

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver *Chris*  
Executive Director

DATE: November 26, 2002

SUBJECT: Final GOA Groundfish Specifications for 2003

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

**ACTION REQUIRED**

- (e) Review and approve GOA SAFE documents and recommend final specifications and bycatch apportionments.
1. Acceptable Biological Catch (ABC), and annual Total Allowable Catch (TAC); and
  2. Prohibit Species Catch Limits.

**BACKGROUND**

GOA SAFE Document

The groundfish Plan Teams met in Seattle November 12-15 to prepare the final SAFE documents provided for this meeting. This SAFE forms the basis for groundfish specifications for the 2003 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 BSAI SAFE, are incorporated into the Environmental Assessment for the 2003 groundfish total allowable catch specifications. The EA, incorporating all these sections, was mailed to you on November 22. The GOA Plan Team and Joint Plan Team minutes are attached as Items D-1(e)(1) and (2).

ABCs, TACs, and Apportionments

At this meeting, the Council will establish final catch specifications for the 2003 fisheries. The SSC and AP recommendations will be provided to the Council during the meeting. Tables 1 and 2 from the SAFE summary chapter report detailing the ABCs and biomass levels are attached as Item D-1(e)(3). The sum of the Plan Team's recommended ABCs for 2003 is 414,820 mt. The sum of the ABCs increased 4% compared with last year, principally due to an increase in Flathead sole (+45%) and Arrowtooth flounder (+6%). Other stocks such as pollock (- 7%) and Pacific cod (- 8%) have continued to decline. None of the groundfish stocks are overfished or approaching an overfished condition.

TAC Considerations for State Pacific Cod Fishery

Since 1997, the Council has reduced the GOA Pacific cod TAC to account for removals of not more than 25% of the Federal P. cod TAC from the state parallel fisheries. Preliminary information indicates that neither Chignik nor Cook Inlet achieved its GHL, and therefore would remain at its current allocation. Using the area apportionments of the 2003 P. cod ABC recommended by the Plan Team, the federal TAC for P. cod would be adjusted as listed at right.

Proposed 2003 Gulf Pacific cod ABCs, TACs, and State guideline harvest levels (mt).				
Specifications	Western	Central	Eastern	Total
ABC	20,600	29,000	3,200	52,580
BOF GHL	5,150	6,310	800	12,260
(%)	25	21.75	25	23.3
TAC	15,450	22,690	2,400	40,540
	Cook Inlet	655	2.25%	
	Kodiak	3,625	12.50%	
	<u>Chignik</u>	<u>2,030</u>	<u>7.00%</u>	
	Central	6,310	21.75%	

Prohibited Species Catch Limits

Since 1995, total halibut Prohibited Species Catch (PSC) limits for all fisheries and gear types have totaled 2,300 mt. This cap was reduced from 2,750 mt after the sablefish IFQ fishery was exempted from the halibut PSC requirements in 1995. The following 2002 halibut PSC apportionments were instituted for the Gulf of Alaska groundfish fisheries:

2002 Trawl		2002 Hook and Line		
Jan 1 - Apr 1	550 mt	1st trimester	Jan 1 - Jun 10	250 mt
Apr 1 - Jul 10	400 mt	2nd trimester	Jun 10 - Sep 1	5 mt
Jul 1 - Sep 1	600 mt	3rd trimester	Sept 1 - Dec 31	35 mt
Sept 1 - Oct 1	150 mt			
Oct 1 - Dec 31	300 mt	DSR	Jan 1 - Dec 31	10 mt
<b>TOTAL</b>	<b>2,000 mt</b>			<b>300 mt</b>

Season	Trawl fishery categories		
	Shallow Water	Deep Water	Total
Jan 1 - Apr 1	450 mt	100 mt	550 mt
Apr 1 - Jun 30	100 mt	300 mt	400 mt
Jun 30 - Sep 1	200 mt	400 mt	600 mt
Sept 1 - Oct 1	150 mt	any rollover	150 mt
Oct 1 - Dec 31	no apportionment		300 mt
<b>TOTAL</b>	<b>900 mt</b>	<b>800 mt</b>	<b>2,000 mt</b>

**GOA Groundfish Plan Team Meeting**  
**November 12-14, 2002**  
**Minutes**

The GOA Groundfish Plan Team convened on November 12, 2002 at approximately 9:30am. Members in attendance were: Sandra Lowe (chairman), Diana Stram, Jim Ianelli, Bill Bechtol, Jeff Fujioka, Lew Haldorsen, Tory O'Connell, Tom Pearson, Beth Sinclair, Farron Wallace, Sarah Gaichas, Dave Clausen (for Jon Heifetz) and Mike Ruccio (to replace Dave Jackson). Bill Clark and Kathy Kuletz were absent. Several AFSC scientists, including stock assessment authors, NMFS agency staff and about a dozen members of the public also attended.

**Pollock** Bill Bechtol (ADF&G) presented the Prince William Sound assessment. Due to a lack of new data, the state recommends a roll-over from last year's ABC. The Board of Fish will meet in December to address on-going concerns regarding bycatch issues. ADF&G and NMFS are also in the process of addressing concerns regarding a discrepancy in the results between ADF&G and NMFS in the ageing of fish.

Martin Dorn (AFSC) discussed on-going concerns with the rationale for the apportionment of pollock between season and areas. Currently, under Steller sea lion Protection Measures, pollock is distributed seasonally and spatially according to observed survey biomass distributions. However, the author has expressed concerns regarding the timing and weighting of survey results in the apportionments, and the possibility that apportionments may be set based on incorrect seasonal distributions of stock biomass. The Plan Team discussed various weighting options for using recent data, as well as the specific apportionment options A,B,C presented by the author in the stock assessment. The Plan Team recommended the use of a 4-year unweighted average, and the author's Option C for apportionment strategy. The Plan Team concurred with the assessment author's recommendation that any overage or underage of pollock harvest at the end of the B season be proportionately subtracted from or added to the W/C management areas based on the estimated distribution of pollock in the C/D seasons. The Plan Team further recommended that data collection efforts be increased in order to utilize the data more effectively for the actual seasonal apportionments.

Martin Dorn presented the stock assessment for pollock, and his rationale for recommending an ABC of 49,590 mt based upon modeling results and recent survey information. There was discussion regarding the impact of using the current model estimate of the 1999 year class on the  $B_{40}$  estimate. Updating the  $B_{40}$  estimate by including the 1999 year class had the effect of making current stock size appear lower relative to benchmarks such as  $B_{40}$  and  $B_{unfished}$ , resulting a lower harvest rate. For stock projections with an estimated 1999 year class, results indicated that the impact on the ABC of using the 1999 year class to estimate  $B_{40}$  (reduced harvest rate) is much less than the impact of including it in the projected numbers at age (higher abundance) and the ABC is much higher. The Plan Team supported the author's recommended ABC, OFL, apportionment and the EGOA rollover.

**Flatfish** Jack Turnock presented the Flatfish stock assessment. This year a separate assessment for flathead sole was presented which utilized an age-structured model. The Plan Team approved of the author's recommended ABC and OFL for deep water flatfish, shallow water flatfish, rex sole and flathead sole. The author indicated that next year they would like to put together a Dover sole model, with a Rex sole model planned for the following year.

**Arrowtooth flounder** The Arrowtooth flounder assessment showed a slightly increased ABC for 2003. The author presented estimates of differential mortality for males and females, with a higher mortality for males

than females. The Team discussed the need for more information in order to track this differential mortality by sex and further work should be done to elucidate this. The team also requested that future stock assessments contain more information on the rationale for tracking this difference in mortality as opposed to tracking it in another model parameter.

**Thornyheads** Sarah Gaichas presented results from this year's base model for the thornyhead stock assessment. Last year the Plan Team set the ABC based on an alternate model than the one recommended by the assessment author due to concerns regarding the high model estimate of natural mortality. This year the author presented results from a radiometric age-length model, which had a much lower mortality rate ( $M=0.037$ ). However while this  $M$  is very close to that used by the Plan Team last year ( $M=0.038$ ), it had the worst fit to the data compared to other model configurations.

The Team discussed the problems with all of the models presented, and the fundamental issue of needing more data in order to have a better fit to the models. The author recommended using the results from the base model as it had the best fit to the data. The Plan Team supported the base model configuration and advised further development and analyses of selectivity assumptions and prior distributions for natural mortality. The Plan Team used the base model to obtain reference levels, however, they recommended an adjustment to the maximum permissible ABC due to data uncertainties. Some of the data problems mentioned by the author include a lack of data, a lack of sampling at deeper depths, and that the priority in sampling (by observers) goes towards collecting information on other species such as shortraker and rougheye prior to collecting information on thornyheads. The Plan Team recommended that the author and the Regional Office examine ways to increase the sampling of thornyheads with the Observer Program without compromising the sampling of other species.

