


MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence Pautzke
Executive Director 

DATE: November 26, 2001

SUBJECT: Final BSAI Groundfish Specifications for 2002

ESTIMATED TIME 10 HOURS (for all D-1 items)

ACTION REQUIRED

- (a) Approve 2002 BSAI EA and Final Stock Assessment and Fishery Evaluation (SAFE) report.
- (b) Approve final BSAI groundfish specifications for 2002:
 - 1. Acceptable Biological Catch (ABC), and annual Total Allowable Catch (TAC);
 - 2. Seasonal apportionment of the fixed gear Pacific cod TAC; and
 - 3. Bycatch allowances, and seasonal apportionments of Pacific halibut, red king crab, Tanner crab, opilio crab, and herring to target fishery (PSC) categories.

BACKGROUND

At this meeting, the Council makes final recommendations on groundfish and bycatch specifications as listed above. These final specifications will be used for management of the 2002 groundfish fisheries.

(a) BSAI SAFE Document

The groundfish Plan Teams met in Seattle November 6-9 to prepare the final SAFE documents provided for this meeting. This SAFE forms the basis for groundfish specifications for the 2002 fishing year. Note that there are three sections to the SAFE report: a stock assessment section, a fishery evaluation section ("economic SAFE"), and an ecosystems considerations section. These three sections, together with the GOA SAFE, are incorporated into the Environmental Assessment for the 2002 groundfish total allowable catch specifications.

(b) ABCs, TACs, and Apportionments

At this meeting, the Council will establish final catch specifications for the 2002 fisheries. SSC and AP recommendations will be provided to the Council during the meeting. Attached as Item D-1(a)(1) are Tables 4 and 5 from the SAFE summary chapter indicating ABCs and biomass levels. The Plan Team's sum of recommended ABCs for 2002 is 3,185,076 mt. Overall, the status of the stocks continues to appear relatively favorable, although in some cases biomass has declined due to below average recruitment. None of the groundfish stocks are overfished or approaching an overfished condition.

Other final specifications include making the seasonal apportionment of the fixed gear Pacific cod TAC, and establishing bycatch allowances and seasonal apportionments of Pacific halibut, red king crab, Tanner crab, opilio crab, and herring to target fishery (PSC) categories.

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

Amendment 24 regulations allow seasonal apportionment of the Pacific cod TAC allocated to vessels using hook-and-line or pot gear. Seasonal apportionments will be divided among trimesters and established through the annual specifications process. In recommending seasonal apportionments, regulations require the Council to base its decision on factors listed in the adjacent box.

Seasonal apportionments can be based on the following information:

1. Seasonal distribution of Pacific cod relative to PSC distribution;
2. Expected variations in PSC bycatch rates in the Pacific cod fishery throughout the fishing year; and
3. Economic effects of any seasonal apportionment of Pacific cod on the hook-and-line and pot gear fisheries.

Under Amendment 46, two percent of the TAC is reserved for jig gear, 51 percent for fixed gear, and 47 percent for trawl gear. The trawl apportionment will be split between catcher vessels and catcher processors 50/50. Under Amendment 64, the fixed gear apportionment is further allocated as follows: 80% to freezer longline vessels; 0.3% to longline catcher vessels; 18.3% to pot gear vessels; and 1.4% to catcher vessels (longline or pot) less than 60 feet length overall.

For the 2001 fisheries, the Council recommended seasonal Pacific cod apportionments as follows: for freezer longline gear, apportionments of 60,000 mt, 0 mt, and 10,951 mt; for pot catcher vessels, 13,230 mt, 3,000 mt, and 0 mt for the three seasons. Note that under the Steller sea lion protection measures adopted by the Council in October 2001, there are 2 seasons for BSAI fixed gear Pacific cod fisheries, with a 60%-40% split of the TAC. Season dates for longline and jig gear will be 1/1-6/10 and 6/10-12/31. Season dates for pot gear will be 1/1-6/10 and 9/1-12/31.

Adopt bycatch allowances of Pacific halibut, crab, and herring

Halibut

For the 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. Note that under Amendment 46, the trawl halibut PSC mortality cap for Pacific cod will be no greater than 1,600 mt.

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

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

For Fixed Gear Fisheries: A 900 mt non-trawl gear halibut mortality can be apportioned to the fishery categories listed in the adjacent box. Note that under Amendment 46, the hook-and-line halibut PSC mortality cap for Pacific cod will be no greater than 900 mt. Item D-1(a)(2) is a table indicating this past year's PSC allocations and seasonal apportionments for the trawl and non-trawl fisheries. Item D-1(a)(3) is a current summary of PSC bycatch accounting for BSAI fisheries.

Categories used for PSC apportionment in non-trawl fisheries.

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

Crab

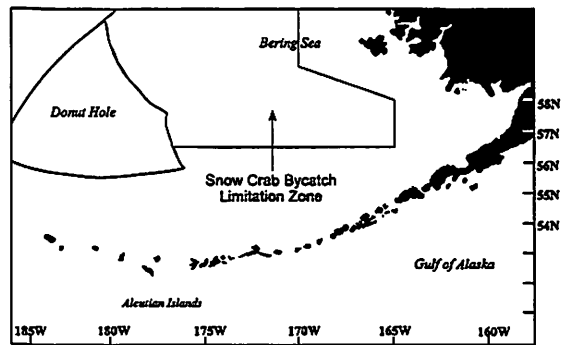
Prescribed bottom trawl fisheries in specific areas are closed when prohibited species catch (PSC) limits of C. bairdi Tanner crab, C. opilio crab, and red king crab are taken. Amendment 37 established a stairstep procedure for determining PSC limits for red king crab taken in Zone 1 trawl fisheries. PSC limits are based on abundance of Bristol Bay red king crab as shown in the adjacent table. Given NMFS and ADF&G's 2001 abundance estimate for Bristol Bay red king crab, a Zone 1 PSC limit will be established at 100,000 red king crabs for 2001. This will be further reduced by 3,000 crabs with adoption of Amendment 57, so the total red king crab PSC limit in 2002 will be 97,000 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..

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

<u>Species</u>	<u>Zone</u>	<u>Crab Abundance</u>	<u>PSC Limit</u>
Red King Crab	Zone 1	Below threshold or 14.5 million lbs of effective spawning biomass (ESB)	35,000
		Above threshold, but below 55 million lbs of ESB	100,000
		Above 55 million lbs of ESB	200,000
Tanner Crab	Zone 1	0-150 million crabs	0.5% of abundance
		150-270 million crabs	750,000
		270-400 million crabs	850,000
		over 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
		over 400 million crabs	3,000,000

Amendment 41 established stairstep PSC limits for Tanner crab. Given 2001 survey abundance of 624 million Tanner crab, and the 50,000 crab reduction as part of Amendment 57, the 2002 C. bairdi PSC limits will be established at 980,000 Tanner crabs in Zone 1 and 2,970,000 Tanner crabs in Zone 2.

Under Amendment 40, 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. Amendment 57 included a provision to reduce the PSC limit for snow crab by an additional 150,000 crabs. Snow crab taken within the "C. Opilio Bycatch Limitation Zone" accrue towards the PSC limits established for individual trawl fisheries. The 2000 survey indicated a total population of 3.86 billion crabs. Therefore, the 2002 snow crab PSC limit will be established at 4,350,000 crabs.



Location of the C. opilio bycatch limitation zone.

Herring

Amendment 16a established an overall herring PSC bycatch cap of 1 percent of the EBS biomass of herring. This cap is to be apportioned to the same six PSC fishery categories listed above, plus a seventh group, mid-water pollock. Last year, the Alaska Department of Fish and Game forecasted the 2001 herring biomass at 152,600 mt. The 2001 PSC limit was set at 1 percent of the biomass in metric tons, or 1,526 mt. At this meeting, ADF&G staff will provide a herring biomass projection for 2002, from which the 2002 herring PSC limit will be established.

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 the following types of information listed in the adjacent box. Additional information on PSC limits and apportionments is presented in a BSAI SAFE Appendix.

Staff will present a worksheet with SSC and AP recommendations for ABCs, TACs, PSC and seasonal apportionments when the Council addresses this action item.

Factors to be considered for seasonal apportionment of bycatch allowances.

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

Table 4-- Summary of stock abundance (biomass), overfishing level (OFL), acceptable biological catch (ABC), the fishing mortality rate corresponding to ABC (F_{OFL}), and the fishing mortality rate corresponding to OFL (F_{ABC}) for the eastern Bering Sea (EBS), Aleutian Islands (AI), and Bogoslof district as projected for 2002. "Biomass" corresponds to projected January 2002 abundance for the age+ range reported in the summary section. Biomass, OFL, and ABC are in metric tons, reported to three significant digits. F s are reported to two significant digits.

Species or Species Complex	Area	Biomass	OFL	ABC	F_{OFL}	F_{ABC}
Walleye pollock	EBS	9,800,000	3,530,000	2,110,000	1.20	0.52
Walleye pollock	AI	106,000	31,700	23,800	0.30	0.23
Walleye pollock	Bogoslof	232,000	46,400	4,310	0.20	0.15
Pacific cod	BSAI	1,540,000	294,000	223,000	0.35	0.26
Yellowfin sole	BSAI	1,597,000	136,000	115,000	0.13	0.11
Greenland turbot	BSAI	208,000	36,500	8,100	0.32	0.065
Arrowtooth flounder	BSAI	671,000	137,000	113,000	0.28	0.22
Rock sole	BSAI	1,850,000	268,000	225,000	0.20	0.16
Flathead sole	BSAI	695,000	101,000	82,600	0.38 ^a	0.30 ^a
Other flatfish	BSAI	1,110,000	172,000	143,000	0.34 ^a	0.28 ^a
Sablefish	EBS	28,000	2,900	1,930	0.14	0.12
Sablefish	AI	39,000	3,850	2,550	0.14	0.12
Pacific ocean perch	BSAI	377,000	17,500	14,800	0.055	0.046 ^b
Northern rockfish	BSAI	150,000	9,020	6,760	0.060	0.045 ^b
Rougeye rockfish	BSAI	14,000	349	262	0.025	0.019 ^b
Shortraker rockfish	BSAI	34,000	1,020	766	0.030	0.023 ^c
Other rockfish	EBS	6,880	482	361	0.073 ^c	0.054 ^c
Other rockfish	AI	12,900	901	676	0.073 ^c	0.054 ^c
Atka mackerel	BSAI	439,700	82,300	49,000	0.37	0.21
Squid	BSAI	n/a	2,620	1,970	n/a	n/a
Sculpins	BSAI	227,000	34,000	25,100	0.15	0.11
Skates	BSAI	432,000	43,200	32,400	0.10	0.08
Sharks	BSAI	n/a	516	387	n/a	n/a
Octopus	BSAI	n/a	405	304	n/a	n/a
TOTAL		19,569,480	4,951,663	3,185,076		

a/ Alaska plaice rate shown as an example.

b/ previously combined into other red rockfish complex

c/ Weighted average of species-specific rates.

Table 5-- Summary of BSAI groundfish tier designations under Amendment 56, maximum permissible ABC fishing mortality rate ($max F_{ABC}$), the Plan Team's recommended ABC fishing mortality rate (F_{ABC}), the maximum permissible value of ABC ($max ABC$), the Plan Team's recommended ABC, and the percentage reduction (% Red.) between $max ABC$ and the Plan Team's recommended ABC. Insofar as the SSC has final authority for tier designations, the designations shown here represent Plan Team recommendations only. Biomass and ABC are in metric tons, reported to three significant digits. Fishing mortality rates are reported to two significant digits. In cases where $max ABC$ and the Plan Team's recommended ABC are equal, the percentage reduction is left blank. All values pertain to the 2002 harvest season.

