459
January 20 - April 1	262	.....	.....	.....	.....	.....
April 1 - May 21	195	.....	.....	.....	.....	.....
May 21 - July 5	49	.....	.....	.....	.....	.....
July 5 - December 31	380	.....	.....	.....	.....	.....
Rock sole/other flat/flathead sole <sup>2</sup>	779	27	121,413	810,091	365,320	596,154
January 20 - April 1	448	.....	.....	.....	.....	.....
April 1 - July 5	164	.....	.....	.....	.....	.....
July 5 - December 31	167	.....	.....	.....	.....	.....
Turbot/arrowtooth/sablefish <sup>3</sup>	.....	12	.....	62,356	.....	.....
Rockfish	.....	.....	.....	.....	.....	.....
July 5 - December 31	69	10	.....	62,356	.....	10,988
Pacific cod	1,434	27	26,563	184,402	183,112	324,176
Midwater trawl pollock	.....	1,350	.....	.....	.....	.....
Pollock/Atka mackerel/other <sup>4</sup>	232	192	406	106,591	17,224	27,473
Red King Crab Savings Subarea <sup>6</sup>	.....	.....	.....	.....	.....	.....
(non-pelagic trawl)	.....	.....	42,495	.....	.....	.....
<b>Total trawl PSC</b>	<b>3,400</b>	<b>1,770</b>	<b>182,225</b>	<b>5,329,448</b>	<b>906,500</b>	<b>2,747,250</b>
<b>Non-trawl Fisheries</b>						
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	.....	.....	.....	.....	.....
<b>Total non-trawl PSC</b>	<b>833</b>	.....	.....	.....	.....	.....
PSQ reserve <sup>5</sup>	342	.....	14,775	432,126	73,500	222,750
<b>PSC grand total</b>	<b>4,575</b>	<b>1,770</b>	<b>197,000</b>	<b>5,761,674</b>	<b>980,000</b>	<b>2,970,000</b>

<sup>1</sup> Refer to § 679.2 for definitions of areas.  
<sup>2</sup> "Other flatfish" for PSC monitoring includes all flatfish species, except for halibut (a prohibited species), Greenland turbot, rock sole, yellowfin sole and arrowtooth flounder.  
<sup>3</sup> Greenland turbot, arrowtooth flounder, and sablefish fishery category.  
<sup>4</sup> Pollock other than pelagic trawl pollock, Atka mackerel, and "other species" fishery category.  
<sup>5</sup> With the exception of herring, 7.5 percent of each PSC limit is allocated to the CDQ program as PSQ reserve. The PSQ reserve is not allocated by fishery, gear or season.  
<sup>6</sup> In December 2004, the Council recommended that red king crab bycatch for trawl fisheries within the RKCSS be limited to 35 percent of the total allocation to the rock sole/flathead sole/"other flatfish" fishery category (see § 679.21(e)(3)(ii)(B)).

D-100 Supplement


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\*\*2005 catch is through October 29, 2005 (includes CDQ).

MEMORANDUM

TO: Council, AP and SSC

FROM: Chris Oliver   
Executive Director

DATE: December 1, 2005

SUBJECT: Bering Sea/Aleutians Islands SAFE Report and 2006/2007 specifications

ESTIMATED TIME 12 HOURS (all D-1 items)
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**ACTION REQUIRED**

Final action to approve the BSAI Stock Assessment and Fishery Evaluation (SAFE) report, and approve final BSAI groundfish specifications for 2006 and 2007:

1. Acceptable Biological Catch (ABC), and annual Total Allowable Catch (TAC);
2. Bycatch allowances and seasonal apportionments of Pacific halibut, red king crab, Tanner crab, opilio crab, and herring to target fishery (PSC) categories; and
3. Approve halibut discard mortality rates for 2006 and 2007 CDQ groundfish fisheries.

**BACKGROUND**

At this meeting, the Council makes final recommendations on groundfish and bycatch specifications as listed above to manage the 2006 and 2007 Bering Sea/Aleutian Islands (BSAI) groundfish fisheries.

BSAI SAFE Document The BSAI Groundfish Plan Team met in Seattle on November 14-18, 2005 to prepare the final BSAI SAFE Report. This SAFE report forms the basis for BSAI groundfish specifications for the 2006 and 2007 fishing years. The BSAI SAFE report, along with the GOA SAFE Report, the Economic SAFE report, and an Ecosystems Considerations report are incorporated into the Environmental Assessment for the 2006 and 2007 Groundfish Specifications. These documents were mailed to the Council in late November. SSC and AP recommendations will be provided to the Council during the meeting.

Amendment 48 to the BSAI Groundfish FMP made two significant changes with respect to the stock assessment process. The first significant change has to do with assessments of BSAI rockfish. Because these assessments are dependent largely on data from the EBS slope survey and the Aleutian Islands shelf survey and because these surveys are currently conducted only in even-numbered years, few new data for the BSAI rockfish assessments become available during odd-numbered years. Therefore, SAFE chapters pertaining to BSAI rockfish will not include full updates during odd-numbered years (such as this one).

The second significant change is that recommendations for ABC and OFL are required for each of the next two years (Item D-1(c)(1)). In September, preliminary projections of ABC and OFL for 2006 and 2007 were made on the basis of last year's stock assessments (Item D-1(c)(2)). In this SAFE report, the Plan Team has revised most of those projections. 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.

ABCs, TACs, and Apportionments At this meeting, the Council will establish final catch specifications for the 2006 and 2007 fisheries. The BSAI Groundfish Plan Team recommended overfishing levels (OFLs) and Allowable Biological Catches (ABCs) for 2006 and 2007. The sum of the recommended ABCs for 2006 is 3,057,104 mt, approximately 12,300 mt above the sum of the 2005 ABCs. This is about 1.1 million mt above the 2 million mt cap employed by the Council as a conservation measure. Overall, the status of the stocks continues to appear favorable, although some stocks are declining due to poor recruitment in recent years. Total biomass for 2006 (17.4 million mt) is roughly equal to last year's estimate.

The 2005 bottom trawl survey estimated a *pollock* biomass of 5,130,000 mt, up 37% from the 2004 estimate. This is due in part to an increase in the estimated strength of the 2000 year class. All other year classes spawned after 1996 appear weaker than average, except for an average 1999 year class. For many years, the Aleutian Islands (AI) pollock stock has lacked an age-structured model and the SSC has determined that the stock qualified for management under Tier 5. An age-structured model for the AI pollock stock, which was introduced in 2004, has not been adopted to assess this stock. Last year, the SSC determined that Bogoslof pollock qualified for management under Tier 5. Continued management of both stocks under Tier 5 would be a precautionary alternative because the maximum permissible ABC under Tier 5 is lower than the maximum permissible ABC under Tier 3 for any of the models presented.

This year's EBS shelf bottom trawl survey resulted in a *Pacific cod* biomass estimate of 604,000 mt, nearly the same as the 2004 estimate and near the minimum for the time series (534,000 mt). Abundance is projected to continue to decrease during 2006-2009 because recent (2001-2004) recruitments are below average. The present assessment is a substantial revision of last year's assessment, incorporating new assessment software and a new maturity-at-length schedule. As a result, the authors have significantly improved the Pacific cod assessment these last two years and reduced some of the uncertainties.

*Sablefish* spawning biomass is projected to remain stable from 2005 to 2006. The 1997 and 2000 year classes appear to be important parts of the total biomass and together are projected to account for 38% of 2006 spawning biomass. The 1998 year class, once expected to be strong, appears average. A 5-year exponential weighting of longline survey relative abundance has been used to apportion the combined 2006 ABC among regions, resulting in increased apportionments to the EBS and AI.

The *yellowfin sole* stock, is predicted to be fairly stable or decrease slightly in the near future due to below average recruitment in the last 5 years. *Greenland turbot* continues to be the only flatfish species that remains low in abundance compared to 1970 levels. As in previous years, the Plan Team and authors acknowledged large uncertainties in the assessment and recommended the ABC be set at a value less than the maximum permissible. Both the EBS and AI *arrowtooth flounder* biomass estimates are peaking. There is no directed fishery and the stock continues to have a high discard rate (>60%). This year's assessment acknowledges that two species of rock sole, northern and southern, inhabit the Bering Sea. Northern rock sole are dominant. This year's EBS bottom trawl survey resulted in a combined biomass estimate of 1,489,000 t, compared to last year's estimate of 1,376,000 t, an increase of 8%. Despite this, as several other flatfish stocks, the rock sole stock is expected to decline due to the low recruitment in the last decade. However, good recruitment in 2001 and 2002 should increase the stock biomass at the beginning of the next decade. Trawl survey biomass estimates for *Atka mackerel* have increased for the last three surveys with four back-to-back years of above-average recruitment (1998-2001 year classes). None of the groundfish stocks are overfished or approaching an overfished condition.

Last year, NMFS staff reported that it could not immediately separate individual species from assemblage management. In November, the Plan Team did not recommend further separation of ABCs between the Bering Sea and Aleutian Islands, but scheduled a discussion of this issue for September 2006. When setting TACs to not exceed the 2 million mt cap, the Council also may wish to consider that the 2005 catch exceeded

TAC for five categories: EBS pollock and BSAI yellowfin sole, arrowtooth flounder, Alaska plaice, and other flatfish. Catches totaled 97 percent of the OY cap.

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)	
<b>Trawl fisheries</b>	
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"
<b>Non-trawl fisheries</b>	
1.	Pacific cod
2.	other non-trawl (longline sablefish and rockfish, and jig gear)
3.	groundfish pot (exempt in recent years)

*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(c)(3) lists the 2005 PSC allocations and seasonal apportionments for the trawl and non-trawl fisheries. Item D-1(c)(4) summarizes PSC bycatch accounting for BSAI CDQ and non-CDQ fisheries.

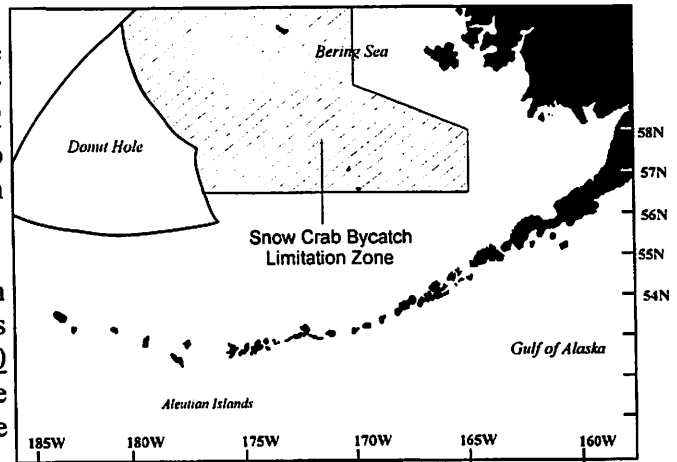
*Crab:* Prescribed bottom trawl fisheries in specific areas are closed when PSC limits of *C. bairdi* Tanner crab, *C. opilio* crab, and red king crab are taken. A stair step procedure for determining PSC limits for red king crab taken in Zone 1 trawl fisheries based on abundance of Bristol Bay red king 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 2005 estimate of effective spawning biomass (68 million pounds), the PSC limit for 2006 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 <i>C. bairdi</i> 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 2005 abundance (763 million crabs), and an additional reduction implemented in 1999, the PSC limit for *C. bairdi* in 2006 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.

In 1998, PSC limits for snow crab (*C. opilio*) are 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.



Location of the *C. opilio* bycatch limitation zone

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 will provide a revised herring biomass estimate prior to 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.

Halibut Discard Mortality Rates Following a schedule adopted by the Council in 2000, halibut bycatch mortality in the 2004-2006 open access fisheries is managed using long-term mean discard mortality rates (DMRs) (Item D-1(c)(5)), so no changes are scheduled for 2006. For CDQ fisheries, International Pacific Halibut Commission staff continue to recommend annually revised halibut DMRs.

The IPHC staff recommendations for the 2006 CDQ fisheries are based on the data collected from the following CDQ target fisheries in 2004: hook-&-line fisheries for Pacific cod and turbot; trawl fisheries for pollock, yellowfin sole, rockfish, and Atka mackerel; and pot fishing for cod and sablefish. The new mean rates differ very little from rates used in 2005. The analysis recommends using the open access DMRs in other CDQ target fisheries. Further, the 2006 rates should be used for proposed rates for 2007, until IPHC staff provides recommendations for 2007 next year.

**Factors to be considered for seasonal apportionments 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.

Minutes from the BSAI Groundfish Plan Team meeting are attached as Item D-1(c)(6).