The Plan Team recommended an ABC of 2,000 mt which is the yield in the current assessment from an alternative model. This alternative model was used to set the 2002 ABC and assumed a fixed value of  $M$  of 0.038. The recommended 2003 ABC differs very little from the 2002 ABC of 1,990 mt.

**Slope rockfish** Jeff Fujioka and Dave Clausen presented the stock assessment for Slope rockfish. The Plan Team recommended that it would be useful to separate out the assessments for POP and Northerns from the remaining slope rockfish sections in order to increase the readability of the document. Questions were raised regarding the POP model results as the model did not fit the data very well, particularly with respect to survey results showing a biomass increase. The Plan Team reiterated the need for more research on survey catchability such as the research presented in the appendix 6-1 by Dana Hanselman.

**Northern rockfish:** There were no changes to the model due to a lack of new data. However the authors explained that next year they are expecting new survey data to be available and hence a possible change to the model for next year. The Plan Team recommended the ABC from the assessment base model.

**Shortraker/rougheye:** The Plan Team recommended that the Eastern GOA be sampled as per previous recommendations, citing a lack of data and information from this area. The Team recommended the same apportionments and ABC as for last year.

**Other slope rockfish:** The Plan Team recommended the ABC according to the author's recommendation.

**Pelagic Shelf rockfish** Dave Clausen presented the Pelagic Shelf rockfish assessment. The Plan Team approved the authors' recommended ABCs and apportionments. The author discussed a new age-structured model for dusky rockfish that was presented in an appendix. The Plan Team encouraged the movement in

this direction for modeling and recommended further refinement in the parameters for natural mortality, catchability and selectivity.

**Demersal shelf rockfish** Tory O'Connell presented the stock assessment for DSR. The author explained the new standard protocol for selecting yelloweye habitat, resulting in increased habitat in two areas for yelloweye and decreased habitat in one area. There were concerns raised by the author regarding the potential for an increased quota due to a habitat increase of approximately 8%, thus the author recommended that the Team continue to be very conservative in the directed fishery due to uncertainties in the results. The Plan Team accepted the author's ABC recommendation. The Plan Team expressed continued concern with the problem of lack of DSR bycatch data from the halibut fishery and the unaccounted mortality associated with this.

**Pacific cod** The team adopted the authors's recommended OFL and the recommendation that the ABC be set below the maximum permissible given the rationale stated for using Model 2 over Model 1 in the stock assessment. The ABC has decreased approximately 8% from last year.

**Ecosystem Considerations** The Plan Team noted the addition of the ecosystem considerations section in many of the assessments and encourage the development of these sections in all future stock assessments.

The Team adjourned on Thursday, November 14<sup>th</sup> and met jointly with the Bering Sea/Aleutian Islands Plan Team on Friday November 15<sup>th</sup>.

**Joint Groundfish Plan Team meeting  
November 12-15, 2002**

The Joint Meeting of the Bering Sea/Aleutian Islands and Gulf of Alaska Plan Teams convened for parts of November 12-15, 2002. Members in attendance were Loh-Lee Low (BSAI chairman) and Sandra Lowe (GOA chairman), Jane DiCosimo, Diana Stram, Jim Ianelli, Jeff Fujioka, Dave Clausen (for Jon Heifetz), Lew Haldorsen, Bill Bechtol, Tory O'Connell, Tom Pearson, Beth Sinclair, Farron Wallace, Sarah Gaichas, Lowell Fritz, Kristin Mabry, Brenda Norcross, Mike Sigler, Andy Smoker, Grant Thompson, Ivan Vining and Mike Ruccio (present to replace Dave Jackson). Kathy Kuletz and Bill Clark were not present. Several AFSC scientists and agency personnel also attended as did approximately twenty members of the public.

**Harvest Strategy Report** Grant Thompson updated the Plan Teams that the Harvest Strategy Report would be completed by November 22<sup>nd</sup>, and would be available on the Council website and at the December Council meeting.

**Report to Congress** Grant Thompson updated the Plan Teams on the status of the Report to Congress. There were several updates to the previous direction of the report; 1) Headquarters has decided not to use principal species designations and to instead return to the original use of major and minor species based upon total landings; 2) A decision was made to approve the use of designating stocks as overfished or not based upon MSST as specified in the SAFE Reports regardless of whether MSSTs are currently specified in the FMPs; and 3) Each region is to report on "Success Stories" for their managed stocks. EBS pollock was named as a likely choice for a North Pacific success story.

**Stock Assessment questionnaire** Sarah Gaichas and Jane DiCosimo made a request to the stock assessment authors to fill out a questionnaire regarding the adequacy of data and information to support stock assessments for individual species and species complexes. The results of this questionnaire will be used to construct a table of data quality and vulnerability of managed species, which will be presented to the SSC at the February Council meeting.

**Sablefish** Mike Sigler presented the stock assessment report for Sablefish. The stock has increased to approximately 39% of unfished biomass, from last year's assessment of 35-36% of unfished biomass. The authors recommended setting the ABC below the maximum permissible for this stock, 18,400 mt. This was based upon a probability analysis in which a yield of 18,400 mt gave a 20% probability of the stock decreasing below the calculation of the stock's historic low under a constant catch projection. The Plan Teams questioned whether the constant catch projections provided the best available information upon which to determine probabilities of risk given that sablefish is not managed on a constant catch basis. The Plan Teams suggested that a constant harvest rate strategy would provide more realistic projections. There was some discussion on the merits of a constant catch strategy versus a constant harvest rate strategy. The Plan Teams discussed the need for improved and consistent criteria upon which to base projections and ABC recommendations. It was noted in discussion, however, that the authors' recommended ABC is also consistent with the observed biomass increase of 6-7 % since last year.

Public testimony from ALFA and PVOA suggested that the ABC be set equal to 20,000 mt. They requested that harvest rates be used rather than constant catch scenarios in the sablefish stock assessment.

The Plan Teams did not accept the authors' rationale for the recommended ABC. The Teams considered the following six ABC options:

- 1) 25,100 mt. This is the maximum permissible ABC and would represent a 44% increase over the 2002 ABC.
- 2) 20,900 mt. This represents an adjusted  $F_{40}$  scenario with catch averaged over the next 5 years.
- 3) 19,100 mt. This is an estimate of the lower 95% confidence limit of the maximum permissible ABC
- 4) 18,500 mt. This represents a 7 % increase over the 2002 ABC consistent with the increase in biomass observed in the 2002 longline survey.
- 5) 18,400 mt. This is the authors' recommendation, and also represents a 6 % increase over the 2002 ABC.
- 6) 17,300 mt. This would be a roll-over of the 2002 ABC.

After eliminating four ABC options, the Plan Teams eventually voted between 18,400 mt. and 20,900 mt. The Teams decided on recommending an ABC of 18,400 mt.

The Plan Teams also moved to take 5% of the SEO TAC in the GOA and moved it to WYAK to accommodate the trawl closure, as has been implemented since 1998.

**Halibut Discard Mortality Rates** Gregg Williams presented 2003 recommendations for CDQ discard mortality rates (DMR). The 2003 fishing year is the final year in the Council's protocol for setting halibut DMRs for a 3-year cycle for non-CDQ fisheries. Next year it will provide recommendations for those fisheries for 2004-2006.

**Economic SAFE** Joe Terry presented the Economic SAFE report and highlighted important sections of the document. The Plan Teams suggested that more text and summaries be included within next year's report to facilitate the ease of use of the document by others in summarizing socio-economic impacts. The Plan Teams encouraged the participation of the economic staff at the AFSC as Plan Team members. The Teams also recommended that Jennifer Sepez, the new anthropologist, give a presentation to the Plan Teams next September on her current research.

**Research Priorities** The Plan Teams agreed to continue to provide a listing of research priorities. The 2003 research priorities will be presented in February 2003.

**Ecosystem Considerations** The Plan Teams recommended continued development of the ecosystem considerations section of the SAFE reports and to use the existing template provided by Pat Livingston in incorporating these ecosystem considerations into each assessment chapter. The Plan Teams recommend that the authors tabulate bycatch of the target fishery as well as other groundfish species in the target fishery.

**Changes to the TAC-Specifications Process** The Plan Teams discussed the proposed timeline for revisions to the TAC-specifications process. The Teams recommended that when NMFS and the Council consider options for changing the timing of the process, that more time be allotted to the stock assessment preparation and review process. The Teams felt that it was imperative to devote additional time to the basis of the Council's specification decision along with the regulatory process in support of the decision. That may occur by changing the timing of the Council meetings, or the schedule of Council actions.

The meeting adjourned on Friday afternoon, November 15<sup>th</sup>, 2002.

Table 1. Gulf of Alaska groundfish 2002 and 2003 ABCs, 2002 TACs, and 2002 catches reported through November 2, 2002.