Species or Species Complex	Area	Tier	$max F_{ABC}$	F_{ABC}	$max ABC$	ABC	% Red.
Walleye pollock	EBS	1a	0.52	0.52	2,110,000	2,110,000	
Walleye pollock	AI	5	0.23	0.23	23,800	23,800	
Walleye pollock	Bogoslof	5	0.15	0.15	34,800	4,310	87
Pacific cod	BSAI	3b	0.30	0.26	253,000	223,000	12
Yellowfin sole	BSAI	3a	0.11	0.11	115,000	115,000	
Greenland turbot	BSAI	3a	0.26	0.064	32,400	8,100	75
Arrowtooth flounder	BSAI	3a	0.22	0.22	113,000	113,000	
Rock sole	BSAI	3a	0.16	0.16	225,000	225,000	
Flathead sole	BSAI	3a	0.30	0.30	82,600	82,600	
Other flatfish	BSAI	3a	0.28	0.28	143,000	143,000	
Sablefish	BS	3b	0.12	0.09	2,370	1,930	
Sablefish	AI	3b	0.12	0.09	3,140	2,550	
Pacific ocean perch	BSAI	3b	0.046	0.046	14,800	14,800	
Northern rockfish	BSAI	5	0.046	0.046	6,760	6,760	
Rougheye rockfish	BSAI	5	0.022	0.022	262	262	
Shortraker rockfish	BSAI	5	0.023	0.023	766	766	
Other rockfish	EBS	5	0.054	0.054	361	361	
Other rockfish	AI	5	0.054	0.054	676	676	
Atka mackerel	BSAI	3b	0.32	0.21	71,300	49,000	31
Squid	BSAI	6	n/a	n/a	1,970	1,970	
Sculpins	BSAI	5	0.11	0.11	25,100	25,100	
Skates	BSAI	5	0.08	0.08	32,400	32,400	
Sharks	BSAI	6	n/a	n/a	387	387	
Octopus	BSAI	6	n/a	n/a	304	304	
Total						3,185,076	

Table 1.

**2001 BSAI Trawl Fisheries PSC
Council Recommended Apportionments and Seasonal Allowances**

Fishery Group	Halibut Mortality Cap (mt)	Herring (mt)	Red King Crab (animals) Zone1	C. bairdi Zone1	C. bairdi Zone2	C. opilio COBLZ
Yellowfin sole	886	139	11,664	253,894	1,246,502	2,876,981
January 20 - March 31	262					
April 1 - May 20*	196					
May 21 - July 3	49					
July 4 - Dec 31	380					
Rocksole/other flatfish	779	20	64,782	272,126	415,501	869,130
January 20 - March 31	448					
April 1 - July 3	164					
July 4 - Dec 31	167					
Sablefish/arrowtooth		9				40,238
Rockfish	69	7			7,658	40,237
Pacific cod	1,434	20	11,664	136,400	225,941	124,736
Pollock/mackerel/o.species	232	1,330	1,615	12,830	19,148	72,428
CDQ Fisheries	275		7,275	54,750	155,250	326,250
TOTAL	3,675	1,526	97,000	730,000	2,070,000	4,350,000

- 1) Unused PSC allowances may be rolled into the following seasonal apportionment.
- 2) 35% of the red king crab PSC for the rock sole fishery is apportioned to the 56 - 56x10' RKCSA strip.

**2001 BSAI Non-Trawl Fisheries PSC Bycatch Allowances
and fixed gear Pacific cod seasonal apportionments**

Fishery Group	Halibut Mortality (mt)	Freezer Longline Gear Cod Apportionment	Pot Catcher Vessel Cod Apportionment
Pacific Cod	743		
Jan 1 - April 30		495	60,000
May 1 - August 31		0	0
Sept. 1 - Dec. 31		248	10,951
Other Non-Trawl*	90		
May 1 - December 31		90	
CDQ Fisheries	67		
TOTAL	900 mt	70,951	16,230

Note: If cod and halibut PSC remain on April 30: Up to 10,000 mt of cod excess rolls to second trimester; balance rolls to third trimester.

Up to 40 mt of halibut PSC rolls to second trimester; balance rolls to third trimester.

* Includes hook & line fisheries for rockfish and Greenland turbot.

Sablefish hook & line fisheries will be exempted from the halibut mortality cap.

Jig and pot gear will also be exempted from the halibut mortality cap.

Table 2.
NMFS/AKR
11/01/01
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2001 BERING SEA/ALEUTIAN ISLANDS FISHERIES
PROHIBITED SPECIES BYCATCH
Week Ending: 10/27/01

TRAWL HERRING, BSAI

Fishery group	Herring (mt)	Cap (mt)	%
Midwater pollock	254	1,184	21%
Pacific cod	5	20	25%
Yellowfin sole	26	139	18%
Rockfish	0	7	0%
Other	2	146	1%
Rock sole/Other flatfish	13	20	66%
GTRB/ARTH/SABL	0	9	4%
Total:	299	1,525	20%

TRAWL SALMON, BSAI

Fishery group	Chinook (#'s)	Other (#'s)	Total (#'s)
Midwater pollock	29,194	53,731	82,926
Bottom pollock	0	0	0
Pacific cod	3,512	1,873	5,386
Yellowfin sole	144	793	937
Rock sole/Other flatfish	2,085	424	2,509
Rockfish	1	171	172
Other	1,318	1,299	2,616
Seasonal Total:	36,254	58,292	94,546

TRAWL BAIRDI TANNER CRAB

Fishery group	ZONE 1			ZONE 2		
	Crabs (#'s)	Cap (#'s)	%	Crabs (#'s)	Cap (#'s)	%
Rock sole/Other flatfish	146,256	272,126	54%	399,553	415,501	96%
Pacific cod	46,494	136,400	34%	25,674	225,941	11%
Yellowfin sole	119,902	253,894	47%	128,645	1,246,502	10%
Pollock/AMCK/Other species	4,705	12,830	37%	550	19,148	3%
Rockfish	0	0	0%	0	7,658	0%
GTRB/ARTH/SABL	0	0	0%	4,633	0	0%
Total:	317,357	675,250	47%	559,054	1,914,750	29%

TRAWL C. OPILIO TANNER CRAB in the COBLZ AREA

Fishery group	Crabs (#'s)	Cap (#'s)	%
Rock sole/Other flatfish	483,300	469,130	103%
Pacific cod	8,330	524,736	2%
Yellowfin sole	616,665	2,876,981	21%
Pollock/AMCK/Other species	6,881	72,428	10%
Rockfish	0	40,237	0%
GTRB/ARTH/SABL	0	40,238	0%
Total:	1,115,177	4,023,750	28%

TRAWL RED KING CRAB

ZONE 1

Fishery group	Crabs (#'s)	Cap (#'s)	%
Rock sole/Other flatfish	26,108	64,782	40%
Pacific cod	1,745	11,664	15%
Yellowfin sole	30,273	11,664	260%
Pollock/AMCK/Other species	104	1,615	6%
Total:	58,231	89,725	65%

Agenda D-1(a)
December, 2001

**December 2001: Supplemental information regarding CDQ rockfish and
'other species' catch accounting.**

This augments information provided at the October 2001 NPFMC meeting regarding these species categories. That discussion paper is attached.

1. 2001 rockfish and "other species" catch

In October 2001, the Council requested information for each CDQ group regarding the catch of rockfish in relationship to the overall catch of target species. Account status reports detailing the 2001 groundfish catch to date, including rockfish and "other species", for the CDQ sector and each CDQ group are attached at the end of this document.

2. Rockfish Species Groups

At its November 2001 meeting, the BS/AI Groundfish Plan Team recommended changes to the way rockfish species are specified in the BS and AI. Rather than the discrete area/species categories that were recommended for 2001, the Team recommended retaining the species categories of northern, rougheye, and shorttraker rockfish, but consolidating the geographic categories that were recommended for the 2001 BS/AI groundfish specifications into BSAI-wide categories. This consolidation of subareas may preclude some of the concerns that led to the Council recommending that the 2001 rockfish categories only apply to the non-CDQ fisheries and that the CDQ fisheries would continue to use the same rockfish categories that existed in 2000 (see also the rockfish discussion in the October CDQ Catch Accounting paper)

The following table illustrates what the 2002 CDQ reserves for rockfish species could be based on the Plan Team's November recommendations. If the individual species were split by subarea as was specified in 2001, individual CDQ reserves for some AI categories could have been as low as one or two mt. The recommended aggregation of the two subareas for 2002 may ameliorate concerns that distinct species category/subarea rockfish specifications could constrain the groundfish CDQ fisheries. As such, it may not be necessary for the Council to address rockfish specifications to the CDQ sector differently from the non-CDQ sector for 2002.

Species	Area	OFL (mt)	ABC (mt)	TAC (mt) [assumed]	7.5% CDQ Reserve (mt)
Northern Rockfish	BSAI	9,020	6,760	6,760	507
Rougheye Rockfish	BSAI	949	262	262	20
Shortraker Rockfish	BSAI	1,020	768	768	57
Other Rockfish	BS	482	361	361	27
	AI	901	676	676	51

Projected 2002 CDQ rockfish reserves

3. Other Species

A. In April 2001, CDQ sector participants expressed concern that the amount of "other species" that they were allocated, both directly and indirectly, would potentially not be sufficient to successfully prosecute each of their groundfish CDQ fisheries. The CDQ sector is able to augment the 7.5% "other species" CDQ reserve it receives with amounts from a CDQ non-specific reserve. This reserve is created by the contribution of 15 percent from each of two CDQ species categories: arrowtooth flounder and "other species." As discussed in the October CDQ Catch Accounting paper, the Council recommended that the CDQ sector receive an additional 35 percent (50 percent total) contribution from the arrowtooth flounder CDQ reserve to the CDQ non-specific reserve at its June meeting. This was accomplished via an emergency rule in July, and led to an increase in the total amount of "other species" available to CDQ fisheries as CDQ groups transferred their increased CDQ non-specific reserve amounts to their "other species" quota category. Through November 29, the CDQ sector has caught about 1,434 mt of "other species." This is less than the original CDQ reserve of 1,988 mt. However, close to 4,000 mt of Pacific cod CDQ remains unharvested. Some of that should be harvested after the closure of the non-CDQ cod fishery in December, with a corresponding catch of additional amounts of "other species" CDQ.

The extension of the revised 50 percent arrowtooth flounder contribution to the CDQ non-specific reserve may be revisited at the Council's December meeting. One reason for choosing a 50 percent contribution rate from arrowtooth flounder 2001 is that it allowed for an increased potential of "other species" CDQ catch while maintaining a overall combined potential catch in the combined non-CDQ and CDQ fisheries of less than the 2001 "other species" ABC. Using hypothetical 2002 TACs for arrowtooth flounder and "other species" (based on the same proportion of 2001 TACs to 2001 ABC levels), it appears that a 50 percent contribution from the arrowtooth flounder CDQ reserve to the CDQ non-specific reserve and its corresponding increase to the "other species" CDQ reserve would still yield an amount of "other species" available to the combined CDQ and non-CDQ fisheries that is less than the 2002 ABC.

Effect on "other species" ABC if a 50 percent contribution is made from the arrowtooth flounder CDQ reserve to the CDQ non-specific reserve

78121	58191	45895	-6884	39011	3442	42453	797	43250
OFL (m)	ABC	TAC (hypothetical)	Non-specified reserve	ITAC	CDQ reserve	total available	50% contrib. from A-tooth	"new" o-species TAC

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

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November 29, 2001

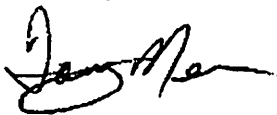
Dr. Clarence Pautzke
Executive Director
North Pacific Fisheries Management Council
605 West 4th, Suite 306
Anchorage, Alaska 99501-2252

Dear Dr. Pautzke:

The Alaska Department of Fish and Game estimates that the biomass of eastern Bering Sea herring returning to spawn in the spring of 2002 between Port Moller and Norton Sound will be approximately the same as last year, 152,574 metric tons (Table 1). While we have not yet finalized our annual stock assessment analyses, results to date show flat biomass trends in most areas and we expect that the overall Bering Sea forecast will be very similar to last year's. The attached table provides the 2001 biomass breakdown by area.

All major Bering Sea herring stocks are considered to be healthy and are expected to again be above their thresholds for 2002. Under Amendment 16A to the Bering Sea/Aleutian Islands groundfish fishery management plan, a herring prohibited species catch limit would be set at 1 percent of the estimated biomass, or 1,526 metric tons.

Sincerely,



Doug Mecum
Director

Enclosure

Table 1. Summary of preliminary 2001 forecast run biomass, and threshold levels for eastern Bering Sea herring.