**Table 1. B Sea Aleutian Islands Groundfish Plan Team OFL, ABC, and TAC Recommendations for the 2006-2007 Fisheries**

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		OFL	ABC	TAC	Catch**	OFL	ABC	TAC	OFL	ABC	TAC
Pollock	EBS	2,100,000	1,960,000	1,478,500	1,483,096	2,090,000	1,930,000		1,930,000	1,790,000	
	Aleutian Islands	39,100	29,400	19,000	1,621	39,100	29,400		39,100	29,400	
	Bogoslof District	39,600	2,570	10	0	50,600	38,000		50,600	38,000	
Pacific cod	BSAI	265,000	206,000	206,000	183,020	230,000	194,000		176,000	148,000	
Sablefish	BS	2,950	2,440	2,440	1,037	3,680	3,060		3,260	2,700	
	AI	3,170	2,620	2,620	1,480	3,740	3,100		3,300	2,740	
Yellowfin sole	BSAI	148,000	124,000	90,686	91,684	144,000	121,000		137,000	116,000	
Greenland turbot	Total	19,200	3,930	3,500	2,530	14,200	2,740		13,400	2,630	
	BS		2,720	2,700	2,105		1,890			1,815	
	AI		1,210	800	425		850			815	
Arrowtooth flounder	BSAI	132,000	108,000	12,000	13,888	166,000	136,000		174,000	142,000	
Northern rock sole	BSAI	157,000	132,000	41,500	37,237	150,000	126,000		145,000	122,000	
Flathead sole	BSAI	70,200	58,500	19,500	15,818	71,800	59,800		67,900	56,600	
Alaska plaice	BSAI	237,000	189,000	8,000	11,183	237,000	188,000		231,000	183,000	
Other flatfish	BSAI	28,500	21,400	3,500	4,466	24,200	18,100		24,200	18,100	
Pacific Ocean perch	BSAI	17,300	14,600	12,600	10,360	17,600	14,800		17,600	14,800	
	BS		2,920	1,400	811		2,960			2,960	
	AI total		11,680	11,200	9,549		11,840			11,840	
	WAI		5,305	5,085	4,725		5,372			5,372	
	CAI		3,165	3,035	2,238		3,212			3,212	
	EAI		3,210	3,080	2,586		3,256			3,256	
Northern rockfish	BSAI	9,810	8,260	5,000	3,959	10,100	8,530		9,890	8,320	
Shortraker	BSAI	794	596	596	166	774	580		774	580	
Rougheye	BSAI	298	223	223	92	299	224		299	224	
Other rockfish	BSAI	1,870	1,400	1,050	468	1,870	1,400		1,870	1,400	
	BS		810	460	188		810			810	
	AI		590	590	280		590			590	
Atka mackerel	Total	147,000	124,000	63,000	61,958	130,000	110,000		107,000	91,000	
	WAI		46,620	20,000	19,736		41,360			34,220	
	CAI		52,830	35,500	35,105		46,860			38,760	
	EAI/BS		24,550	7,500	7,133		21,780			18,020	
Squid	BSAI	2,620	1,970	1,275	1,183	2,620	1,970		2,620	1,970	
Other species	BSAI	87,920	53,860	29,000	24,666	93,800	70,400		93,800	70,400	
	Sharks					1,590	1,190		1,590	1,190	
	Skates					49,200	36,900		49,200	36,900	
	Sculpins					39,300	29,500		39,300	29,500	
	Octopus					3,710	2,780		3,710	2,780	
<b>Total</b>	<b>BSAI</b>	<b>3,509,332</b>	<b>3,044,769</b>	<b>2,000,000</b>	<b>1,949,912</b>	<b>3,481,383</b>	<b>3,057,104</b>		<b>3,228,613</b>	<b>2,839,864</b>	

\*\*2005 catch is through October 29, 2005 (includes CDQ).



## Bering Sea/Aleutian Islands

### Council OFL, ABC, and TAC Recommendations for the 06-07 BSAI Fisheries for Publication in the Proposed Rule

Species	Area	2005				2006			2007		
		OFL	ABC	TAC	Catch**	OFL	ABC	TAC	OFL	ABC	TAC
Pollock	EBS	2,100,000	1,960,000	1,478,500	1,362,815	1,966,100	1,636,800	1,487,756	1,487,100	1,223,200	1,223,200
	Aleutian Islands	39,100	29,400	19,000	1,460	39,100	29,400	19,000	39,100	29,400	19,000
	Bogoslof District	39,600	2,570	10	0	39,600	2,570	10	39,600	2,570	11
Pacific cod	BSAI	265,000	206,000	206,000	159,353	250,700	195,000	195,000	222,000	172,200	172,200
Sablefish	BS	2,950	2,440	2,440	888	3,085	2,556	2,310	6,000	5,000	5,000
	AI	3,170	2,620	2,620	1,404	3,315	2,744	2,480			
Yellowfin sole	BSAI	148,000	124,000	90,686	90,550	139,500	117,700	90,000	130,000	109,600	109,600
Greenland turbot	Total	19,200	3,930	3,500	2,419	18,100	11,400	3,500	16,900	10,500	10,500
	BS		2,720	2,700	2,045		7,590	2,500		7,500	7,500
	AI		1,210	800	374		3,410	1,000		3,000	3,000
Arrowtooth flounder	BSAI	132,000	108,000	12,000	12,842	128,500	104,200	12,000	125,800	102,100	39,100
Rock sole	BSAI	157,000	132,000	41,500	37,168	145,100	121,700	42,000	138,400	116,100	116,100
Flathead sole	BSAI	70,200	58,500	19,500	15,138	65,900	54,900	20,000	60,800	50,600	50,600
Alaska plaice	BSAI	237,000	189,000	8,000	11,157	231,000	183,400	10,000	224,400	178,100	65,000
Other flatfish	BSAI	28,500	21,400	3,500	4,286	28,500	21,400	3,000	28,500	21,400	21,400
Pacific Ocean perch	BSAI	17,300	14,600	12,600	8,528	17,600	14,900	12,600	17,900	15,100	15,100
	BS		2,920	1,400	625		3,000	1,400		1,678	1,678
	AI total		11,680	11,200	7,903		12,000	11,200		13,422	13,422
	WAI		5,305	5,085	3,281		5,450	5,085		6,096	6,096
	CAI		3,165	3,035	2,086		3,252	3,035		3,637	3,637
	EAI		3,210	3,080	2,536		3,298	3,080		3,689	3,689
Northern rockfish	BSAI	9,810	8,260	5,000	2,743	9,800	8,200	5,000	9,700	8,200	8,200
Shorthead	BSAI	794	596	596	154	794	596	596	794	596	596
Rougheye	BSAI	298	223	223	83	298	223	223	298	223	223
Other rockfish	BSAI	1,870	1,400	1,050	398	1,870	1,400	1,050	1,870	1,400	1,400
	BS		810	460	154		810	460		810	810
	AI		590	590	244		590	590		590	590
Atka mackerel	Total	147,000	124,000	63,000	41,171	126,700	107,000	63,000	106,900	90,800	90,800
	WAI		46,620	20,000	5,555		40,230	20,000		28,825	28,825
	CAI		52,830	35,500	29,891		45,580	35,500		51,165	51,165
	EAI/BS		24,550	7,500	5,725		21,190	7,500		10,810	10,810
Squid	BSAI	2,620	1,970	1,275	1,081	2,620	1,970	1,275	2,620	1,970	1,970
Other species	BSAI	87,920	53,860	29,000	19,460	87,920	57,870	29,200	87,920	57,870	50,000
<b>Total</b>	<b>BSAI</b>	<b>3,509,332</b>	<b>3,044,769</b>	<b>2,000,000</b>	<b>1,773,098</b>	<b>3,306,102</b>	<b>2,675,929</b>	<b>2,000,000</b>	<b>2,746,602</b>	<b>2,196,929</b>	<b>2,000,000</b>

\*\*2005 catch is through September 17, 2005 (includes CDQ). The 2006 Pacific cod ABC and TAC is rounded from 194,800 mt to 195,000 mt to be consistent with the 2006 TAC recommended at the December 2004 NPFMC meeting.

8986 Federal Register / Vol. 70, No. 36 / Thursday, February 24, 2005 / Rules and Regulations

TABLE 5.—2005 AND 2006 GEAR SHARES AND SEASONAL ALLOWANCES OF THE BSAI PACIFIC COD ITAC—Continued  
[Amounts are in metric tons]

Gear sector	Percent	2005		2005 Seasonal apportionment <sup>1</sup>		2006		2006 Seasonal apportionment <sup>1</sup>	
		Share of gear sector total	Subtotal percent-ages for gear sectors	Share of gear sector total	Date	Share of gear sector total	Date	Share of gear sector total	Date
CV < 60 feet LOA using Hook-and-line or Pot gear.			1.4	1,354					
Total Trawl Gear	47	89,559	50	44,779	Jan 20-Apr 1	31,345	84,776	42,388	Jan 20-Apr 1
Trawl CV					Apr 1-Jun 10	4,478			Apr 1-Jun 10
					Jun 10-Nov 1	8,956			Jun 10-Nov 1
Trawl CP			50	44,779	Jan 20-Apr 1	22,390		42,388	Jan 20-Apr 1
					Apr 1-Jun 10	13,434			Apr 1-Jun 10
					Jun 10-Nov 1	8,956			Jun 10-Nov 1
Jig	2	3,811			Jan 1-Apr 30	1,524	3,608		Jan 1-Apr 30
					Apr 30-Aug 31	762			Apr 30-Aug 31
					Aug 31-Dec 31	1,524			Aug 31-Dec 31
Total	100	190,550					180,375		

<sup>1</sup> 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.—2005 AND 2006 PROHIBITED SPECIES BYCATCH ALLOWANCES FOR THE BSAI TRAWL AND NON-TRAWL FISHERIES

Trawl fisheries	Prohibited species and zone					
	Halibut mortality (mt) BSAI	Herring (mt) BSAI	Red King Crab (animals) Zone 1 <sup>1</sup>	<i>C. opilio</i> (animals) COBLZ <sup>1</sup>	<i>C. bairdi</i> (animals)	
					Zone 1 <sup>1</sup>	Zone 2 <sup>1</sup>
Yellowfin sole .....	886	183	33,843	3,101,915	340,844	1,788,459
January 20–April 1 .....	262	.....	.....	.....	.....	.....
April 1–May 21 .....	195	.....	.....	.....	.....	.....
May 21–July 5 .....	49	.....	.....	.....	.....	.....
July 5–December 31 .....	380	.....	.....	.....	.....	.....
Rock sole/other flat/flathead sole <sup>2</sup> .....	779	27	121,413	1,082,528	365,320	596,154
January 20–April 1 .....	448	.....	.....	.....	.....	.....
April 1–July 5 .....	164	.....	.....	.....	.....	.....
July 5–December 31 .....	167	.....	.....	.....	.....	.....
Turbot/arrowtooth/sablefish <sup>3</sup> .....	.....	12	.....	44,946	.....	.....
Rockfish: July 5–December 31 .....	69	10	.....	44,945	.....	10,988
Pacific cod .....	1,434	27	26,563	139,331	183,112	324,176
Midwater trawl pollock .....	.....	1,562	.....	.....	.....	.....
Pollock/Atka mackerel/other <sup>4</sup> .....	232	192	406	80,903	17,224	27,473
Red King Crab Savings Subarea <sup>6</sup> .....	.....	.....	42,495	.....	.....	.....
(non-pelagic trawl) .....	.....	.....	.....	.....	.....	.....
Total trawl PSC .....	3,400	2,012	182,225	4,494,569	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	.....	.....	.....	.....	.....
PSC reserve <sup>5</sup> .....	342	.....	14,775	364,424	73,500	222,750
PSC grand total .....	4,575	2,012	197,000	4,858,993	980,000	2,970,000

<sup>1</sup> Refer to § 679.2 for definitions of areas.

<sup>2</sup> "Other flatfish" for PSC monitoring includes all flatfish species, except for halibut (a prohibited species), Greenland turbot, rock sole, yellowfin sole and arrowtooth flounder.

<sup>3</sup> Greenland turbot, arrowtooth flounder, and sablefish fishery category.

<sup>4</sup> Pollock other than pelagic trawl pollock, Atka mackerel, and "other species" fishery category.

<sup>5</sup> With the exception of herring, 7.5 percent of each PSC limit is allocated to the CDQ program as PSQ reserve. The PSQ reserve is not allocated by fishery, gear or season.

<sup>6</sup> In December 2004, the Council recommended that Red King Crab bycatch for trawl fisheries within the RKCSS be limited to 35 percent of the total allocation to the rock sole/flathead sole/"other flatfish" fishery category (see § 679.21(e)(3)(ii)(B)).