SPECIES		ABC (mt)	OFL	ABC (mt)	OFL	TAC	CATCH
		2003	2003	2002	2002	2002	2002
Pollock	W (61)	16,788		17,730		17,730	17,381
	C (62)	19,685		23,045		23,045	20,380
	C (63)	10,339		9,850		9,850	10,809
	Shelikof						
	WYAK	1,078	69,410	1,165	75,480	1,165	1,818
	EYAK/SEO	6,460	8,610	6,460	8,610	6,460	2
	<b>TOTAL</b>	<b>54,350</b>	<b>78,020</b>	<b>58,250</b>	<b>84,090</b>	<b>58,250</b>	<b>50,390</b>
Pacific Cod	W	20,600		22,465		16,849	15,327
	C	29,000		31,680		24,790	25,094
	E	3,200		3,455		2,591	103
	<b>TOTAL</b>	<b>52,800</b>	<b>70,100</b>	<b>57,600</b>	<b>72,100</b>	<b>44,230</b>	<b>40,524</b>
Deep water flatfish <sup>1</sup>	W	180		180		180	19
	C	2,220		2,220		2,220	530
	WYAK	1,330		1,330		1,330	2
	EYAK/SEO	1,150		1,150		1,150	7
	<b>TOTAL</b>	<b>4,880</b>	<b>6,430</b>	<b>4,880</b>	<b>6,430</b>	<b>4,880</b>	<b>558</b>
Rex sole	W	1,280		1,280		1,280	398
	C	5,540		5,540		5,540	2,611
	WYAK	1,600		1,600		1,600	0
	EYAK/SEO	1,050		1,050		1,050	0
	<b>TOTAL</b>	<b>9,470</b>	<b>12,320</b>	<b>9,470</b>	<b>12,320</b>	<b>9,470</b>	<b>3,009</b>
Shallow water flatfish <sup>2</sup>	W	23,480		23,550		4,500	241
	C	21,740		23,080		13,000	6,599
	WYAK	1,160		1,180		1,180	2
	EYAK/SEO	2,960		1,740		1,740	0
	<b>TOTAL</b>	<b>49,340</b>	<b>61,810</b>	<b>49,550</b>	<b>61,810</b>	<b>20,420</b>	<b>6,842</b>
Flathead sole	W	16,420		9,000		2,000	419
	C	20,820		11,410		5,000	1,689
	WYAK	2,900		1,590		1,590	0
	EYAK/SEO	1,250		690		690	0
	<b>TOTAL</b>	<b>41,390</b>	<b>51,560</b>	<b>22,690</b>	<b>29,530</b>	<b>9,280</b>	<b>2,108</b>
Arrowtooth flounder	W	17,990		16,960		8,000	6,100
	C	113,050		106,580		25,000	14,674
	WYAK	18,190		17,150		2,500	56
	EYAK/SEO	5,910		5,570		2,500	111
	<b>TOTAL</b>	<b>155,140</b>	<b>181,390</b>	<b>146,260</b>	<b>171,060</b>	<b>38,000</b>	<b>20,941</b>
Sablefish	W	2,260		2,240		2,240	1,780
	C	5,670		5,430		5,430	6,120
	WYAK	2,045		1,940		1,940	1,548
	SEO	3,135		3,210		3,210	2,798
	<b>TOTAL</b>	<b>13,110</b>	<b>20,020</b>	<b>12,820</b>	<b>19,350</b>	<b>12,820</b>	<b>12,246</b>
Other Slope rockfish	W	90		90		90	222
	C	550		550		550	481
	WYAK	270		260		150	37
	EYAK/SEO	4,140		4,140		200	31
	<b>TOTAL</b>	<b>5,050</b>	<b>6,610</b>	<b>5,040</b>	<b>6,610</b>	<b>990</b>	<b>771</b>



(Table 1 continued)

SPECIES		ABC (mt) 2003	OFL 2003	ABC (mt) 2002	OFL	TAC (mt) 2002	CATCH 2002
Northern rockfish	W	890		810		810	337
	C	4,640		4,170		4,170	2,998
	E	0 <sup>3</sup>				n/a <sup>3</sup>	n/a
	<b>TOTAL</b>	<b>5,530</b>	<b>6,560</b>	<b>4,980</b>	<b>5,910</b>	<b>4,980</b>	<b>3,335</b>
Pacific ocean perch	W	2,700	3,220	2,610	3,110	2,610	2,723
	C	8,510	10,120	8,220	9,760	8,220	8,263
	WYAK	810		780		780	748
	SEO	1,640	2,900	1,580	2,800	1,580	1
	<b>TOTAL</b>	<b>13,660</b>	<b>16,240</b>	<b>13,190</b>	<b>15,670</b>	<b>13,190</b>	<b>11,735</b>
Shortraker/rougheye	W	220		220		220	260
	C	840		840		840	628
	E	560		560		560	403
	<b>TOTAL</b>	<b>1,620</b>	<b>2,340</b>	<b>1,620</b>	<b>2,340</b>	<b>1,620</b>	<b>1,291</b>
Pelagic shelf rockfish	W	510		510		510	183
	C	3,480		3,480		3,480	2,680
	WYAK	640		640		640	448
	EYAK/SEO	860		860		860	7
	<b>TOTAL</b>	<b>5,490</b>	<b>8,220</b>	<b>5,490</b>	<b>8,220</b>	<b>5,490</b>	<b>3,318</b>
Demersal Shelf Rockfish		390	540	350	480	350	182
Atka Mackerel	GW	600	6,200	600	6,200	600	84
Thornyhead rockfish		360		360		360	368
		840		840		840	504
		800		790		790	253
	<b>TOTAL</b>	<b>2,000</b>	<b>3,050</b>	<b>1,990</b>	<b>2,330</b>	<b>1,990</b>	<b>1,125</b>
Other Species	GW	NA		NA	NA	11,330	3,748
<b>TOTAL</b>		<b>414,820</b>	<b>531,410</b>	<b>394,780</b>	<b>504,450</b>	<b>237,890</b>	<b>162,207</b>

1/ Deep water flatfish includes dover sole, Greenland turbot and deepsea sole.

2/ "Shallow water flatfish" includes rock sole, yellowfin sole, butter sole, starry flounder, English sole, Alaska plaice, and sand sole.

3/ The EGOA ABC of 10 mt for northern rockfish has been included in the WYAK ABC for other slope rockfish.

NOTE:

ABCs and TACs are rounded to nearest 10 mt.

GW means Gulfwide.

Catch data source: NMFS Blend Reports.

Table 2. Gulf of Alaska 2003 ABCs, biomass, overfishing levels, and estimated trends (mt) for Western, Central, Eastern, Gulfwide, West Yakutat, and Southeast Outside regulatory areas.

SPECIES		2003			Abundance, <sup>2</sup> Trend
		ABC	Biomass	Overfishing Level	
Pollock	W (61)	16,788			Below, Declining
	C (62)	19,685			
	C (63)	10,339			
	WYAK	1,078	670,410	69,410	
	EYAK/SEO	6,460	28,710	8,610	
	<b>TOTAL</b>	<b>54,350</b>	<b>699,120</b>	<b>78,020</b>	
Pacific Cod	W	20,600			Below, Declining
	C	29,000			
	E	3,200			
	<b>TOTAL</b>	<b>52,800</b>	<b>452,000</b>	<b>70,100</b>	
Deep water flatfish	W	180			Unknown, Unknown
	C	2,220			
	WYAK	1,330			
	EYAK/SEO	1,150			
	<b>TOTAL</b>	<b>4,880</b>	<b>68,260<sup>4</sup></b>	<b>6,430</b>	
Rex sole	W	1,280			Unknown, <sup>3</sup> Stable
	C	5,540			
	WYAK	1,600			
	EYAK/SEO	1,050			
	<b>TOTAL</b>	<b>9,470</b>	<b>71,330</b>	<b>12,320</b>	
Shallow water flatfish	W	23,480			Unknown, <sup>3</sup> Stable
	C	21,740			
	WYAK	1,160			
	EYAK/SEO	2,960			
	<b>TOTAL</b>	<b>49,340</b>	<b>349,990</b>	<b>61,810</b>	
Flathead sole	W	16,420			Above, Declining
	C	20,820			
	WYAK	2,900			
	EYAK/SEO	1,250			
	<b>TOTAL</b>	<b>41,390</b>	<b>132,260</b>	<b>51,560</b>	
Arrowtooth flounder	W	17,990			Above, Increasing
	C	113,050			
	WYAK	18,190			
	EYAK/SEO	5,910			
	<b>TOTAL</b>	<b>155,140</b>	<b>1,302,000</b>	<b>181,390</b>	
Sablefish	W	2,260			Moderate, Increasing
	C	5,670			
	WYAK	2,045			
	EY/SEO	3,135			
	<b>TOTAL</b>	<b>13,110</b>	<b>182,000</b>	<b>20,020</b>	
Other Slope rockfish	W	90			Unknown, Unknown
	C	550			
	WYAK	270 <sup>1</sup>			
	EYAK/SEO	4,140			
	<b>TOTAL</b>	<b>5,050</b>	<b>107,960</b>	<b>6,610</b>	

(Table 2 continued)