Fishery	Forecast Run Biomass		Threshold
	(metric tons)	(short tons - 2,000 lbs)	
Port Moller	136	150	1,000
Bristol Bay (Togiak)	107,048	118,000	35,000
Kuskokwim Area			
Security Cove	4,107	4,527	1,200
Goodnews Bay	5,221	5,755	1,200
Cape Avinof	3,162	3,486	500
Nelson Island	3,602	3,971	3,000
Nunivak Island	3,094	3,411	1,500
Cape Romanzof	2,340	2,579	1,500
Norton Sound	23,864	26,305	7,000
Total:	152,574	168,184	
PSC Limit (at 1% of run biomass):	1,526		

D-1 Groundfish TAC Specifications for 2002

- Draft Environmental Assessment
- Sources of Information
- Groundfish Plan Team meetings
- Alaska Regional Office, Sustainable Fisheries' staff
- Pat Livingston and contributors to Ecosystem Considerations Chapter
- Ben Muse and Economic SAFE

Fourth year TAC Specifications EA has incorporated SAFE Reports as Appendices

- Improves NEPA compliance in TAC setting process
- Provides full disclosure of all information into the administrative record
- 2002 first TAC spec EA to attempt analysis of impacts (significant/insignificant)

EA Outline

- 1 Purpose and Need
 - 2 Alternatives
 - 3 Affected Environment
 - 4 Environmental Consequences
 - 5 Conclusions
 - 6 List of Preparers
 - 7 References
- App A BSAI SAFE
App B GOA SAFE
App C Ecosystem Considerations
App D Economic SAFE

2002 TAC Specifications Alternatives

On a target species or species group basis:

1. Set fishing mortality rate (F) equal to the maximum permissible value of F_{ABC} under Amendment 56
2. Set F within range of ABCs recommended by Plan Teams and Council (Preferred Alternative)
3. Set F equal to 50% of max F_{ABC}
4. Set F equal to most recent 5-year average actual F
5. Set F equal to 0

Reference Points – Resource Issues

- | | |
|---|--------------------|
| • Reference Point | • Application |
| Current population trajectory or harvest rate | Marine Mammals |
| | Target Fish |
| | Prohibited Species |
| | Seabirds |
| Indicators of Ecosystem Function | Ecosystem |

Typical Analytical Approach for Each Issue

1. Key effects question(s) identified
2. Criteria developed for determining the significance of the effects in relation to reference point
3. Information assembled for significance predictions
4. Conclusion related to FONSI determination

Significance Determinations

- S+ Significant Beneficial
- I Insignificant
- S- Significant Adverse

- U Unknown

Table 5.0-1 Summary of Significance Determinations

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Marine Mammals	I	I	I	I	I
Target Fish	I	I	I	I	I
Prohibited Species – Pacific Salmon					
Condition of Stocks	I	I	I	I	I
Harvest Level (salmon)	I	I	I	I	I
Harvest Level (groundfish)	I	I	I	I	S+
Harvest Level of prohibs	I	I	I	I	S+

Notes: S=significant, I=insignificant, U= unknown.

**Table 5.0-1 Summary of Significance Determinations
(continued)**

Economic Indicators	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Existence Values	U	U	U	U	U
Non-market Subsis Use	U	U	U	U	U
Non-consumptive Use	U	U	U	U	U
Fish Prices	S-	S-	U	U	S-
Operating Cost Impacts	S-	S-	U	U	S+
Gross Revenues	S+	S+	S-	I	S-
Net Returns to Industry	S+	S+	S-	I	S-
Safety Impacts	U	U	U	U	S+
Impacts Related Fisheries	U	U	U	U	S-
Costs to Consumers	U	U	U	U	S-
Mgmt & Enforcement	U	U	U	U	S+
Excess Capacity	U	U	U	U	S-
Prohibited Species Catch	U	U	U	U	S+

Notes: S=significant, I=insignificant, U= unknown.

December¹⁰ 2001

Testimony — EBS Pollock Stock ABCs and TACs

My name is Ed Richardson and I'm here representing the Pollock Conservation Cooperative, a group of eight companies that harvest and process about 45 percent of the Bering Sea and Aleutian Islands pollock.

Mr. Chairman, the member companies of the Pollock Conservation Cooperative support the 2.11 million metric ton EBS pollock ABC recommended by the plan team and the Council's science and statistical committee. We think that the assessment on which these recommendations are based is one of the best in the world.

The Pollock Conservation Cooperative also supports the BSAI specifications recommended by the Council's Advisory Panel. The AP recommendations are the result of a lot of hard work on the part of the companies that harvest and process seafood from the Bering Sea, and together represent a set of total allowable catches and prohibited species bycatch allocations that will secure Optimal Yield from the fisheries.

Mr. Chairman, I'd like to take a few minutes of the Council's time to highlight some of our observations and thoughts about Bering Sea pollock stocks.

First, I'd like to bring to the Council's attention a graph from the pollock assessment that provides a retrospective view of current and prior estimates of the size of the exploitable stock of eastern Bering Sea pollock. One way to view this graph is as a kind of sensitivity analysis of the assessment results to alternative assessment models and data. In our view this chart indicates that, over the years, the pollock stock assessment results appear to be very robust to alternative assessment models and data availability. In short, the vast resources that are allocated to monitoring the status of the pollock resource — the annual bottom trawl surveys, the biennial acoustic water-column surveys, and the thousands of hours of observer monitoring and NMFS research effort — have paid off. The pollock stock assessment is working and provides a very dependable view of the stock's status and productivity.

Second, we would observe that resource assessments and catch reports from the Russian Far East over the past three years have indicated that the pollock stocks in the Sea of Okhotsk, the western Bering Sea, and in the Navrin Basin are now in a severely depressed state. However, during this time the size of the eastern Bering Sea stock has remained in the vicinity of 10-12 million metric tons — about as large as we have ever measured. We believe that these circumstances are consistent with a viewpoint that the connection between our eastern Bering Sea stock and pollock in the Russian zone takes the form of an intermittent, one-way, ecological overflow. That is to say, in years of high EBS stock abundance, the EBS stock distributes itself along the shelf, and this distribution extends — or overflows — into the Russian zone. Further, because the EBS stock tends to organize itself with the smallest fish to the northwest and the largest fish to the southeast, a portion of the smaller EBS fish overflow into the Russian zone. As we have indicated in prior testimony, this is likely due to limits on ecosystem space and-or energy in the eastern Bering Sea.

But what's important to remember here is that the numbers of EBS pollock that overflow are not surveyed, and so are not part of the survey-generated biomass estimates. Also, these fish do not show up in our fishery catch data. As a result, this overflow phenomenon has little or no effect on the assessment-model estimates of EBS pollock stock productivity.

Now shifting gears a bit, in what is getting to be routine testimony from our companies, we continue to be very concerned about the highly cannibalistic nature of eastern Bering Sea pollock, and thus the very real possibility that continued under-harvesting of the pollock stock will leave at risk the robustness of future year classes. For this reason, the PCC believes that large near-term harvests of pollock should be considered precautionary, in the sense that most, if not all, of the downside risk to stock recruitment, and so the production of small, forage pollock for sea birds and marine mammals, continues to be associated with leaving too many adult pollock in the water. This is the same position that the PCC has held for the last two years.

In this regard, the Council may recall that we ended up under-harvesting the eastern Bering Sea stock by about 500-800 thousand metric tons in both 1999 and 2000 due to what now appear to have been misplaced concerns about Steller sea lion nutrition. During 2001, the BSAI two million metric ton optimal-yield cap led to an under harvest of about 425,000 mt. The result is that we have for 2001 a pollock Age 3-plus stock biomass that is estimated to exceed 11 million metric tons. What's important here, and I'll try to show this with some data from the assessment, is that the EBS pollock stock is now projected to have reached a size at which it is likely to have negative consequences for near-term recruitment, and so also for the catches that the fishery is likely to realize 3-4 years down the line.

Mr. Chairman, this is a graph that you have seen before — it shows the Age 3+ biomass estimates overtop of the recruitment estimates. Its data from Figure 1.43 of the assessment. What I want to point out here is that the stock levels where the large recruitments have occurred recently range from $7\frac{1}{2}$ to 8 million tons. Also, the data shows that it is usual or common recently, to have very low levels of stock recruitment when the stock biomass is higher than 8 million tons. It's also important to note that recruitments for 1997-2000 are now estimated to be below average, and that the 1996 year class is still growing. So we feel that near term, it's important to crop-down the EBS pollock stock, as a precautionary measure, to improve the likelihood of good recruitments during 2002-2004. And we believe that it's important to do this as quickly as possible.

Another feature of this graph is that it shows that pollock year-class strength is estimated as the number of one-year-old fish. So what the figure indicates indirectly is that pollock cannibalism is operative on age zero fish. If age zero pollock are cannibalized by a super-abundant adult biomass, then these fish will not reach age one or age two, and it's these smaller, younger pollock that provide forage for marine mammals and birds in the EBS ecosystem. For this reason, we believe it is appropriate, from an ecosystem perspective, to harvest as much adult pollock during 2002 as is possible given the 2 million metric ton BSAI optimal-yield cap. In our view, the set of TAC recommendations provided by the AP would achieve this objective.

Mr. Chairman, this next slide shows the projected effects on the spawning stock biomass of several alternative harvest strategies for 2002. And here we have shifted gears again and are now looking at female spawning biomass — what Dr. Low described as the number of females in Seattle between 21 and 45 years old. More seriously, its these mature spawning pollock that, as Dr. Ianelli emphasized, are what stock assessment scientists are particularly concerned with. The point of showing this graph, which is also shown in the assessment as Figure 1.45, is that there is really no concern about the effects on spawning stock biomass during 2002 and 2003 should EBS pollock harvests in the range of 1.4-1.6 million metric tons occur next year. For example, adding 100,000 metric tons to the 2002 harvest is projected to decrease spawning stock biomass by only 1-2 percent.

Finally, Mr, Chairman, this last slide summarizes for the Council how the industry has worked with the 2002 allowable biological catches to obtain a recommendation on achieving the optimal yield for the BSAI groundfish fisheries. As can be seen, for the valuable groundfish that are available in low relative abundance, including the IFQ sablefish fishery, the industry has proposed to use all of the ABCs. For those valuable groundfish available in higher relative abundance, lower fractions of the ABCs are recommended to be harvested. So we see the BSAI cod TAC at 90 percent of ABC, yellowfin sole at 75 percent, and pollock at 70 percent. Valuable flatfish together are available in relatively high abundance, and so the recommendations for these species average 43 percent of ABCs. And lastly, for bycatch-only species, only 22 percent of the ABCs are proposed for harvesting.

Mr. Chairman, that concludes my comments on this item.