**Bering Sea Aleutian Islands Prohibited Species Report**  
(includes CDQ fisheries)  
Through: 19-NOV-05

**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
	BS Pollock (Pelagic)	Count	68,051	26,825	-41,226	254%	0
	BS Chinook Salmon PSQ	Count	1,918	2,175	257	88%	0
	AI Pollock (Pelagic)	Count	43	647	604	7%	0
	AI Chinook Salmon PSQ	Count	0	53	53	0%	0
<b>Total:</b>			<b>70,012</b>	<b>29,700</b>	<b>-40,312</b>	<b>236%</b>	<b>0</b>

**Halibut Mortality**

**Non-Trawl Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
X	Pacific Cod (Hook-and-Line)	MT	467	775	308	60%	18
	Non-Pacific Cod (Hook-and-Line)	MT	13	58	45	22%	0
<b>Total:</b>			<b>479</b>	<b>833</b>	<b>354</b>	<b>58%</b>	<b>18</b>

**Trawl Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	MT	1,339	1,434	95	93%	0
	Rockfish	MT	17	69	52	25%	0
X	Rock Sole, Flathead Sole, Other Flatfish (Trawl)	MT	1,001	779	-222	128%	0
	Pollock, Atka Mackerel, Other Species	MT	188	232	44	81%	0
X	Yellowfin Sole (Trawl)	MT	654	886	232	74%	0
	Turbot/Sablefish/Arrowtooth Flounder	MT	205	0	-205	0%	0
<b>Total:</b>			<b>3,404</b>	<b>3,400</b>	<b>-4</b>	<b>100%</b>	<b>0</b>

**Trawl and Hook-and-Line Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Halibut Mortality PSQ	MT	116	342	226	34%	4
<b>Total:</b>			<b>116</b>	<b>342</b>	<b>226</b>	<b>34%</b>	<b>4</b>

**Bering Sea Aleutian Islands Prohibited Species Report  
(includes CDQ fisheries)**

Through: 19-NOV-05

**National Marine Fisheries Service  
Alaska Region, Sustainable Fisheries  
Catch Accounting**



**Herring (includes CDQ fisheries)**

**Trawl Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	MT	14	27	13	53%	0
	Rockfish	MT	0	10	10	0%	0
	Rock Sole, Flathead Sole, Other Flatfish	MT	7	27	20	24%	0
	Pollock, Atka Mackerel, Other Species	MT	172	192	20	90%	0
	Pollock Pelagic	MT	443	1,562	1,119	28%	0
	Yellowfin Sole	MT	58	183	125	32%	0
	Greenland Turbot, Arrowtooth, Sablefish	MT	0	12	12	0%	0
<b>Total:</b>			<b>694</b>	<b>2,013</b>	<b>1,319</b>	<b>34%</b>	<b>0</b>

**Opilio (Tanner) Crab - COBLZ**

**Trawl Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	31,865	139,331	107,466	23%	0
	Rockfish	Count	0	44,945	44,945	0%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	197,108	1,082,528	885,420	18%	0
	Pollock, Atka Mackerel, Other Species	Count	1,625	80,903	79,278	2%	0
	Yellowfin Sole	Count	3,008,067	3,101,915	93,848	97%	0
	Greenland Turbot, Arrowtooth, Sablefish	Count	0	44,946	44,946	0%	0
	Opilio Crab PSQ	Count	7,383	364,424	357,041	2%	297
<b>Total:</b>			<b>3,246,048</b>	<b>4,858,992</b>	<b>1,612,944</b>	<b>67%</b>	<b>297</b>

**Bairdi Crab, Zone 1**

**Trawl Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	85,785	183,112	97,327	47%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	139,768	365,320	225,552	38%	0
	Pollock, Atka Mackerel, Other Species	Count	165	17,224	17,059	1%	0
	Yellowfin Sole	Count	6,831	340,844	334,013	2%	0
	Bairdi Crab PSQ	Count	191	73,500	73,309	0%	24
<b>Total:</b>			<b>232,740</b>	<b>980,000</b>	<b>747,260</b>	<b>24%</b>	<b>24</b>

**Bering Sea Aleutian Islands Prohibited Species Report**  
(includes CDQ fisheries)  
Through: 19-NOV-05

**National Marine Fisheries Service**  
**Alaska Region, Sustainable Fisheries**  
**Catch Accounting**



**Bairdi Crab, Zone 2**

**Trawl Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	47,414	324,176	276,762	15%	0
	Rockfish	Count	0	10,988	10,988	0%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	299,616	596,154	296,538	50%	0
	Pollock, Atka Mackerel, Other Species	Count	779	27,473	26,694	3%	0
	Yellowfin Sole	Count	99,955	1,788,459	1,688,504	6%	0
	Bairdi Crab PSQ	Count	1,406	222,750	221,344	1%	76
<b>Total:</b>			<b>449,171</b>	<b>2,970,000</b>	<b>2,520,829</b>	<b>15%</b>	<b>76</b>

**Red King Crab, Zone 1**

**Trawl Gear**

Sea- sons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	Count	1,832	26,563	24,731	7%	0
	Rock Sole, Flathead Sole, Other Flatfish	Count	46,031	121,413	75,382	38%	0
	Pollock, Atka Mackerel, Other Species	Count	0	406	406	0%	0
	Yellowfin Sole	Count	48,846	33,843	-15,003	144%	0
	Red King Crab PSQ	Count	107	14,775	14,668	1%	9
<b>Total:</b>			<b>96,816</b>	<b>197,000</b>	<b>100,184</b>	<b>49%</b>	<b>9</b>

"Other flatfish" for PSC monitoring: all flatfish species, except for Pacific halibut (a prohibited species), flathead sole, 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.

**Bering Sea Aleutian Islands Seasonal Prohibited Species Report (includes CDQ fisheries)**

**Through:** 19-NOV-05

**Account:** ALL

**National Marine Fisheries Service  
Alaska Region, Sustainable Fisheries  
Catch Accounting**



**Non-Chinook Salmon, CVOA**

**Trawl Gear**

Season	Begin	End	Units	Total Catch	Limit	Remaining	% Taken
Non-Chinook Salmon CVOA	15-AUG-05	14-OCT-05	Count	53,758	38,850	-14,908	138%
Non-Chinook Salmon PSQ CVOA	15-AUG-05	14-OCT-05	Count	35	3,150	3,115	1%
<b>Total:</b>				<b>53,793</b>	<b>42,000</b>	<b>-11,793</b>	<b>128%</b>

**Halibut Mortality**

**Pacific Cod (Hook-and-Line)**

Season	Begin	End	Units	Total Catch	Limit	Remaining	% Taken
1st Season	01-JAN-05	10-JUN-05	MT	142	320	178	44%
2nd Season	10-JUN-05	15-AUG-05	MT	3	0	-3	0%
3rd Season	15-AUG-05	31-DEC-05	MT	322	455	133	71%
<b>Total:</b>				<b>467</b>	<b>775</b>	<b>308</b>	<b>60%</b>

**Rock Sole, Flathead Sole, Other Flatfish (Trawl)**

Season	Begin	End	Units	Total Catch	Limit	Remaining	% Taken
1st Season	20-JAN-05	01-APR-05	MT	527	448	-79	118%
2nd Season	01-APR-05	05-JUL-05	MT	219	164	-55	133%
3rd Season	05-JUL-05	31-DEC-05	MT	255	167	-88	153%
<b>Total:</b>				<b>1,001</b>	<b>779</b>	<b>-222</b>	<b>128%</b>

**Yellowfin Sole (Trawl)**

Season	Begin	End	Units	Total Catch	Limit	Remaining	% Taken
1st Season	20-JAN-05	01-APR-05	MT	257	262	5	98%
2nd Season	01-APR-05	21-MAY-05	MT	167	195	28	86%
3rd Season	21-MAY-05	05-JUL-05	MT	24	49	25	49%
4th Season	05-JUL-05	31-DEC-05	MT	206	380	174	54%
<b>Total:</b>				<b>654</b>	<b>886</b>	<b>232</b>	<b>74%</b>

CVOA: Catcher Vessel Operational Area. 50 CFR 679.22(a)(5) and Figure 2.

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

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.

<b>Recommendations for Preseason Assumed DMRs for monitoring halibut bycatch mortality in 2006 CDQ fisheries.</b>		
<b>Gear/Target</b>	<b>Used in 2005</b>	<b>2006 Recommendation</b>
<b><i>CDQ Trawl</i></b>		
Atka mackerel	85	86
Bottom pollock	85	85
Flathead sole	67 <sup>a</sup>	67 <sup>a</sup>
Pelagic pollock	90	89
Rockfish	74 <sup>a</sup>	74 <sup>a</sup>
Yellowfin sole	84	85
<b><i>CDQ Longline</i></b>		
Pacific cod	10	10
Turbot	15 <sup>a</sup>	15 <sup>a</sup>
<b><i>CDQ Pot</i></b>		
Pacific cod	8 <sup>a</sup>	8 <sup>a</sup>
Sablefish	33	30

<sup>a</sup> Open access fishery DMRs.



**BSAI Groundfish Plan Team  
AFSC- Seattle, WA  
November 15-18, 2005**

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)  
Dan Lew (AFSC)

Brenda Norcross (UAF)  
Ivan Vining (ADF&G)  
Kerim Aydin (AFSC)  
Bill Clark (IPHC)  
Lowell Fritz (NMML), absent  
Kathy Kuletz (USFWS), absent

The BSAI Groundfish Plan Team met at the Alaska Fisheries Science Center from the afternoon of November 15 to November 18, 2005. The main agenda items were to review the 2005 stock assessments and to recommend OFLs and ABCs to the Council (Attachment). In September 2005, preliminary projections of ABC and OFL for 2006 and 2007 were made on the basis of 2004 stock assessments. At this meeting, the Plan Team revised most of those projections. Plan Team recommendations for final specifications differ from proposed specifications 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 ABCs.

**AI pollock** Steve Barbeaux, AFSC, presented a revised age-structured stock assessment for AI pollock. Since preparation of the chapter, Steve and other AFSC staff have been developing an experimental fishing permit with Adak Fisheries for a multi-stage, long term project for improving AI survey estimates. A first step would investigate whether a survey could be conducted by a small catcher vessel in January/February. The second step would then design a survey. The third step would investigate alternative management strategies to address temporal/spatial TAC-setting.

The Plan team noted that the assessment did not differ significantly from the 2004 assessment, i.e., Model 1b in 2004 is the same as Model 2 in 2005. After some discussion, the Team recommended an OFL and ABC based on Tier 5. The Team discussed whether another model could be developed based on Eastern Bering Sea pollock migration into the AI.

**Bogoslof pollock** Jim Ianelli, AFSC, reviewed the revised assessment for Bogoslof pollock. This assessment was first reviewed in September. The Team concurred that the model is a step forward because it begins to provide a context for the 2 million mt reference point, but felt that adoption of a model would be premature at this time. The Team generally discussed how to tie together the survey data; how pollock may be recruiting into the area; and how the time series of data could be modeled. The Team recommended setting OFL and ABC under Tier 5.

**Eastern Bering Sea pollock** Jim Ianelli, AFSC, reviewed the assessment for EBS pollock. The Team concurred with the authors' recommendation of Model 1, though the Team's ABC recommendation of 1,930,000 mt was slightly higher than the authors' recommended value of 1,880,000 mt. This is the same model that was accepted last year, except for incorporating new data from the 2005 bottom trawl survey, the 2004 fishery, and revised estimates of the age composition observed during the 2004 EIT survey. The 2005 bottom trawl survey biomass estimate of 5,130,000 mt is up 37 percent from last year. The author and Team agreed that pollock is managed appropriately under Tier 1. This year's assessment includes an expanded "Ecosystems Considerations" section. Results indicate that EBS pollock exhibit a high level of cannibalism, which tends to stabilize the stock. This year, the 2000 year class appeared strong in the 2005 bottom trawl survey and the revised age composition from the 2004 EIT survey.

**Pacific cod** New models for assessing Pacific cod were presented by Grant Thompson, AFSC, at the joint team meeting. The Team's comments on the new length maturity schedule and assessment models are provided in the Joint Team minutes. The BSAI Team discussed the OFL and ABC recommendations in its meeting. The Team agreed with the author's recommendations to set specifications at the maximum permissible, but selected a different model for calculating these values. While not explicitly discussed at this meeting, the Team previously has supported separate ABCs for the Bering Sea and Aleutian Islands.

*Squid.* Sarah Gaichas presented the squid assessment. There continues to be no reliable biomass estimate for squid, but it is assumed to be huge and concentrated largely in the unsurveyed Bering Sea basin waters. Calculations indicate that 1,000,000 mt are consumed as prey. Fishery removals are incidental. The Team reviewed the relationship between foraging areas and breeding sites of northern fur seals in the eastern Bering Sea as reported by Robson (2004). Fur seals in the Pribilof Islands, foraging in two canyons, could be dependent on pollock and squid. The fishery could interfere with this foraging if foraging occurs at the same time as the fishery. Fur seals were found to forage in discrete directions from each of the major Pribilof rookeries, so some colonies of fur seals may be more dependent on squid than others.

*Skates.* Sarah also presented the skate assessment. She recommended separate area specifications based on different species composition and relative abundances between the Bering Sea and Aleutian Islands, and the presence of endemic skate species found only in the Aleutian Islands. Jerry Hoff reviewed results of his skate nursery investigation. He found four cohorts developing for each nursery area. It is unclear if the cohorts are from the same females. The Alaska skate population has been expanding into Bristol Bay. A few key spots could be identified as EFH. Beth Matta summarized her work on skate reproductive biology, maturity, and age compositions for the GOA and BSAI. The best information exists for Alaska skates which dominate the Bering Sea shelf. From ecosystem modeling, skate mortality is much higher from fishing and unexplained sources, particularly for the Aleutian Islands, than from predation. Large proportions of Alaska skate mortalities (80% in the BS and 46% in the AI) are from unexplained sources. Data are rather imprecise for skate mortalities in all areas until very recently, so this requires further evaluation. The ecosystem models are based on early 1990s data, which is some of the lowest quality data for skates, as the data quality improved and will be re-examined in the future.

*Sculpins.* Rebecca Reuter presented the sculpin assessment chapter, as revised since previewed in September. Sculpin biomass is second to skates in comprising the biomass associated with the other species complex.

The Team does not agree with author recommendations to break out skates or sculpins between the Bering Sea subarea and Aleutian Islands subarea at this time (see above discussion). The Team asked the authors to provide additional information next year from the fisheries and surveys regarding the spatial concentration of the primary species that constitute the skate and sculpin categories.