SPECIES		2003			Abundance, <sup>2</sup> Trend
		ABC	Biomass	Overfishing Level	
Northern rockfish	W	890			Above, Declining
	C	4,640			
	E	0 <sup>1</sup>			
	<b>TOTAL</b>	<b>5,530</b>	108,830	6,590	
Pacific ocean perch	W	2,700		3,220	Above, Increasing
	C	8,510		10,120	
	WYAK	810			
	EY/SEO	1,640		2,900	
	<b>TOTAL</b>	<b>13,660</b>	298,820	16,240	
Shortraker/ roughey	W	220			Unknown, Unknown
	C	840			
	E	560			
	<b>TOTAL</b>	<b>1,620</b>	66,830	2,340	
Pelagic shelf rockfish	W	510			Unknown, Unknown
	C	3,480			
	WYAK	640			
	EY/SEO	860			
	<b>TOTAL</b>	<b>5,490</b>	62,500	8,220	
Demersal shelf rockfish	SEO	390	17,510	540	Unknown, Unknown
Atka mackerel	GW	600	Unknown	6,200	Unknown, Unknown
Thornyhead rockfish	Western	360			Above, Stable
	Central	840			
	Eastern	800			
	<b>Total</b>	<b>2,000</b>	85,760	3,050	
Other species					TAC = 5% of the sum of TACs.
<b>TOTAL</b>		<b>414,820</b>	<b>4,005,170</b>	<b>531,440</b>	

1/ The EGOA ABC of 10 mt for northern rockfish has been included in the WYAK ABC for other slope rockfish.

2/ Abundance relative to target stock size as specified in SAFE documents.

3/ Historically lightly exploited therefore expected to be above the specified reference point.

4/ Biomass of Dover sole; biomass of Greenland turbot and deep-sea sole is unknown.

NOTE:

ABCs are rounded to nearest 10.

Overfishing is defined Gulf-wide, except for pollock and POP.

**KODIAK VESSEL OWNERS ASSOCIATION**

Mr. David Benton, Chairman  
North Pacific Fishery Management Council  
605 West 4<sup>th</sup> Avenue, Suite 306  
Anchorage, Alaska 99501

November 22, 2002

Dear Chairman Benton,

Thank you for the opportunity to submit to the North Pacific Fishery Management Council the following recommendations for ABC and TAC levels and regulatory apportionments for the Alaska Sablefish Fishery for 2003.

Total 2003 ABC/TAC		20,900 M/T
Bering Sea	14%	2,926 M/T
Aleutian Islands	15%	3,135 M/T
Gulf of Alaska	71%	14,839 M/T
Western	17%	2,523 M/T
Central	43%	6,380 M/T
W. Yakutat	14%	2,077 M/T
E. Yakutat/Southeast	26%	3,858 M/T

These ABC/TAC recommendations for harvest levels are based on taking the 6 year average (2003 – 2007) of projected maximum permissible yields from an adjusted F40% fishing strategy. (Alaska Sablefish Assessment for 2003, table 5.11, page 41) Regulatory apportionments of these combined ABC levels follow the percentage allocations recommended by individual stock assessment scientists and the SSC Plan Teams.

In support of this approach in setting the 2003 sablefish harvest levels, we believe two factors affecting the fishery contribute to assuring that these ABC/TACs are conservative and follow the long term principles of sound fishery management endorsed by the sablefish commercial industry for many years.

The first factor is the annual underharvesting of the sablefish TACs set by the Council. The 1995 – 2002 average of unharvested TACs is approximately 2,300 M/T which represents a value equal to approximately 13% of the annual Alaska sablefish TACs. Due to the nature of present day sablefish harvest patterns and fishery management systems, the many factors that contribute to the TAC underharvests are not likely to change in single seasons. Therefore the Council, when setting the 2003 TACs, should be cognizant that the estimated harvest from a TAC of 20,900 M/T will probably be in the vicinity of 18,000 – 18,250 M/T.

In additional support of using the adjusted F40% (over 5 years) as the quota setting guide, is the continuing concern on the part of industry that size/age and population index data from the annual sablefish survey contains a negative bias that lowers the overall size of the projected sablefish biomass model. Since it is impossible to quantify to what degree this data might be biased, our opinion is that the recognition of possible bias should be used in the Council decision when choosing between various scientifically accepted harvest alternatives.

Thank you for the opportunity of expressing our views on this important issue.

Sincerely,

*Mick Delaney*

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# ALASKA SABLEFISH FISHERY

## REPORT FROM THE COMMERCIAL SECTOR

Submitted to the North Pacific Fisheries Management Council  
November 22, 2002

### SSC Plan Team Action

On Wednesday, November 13, 2002, the SSC Groundfish Plan Teams from both the GOA and BSAI held a joint session in Seattle to discuss the Alaska Sablefish Assessment for 2003 (section 5 of Gulf of Alaska SAFE, and section 10 of Bering Sea/Aleutian Islands SAFE). Upon conclusion of the presentation by the individual stock assessment scientists the primary issue of discussion between members of the two Plan Teams were whether (1) to recommend that the 2003 Alaskan Sablefish ABC be set at 18,400 M/T for the combined stock (a 6% increase from year 2002 reflective of the 6% average increase of 2002 survey abundance indexes) or (2) to recommend that the 2003 Alaska Sablefish ABC be set at 20,900 M/T, the 5 year average (2003 – 2007) of projected maximum permissible yields from an adjusted  $F_{40\%}$  strategy (section 5.8.6 and table 5.11 SAFE document, page 24 and page 41). The final vote of the SSC members between the two ABC amounts of 18,400 M/T and 20,900 M/T was 10-9 in favor of the 18,400 M/T ABC for year 2003.

### Commercial Sector Input

Members of the commercial fishery industry were present at the Plan Team meeting. Several gave comment to the overall discussions and in support of a higher TAC than 18,400 M/T. The most prevalent input from the commercial sector, at this meeting and in years past, was that the overall biological modeling of the sablefish resource should be as broad based as possible in regards to biological and catch data sourcing. Concerns have been raised about overreliance upon the annual vessel survey results. Survey vessel interactions with the commercial fishing fleets and both sperm whale and killer whale predation of sablefish catches (page 13 and Appendix C, page 62) are believed to create a constant bias in the survey result that results in an annual understating of sablefish individuals comprising the biomass. The commercial sector believes that this negative bias results in annual harvest quotas that are considerably below the maximum sustainable yield (MSY) of the fishery.

Harvesters are experiencing excellent fishing throughout the fishery and most are confident that the condition of the biological stock is healthier than it was during the late 1980's and early 1990's when commercial harvests were twice present levels. Industry issues, regarding both sperm and killer whale depredation on catches, are being addressed by a fuller utilization of longlining pot gear in the Bering Sea and Aleutian Islands and a probable introduction of an experimental pot fishery in SE Alaska. The industry believes, after 8 years of conservative catch limits, more complete accountability of actual catches the IFQ management system, and the higher observer coverage rate on trawl operations, that the fishery bears little resemblance to the past in regards to the high quality of the present management of the fishery.

### Sablefish Stock Assessment Concerns

Due the depth of the sablefish habitat, the migratory patterns of the species, and the 8 month harvest season, fishery management for sablefish is challenging. The annual sablefish survey undertaken by NMFS is the longest ongoing fisheries survey conducted in the United States. Each year the same stations are fished with the same fishing gear with the catch being carefully measured and weighed. However exact the replicating of surveying methods are from year to year, the issue of commercial fishing extractions from the surveyed grounds prior and during the surveying of each station remain a major obstacle to obtaining scientific unbiased results. Unlike sperm and killer whale depredation on survey catches, which may or may not have occurred throughout the history of the survey, commercial fleet interactions with the survey vessel, and to the fishing grounds being surveyed, are well documented. The effects of this interaction, in negatively lowering sablefish population indexes, are serious concerns.

Interesting examples of these interactions on survey results comes from a brief study of the 25 year history of the survey.

During the first 8 years of the survey (1978 – 1985) the survey was conducted while both the foreign and domestic directed fishery was open throughout all regulatory areas except Eastern GOA, which was mostly closed to foreign fishing. These years were prior to the "derby days" of 1986 – 1994 and the domestic fishery consisted of a small but increasing number of U.S. vessels. No effort was made by either foreign or domestic commercial vessels to avoid the surveying vessel. The survey results during this period produced an annual indexing of 40.1% of the levels reached in the next 9 year period of 1986 – 1994 (when all commercial fishing was closed during the surveying period – except for areas in the Western Gulf and to the West). The average annual yields from the commercial sector during the period of 1978 – 1985 were 12,199 M/T compared to approximately 35,000 M/T foreign commercial harvests in the 10 years prior to 1978 and 30,000 M/T during the period of 1986 – 1995. Revealing in the survey results of 1978 – 1985 is that in each of the 8 years, the population indexing and quotas set in the Eastern Gulf were higher than those of the Central Gulf. In later years, 1985 – present, when the Eastern and Central Gulf were surveyed under the same open/closed access conditions, the Central Gulf population indexing out-performed the Eastern Gulf 14 out of 17 years.