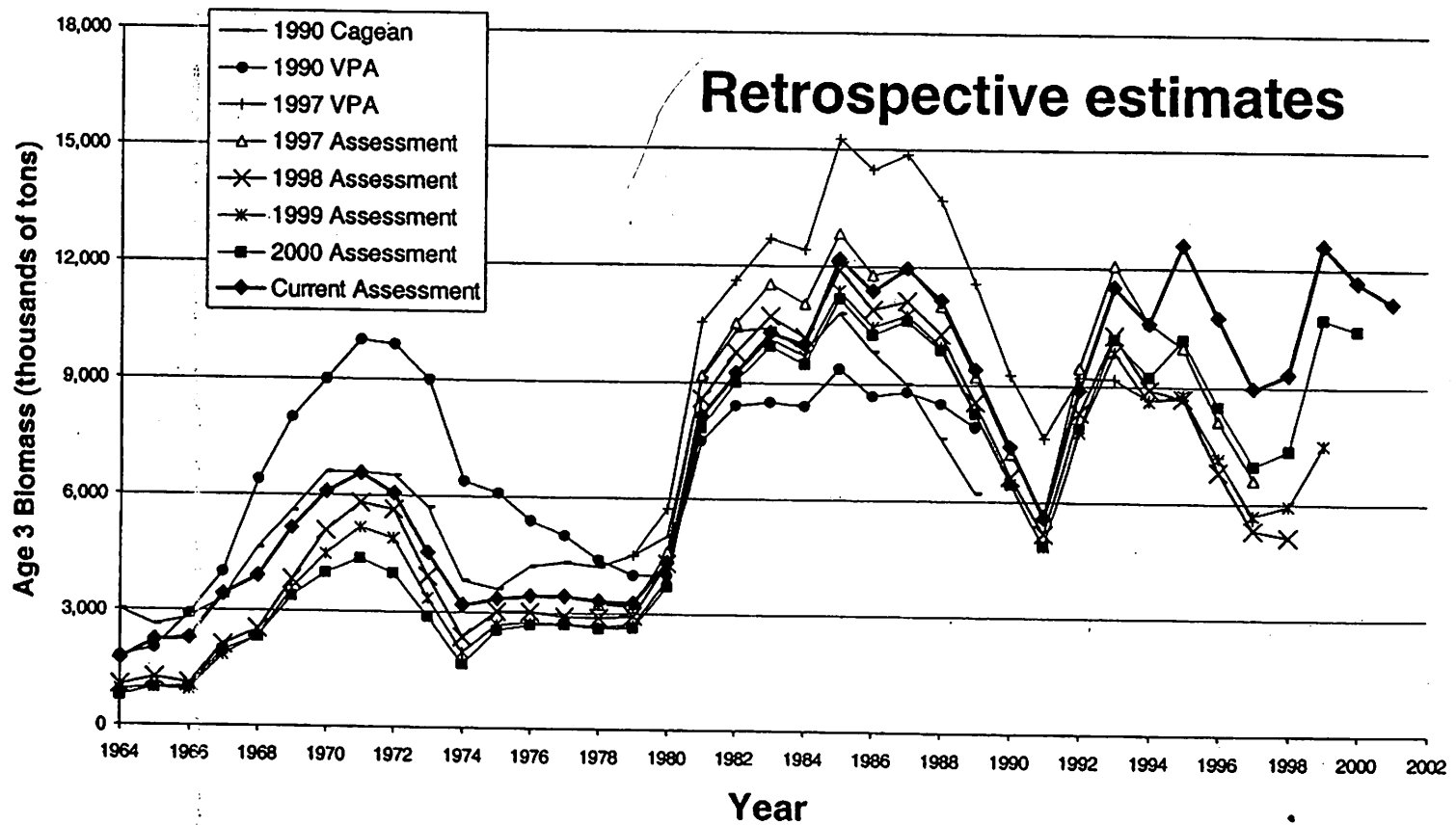
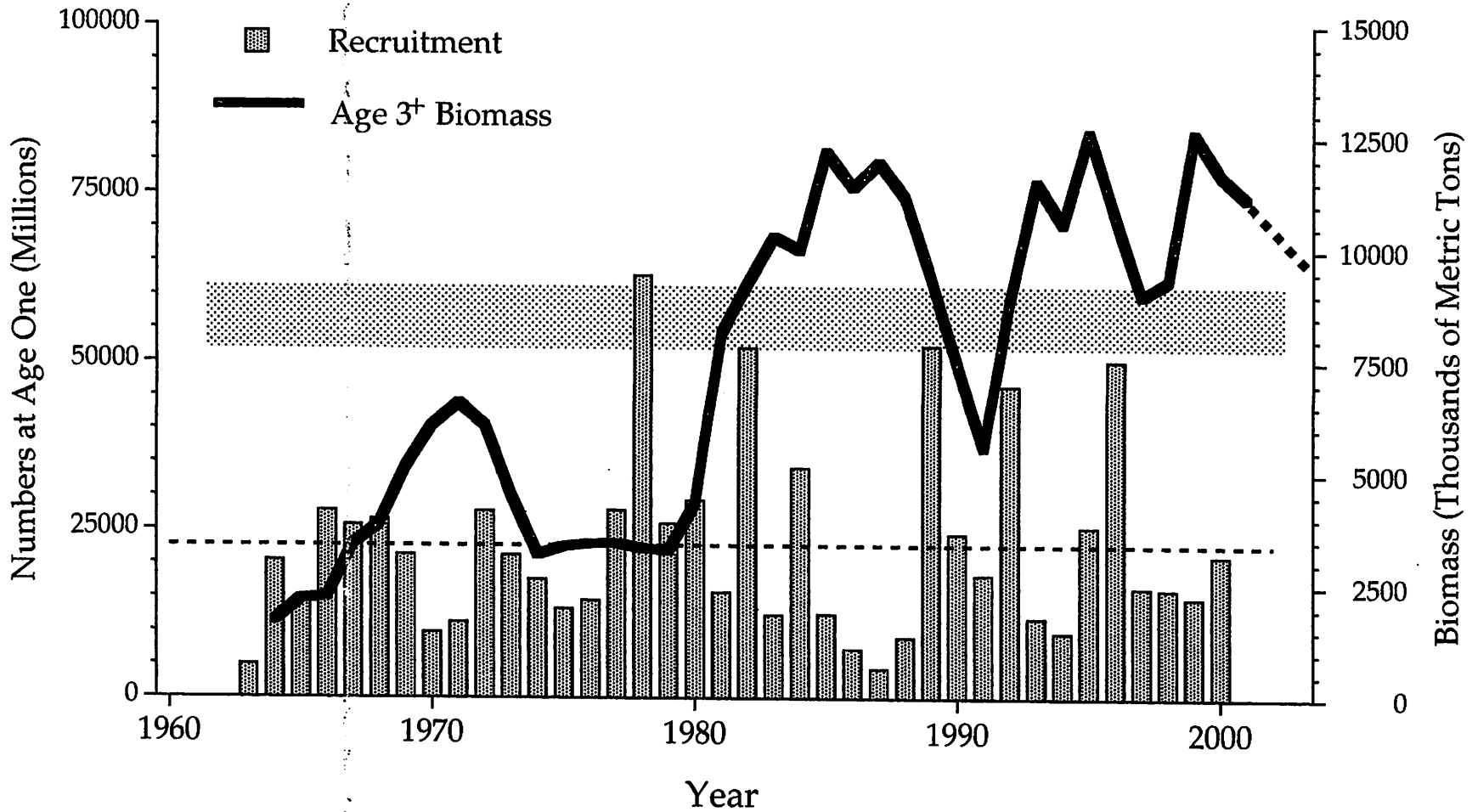


Figure 1.42. Comparison of the current assessment results with past assessments of begin-year EBS age-3+ pollock biomass.

EBS Pollock Model Estimates

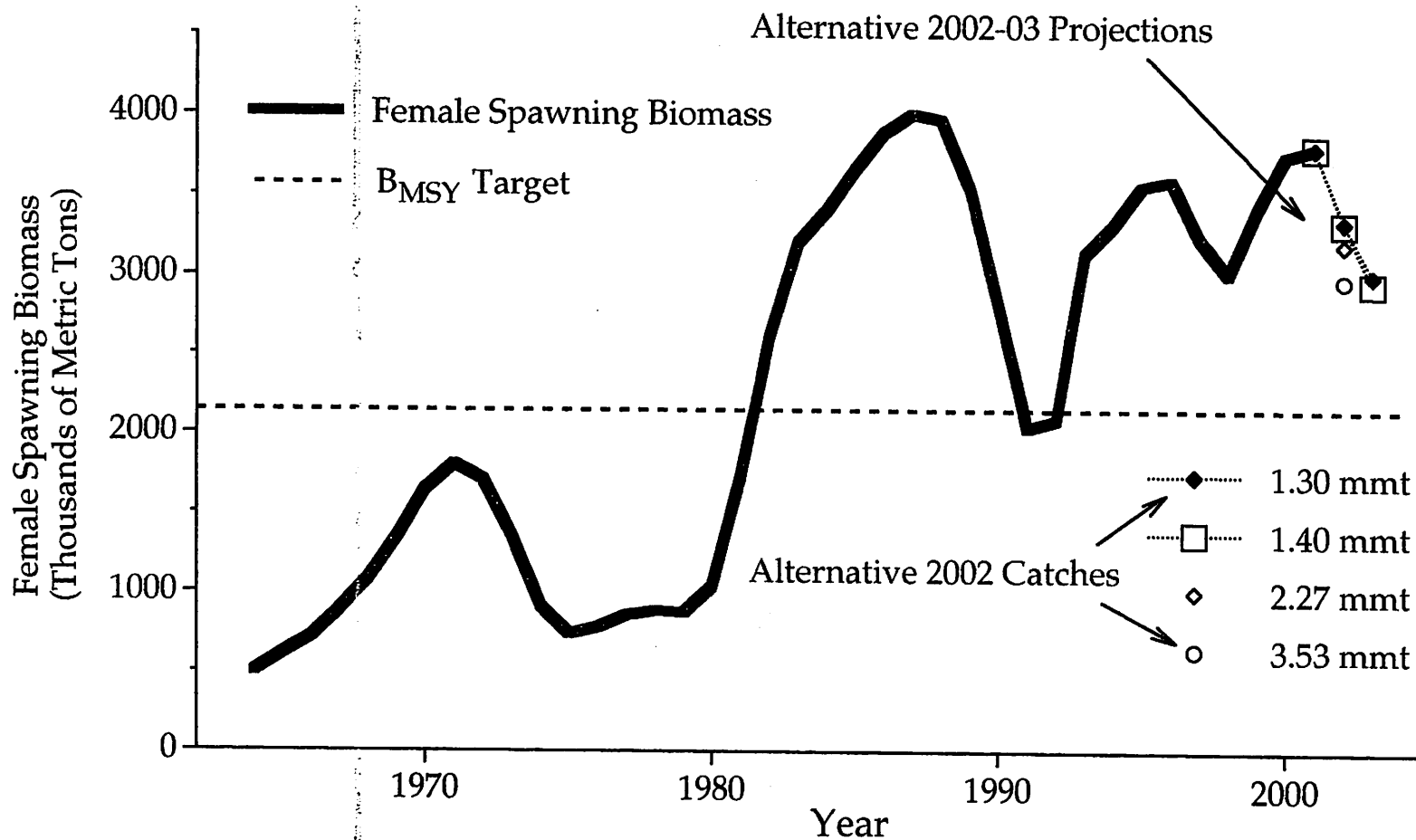
Age 3+ Biomass and Numbers at Age One



Source: Eastern Bering Sea Walleye Pollock Stock Assessment, November 2001.

EBS Pollock Model Estimates

Female Spawning Biomass



Source: Figure 1.45, Eastern Bering Sea Walleye Pollock Stock Assessment, November 2001.

BSAI Optimal-Yield-Limited Total Allowable Catches — 2002
Advisory Panel Recommendations

Species	ABC (mt)	OY-Limited TAC (mt)	TAC/ABC (%)
Atka Mackerel	49,000	49,000	100
Rockfish	23,625	23,625	100
Sablefish	4,480	4,480	100
Cod	223,000	200,000	90
Yellowfin Sole	115,000	86,000	75
Pollock	2,138,110	1,486,100	70
Valuable Flatfish (Turbot, Yellowfin and Rock Sole)	348,100	148,000	43
Bycatch Species	397,770	88,795	22
All BSAI OY Species	3,184,085	2,000,000	63