*Octopus.* M. Elizabeth Connors presented the octopus assessment chapter, as revised since previewed in September. The Team concurred with the authors concerns regarding Tier 5 or 6 calculations. For Tier 6, incidental catch rates could result in an OFL that is artificially low. Tier 5 numbers are based on trawl survey biomass estimates: sampling variability, seasonal differences, and gear selectivity adversely affect the quality of these estimates for octopus. The Team concurred on the use of the sum of ten-year averages for survey biomass from the BS shelf, BS slope, and AI surveys as the basis for Tier 5 calculations. Species identification and spatial separation of the species is unknown. The Team noted that there is good survival from pot and longline gear. Catch comes mostly out of regulatory area 519, possibly in SSL closure areas because of the no trawl zones. The Team discussed the possibility of a directed fishery on octopods and concluded that a pot fishery was unlikely, but it could be a viable addition to cod potting. Cod pots predominate in Areas 517, 519, and 508; longliners are fishing in Area 528. The author suggested that a size limit may be a viable future management tool, to restrict harvest to the larger giant Pacific octopus. Species other than giant Pacific octopus have lower fecundity and benthic larvae and may be more susceptible to fishing. She noted that the State of AK is investigating directed fishing efforts and may need to be involved in future management.

*Sharks.* Dean Courtney presented the shark assessment for the complex and Pacific sleeper shark using Tier 6. The authors recommended not using natural mortality rates from other shark species. A rate should be available for use under Tier 5 next year, based on work by Ken Goldman. The Team is encouraged by the current efforts of the shark assessment authors to estimate the value of M for certain shark species.



## **BSAI Plan Team Members (14 Members)**

NPFMC -- Jane DiCosimo (Plan Coordinator)

NMFS (AFSC) --Loh-Lee Low (Chair)  
Mike Sigler (Vice Chair)  
Grant Thompson  
Lowell Fritz  
Kerim Aydin  
Dan Lew

NMFS (Region) Andy Smoker

USF&W -- Kathy Kuletz

ADF&G -- Ivan Vining  
Dave Carlile

Univ.Alaska-- Brenda Norcross

WDF&W -- Michele Culver

Halibut Comm-- Bill Clark

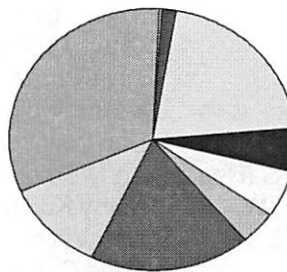
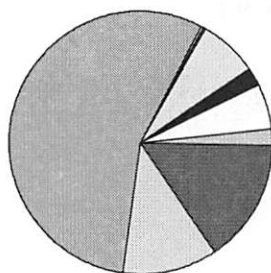
**2005 BSAI SAFE Reports  
Many Contributors  
from Various Agencies and Universities**

34 Authors for Status of Stocks Section  
 116 Contributors to Ecosystems Section  
 9 Authors for Economics Chapter

**Total U.S. Landings (2004)**  
 4.37 million mt, \$3.65 Billion  
 (From NOAA Fisheries Publication, Fisheries of the United States)

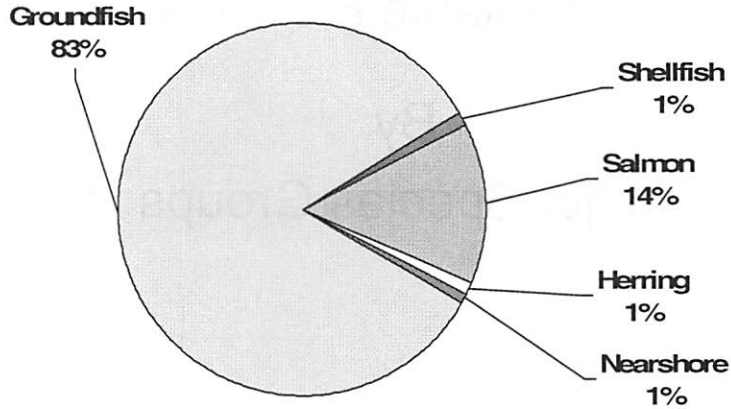
**Catch Weight, Alaska = 56%**

**Catch Value, Alaska = 33%**

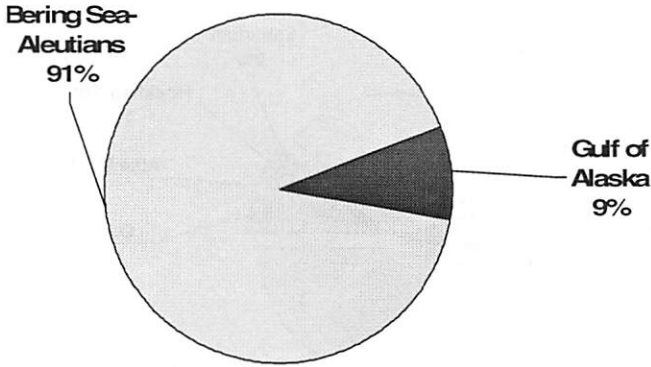


- New England
- M. Atlantic
- Chesapeake
- S. Atlantic
- Gulf
- West Coast
- Alaska
- Great Lakes
- W. Pacific

**Alaska Landings  
2.6 million mt (2004)**



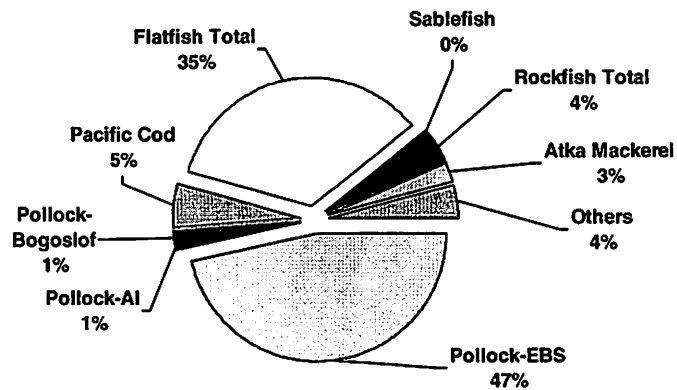
**Alaska Groundfish Landings  
2.168 million mt (2004)**



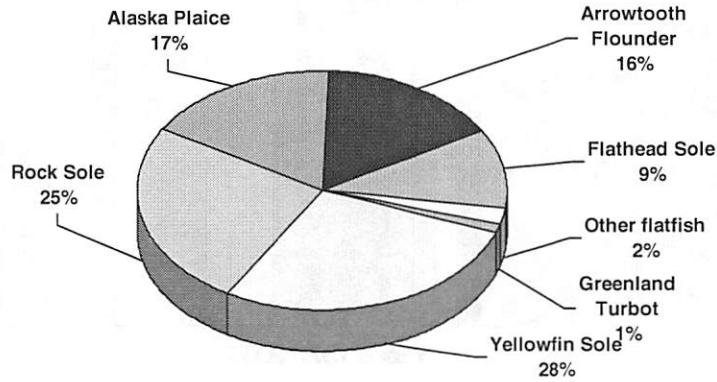
# Overview of Exploitable Biomass

## By Major Species Groups

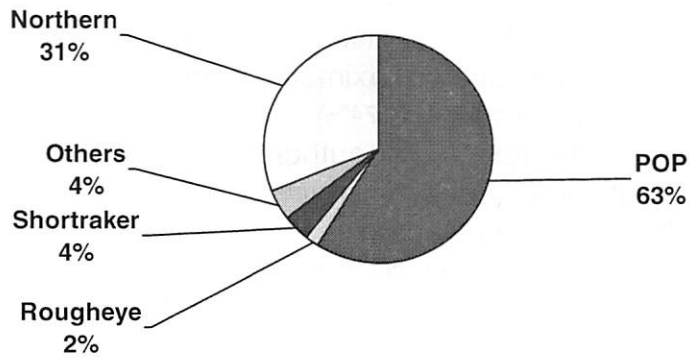
Nov 2005 Assessment  
**BSAI Exploitable Biomass**  
Year 2006 Total = 17.215 MMT  
(down 9% from last year, mainly in EBS Pollock and P.Cod)



Nov 2005 Assessment  
 BSAI Flatfish Complex Biomass  
 Year 2006 Total = 5.973 MMT  
 (up 635,000 mt from last year)



Nov 2005 Assessment  
 BSAI Rockfish Complex Biomass  
 Yr 2006 Total = 653,400 MT  
 (No Analysis Update from last year)

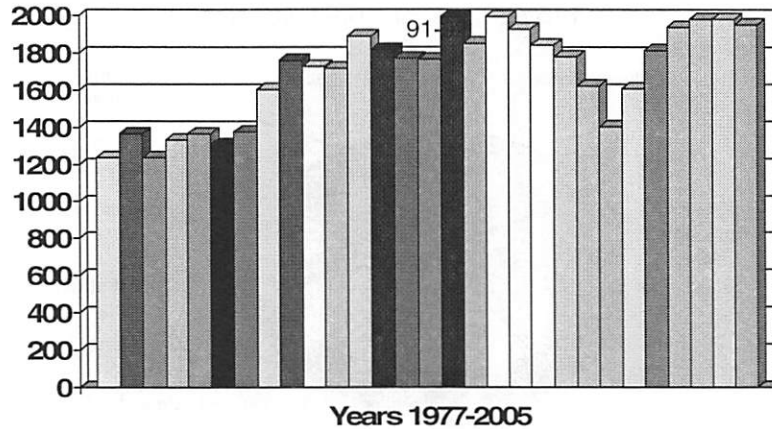


## Bering Sea-Aleutians Groundfish Catch

28 Year History under MS-FCMA

(in thousands of mt)

(from Table 1, Economics Section)



## SAFE Document Big Picture

- Possible new area/species splits
  - Now: Authors want to split SR and RE by area
  - Future: Authors & Team want to split "Other Species"
  - Future: Authors & Team want to split Pcod ABC by area
  - Future: Authors want to split skates, sculpins by area
- Tier 1-3 stocks mostly above B40%
  - except: cod (95%), sable. (95%), GT (92%), POP (94%)
- Team ABCs mostly at maximum permissible
  - except: Greenland turbot (24%)
- Team mostly agrees with authors on total ABCs
  - except: pollock (3 areas), cod, turbot
- Rockfish now on 2-year assessment cycle
  - Models re-run with new catch data only
  - "Other rockfish" proposed specs equal to 2005



## Ecosystem Considerations

- 20 of 22 chapters now have EC sections
  - 16 have ecosystem impacts on the species and fishery impacts on the ecosystem
  - Often limited to qualitative considerations
- Added influence of temperature on surveys
  - Pollock, cod, all flatfish except turbot and “other”
- Added effects of regime shifts on recruitment
  - Cod, all flatfish except turbot and “other”
- Added results from ecosystem models
  - Pollock, Atka mackerel, skates, squid, octopus, sculpins

## Plan Team’s Estimates of OFLs and ABCs

- Plan Team numbers are in Table 5 of Appendix 5 of SAFE report
- Minor deviations from SSC Estimates
  - For Bogoslof Pollock
  - For Other Species (sharks and octopuses)
- Changes are minor and PT defers to SSC numbers

## Summary (Pollock)

(From Table 5, Team Summary Appendix A)

Stock	Biomass (mt)	ABC (mt)	ABC Change from 2005
Pollock, EBS	8,050,000	1,930,000	Down 2%
Pollock, AI	130,000	29,400	No change
Pollock, Bogoslof	253,000	38,000(PT) 5,500(SSC)	Up 114% on SSC Est.

## Summary (Cod and Sablefish)

(From Table 5, Team Summary Appendix A)

Stock	Biomass (mt)	ABC (mt)	ABC Change From 2005
Pacific Cod, BSAI	922,000	194,000	Down 6%
Sablefish, EBS	31,000	3,060	Up 25%
Sablefish, AI	33,000	3,100	Up 18 %

### Summary (Flatfishes)

(From Table 5, Team Summary Appendix A)

Stock	Biomass (mt)	ABC (mt)	ABC Change from 2002
YellFn. Sole	1,680,000	121,000	Down 2 %
Grn. Turbot	74,200	2,740	Down 30 %
Arrow. Fl	964,000	136,000	Up 26 %
N.RockSole	1,490,000	126,000	Down 5 %
Flathead S	636,000	59,800	Up 2 %
Alaska Plaice	1,008,000	188,000	Down 1 %
Other Flats	121,000	18,100	Up 2 %

### Summary (Rockfishes)

(From Table 5, Team Summary Appendix A)

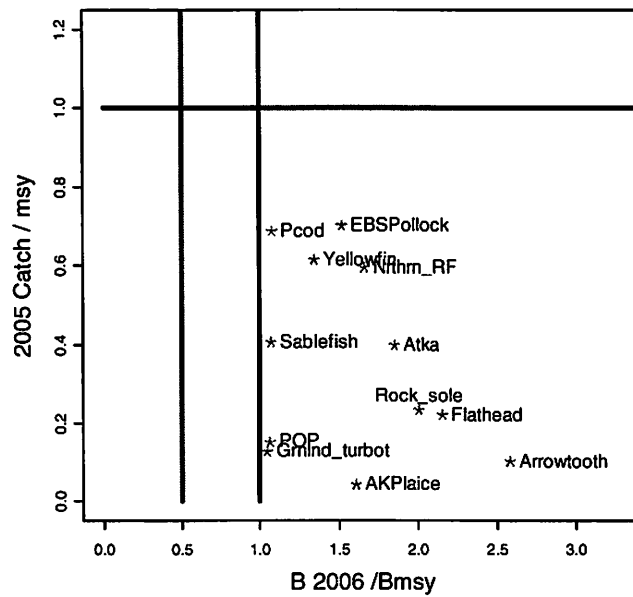
Stock	Biomass (mt)	ABC (mt)	ABC Change
POP, BSAI	385,000	14,800	Minor update
Northern R	204,000	8,530	Minor Update
ShortRaker	25,800	580	Minor Update
Rougheye	11,900	224	Minor Update
Other R, EBS	15,400	810	No Change
Other R, AI	11,200	590	No change