From 1986 to 1994 the sablefish fishery entered into the "derby years" during which the most commercially exploited regulatory areas (Eastern and Central Gulf of Alaska) remained open to commercial harvests for only a few weeks. The commercial fishery followed a counter-clockwise pattern with the quotas in the Eastern Gulf of Alaska being reached within a two week period and those in the Central Gulf several weeks later. In the areas to the West, such as Western Gulf, Bering Sea, and the Aleutian Islands, where fewer harvesters participated, the season would last longer. For several years during the 1986 – 1994 period the surveying vessel, starting in Dutch Harbor and conducting the survey clockwise to the East, would start in areas that were still open to commercial fishing. As the survey vessel would travel east it would survey grounds that had been closed to fishing activities for a period of 30 – 90 days. The increases in survey catches, during the transition of the survey vessel away from stations in areas of ongoing commercial activity, were dramatic. During 1991 – 1994, the population indexing and harvest yields in the Western Gulf plummeted to about 12% of those in the Central Gulf. Historically the yield differential between the two areas is closer to 25% - 35% indicating an abnormality of between 200 – 300% under these surveying conditions. During these last four or five years of the derby fishery, 1990 – 1994, the regulatory areas population indexes shows a strong overweight/under weight favoring the Eastern areas of the Gulf of Alaska over the Western, a reflection that follows almost exactly the surveying stations open and closed to commercial fishing.

Since the advent of the IFQ sablefish fishery in 1995, the survey has been conducted during the 8 month commercial fishery. Although efforts to limit fishing interactions between the survey vessel and commercial harvesters have been somewhat successful, the impact of fishing activities immediately prior and during the surveying process remains uncertain. In the commercial sector, it is well documented that fishing grounds left dormant for a minimum of two weeks or longer will yield larger individual sablefish and that grounds that are fished on a repetitive basis result in both diminishing size and number of sablefish. Without being able to quantify the effects of prior extractions of fish from the grounds, what is certain is that these extractions create a singularly negative bias in the biomass model rather than a random one (i.e. prior fishing activities can not possibly increase catches of a later harvesting effort).

### Underharvesting of sablefish TACs

Annual underharvest of sablefish TACs have prevailed in the fishery since 1995, ranging from 9% in 1996 to 17% in 2002. Between 1995 and 2002, the average level of underharvested of TACs has been 2,347 M/T or approximately 13% of the total TAC for Alaska. The reasons for these underharvests are many-fold. In the fixed gear fishery, where 58% of the underage average is accounted, the IFQ management system, operating as a debit system of individual quotas, will produce an underharvest of TAC even in areas where catch rates are high and the grounds are easily accessible. In regulatory areas more remote, the rate of unharvested quota usually climbs. Contributing to unharvested TACs, killer whale predation in the Bering Sea and Aleutian Island upon the commercial sector has severely limited H&L longlining in these areas. In the trawl fisheries, sablefish allocations usually go unharvested due to lack of halibut or rockfish by-catch allowances.

In other fisheries, such as the Bering Sea / Aleutian Island Pacific Cod fishery, up to 99.9% of the annual TAC is harvested using in season roll-overs from one of the six harvesting sectors to the others. The sablefish fishery, with pre-season issuances of individual quotas, the existence of six different regulatory areas, and the simple fact that fisheries management does not actually know of area underharvesting until the season closes, makes any reallocation of harvest opportunities between users unrealistic.

### Using Unharvested Sablefish TACs as a Quota Setting Management Tool

Perhaps the most useful fisheries management aspect of the annual underharvesting of TACs, unique to the sablefish fishery, is the recognition that the many factors that contribute to the TAC underharvests are not likely to change in single seasons.

In the annual TAC setting process, at the SSC, AP, and Council level, this recognition that sablefish TACs are unlikely to become sablefish harvests gives fisheries management considerable latitude in setting TACs. In this fishery, where reliable stock biomass data is sometimes difficult to develop, this approach to TAC setting by the NPFMC seems both responsible and prudent.

For these reasons, our organization supports the setting of the Alaska Sablefish ABC/TAC at 20,900 M/T for the year 2003.

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TABLE 1

**FIXED GEAR SABLEFISH TACs AND HARVEST CATCHES****1995 - 2002****GULF OF ALASKA BERING SEA / ALEUTIAN ISLANDS**

YEAR	IFQ TACs	CDQ FIXED GEAR TACs	TOTAL TAC FIXED GEAR	TOTAL HARVEST FIXED GEAR	UNHARVESTED TACs FIXED GEAR	TOTAL HARVEST BY %
1995	20,710 M/T	490 M/T	21,200 M/T	18,838 M/T	2,262 M/T	89%
1996	16,021 M/T	290 M/T	16,311 M/T	15,247 M/T	1,064 M/T	93%
1997	13,714 M/T	290 M/T	14,004 M/T	13,218 M/T	786 M/T	94%
1998	13,538 M/T	337 M/T	13,875 M/T	12,730 M/T	1,145 M/T	92%
1999	12,317 M/T	341 M/T	12,658 M/T	11,647 M/T	1,011 M/T	92%
2000	13,574 M/T	511 M/T	14,085 M/T	12,716 M/T	1,369 M/T	90%
2001	13,209 M/T	531 M/T	13,740 M/T	12,078 M/T	1,662 M/T	88%
2002	13,330 M/T	576 M/T	13,906 M/T	12,486 M/T	1,420 M/T	90%
<b>AVERAGE</b>	<b><u>14,551 M/T</u></b>	<b><u>421 M/T</u></b>	<b><u>14,972 M/T</u></b>	<b><u>13,620 M/T</u></b>	<b><u>1,352 M/T</u></b>	<b><u>91%</u></b>

**SABLEFISH FIXED GEAR ALLOCATIONS & HARVESTS 1995 - 2002**

**1995 - 2002 average annual FIXED GEAR TACs - 14,972 M/T**  
**1995 - 2002 average annual FIXED GEAR HARVESTS - 13,620 M/T**  
**1995 - 2002 average annual UNHARVESTED TACs - 1,352 M/T**  
**1995 - 2002 average annual % OF TACs HARVESTED - 91%**

**1995 - 2002 TOTAL UNHARVESTED TACs - 10,816 M/T**



**TABLE 2**

**ALASKA SABLEFISH TRAWL ALLOCATIONS AND HARVESTS**

**1995 - 2002**

AREA	1995		1996		1997		1998		1999		2000		2001		2002	
	ALLOCATIONS	CATCH	ALLOCATIONS	CATCH	ALLOCATIONS	CATCH	ALLOCATIONS	CATCH	ALLOCATIONS	CATCH	ALLOCATIONS	CATCH	ALLOCATIONS	CATCH	ALLOCATIONS	CATCH
WG	520 M/T	79 M/T	440 M/T	20 M/T	372 M/T	25 M/T	369 M/T	43 M/T	384 M/T	175 M/T	369 M/T	249 M/T	402 M/T	139 M/T	448 M/T	213 M/T
CG	1,720 M/T	1,840 M/T	1,390 M/T	1,650 M/T	1,292 M/T	1,302 M/T	1,284 M/T	1,245 M/T	1,118 M/T	1,318 M/T	1,146 M/T	1,398 M/T	1,092 M/T	1,094 M/T	1,096 M/T	1,568 M/T
EG	206 M/T	270 M/T	152 M/T	349 M/T	120 M/T	67 M/T	299 M/T	70 M/T	265 M/T	191 M/T	289 M/T	71 M/T	271 M/T	168 M/T	259 M/T	129 M/T
BS	800 M/T	299 M/T	469 M/T	141 M/T	469 M/T	57 M/T	593 M/T	116 M/T	569 M/T	272 M/T	624 M/T	279 M/T	663 M/T	349 M/T	821 M/T	284 M/T
AI	550 M/T	106 M/T	330 M/T	24 M/T	255 M/T	15 M/T	293 M/T	13 M/T	293 M/T	15 M/T	515 M/T	32 M/T	591 M/T	39 M/T	541 M/T	34 M/T
BS CDQ							46 M/T	15 M/T	50 M/T	14 M/T	65 M/T	6 M/T	59 M/T	4 M/T	72 M/T	16 M/T
AI CDQ							28 M/T	8 M/T	25 M/T	3 M/T	45 M/T	1 M/T	47 M/T	0 M/T	48 M/T	0 M/T
TOTALS:	3,785 M/T	2,584 M/T	2,770 M/T	2,183 M/T	2,497 M/T	1,468 M/T	2,651 M/T	1,910 M/T	2,684 M/T	1,988 M/T	3,041 M/T	2,020 M/T	3,055 M/T	1,783 M/T	3,274 M/T	2,249 M/T
UNHARVESTED																
TAC	1,201 M/T		587 M/T		1,031 M/T		1,341 M/T		698 M/T		1,021 M/T		1,272 M/T		1,025 M/T	
% TAC																
UNHARVESTED	68.4%		78.8%		59.7%		53.0%		74.0%		66.4%		59.4%		69.7%	