SAFE Document Summary BSAI Groundfish

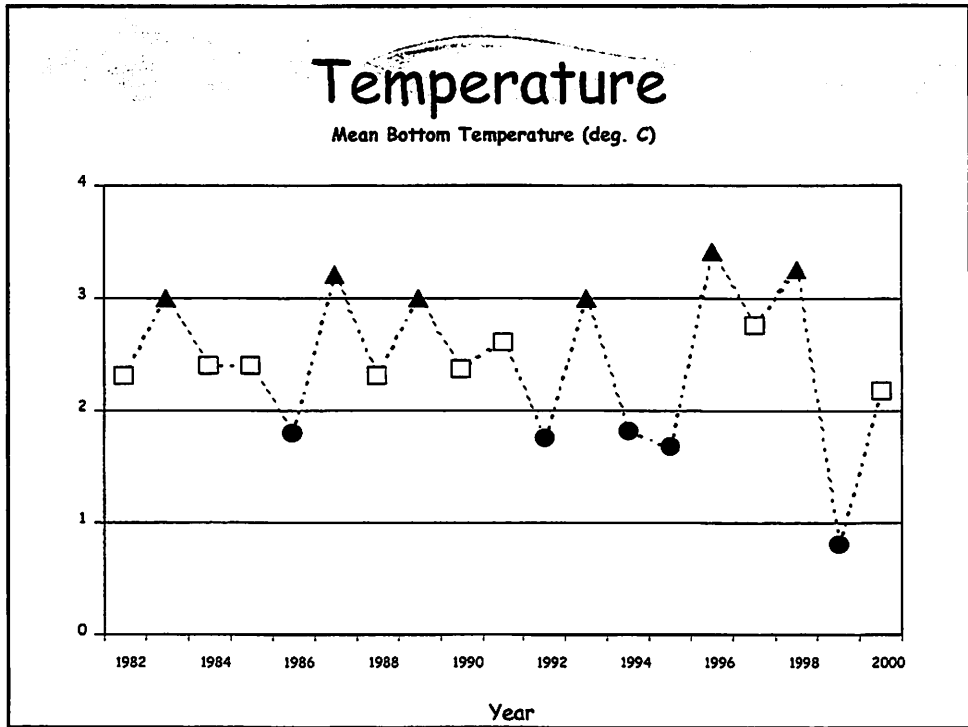
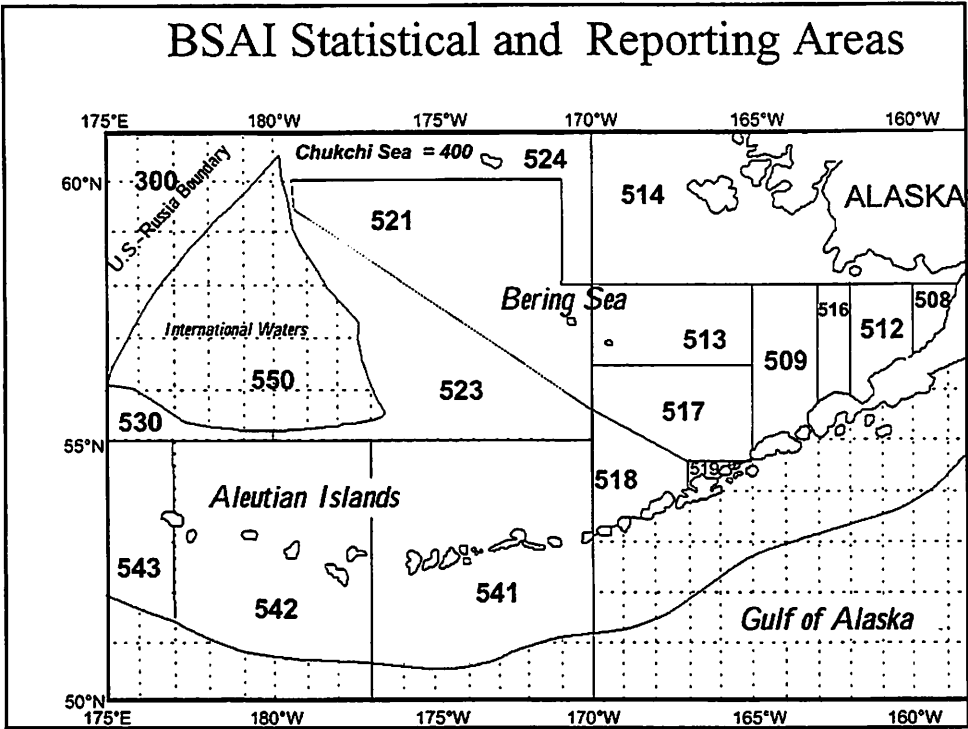
Plan Team Members (12 Members)

NMFS	--	Loh-Lee Low Mike Sigler Grant Thompson Lowell Fritz Andy Smoker
NPFMC	--	Dave Witherell
USF&W	--	Kathy Kuletz
ADF&G	--	Ivan Vining Kristin Mabrey
Univ.Alaska	--	Brenda Norcross
WDF&W	--	Farron Wallace
Halibut Comm	--	Gregg Williams



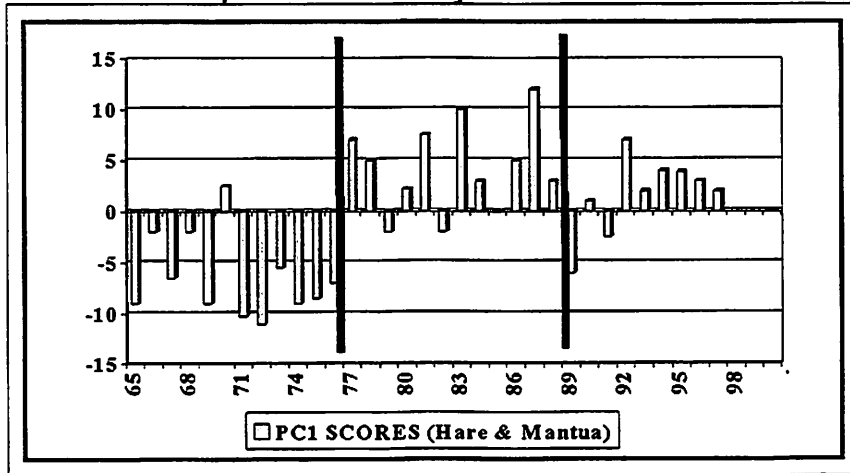
SAFE Document 2001 Contents

- Appendix A: Summary**
- Appendix B: Species-by-species**
- Appendix C: Economic Status**
- Appendix D: Ecosystems Considerations**



Regime Shift

Composite of 31 Physical Indicators

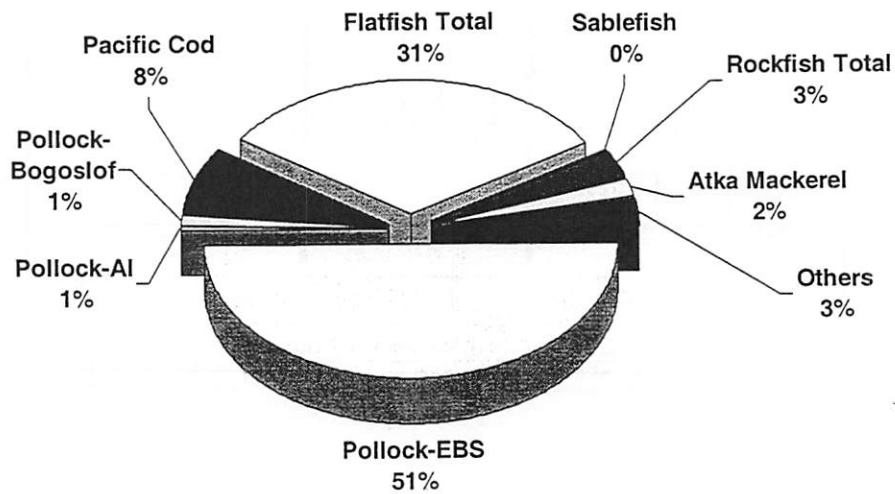


Exploitable Biomass

By
Major Species Groups

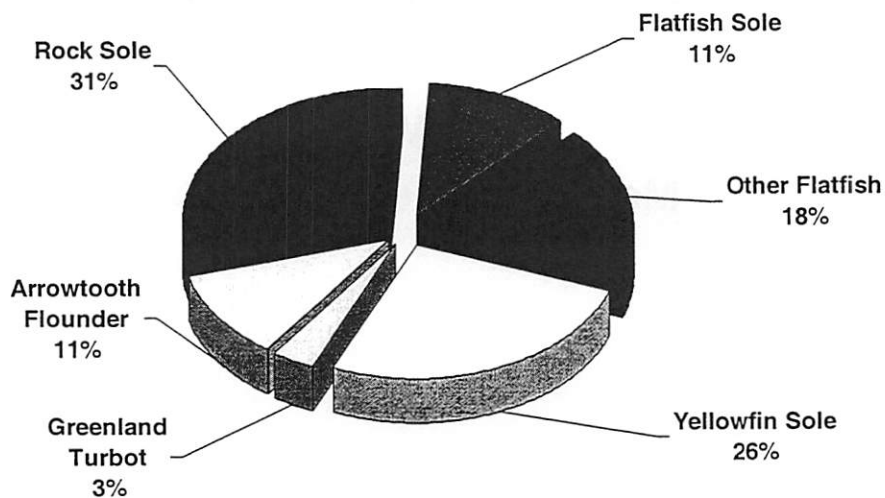
BSAI Exploitable Biomass

Yr 2002 Total = 19.6 MMT

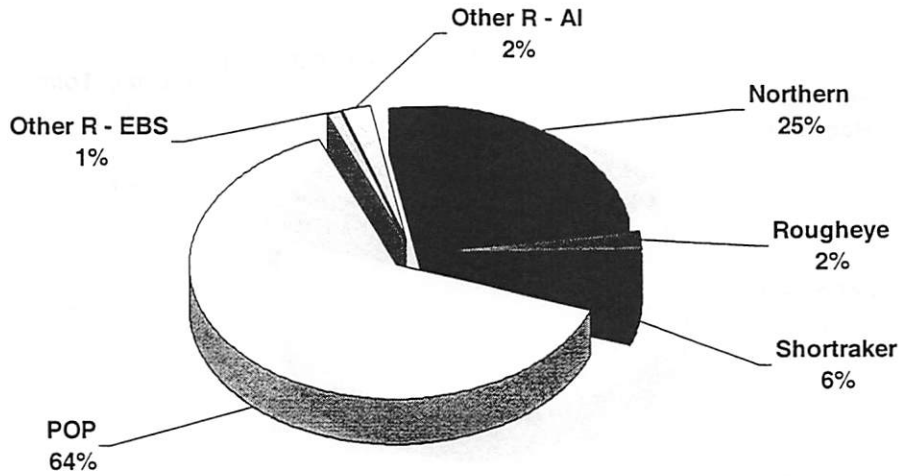


BSAI Flatfish Complex Biomass

Yr 2002 Total = 6.1+ MMT



BSAI Rockfish Complex Biomass
Yr 2002 Total = 594,780 MT

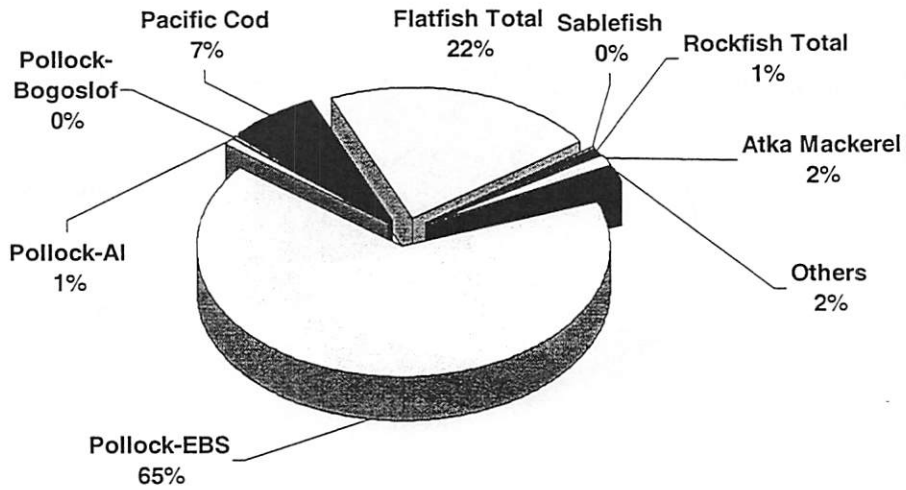


Estimated ABCs

By
Major Species Groups

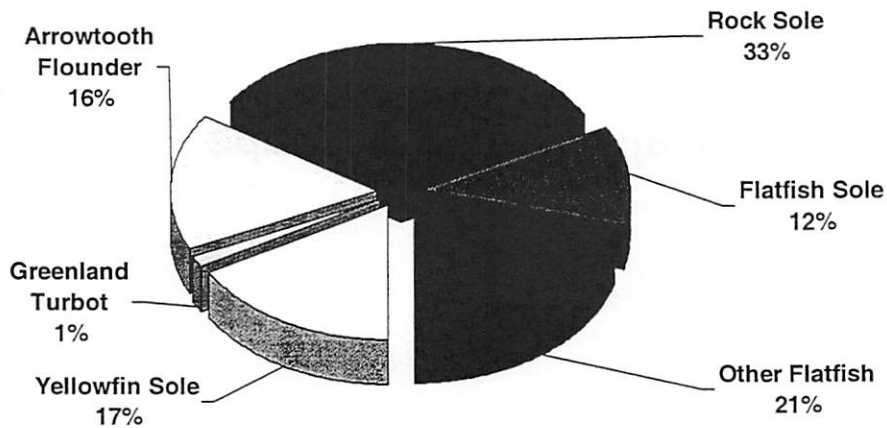
BSAI Groundfish Complex ABCs

Yr 2002 Total = 3,185,076 MT



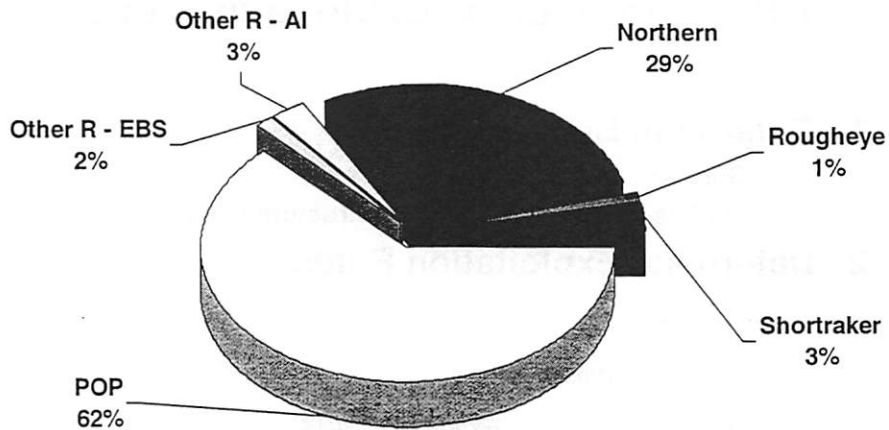
BSAI Flatfish Complex ABC

Yr 2002 Total = 686,700 MT



BSAI Rockfish Complex ABCs

Yr 2002 Total = 23,625 MT



Description

Species-by-Species

Assessment Theme

ABC = Biomass x Exploitation Rate

1. Determine Biomass from

- Surveys....Hydroacoustics, Trawls
- Models.....Variations of Age-Structure Models