## Summary (Atka Mackerel & Other Species)

(From Table 5, Team Summary Appendix A)

Stock	Biomass (mt)	ABC (mt)	ABC Change From 2002
Atka Mackerel	446,000	110,000	Down 11 %
Squid	NA	1,970	Same
Other Species	723,600	70,400 (PT) 58,882(SSC)	Up 10% (SSC)

### Bering Sea and Aleutian Islands Region



Description

Species-by-Species

Start with Pollock Stocks

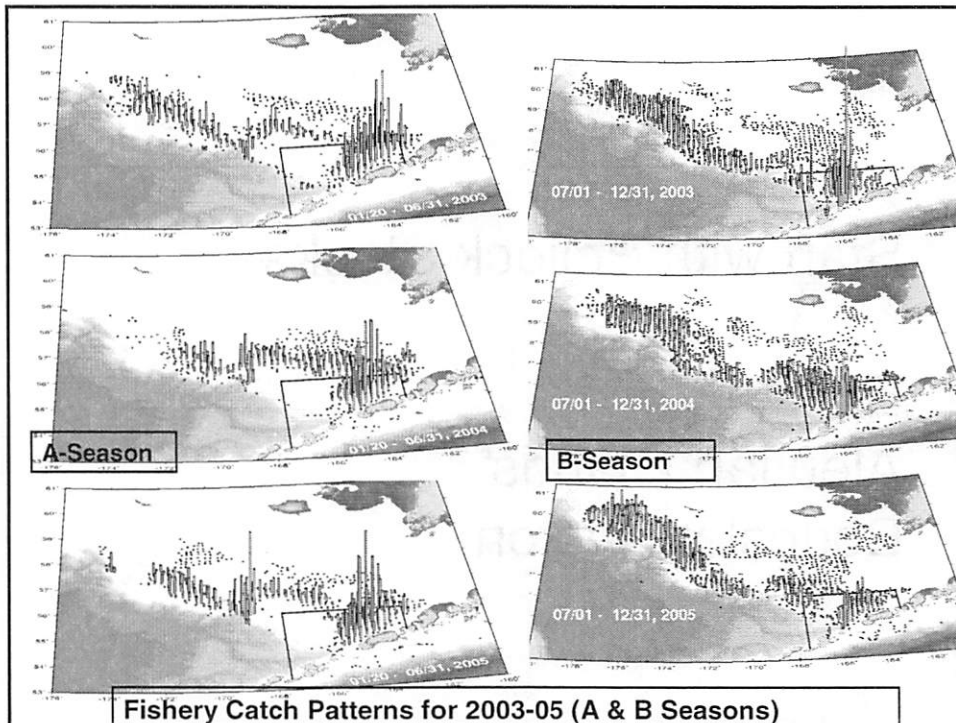
EBS

Aleutian Islands

Bogoslof Region

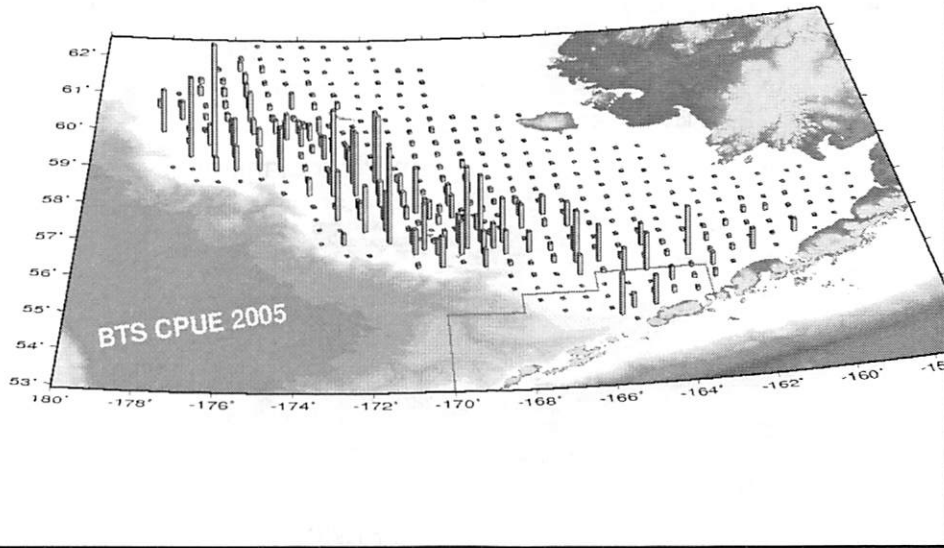
## EBS Pollock Assessment Notable Features

1. Straight-forward update of last year's assessment.
2. Year 2005 Surveys  
Bottom Trawl Biomass = 5.13 mmt, up 37% from 2004 survey.  
No hydroacoustic survey.
3. Year 2005 Modeling  
6 scenarios of Age-Structure Model, Used Reference Model 1  
Age3+ Biomass for 2005 = 9.3 mmt, still high but down from last year's estimate of 11 mmt
4. Recruitment  
2000 Year Class (5 year-old fish) is strongly Above Average and would make up about 27% of the exploitable biomass in 2006.

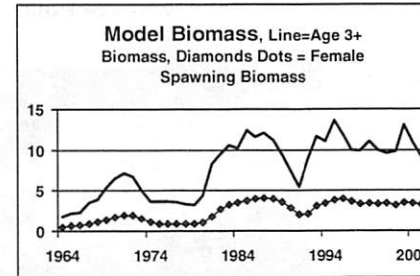
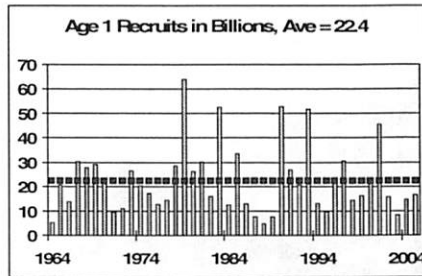
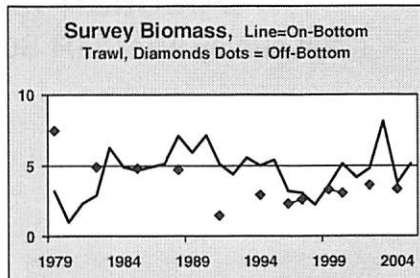
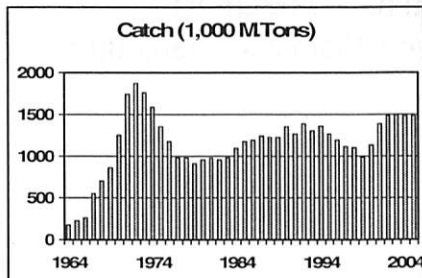


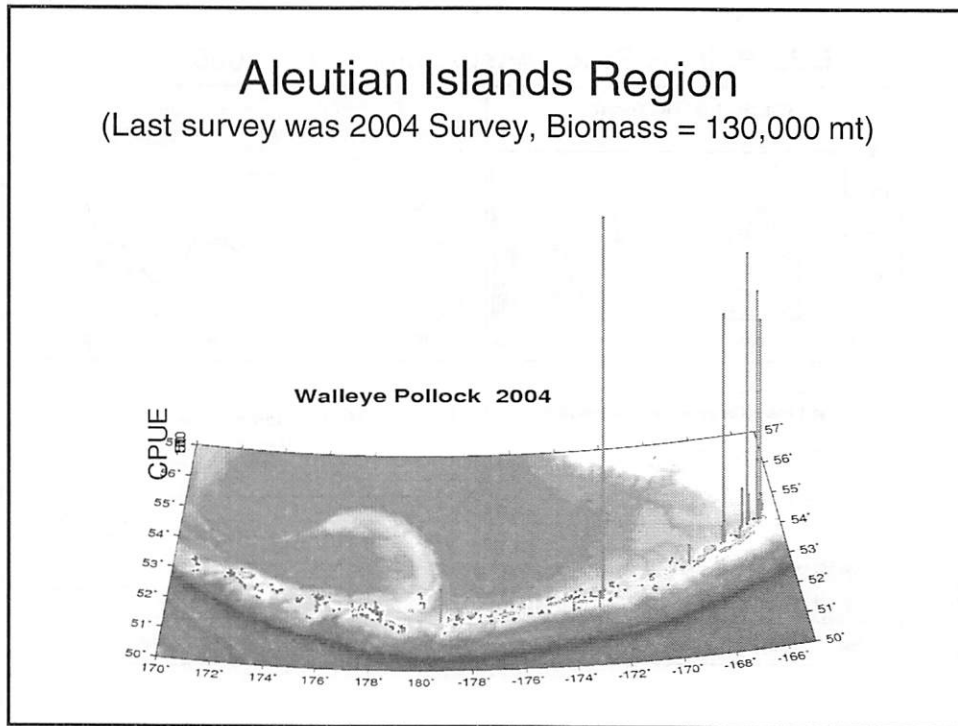
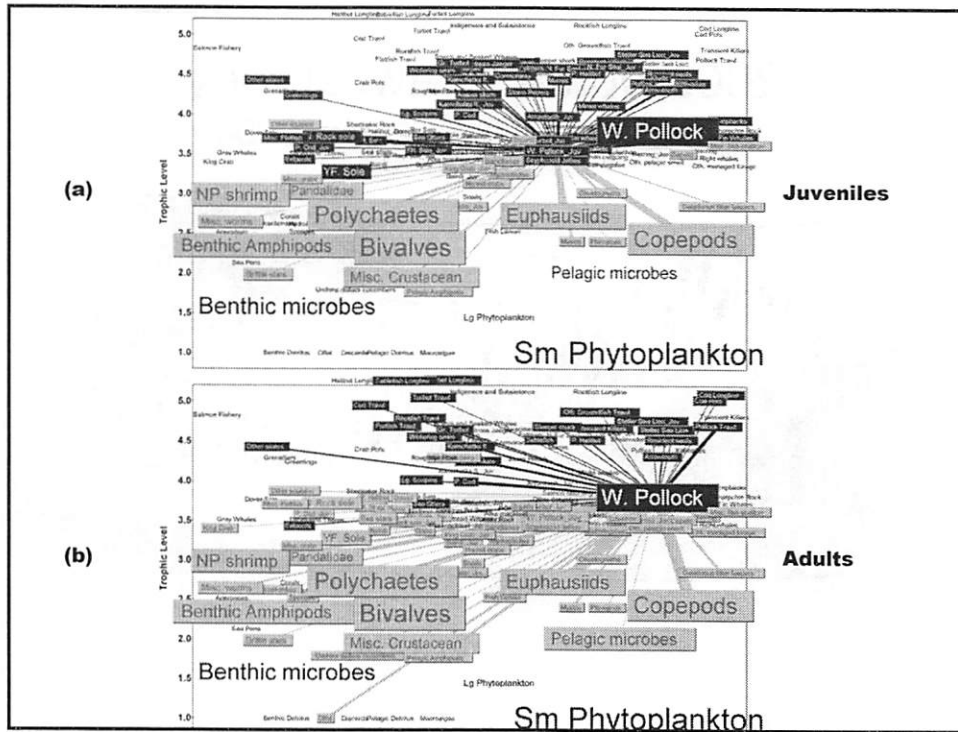
# 2005 bottom trawl survey

5.13 million t, up 37% from 2004



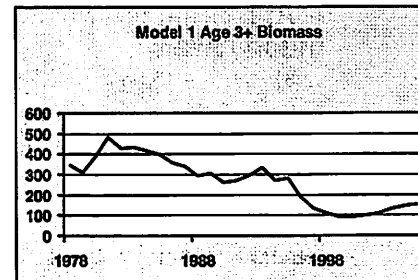
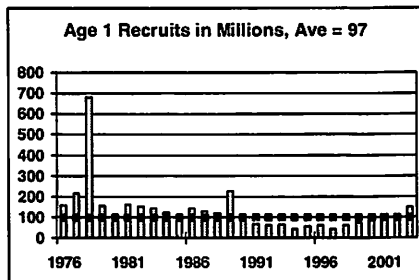
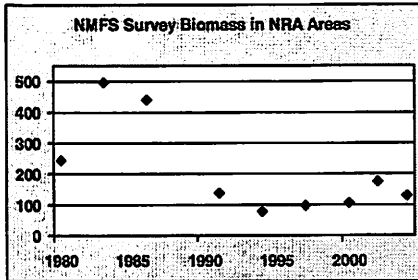
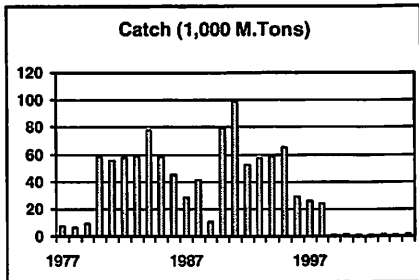
## EBS Pollock Stock Assessment, Dec 2005