**SABLEFISH TRAWL ALLOCATIONS & HARVESTS 1995 - 2002**

**1995 - 2002 average annual TRAWL TACs - 2,996 M/T**  
**1995 - 2002 average annual TRAWL HARVESTS - 1,974 M/T**  
**1995 - 2002 average annual UNHARVESTED TACs - 1,022 M/T**  
**1995 - 2002 average annual % OF TACs HARVESTED - 65.9%**  
  
**1995 - 2002 TOTAL UNHARVESTED TACs - 8,176 M/T**

**SOURCES: NMFS 1995 - 2002 Apportionments, Catch, and Discard Data**

**TABLE 3**

**TOTAL FIXED GEAR AND TRAWL ALASKA SABLEFISH TACs AND COMMERCIAL HARVESTS**

**1995 - 2002**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>
<b>YEAR</b>	<b>TOTAL FIXED GEAR TACs (IFQ/CDQ)</b>	<b>TOTAL FIXED GEAR % OF TAC</b>	<b>TOTAL TRAWL ALLOCATED TACs (ALL AREAS)</b>	<b>TOTAL TRAWL HARVEST % OF TACs</b>	<b>TOTAL TACs FIXED &amp; TRAWL (B + D)</b>	<b>TOTAL HARVEST ALL GEAR</b>	<b>UNHARVESTED FIXED GEAR TACs</b>	<b>UNHARVESTED TRAWL GEAR TACs</b>	<b>TOTAL UNHARVESTED TACs (%)</b>
1995	21,200 M/T	88%	3,795 M/T	88%	24,995 M/T	21,432 M/T	2,362 M/T	1,201 M/T	3,563 M/T 14.3%
1996	16,311 M/T	83%	2,790 M/T	79%	19,081 M/T	17,430 M/T	1,064 M/T	687 M/T	1,651 M/T 8.7%
1997	14,004 M/T	94%	2,497 M/T	58%	16,501 M/T	14,684 M/T	788 M/T	1,031 M/T	1,817 M/T 11.0%
1998	13,875 M/T	92%	2,851 M/T	53%	16,728 M/T	14,240 M/T	1,145 M/T	1,341 M/T	2,486 M/T 14.9%
1999	12,658 M/T	92%	2,684 M/T	74%	15,342 M/T	13,633 M/T	1,011 M/T	888 M/T	1,709 M/T 11.1%
2000	14,085 M/T	90%	3,041 M/T	86%	17,128 M/T	14,738 M/T	1,389 M/T	1,021 M/T	2,390 M/T 14.0%
2001	13,740 M/T	88%	3,055 M/T	58%	16,795 M/T	13,881 M/T	1,662 M/T	1,272 M/T	2,934 M/T 17.5%
2002	13,808 M/T	90%	3,274 M/T	89%	17,180 M/T	14,735 M/T	1,420 M/T	1,025 M/T	2,445 M/T 14.2%

**ALL GEAR SABLEFISH ALLOCATIONS & HARVESTS 1995 - 2002**

**1995 - 2002 average annual SABLEFISH TACs - 17,968 M/T**  
**1995 - 2002 average annual SABLEFISH HARVESTS - 15,594 M/T**  
**1995 - 2002 average annual UNHARVESTED TACs - 2,374 M/T**  
**1995 - 2002 average annual % OF TACs UNHARVESTED - 13.2%**

**1995 - 2002 TOTAL UNHARVESTED TACs - 18,995 M/T**

TABLE 4

**ALASKA SABLEFISH HARVESTS**  
**COMPARISON OF COMMERCIAL YIELDS**  
**SURVEY YEARS 1978 - 2002**

**ALASKA**

YEAR	GRAND TOTAL COMMERCIAL HARVEST - ALL GEAR TYPES	INTERACTION OF SURVEY VESSEL WITH COMMERCIAL SECTORS
1978	10,394 M/T	FOREIGN/DOMESTIC-ALL FISHERIES OPEN DURING SURVEY
1979	11,914 M/T	"
1980	10,444 M/T	"
1981	12,604 M/T	"
1982	12,046 M/T	"
1983	11,715 M/T	"
1984	14,109 M/T	"
1985	14,465 M/T	"

<b>1st STAGE TOTALS:</b>	<b>87,593 M/T - 8 YEARS</b>	<b>ANNUAL AVERAGE HARVEST 12,199 M/T</b>
--------------------------	-----------------------------	--

1986	28,892 M/T	ALL COMMERCIAL FISHERIES/CLOSED EXCEPT TRAWL NON-DIRECT
1987	35,163 M/T	"
1988	38,408 M/T	"
1989	34,829 M/T	"
1990	32,115 M/T	"
1991	27,073 M/T	"
1992	24,932 M/T	"
1993	25,433 M/T	"
1994	23,760 M/T	"

<b>2nd STAGE TOTALS:</b>	<b>270,603 M/T - 8 YEARS</b>	<b>ANNUAL AVERAGE HARVEST 30,067 M/T</b>
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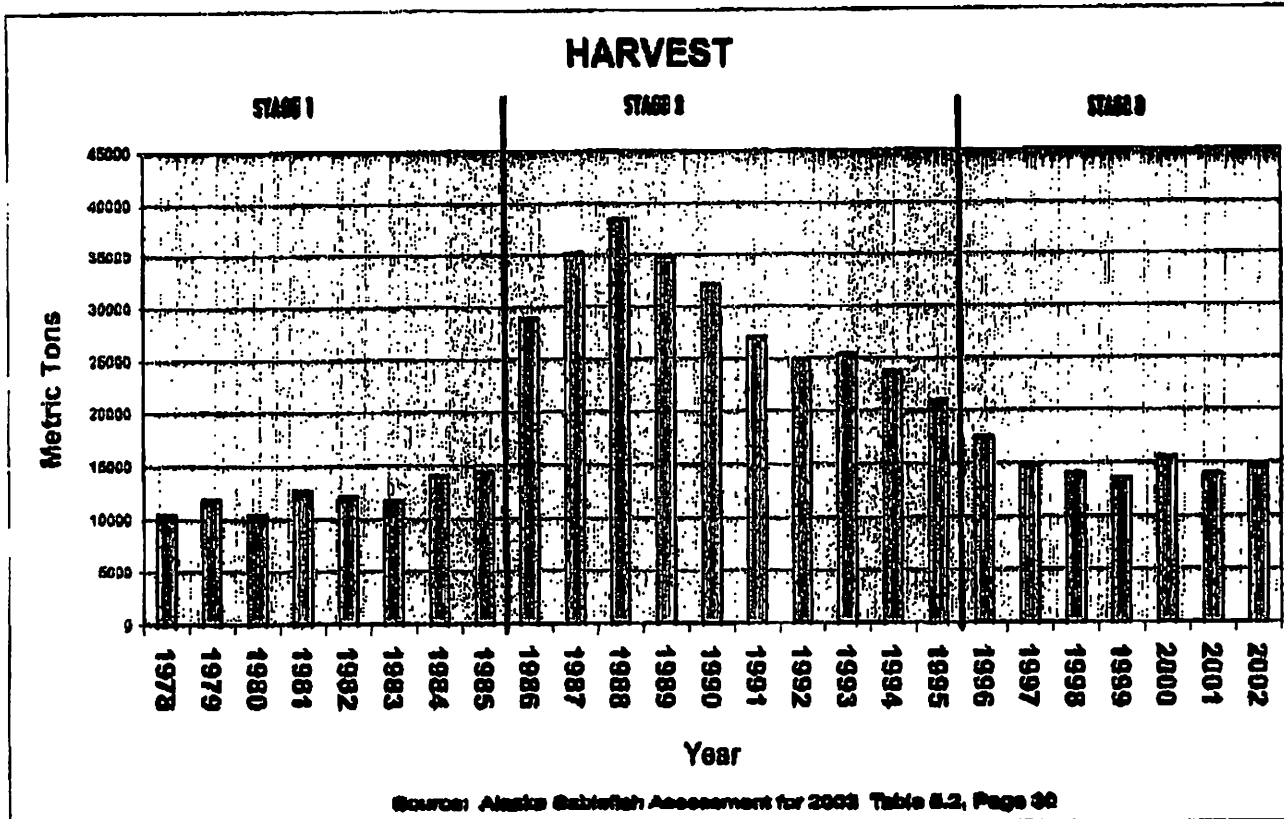
1986	20,954 M/T	IFQ/TRAWL FISHERIES-OPEN DURING SURVEY
1996	17,577 M/T	"
1997	14,923 M/T	"
1998	14,109 M/T	"
1999	13,876 M/T	"
2000	16,601 M/T	"
2001	14,087 M/T	"
2002	14,735 M/T	"

<b>3rd STAGE TOTALS:</b>	<b>126,599 M/T - 8 YEARS</b>	<b>ANNUAL AVERAGE HARVEST 15,896 M/T</b>
--------------------------	------------------------------	--