2. Determine Exploitation Rates

- F_{msy}
- $F_{overfishing}$
- F_{abc} Example $F_{40\%}$

Assessment Theme

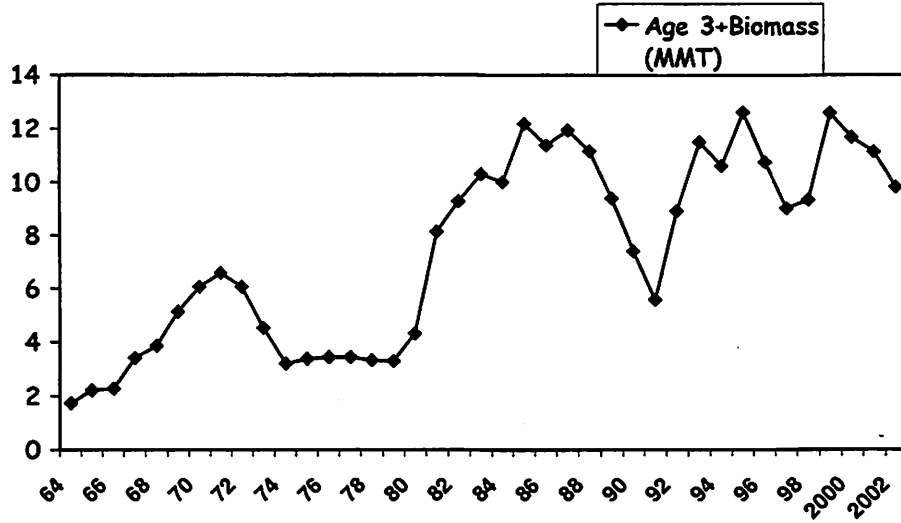
**Evaluate Quality of Information about
Population Dynamics of the Stocks and Use
Fishing Rates according to Three Groupings
of Stock Status**

(Pages 3-4 of SAFE Summary)

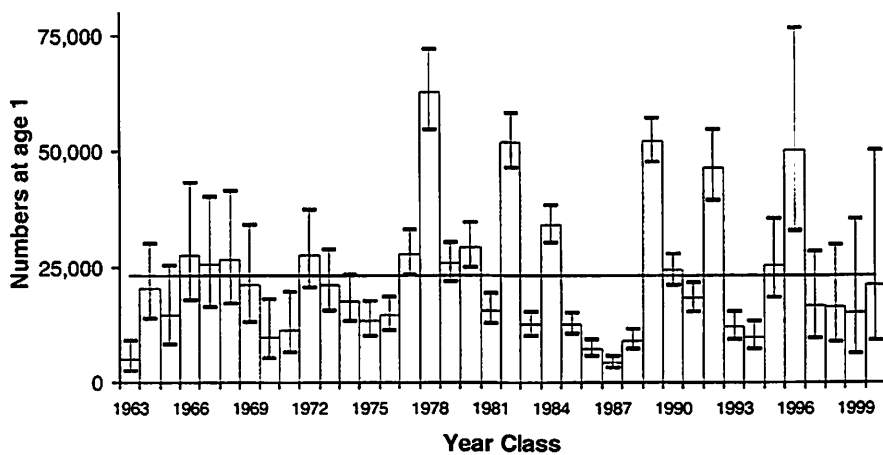
- Tier 1 -- Most Information
- Tier 2 -- Less Information
- Tier 3
- Tier 4
- Tier 5 -- Reliable Data on B and M
- Tier 6 -- Reliable Catch History Data

EBS Pollock

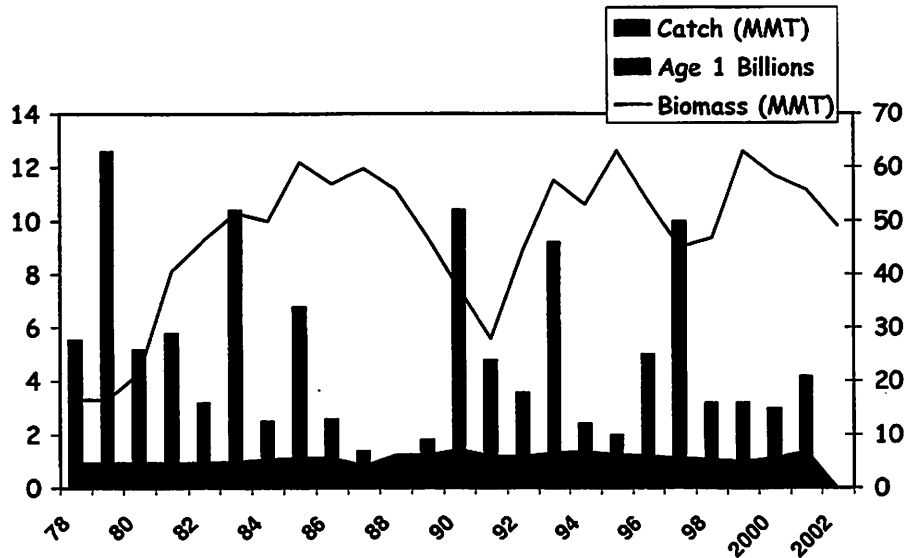
Long-Term Biomass Trend



Year-class estimates



EBS Pollock



EBS Pollock Assessment Notable Features

1. Year 2001 Surveys

Bottom Trawl Biomass = 4.14 mmt

-- down 19.5% from Yr 2000 Survey

2. Year 2001 Models

7 versions of Age-Structure Models, Used Model 1

Age3+ Biomass for 2002 = 9.8 mmt,

down 12% from Yr 2001 Estimate

• Recruitment

Strong 1992 & 1996 Year Classes

Aleutian Island Region Pollock Assessment Notable Features

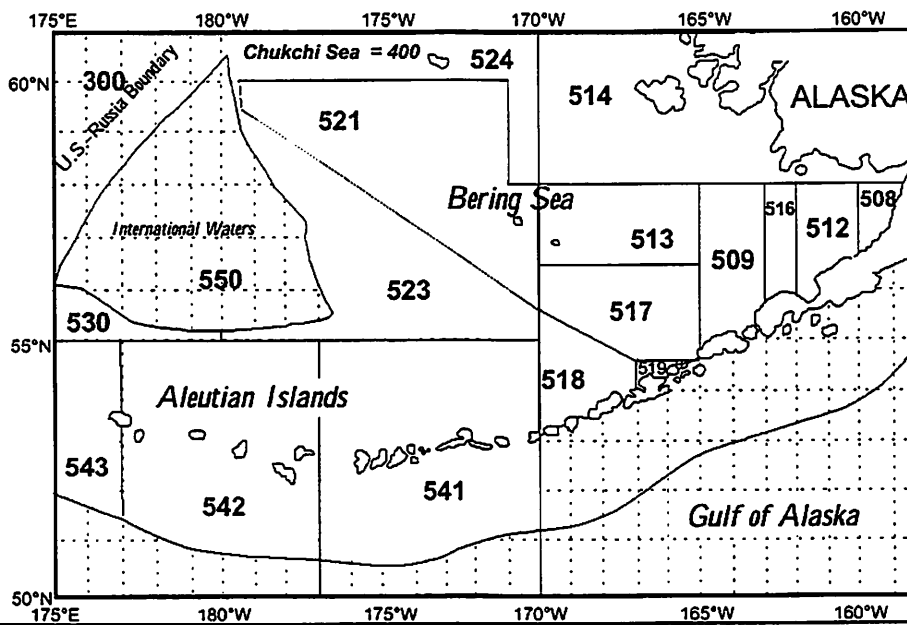
- **Age-Structure Model don't work – Not a Unit Stock**

- **Assessment Depends on Surveys**

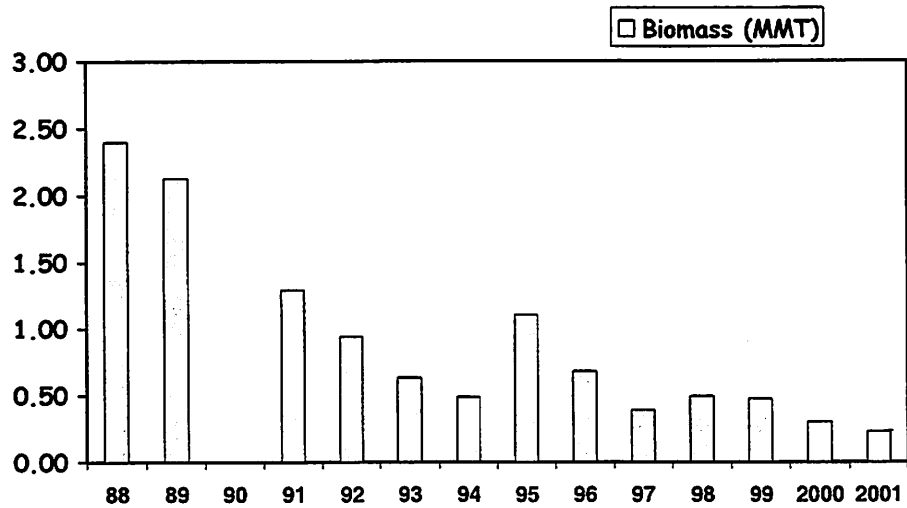
Survey Year	Biomass
1991	167,140
1994	77,503
1997	93,512
2000	105,554