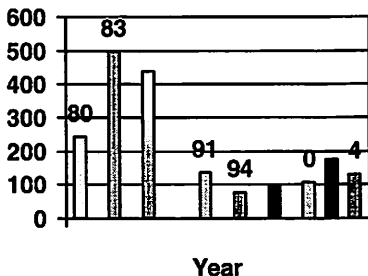


### Aleutian Islands Pollock Assessment, Dec 2005



### Aleutian Island Region Pollock Assessment

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 130,000

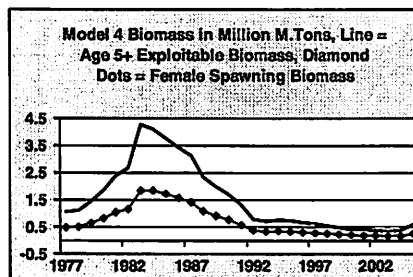
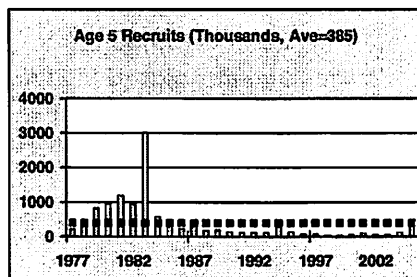
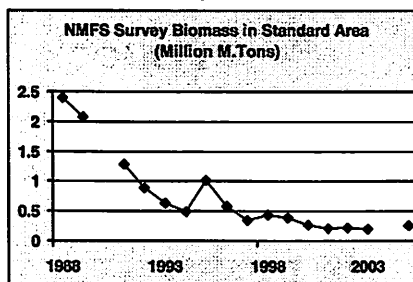
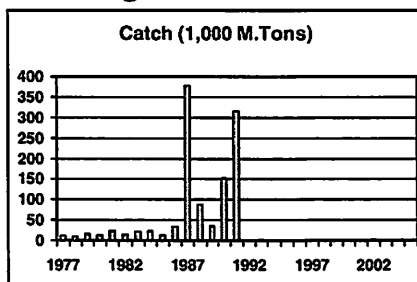
2. Has age structured Model, but not quite ready for use

3. ABC from Tier 5 = 29,400 mt

## Bogoslof Pollock Stock

1. **New survey in 2005 by R/V Miller Freeman**  
 -- Biomass = 253,000mt, up 28% from 2003
2. **New Age Structured Model developed for Management Strategy Evaluations**  
 -- High 4.5 mmt model biomass was reached due to abnormally high 1978 Yr Class.  
 -- At normal year class conditions, biomass would be much lower.  
 -- Model still could not incorporate stock inter-relationships and effects of fishing on the same stock outside of the Bogoslof area.
3. **Thus model is not quite Ready for Use and we used Tier 5 to calculate ABC**

### Bogoslof Island Pollock Assessment, Dec 2005



## **Bogoslof Region Pollock ABC**

### **Plan Team versus SSC Procedure**

**1. Plan Team Method Uses Tier 5**

ABC max permissible = Biomass x 0.75 M

ABC = 253,000 x 0.75 x 0.3 = 38,000 mt

**2. SSC Method Uses Tier 5 but reduced Fishing Rate**

Uses 2 mmt as Target Biomass and since 2005 Biomass was 12.6 % of Target, fishing rate should be reduced proportionately

ABC was adjusted down by formula to 5,500 mt

## **Pacific Cod Assessment Notable Features**

**1. Brand New Model**

New model structure with software algorithm

Several technical changes

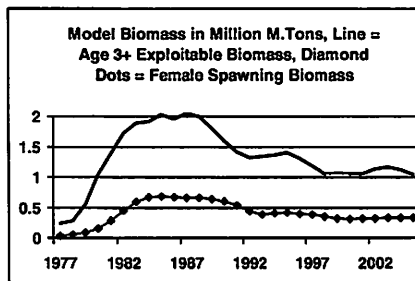
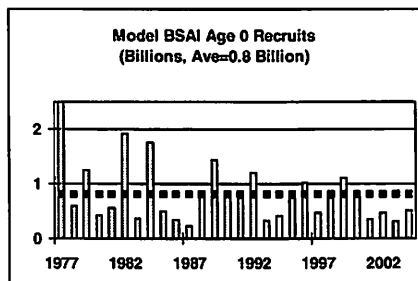
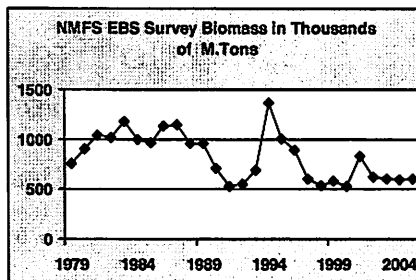
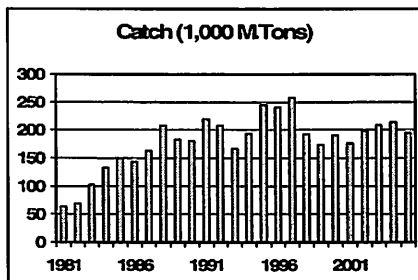
**2. Year 2005 Surveys**

-- EBS Trawl Biomass = 604,000 mt, no change

**3. ABC is based on Tier 3**

-- 1999 year class is clearly above average; but last 4 year classes are below average, thus biomass declining slowly.

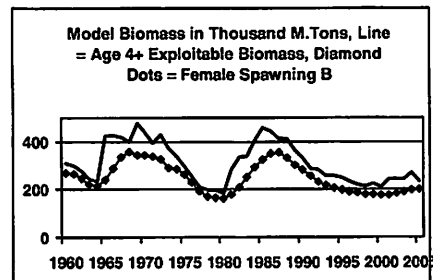
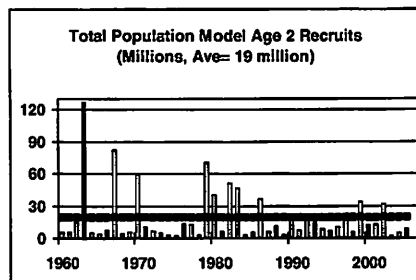
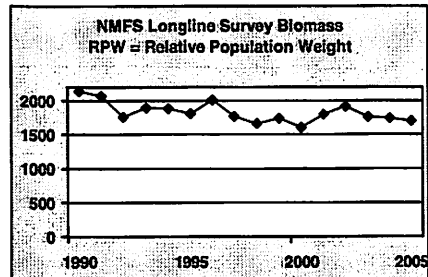
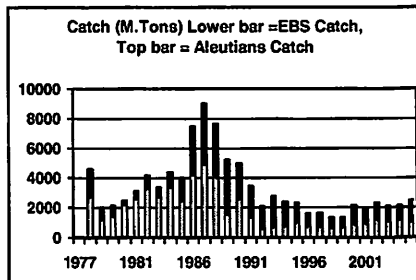
## Pacific Cod Stocks Assessment, Dec 2005



## Sabalefish Assessment Notable Features

1. **BSAI Stock Assessment is embedded in the Model for the entire Alaska region for a Single Stock**
  - This year's assessment is a straight forward update of last year's analyses and model with several technical changes
2. **Year 2005 Surveys**
  - Survey abundance Index decreased 2.5% from 2004
3. **Model Spawning Biomass**
  - Projected to remain stable from 2005 to 2006.
  - The 1997 and 2000 Yr classes are projected to account for 38% of the spawning biomass in 2006.
4. **ABC is based on Tier 3**
  - Apportionment of ABC to EBS and Aleutians is based on Relative Population Weight based on the surveys (a 5-Yr weighting)

## Alaska-wide Sablefish Stock Assessment, Dec 2005



## Flatfish Complex

### Overview of the Complex

#### 1. Survey Biomass

- Still relatively high biomass ,
- Exception is Greenland Turbot, a deep water flatfish

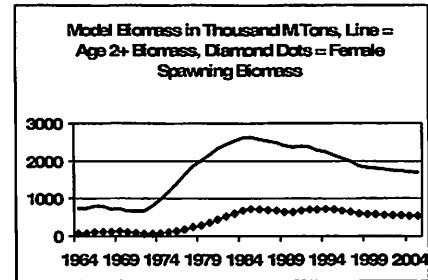
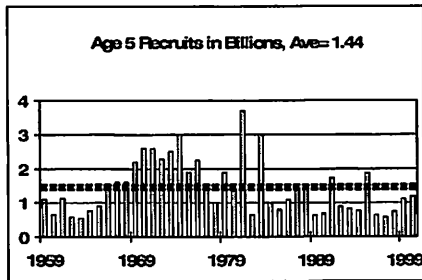
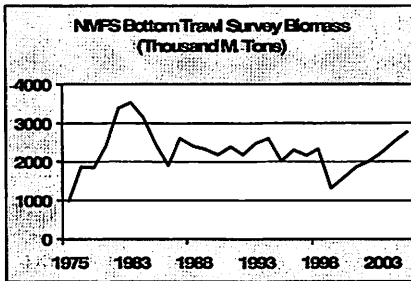
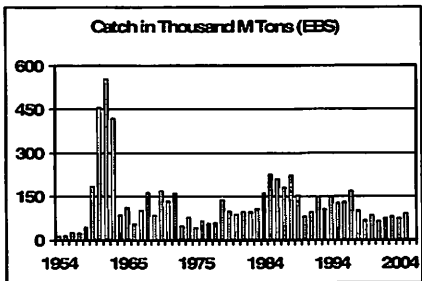
#### 2. Models

- Developed for most of the species
- Models are not available for minor components

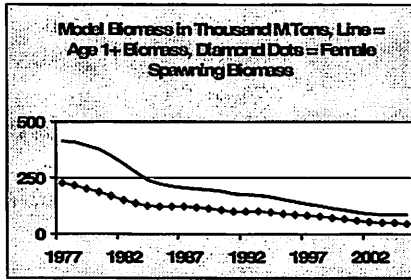
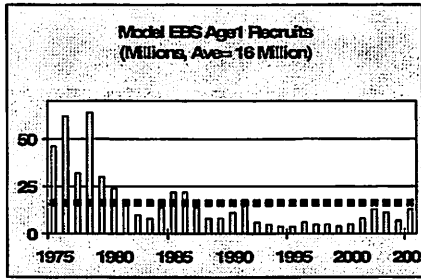
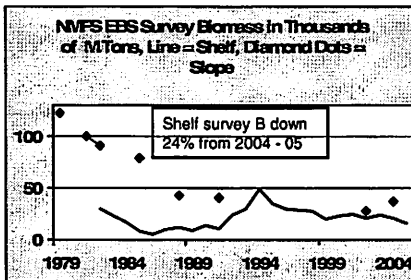
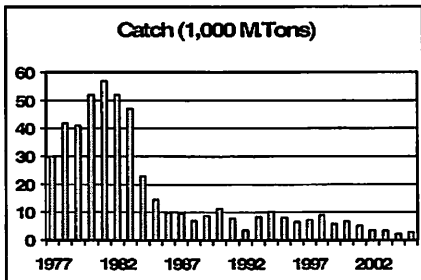
#### 3. Biomass levels are high and expected to remain so. Exception is Greenland Turbot

#### 4. TACs have been set substantially below maximum possible ABCs, even for Greenland Turbot

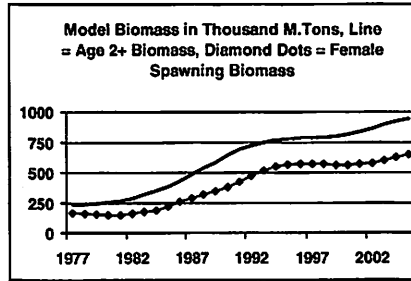
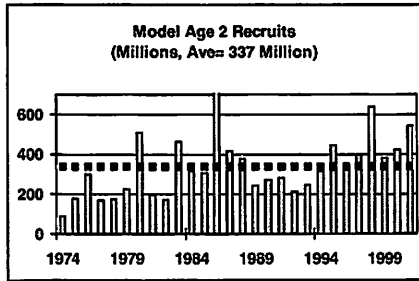
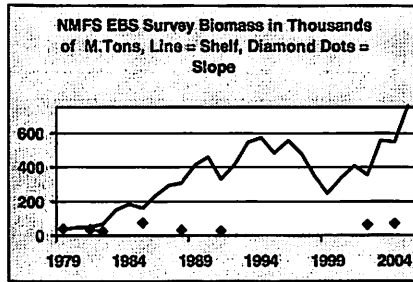
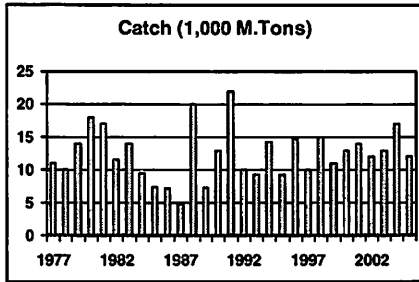
### Yellowfin Sole Stock Assessment, Dec 2005



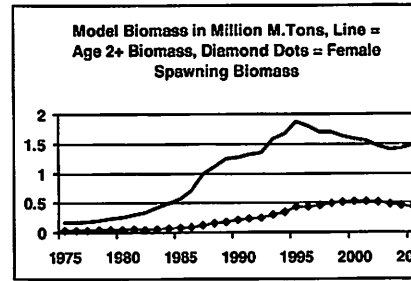
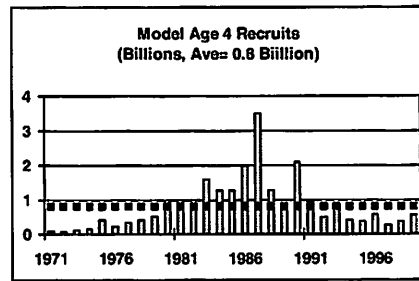
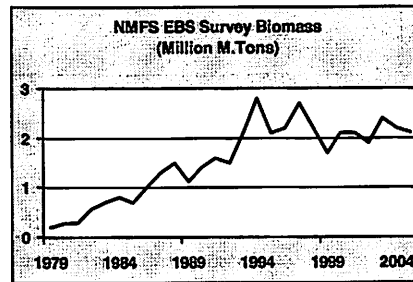
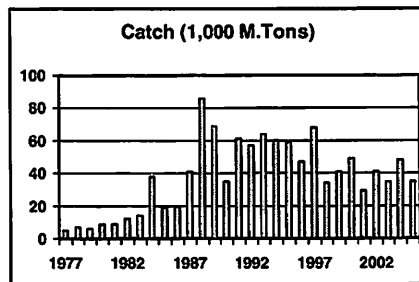
### Greenland Turbot Stock Assessment, Dec 2005