PRE-SURVEY	ANNUAL YIELDS 1986 - 1977 - 35,872 M/T	NO SURVEY - NO QUOTAS - FOREIGN FISHERY
1st STAGE	ANNUAL YIELDS 1978 - 1985 - 12,199 M/T	FULL INTERACTION ALL FISHERIES
2nd STAGE	ANNUAL YIELDS 1986 - 1994 - 30,067 M/T	NO INTERACTION EXCEPT NON-DIRECT TRAWL
3rd STAGE	ANNUAL YIELDS 1985 - 2002 - 15,896 M/T	IFQ FISHERY / TRAWL - PARTIAL INTERACTION

TABLE 5

**ANNUAL SABLEFISH YIELDS**  
**1978-2002**  
**(ANNUAL HARVEST YIELDS FROM SURVEY DATA)**



- A) Pre-Survey Years 1968-1977** (not shown on graph)  
 Predominate Foreign Fishery  
 No Quotas Established  
 Annual Average Harvest (Estimate) **35,672 MT**
- B) 1st Stage Survey Years 1978-1985**  
 Foreign & Domestic Fishery  
 Open During Survey Operation  
 Annual Average Harvest **12,199 MT**
- C) 2nd Stage Survey Years 1986-1995**  
 Domestic Derby Fishery & Directed Trawl  
 Closed During Survey Operation  
 Annual Average Harvest **30,067 MT**
- D) 3rd Stage Survey Years 1996-2002**  
 IFQ Fishery & Trawl Fishery  
 Open During Survey Operation  
 Annual Average Harvest **15,696 MT**

Gulf of Alaska Groundfish Plan Team

# Update on groundfish stock trends for the Gulf of Alaska

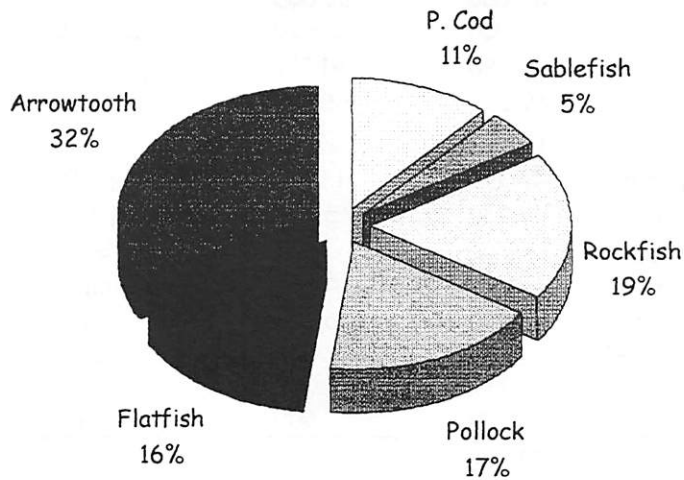
Sandra Lowe  
and  
James N. Ianelli  
  
Gulf of Alaska Groundfish  
Plan Team

### Additional GOA Plan Team Members

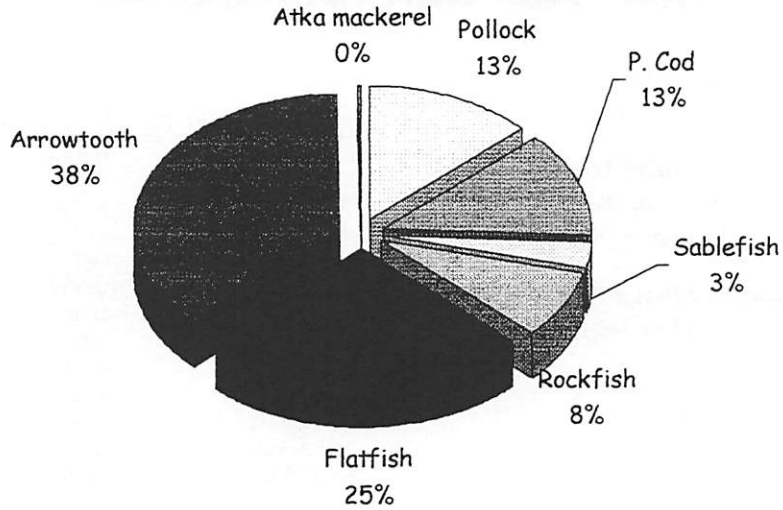
Diana Stram	NPFMC
Bill Bechtol	ADFG
Tory O'Connell	ADFG
Mike Ruccio	ADFG
Lew Halderson	UAF
Kathy Kuletz	USFWS
Bill Clark	IPHC
Farron Wallace	WDF
Jeff Fujioka	AFSC
Sarah Gaichas	AFSC
Jon Heifetz	AFSC
Tom Pearson	AKR
Beth Sinclair	NMML

Gulf of Alaska Groundfish Plan Team

## Projected biomass by species ~4 million tons total



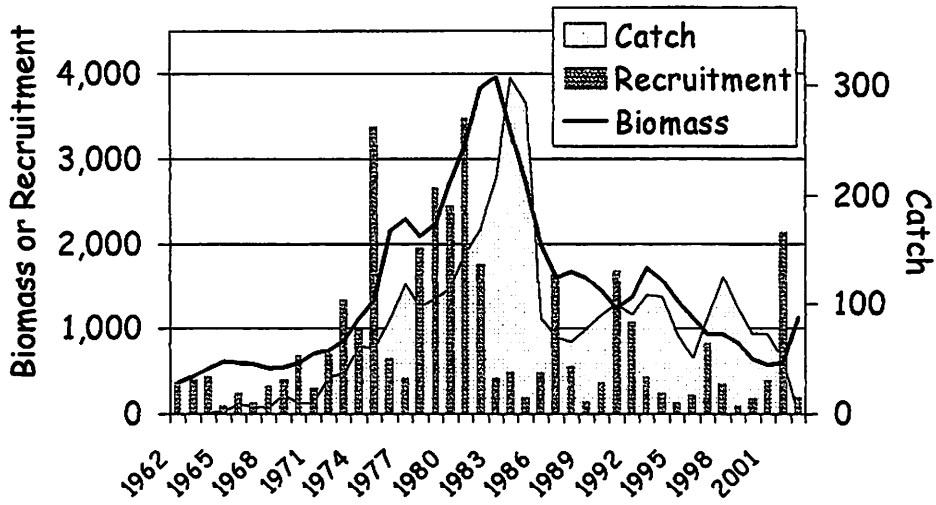
## Projected ABC's by species 414,820 tons total