- **ABC = Biomass x 75%M (Tier 5)**
= 23,800 mt

BSAI Statistical and Reporting Areas



Bogoslof Region Pollock Survey Biomass



Bogoslof Region Pollock ABC

1. Method 1 – Tier 5

$$\text{ABC} = \text{Biomass} \times 0.75 \text{ M}$$

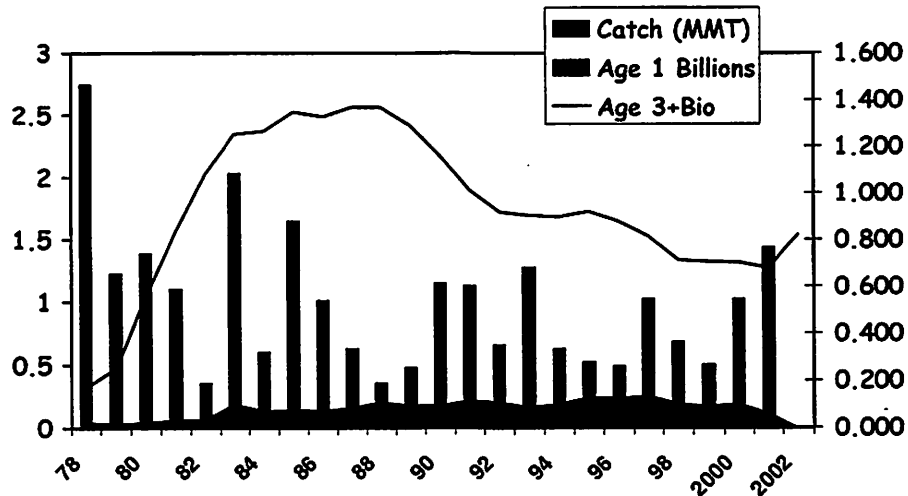
$$\text{ABC} = 34,800 \text{ mt}$$

▪ Method 2 – Using SSC Procedure

With 2 mmt as Target Biomass

$$\text{ABC} = 4,310 \text{ mt}$$

BSAI Pacific Cod



Pacific Cod Assessment Notable Features

1. Year 2001 Surveys

- EBS Trawl Biomass = 830,500 t,
up 57 % from 2000

2. Year 2001 Model

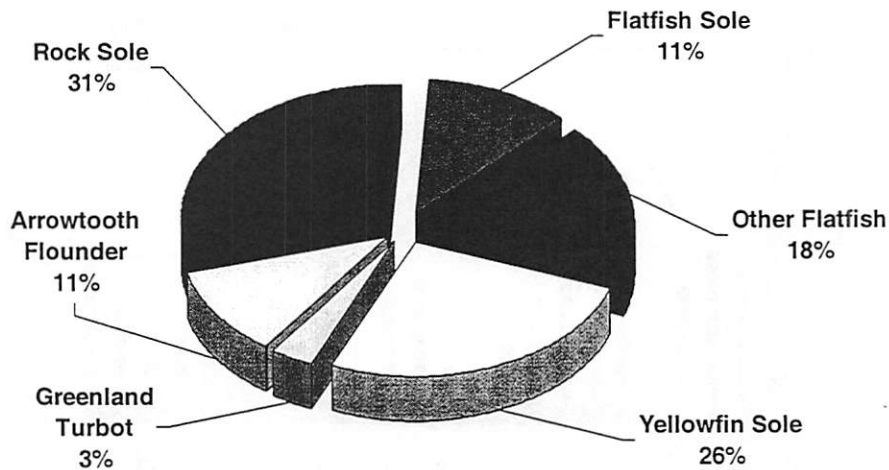
- Update of Last Year's Model
- Estimated 2002 Biomass = 1.54 mmt, up 17%

3. Recruitment

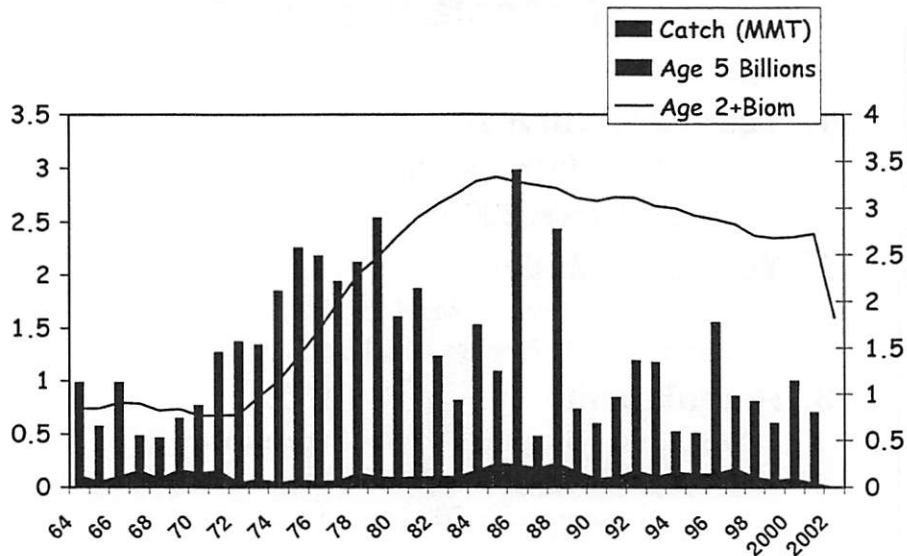
- Year classes since 1992 have been below average
- Except for average 1996 & 1999 year classes
and above average Yr 2000 recruitment

BSAI Flatfish Complex Biomass

Yr 2002 Total = 6.1+ MMT



EBS Yellowfin Sole



Yellowfin Sole Assessment Notable Features

- **Survey Biomass**

- Relatively high biomass, doubled from 1975-79
- further increased to 2.3 mmt in 1981
- Declining in recent years as strong year classes phases out of the population

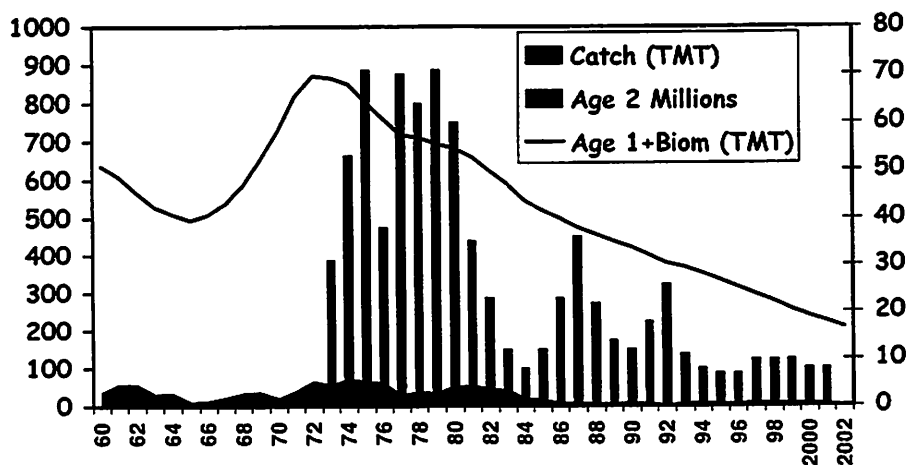
- 2. **Models**

- Estimated 2002 Biomass = 1.6 mmt,
down 33% from 2001
- biomass is still high but definitely declining

- 3. **Recruitment**

- Low recruitment in last decade

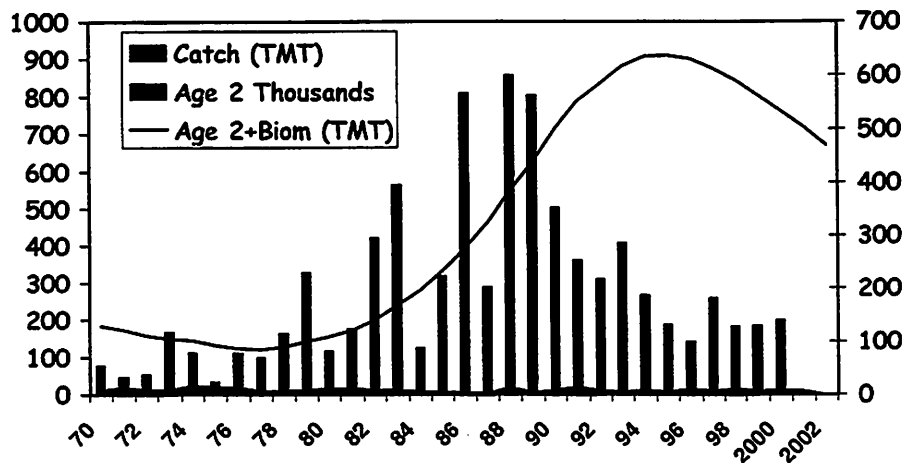
EBS Greenland Turbot



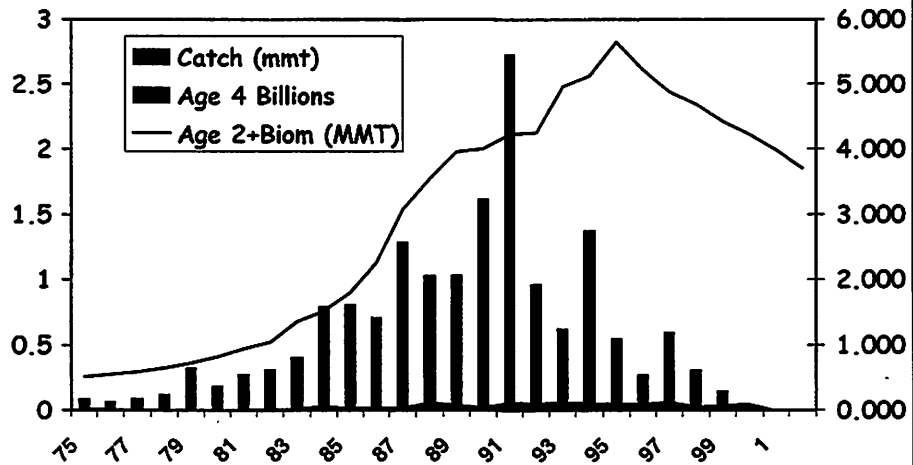
Greenland Turbot Assessment Notable Features

- **Survey Biomass**
 - EBS Trawl Biomass assess juveniles only
- 2. Modeling**
 - Yr 2002 Age 1+ biomass = 208,000 mt,
down 7 % from Yr 2001
 - biomass is generally low and relatively stable
- 3. Recruitment**
 - Generally Low recruitment in last 2 decades