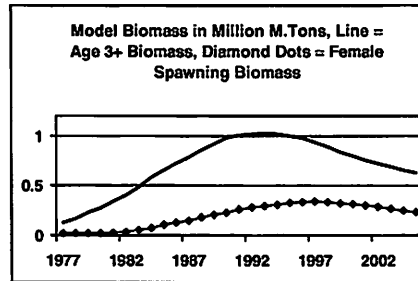
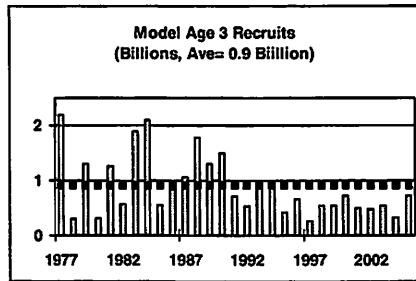
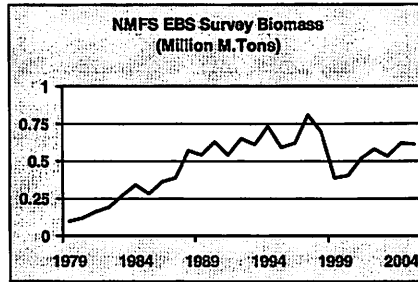
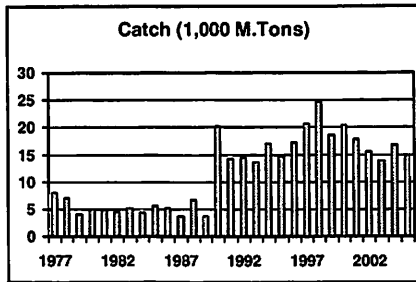
### Arrowtooth Flounder Stock Assessment, Dec 2005



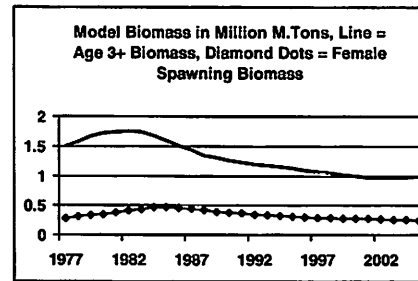
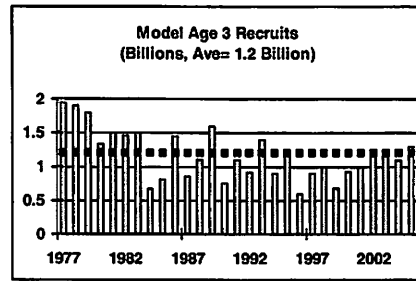
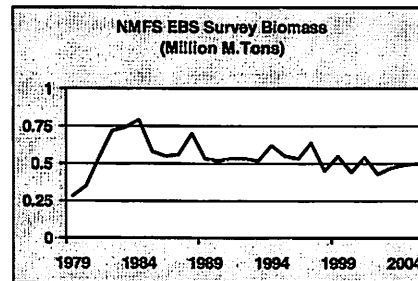
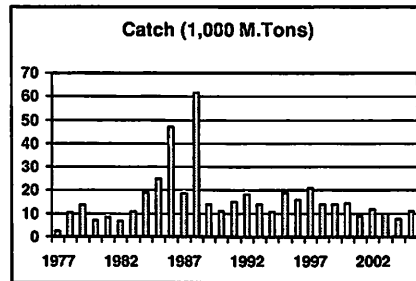
### Rock Sole Stock Assessment, Dec 2005



### Flathead Sole Stock Assessment, Dec 2005

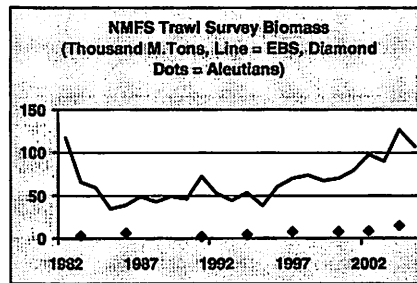
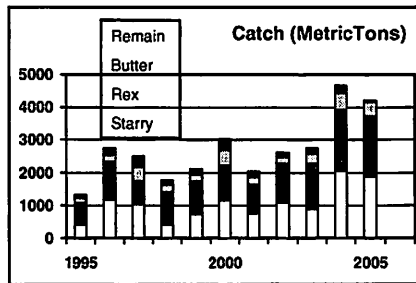


### Alaska Plaice Stock Assessment, Dec 2005





## Other Flatfish Group Assessment, Dec 2005



**Model Biomass and Recruitment Estimations are not Available**

### Assessment Features

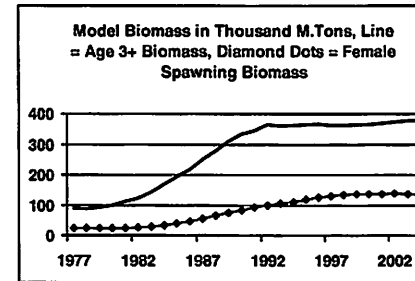
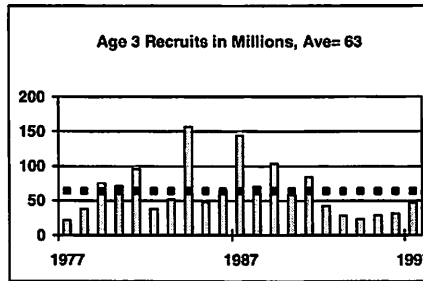
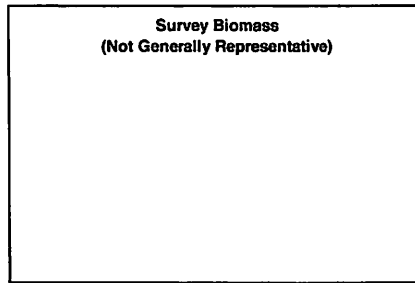
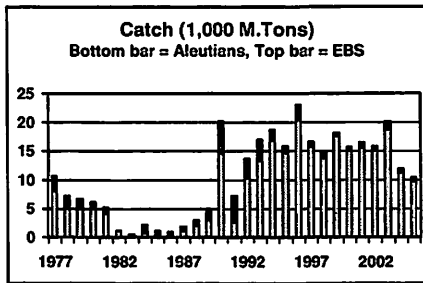
1. **Species Composition**
  - 16 species from EBS, 5 species from Aleutians, 95% of catch are starry flounder and rex sole
2. **Biomass Estimates from Surveys only**
  - Rather Stable to Increasing Trend in recent years in both regions

## Rockfish Assessments

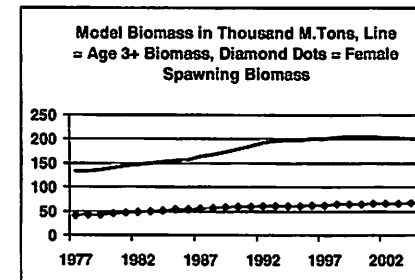
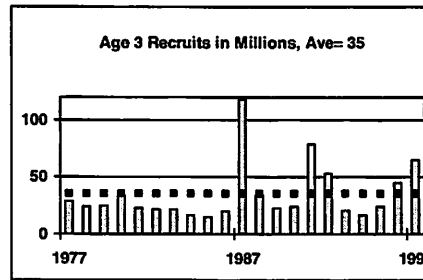
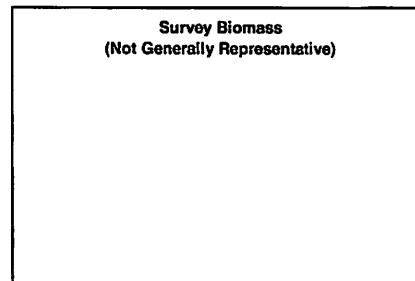
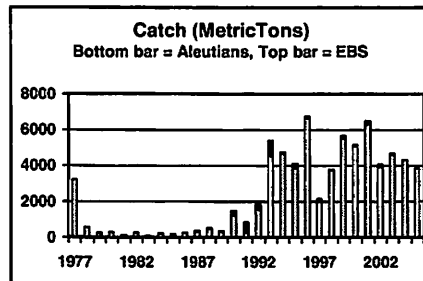
### Minor Updates

1. **No Assessment Updates for 2005, except for updated Catch Statistics to Models**
  - Rockfish species analyses are on 2 year cycle to coincide with Slope surveys.
  - Minor updates cause small changes in some cases
2. **Biomass Trend**
  - No new Survey Estimates
3. **Recruitment**
  - Generally rather Poor Recruitment in recent years

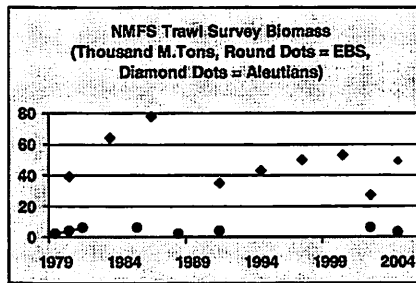
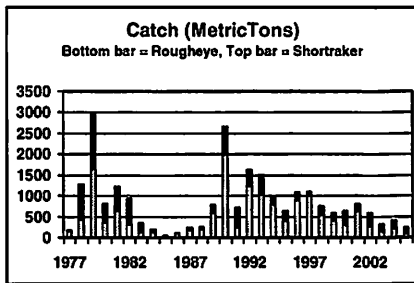
### Pacific Ocean Perch Stock Assessment (from Dec 2004)



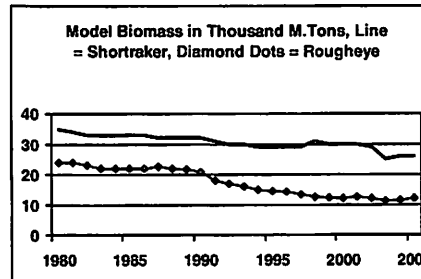
### Northern Rockfish Stock Assessment (from Dec 2004)



### Shortraker-Rougheye Assessment (from Dec 2004)



**Recruits Estimation**  
(Not Available)

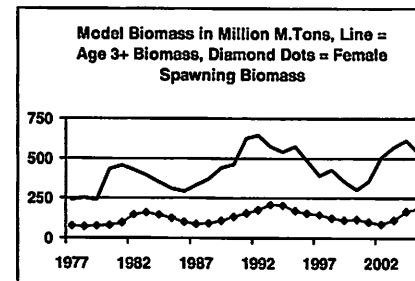
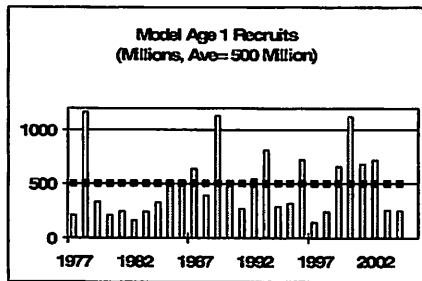
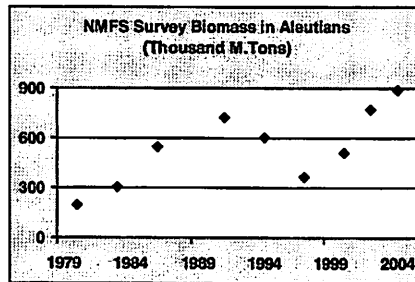
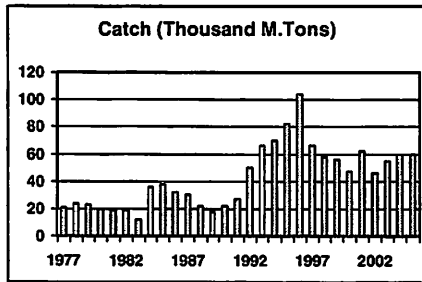


## Atka Mackerel Assessment

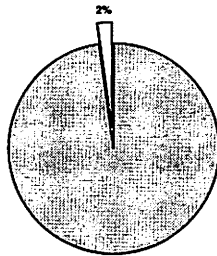
### Notable Features, Chapter 15

1. Straight update of last year's assessment
2. Survey Biomass 2004 = 886,800 mt; up 15% from 2002
3. Recruitment of 2 recent year classes (2002-2003) were below average
4. ABC is apportioned by 3 Aleutian Areas; Eastern (19.8%), Central (42.6%), and Western (37.6%)
5. Extensive analyses of Ecosystem Interactions where major predation are from P. cod (25%), fishing (21%) and Steller sea lions (16%)

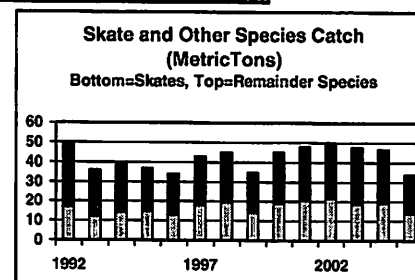
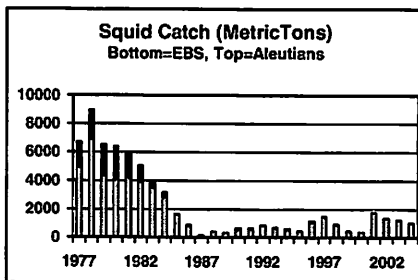
### Atka Mackerel Stock Assessment, Dec 2005