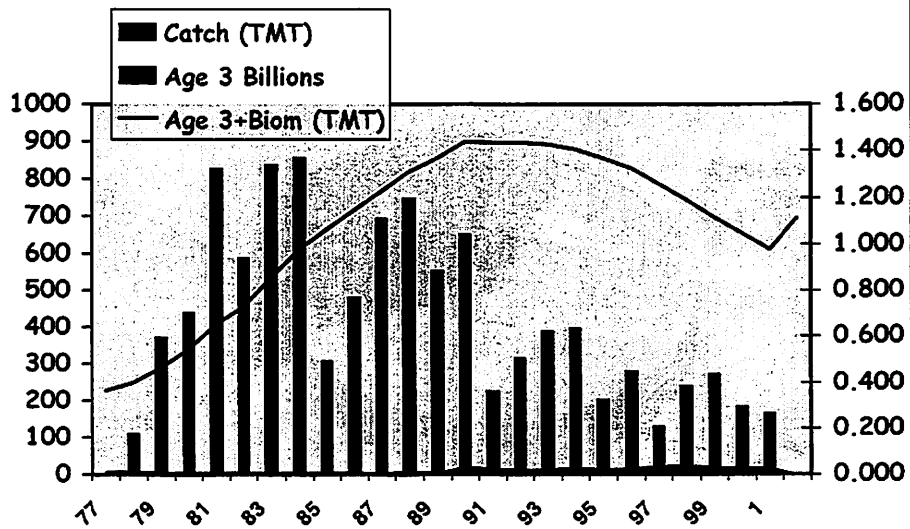
EBS Arrowtooth Flounder



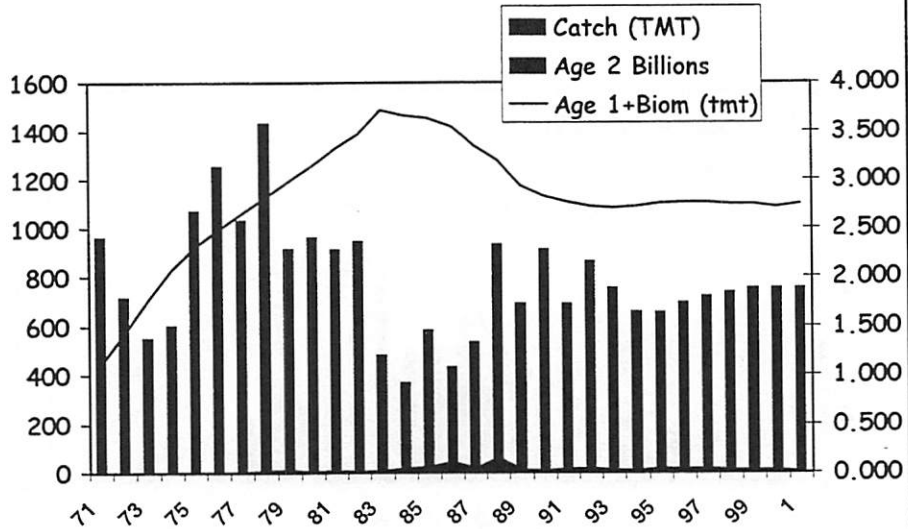
EBS Rock Sole



EBS Flathead Sole

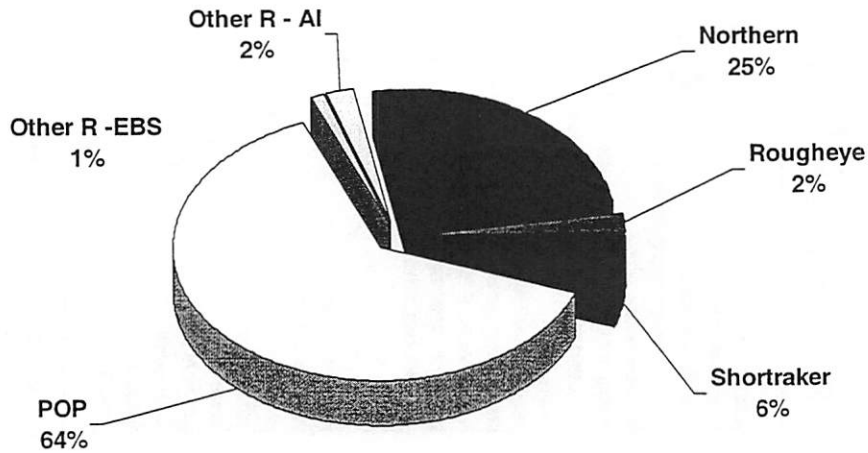


EBS Alaska Plaice

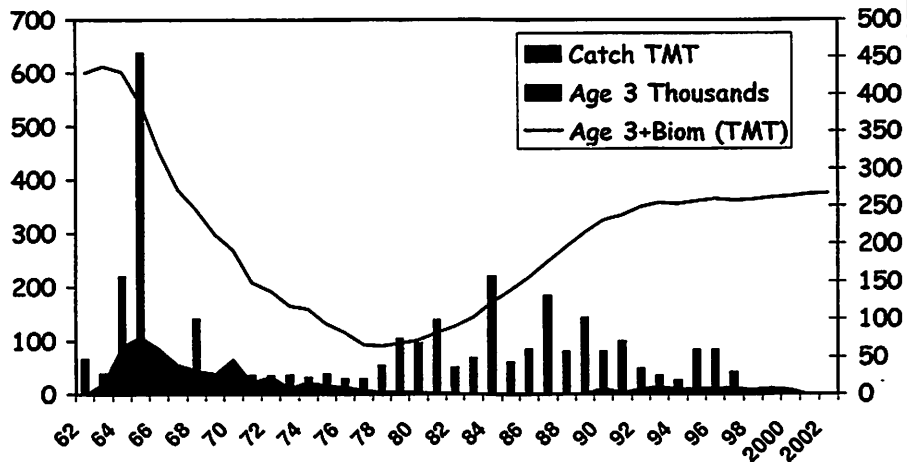


BSAI Rockfish Complex Biomass

Yr 2002 Total = 594,780 MT



Bering Sea/Aleutians POP



POP Assessment Notable Features

- **Present Assessment**
 - Single Model to Combined Bering Sea/Aleutians

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

- § **Recruitment**
 - Rather Poor Recruitment in recent years

Other Red Rockfish Assessment Notable Features

- **Normally split Other Red Rockfish into:**
 - Northern/Sharpchin
 - Roughey/Shortraker

2. Tier 5 ABC = Survey Biomass x 0.75M

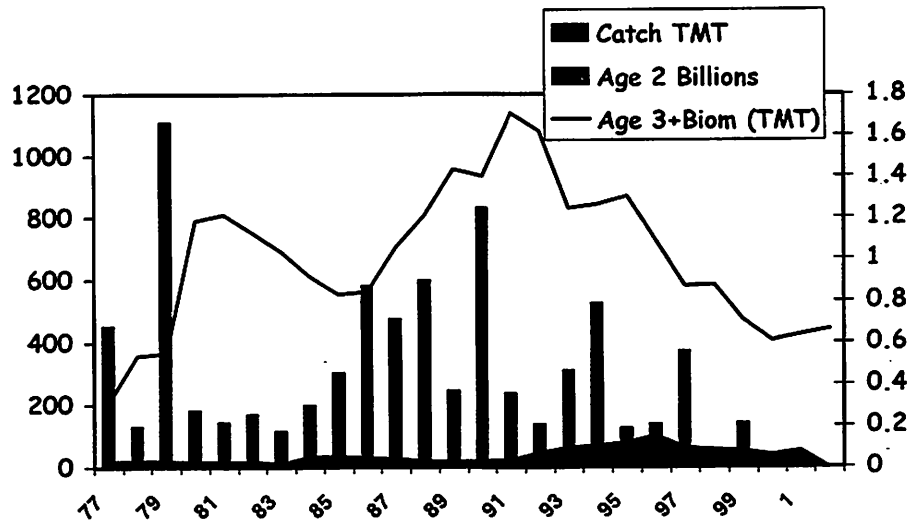
Stock	EBS	Aleutians
Northern	19 mt	6,745 mt (99.7%)
Roughey	32 mt	230 mt (89.1%)
Shortraker	84 mt	682 mt (89.0%)
Sharpchin	(included in Other Rockfish Group)	

Other Rockfish Assessments Notable Features

- **Tier 5 ABC = Survey Biomass x 0.75 M**

Stock	Year	Survey Biomass	ABC
EBS	2002	6,880	361
AI	2001	12,900	676

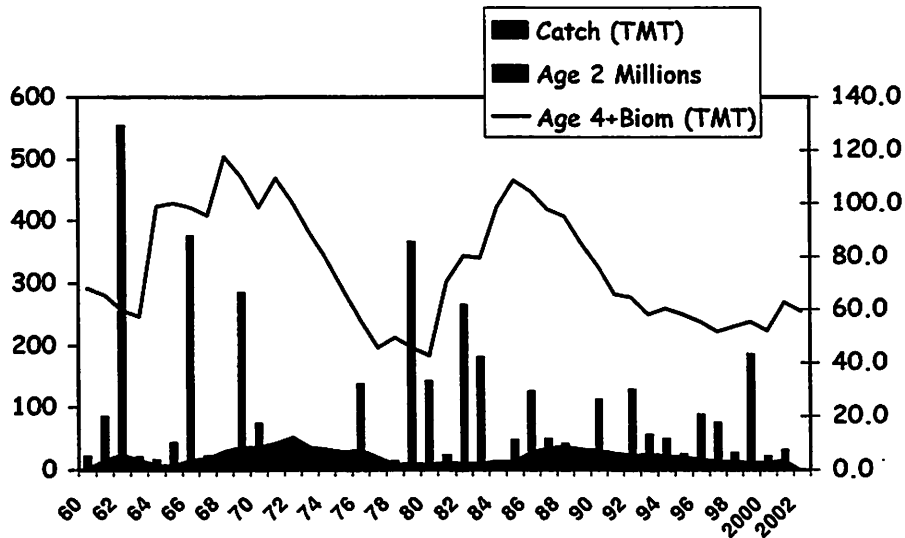
Aleutian Islands Atka Mackerel



Atka Mackerel Assessment Notable Features

- **Reference Max ABC = 124,500 mt**
- 2. However, for ABC Considerations**
 - Survey Biomass Shows high variability
 - Yr 2002 Model biomass = 439,700 mt,
up 3 % from Yr 2000; but declined 63 % since 1991
 - Projected Female Spawning Biomass would remain below
reference B40% level until 2005
 - Too early to confirm strength of 1998 Year Class
- 3. ABC adjusted downward by SSC Strategy**
 - Fabc = adjusted down to 0.21, down 40% from max rate
- 4. Thus Adjusted ABC = 49,000 mt**

Sablefish-all areas



Sablefish Assessment Notable Features

- **Longline Survey Abundance**
 - Increased 16% in numbers and 13% in weight from 2000-2001
- 2. **Modeling**
 - Abundance now projected to be slightly increasing
- 3. **ABC**
 - ABC of 17,300 mt of the entire stock is apportioned by 5-year exponential weighting of abundance indices by region: EBS, AI & GOA

Squid Assessment Notable Features

- **Same Analysis as Last Year**

2. Tier 5 Situation

$$ABC = 0.75M * \text{Biomass}$$

Other Species Assessment Notable Features

- **Debate of Splitting or Not Splitting into Major Taxonomic Groups:**

Split >116 Species into 4 Taxonomic Groups:

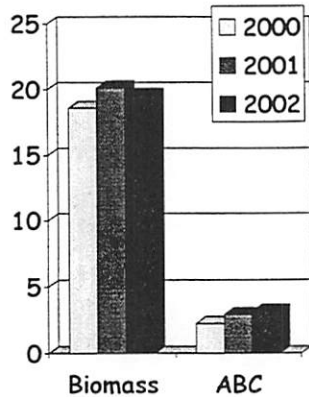
Shark, Octopus, Skates, Sculpins

2. ABC Calculations

Group	Tier	Biomass	ABC	SSC's ABC
Shark	6	n/a	387	
Octopus	6	n/a	405	
Skates	5	432,00	32,400	
Sculpins	5	227,000	25,100	
		Total	58,292	39,148

BSAI Groundfish Complex

Yr 2000 to Yr 2002



- **Exploitable Biomass**

- * 19.6 mmt for Yr 2002
- * Down 0.56 mmt from Yr 2001

- **ABC**

- * 3.185 mmt for Yr 2002
- * Up 0.258 mmt from Yr 2001

Summary (From Table 4) (Pollock)

Stock	Biomass (mt)	ABC (mt)	ABC Change (2002 fr 2001)
Pollock, EBS	9,800,000	2,110,000	Up 15 %
Pollock, AI	106,000	23,800	No change
Pollock, Bogoslof	232,000	4,310	Down 50 %

**Summary (from Table 4)
(Cod and Sablefish)**

Stock	Biomass (mt)	ABC (mt)	ABC Change (2002 fr 2001)
Pacific Cod, BSAI	1,540,000	223,000	Up 19 %
Sablefish, EBS	28,000	1,930	Up 24 %
Sablefish, AI	38,000	2,550	Up 2 %

**Summary (from Table 4)
(Flatfishes)**

Stock	Biomass (mt)	ABC (mt)	ABC Change (2002 fr 2001)
YellFn. Sole	1,597,000	116,000	Down 34 %
Grn. Turbot	208,000	8,100	Down 4 %
Arrow. Fl	671,000	113,000	Down 3 %
Rock Sole	1,850,000	225,000	Down 1 %
Flathead Sole	695,000	82,600	Down 2 %
Alaska Plaice	1,110,000	143,000	Up 32 %
Other Flats	78,300	18,100	

**Summary (from Table 4)
(Rockfishes)**

Stock	Biomass (mt)	ABC (mt)	ABC Change (2002 fr 2001)
POP, BSAI	377,000	14,800	Up 24 %
Northern R	150,000	6,760	
Rougeye R	14,000	262	
Shortraker R	34,000	766	
Other R, EBS	6,880	361	
Other R, AI	12,900	676	

**Summary (from Table 4)
(Atka Mackerel & Other Species)**

Stock	Biomass (mt)	ABC (mt)	ABC Change (2002 fr 2001)
Atka Mackerel	439,700	49,000	Down 29 %
Squid	NA	1,970	No Change
Other Species	667,000	39,148	Up 16 %

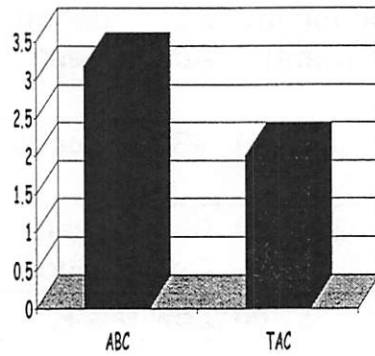
Adjustments to Reduce ABCs - due To Uncertainties

Stock	Maximum Permissible ABC (mt)	Recommend ABC (mt)	Main Reasons for Adjustment
Pollock, Bogoslof	34,800	4,310	SSC Procedure
Pacific Cod	253,000	223,000	Risk-Adverse Optimization
Green. Turbot	30,200	8,100	Low B & R
Sablefish, All	21,300	17,300	Simulated C
Atka Mackerel	F _{40%}	F _{40% Adj}	Stochastic Projections of F

Adjustments to ABCs - due to Ecosystems

The Team was unable to isolate individual cases where ABC adjustments are needed to be made to address ecosystem concerns

Year 2002 Summary



▪ ABC = 3,185,076 mt

▪ TAC = 2,000,000 mt

Bering Sea/Aleutian Islands Groundfish Harvest Limits 1981-1999