### Squid and Other Species Resources December 2005 Assessments



2001-95 Average  
Catch = 1,933,700 mt  
Squid = 1,300mt  
Skate & Others =  
44,200 mt  
Combined  
Percentage = 2.4 %



## **Squid and other species Assessment Notable Features, Chapter 16**

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

.... average catch from 1977-1995, ABC = 1,970 mt

**2. Other species: author recommends managing by major taxonomic groups under Tier 5**

Species	Biomass (mt)	ABC (mt)
Sharks	17,700	1,190 (414 SSC)
Skates	492,000	36,900
Sculpins	207,000	29,500
Octopus	7,000	2,780 (264 SSC)
Total	723,700	70,370 (58,882 SSC)

**3. Now can be managed as a Group only under Tier 5**

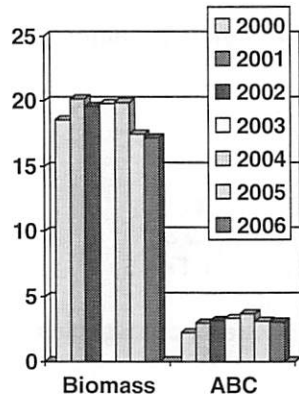
Survey Biomass = 723,700 mt, ABC = 70,380 (58,882 SSC)

**4. Plan Team recommends management by Break-out Species groups**

## **Adjustments to ABCs - due to Ecosystems**

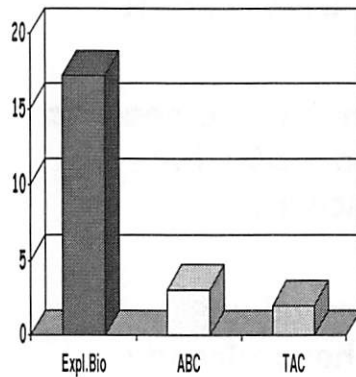
- 1. The Team did not make specific adjustments to ABCs for ecosystem concerns**
- 2. General Concerns about uncertainties have already been built into the Analyses**

## BSAI Groundfish Complex Yr 1999 to Yr 2005



- Exploitable Biomass
  - 17.215 mmt for Yr 2006
  - Stable and High
- ABC
  - 3.057 mmt for Yr 2006
  - Still 50% above OY cap of 2 mmt

## Assessment Year 2005 Summary Applicable for 2006 Fishery



- Exploitable Biomass = 17.215 mmt
- ABC = 3.057 mmt
- Max TAC = 2 million mt

• End of Presentation

**BSAI Groundfish Plan Team**  
**AFSC- Seattle, WA**  
**November 15-18, 2005**

**Supplemental**

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)  
Dan Lew (AFSC)

Brenda Norcross (UAF)  
Ivan Vining (ADF&G)  
Kerim Aydin (AFSC)  
Bill Clark (IPHC)  
Lowell Fritz (NMML), absent  
Kathy Kuletz (USFWS), absent

The BSAI Groundfish Plan Team met at the Alaska Fisheries Science Center from the afternoon of November 15 to November 18, 2005. The main agenda items were to review the 2005 stock assessments and to recommend OFLs and ABCs to the Council (Attachment). In September 2005, preliminary projections of ABC and OFL for 2006 and 2007 were made on the basis of 2004 stock assessments. At this meeting, the Plan Team revised most of those projections. Plan Team recommendations for final specifications differ from proposed specifications 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 ABCs.

**AI pollock** Steve Barbeaux, AFSC, presented a revised age-structured stock assessment for AI pollock. Since preparation of the chapter, Steve and other AFSC staff have been developing an experimental fishing permit with Adak Fisheries for a multi-stage, long term project for improving AI survey estimates. A first step would investigate whether a survey could be conducted by a small catcher vessel in January/February. The second step would then design a survey. The third step would investigate alternative management strategies to address temporal/spatial TAC-setting.

The Plan team noted that the assessment did not differ significantly from the 2004 assessment, i.e., Model 1b in 2004 is the same as Model 2 in 2005. After some discussion, the Team recommended an OFL and ABC based on Tier 5. The Team discussed whether another model could be developed based on Eastern Bering Sea pollock migration into the AI.

**Bogoslof pollock** Jim Ianelli, AFSC, reviewed the revised assessment for Bogoslof pollock. This assessment was first reviewed in September. The Team concurred that the model is a step forward because it begins to provide a context for the 2 million mt reference point, but felt that adoption of a model would be premature at this time. The Team generally discussed how to tie together the survey data; how pollock may be recruiting into the area; and how the time series of data could be modeled. The Team recommended setting OFL and ABC under Tier 5.

**Eastern Bering Sea pollock** Jim Ianelli, AFSC, reviewed the assessment for EBS pollock. The Team concurred with the authors' recommendation of Model 1, though the Team's ABC recommendation of 1,930,000 mt was slightly higher than the authors' recommended value of 1,880,000 mt. This is the same model that was accepted last year, except for incorporating new data from the 2005 bottom trawl survey, the 2004 fishery, and revised estimates of the age composition observed during the 2004 EIT survey. The 2005 bottom trawl survey biomass estimate of 5,130,000 mt is up 37 percent from last year. The author and Team agreed that pollock is managed appropriately under Tier 1. This year's assessment includes an expanded "Ecosystems Considerations" section. Results indicate that EBS pollock exhibit a high level of cannibalism, which tends to stabilize the stock. This year, the 2000 year class appeared strong in the 2005 bottom trawl survey and the revised age composition from the 2004 EIT survey.

**Pacific cod** New models for assessing Pacific cod were presented by Grant Thompson, AFSC, at the joint team meeting. The Team's comments on the new length maturity schedule and assessment models are provided in the Joint Team minutes. The BSAI Team discussed the OFL and ABC recommendations in its meeting. The Team agreed with the author's recommendations to set specifications at the maximum permissible, but selected a different model for calculating these values. While not explicitly discussed at this meeting, the Team previously has supported separate ABCs for the Bering Sea and Aleutian Islands.



**Sablefish** The sablefish model was presented by Dana Hanselman, AFSC, at the joint team meeting (see Joint Team minutes for comments on the assessment).

**Flatfish** The Team agreed with the authors' recommendations for OFLs and ABCs for all the flatfish assessments, except Greenland turbot. *Greenland turbot* continues to be the only flatfish species that remains low in abundance; the author and Team recommended reducing ABC to about 24 percent of its maximum level. The Team opted to continue using the 5-year average fishing mortality (2,740 mt for 2006) for determining the ABC to maintain the current exploitation rate while abundance is declining, rather than use the author's recommended constant catch value of 3,000 mt.

Because of uncertainty whether a good fit of post-1976 *flathead sole* data to a Ricker stock-recruit model was a coincidental effect of a 1989 regime shift, the Plan Team agreed with the authors that those results not be used for managing flathead sole until the fit could be better clarified. The Team recommended that Alaska plaice otolith samples be analyzed and the new age data be incorporated into the model next year.

**Rockfish** Beginning this year rockfish assessments will be conducted on a 2-year cycle, timed to coincide with the Bering Sea slope and Aleutian Island trawl surveys. The Team agreed with the authors' recommendations for OFLs and ABCs for all rockfish stocks. The assessments were updated from the previous year, with minor changes due to the addition of new catch data. The Team attached an appendix prepared by Paul Spencer, Dana Hanselman and Martin Dorn to the *Pacific Ocean perch* chapter. The appendix responded to an SSC request to investigate the management consequences of maternal effect on fecundity and implications for stock productivity. The authors found that reduced effectiveness of younger spawners would result in reduced reproductive output per recruit for a given fishing mortality, but this tended to be counteracted by increased resilience in the stock recruitment relationship due to an equivalent number of recruits being associated with reduced reproductive output.

The Team had a lengthy discussion of separation of ABCs between the Bering Sea and Aleutian Islands, specifically regarding *shortraker and rougheye rockfishes* but the discussion broadened to include all BSAI groundfish stocks (including Pacific cod). In response to an SSC request, the authors summarized existing genetic analyses, which suggest that the BS and AI represent separate spawning populations for rougheye rockfish (although the BS fish may be part of a larger group including fish from the Western GOA), but the results are unclear for shortraker rockfish due to lack of sampling in the Bering Sea. The Team also discussed potential management complications that might arise from area-specific quotas for these species. Most of the stocks are on prohibited status from the start of the fishing year and the incidental catch is more likely to be discarded due to regulatory requirements. The MRAs are established at very low levels. Separate trawl and longline MRAs for shortraker and rougheye rockfishes were set closer to their intrinsic bycatch rate. It is unclear if separate ABCs would be an effective management tool by discouraging topping off and would result in closing CDQ fisheries.

Given the information available, the Team could not reach consensus on whether to split ABC or OFL by region. At this point, the primary data gaps are less related to biology than to the distribution of fishery catches by area/target and the ability of the management system to deal with very small, area-specific TACs. The Team therefore requested that the authors present additional information on the distribution of fishery catches at the September 2006 Plan Team meeting and that a full discussion of this issue for all groundfish stocks be scheduled then. The Team recommended no changes in area apportionments for any stocks this year.

**Atka mackerel** The Team concurred with the authors' assessment and OFL and ABC recommendations.

**Other species** The Team agreed with the authors' recommendations for setting group-specific ABCs and OFLs but recognized that the FMP does not currently allow such an action. The Team continues its support for an FMP amendment to break all groups out of the other species category and provides recommendations for OFLs and ABCs in support of that amendment. Specific chapter comments follow.

*Squid.* Sarah Gaichas presented the squid assessment. There continues to be no reliable biomass estimate for squid, but it is assumed to be huge and concentrated largely in the unsurveyed Bering Sea basin waters. Calculations indicate that 1,000,000 mt are consumed as prey. Fishery removals are incidental. The Team reviewed the relationship between foraging areas and breeding sites of northern fur seals in the eastern Bering Sea as reported by Robson (2004). Fur seals in the Pribilof Islands, foraging in two canyons, could be dependent on pollock and squid. The fishery could interfere with this foraging if foraging occurs at the same time as the fishery. Fur seals were found to forage in discrete directions from each of the major Pribilof rookeries, so some colonies of fur seals may be more dependent on squid than others.

*Skates.* Sarah also presented the skate assessment. She recommended separate area specifications based on different species composition and relative abundances between the Bering Sea and Aleutian Islands, and the presence of endemic skate species found only in the Aleutian Islands. Jerry Hoff reviewed results of his skate nursery investigation. He found four cohorts developing for each nursery area. It is unclear if the cohorts are from the same females. The Alaska skate population has been expanding into Bristol Bay. A few key spots could be identified as EFH. Beth Matta summarized her work on skate reproductive biology, maturity, and age compositions for the GOA and BSAI. The best information exists for Alaska skates which dominate the Bering Sea shelf. From ecosystem modeling, skate mortality is much higher from fishing and unexplained sources, particularly for the Aleutian Islands, than from predation. Large proportions of Alaska skate mortalities (80% in the BS and 46% in the AI) are from unexplained sources. Data are rather imprecise for skate mortalities in all areas until very recently, so this requires further evaluation. The ecosystem models are based on early 1990s data, which is some of the lowest quality data for skates, as the data quality improved and will be re-examined in the future.

*Sculpins.* Rebecca Reuter presented the sculpin assessment chapter, as revised since previewed in September. Sculpin biomass is second to skates in comprising the biomass associated with the other species complex.

The Team does not agree with author recommendations to break out skates or sculpins between the Bering Sea subarea and Aleutian Islands subarea at this time (see above discussion). The Team asked the authors to provide additional information next year from the fisheries and surveys regarding the spatial concentration of the primary species that constitute the skate and sculpin categories.

*Octopus.* M. Elizabeth Connors presented the octopus assessment chapter, as revised since previewed in September. The Team concurred with the authors concerns regarding Tier 5 or 6 calculations. For Tier 6, incidental catch rates could result in an OFL that is artificially low. Tier 5 numbers are based on trawl survey biomass estimates: sampling variability, seasonal differences, and gear selectivity adversely affect the quality of these estimates for octopus. The Team concurred on the use of the sum of ten-year averages for survey biomass from the BS shelf, BS slope, and AI surveys as the basis for Tier 5 calculations. Species identification and spatial separation of the species is unknown. The Team noted that there is good survival from pot and longline gear. Catch comes mostly out of regulatory area 519, possibly in SSL closure areas because of the no trawl zones. The Team discussed the possibility of a directed fishery on octopods and concluded that a pot fishery was unlikely, but it could be a viable addition to cod potting. Cod pots predominate in Areas 517, 519, and 508; longliners are fishing in Area 528. The author suggested that a size limit may be a viable future management tool, to restrict harvest to the larger giant Pacific octopus. Species other than giant Pacific octopus have lower fecundity and benthic larvae and may be more susceptible to fishing. She noted that the State of AK is investigating directed fishing efforts and may need to be involved in future management.

*Sharks.* Dean Courtney presented the shark assessment for the complex and Pacific sleeper shark using Tier 6. The authors recommended not using natural mortality rates from other shark species. A rate should be available for use under Tier 5 next year, based on work by Ken Goldman. The Team is encouraged by the current efforts of the shark assessment authors to estimate the value of M for certain shark species.

**Pacific Halibut Discard Mortality Rates** The Team concurred with the IPHC staff recommendations for halibut discard mortality rates for the 2006 CDQ fisheries, and recommended that they be used to start the 2007 fisheries until updated next year by the IPHC staff.

**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 for the *next two years* should be included. The Plan Coordinator will communicate this request to the AFSC, in the hope that the SAFE chapter guidelines can be amended accordingly.