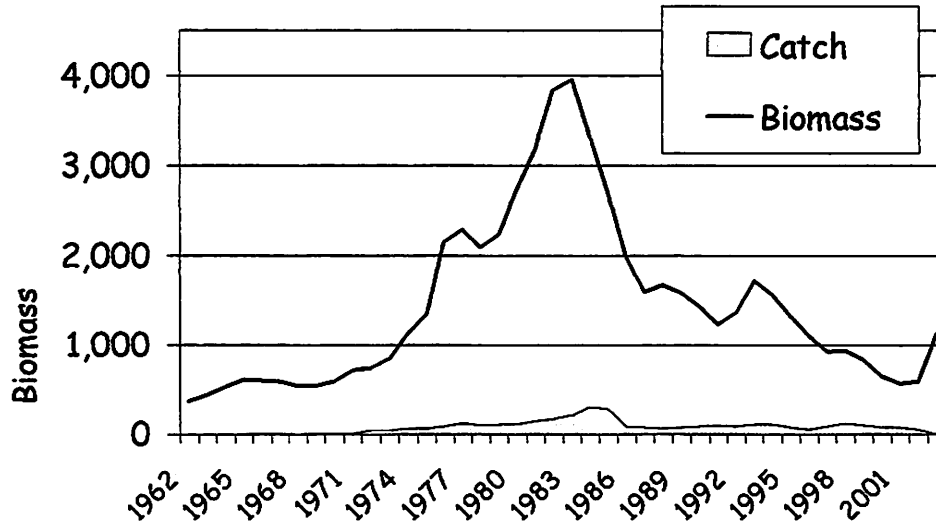
## ABC Summary

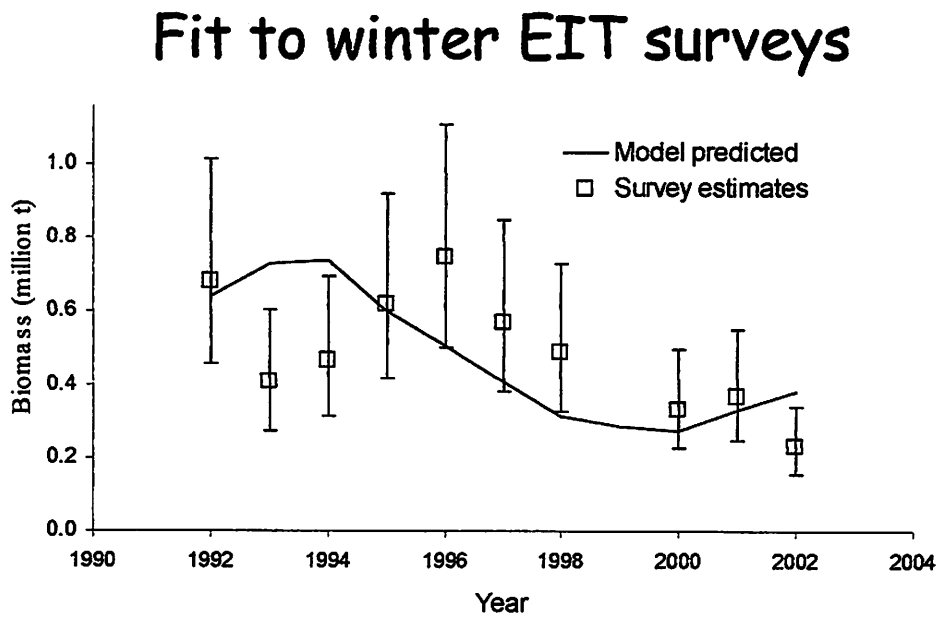
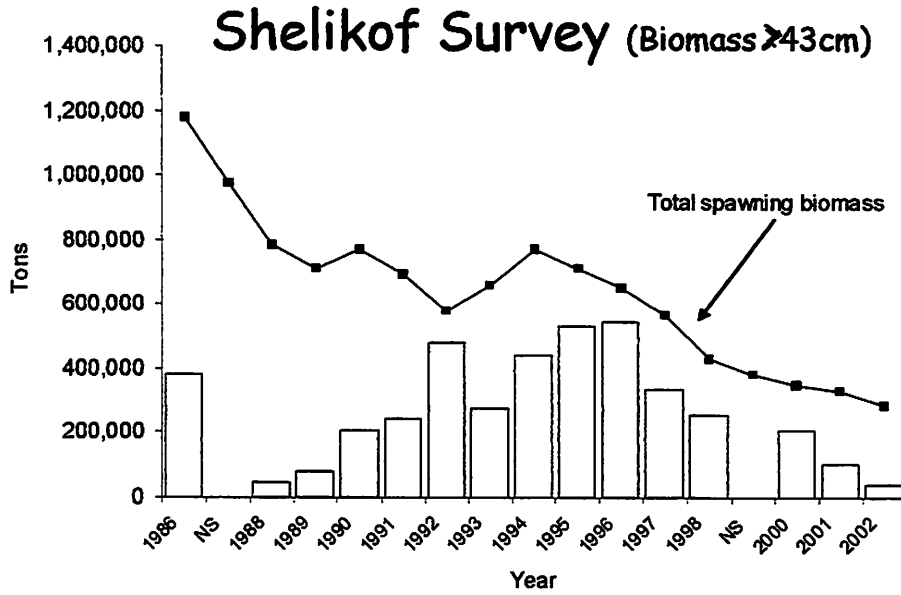
Species	2002	2003	Change	
Pollock	58,250	54,350	down 3,900	(7%)
Pacific cod	57,600	52,800	down 4,800	(8%)
Flatfish	63,900	63,690	down 210	(<1%)
Flathead sole	22,690	41,390	up 18,700	(82%)
Arrowtooth	146,260	155,140	up 8,880	(6%)
Sablefish	12,820	13,110	up 290	(2%)
Pacific ocean perch	13,190	13,660	up 470	(4%)
Northern rockfish	4,980	5,530	up 550	(11%)
Shortraker/Rougheye	1,620	1,620	same	-
Other slope rockfish	5,040	5,050	up 10	-
Pelagic shelf rockfish	5,490	5,490	same	-
Demersal shelf rockfish	350	390	up 40	(11%)
Thornyheads	1,990	2,000	up 10	(1%)
Atka mackerel	600	600	same	-
<b>Total</b>	<b>394,780</b>	<b>414,820</b>	<b>up 20,040</b>	<b>(5%)</b>

# Pollock



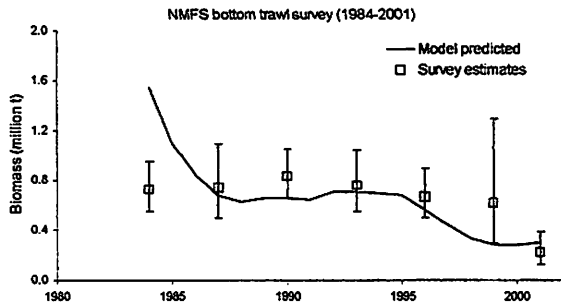
# Pollock



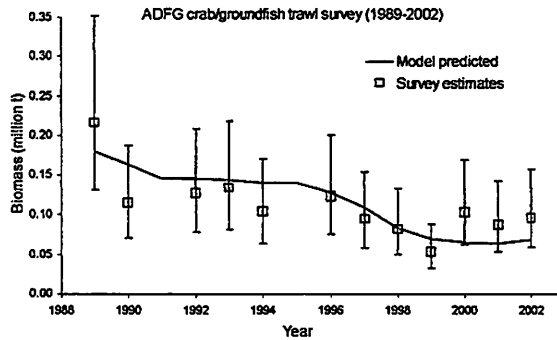




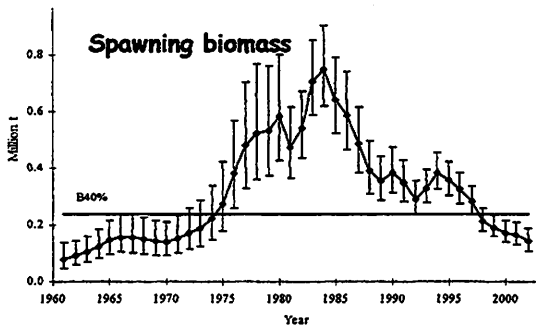
Gulf of Alaska Groundfish Plan Team



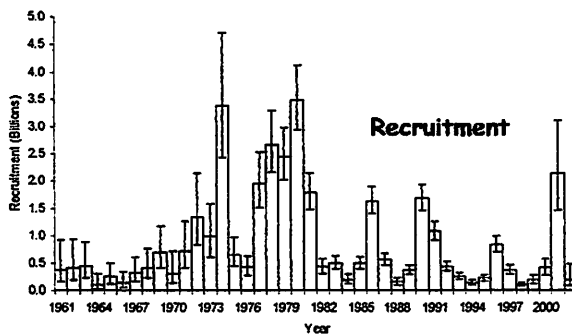
Fit to trawl surveys...



Gulf of Alaska Groundfish Plan Team



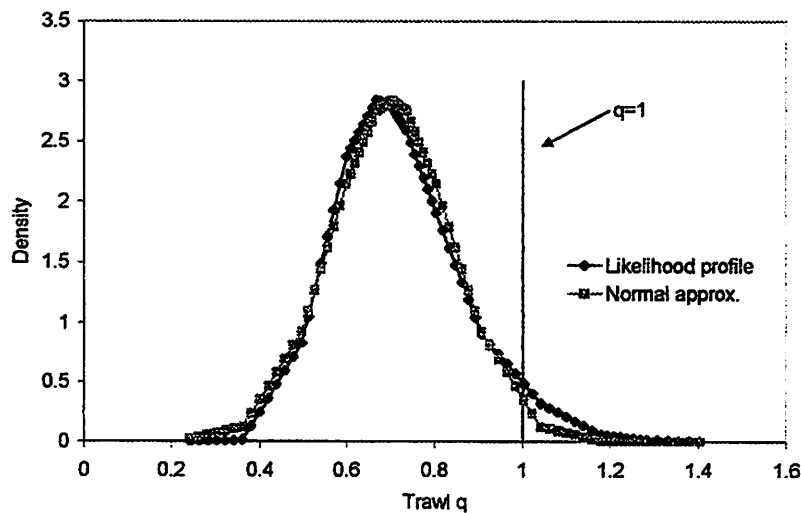
Pollock model results



## Added pollock conservation measures

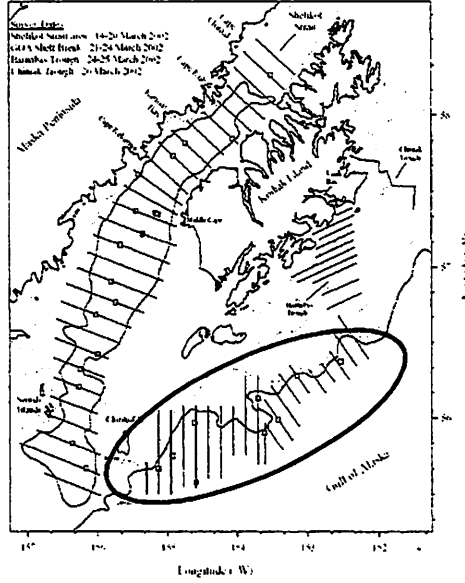
- **Model selected**
  - \* Survey catchability assumption fixed at 1.0
- **Updated maturity-at-age used**
- **Assuming average 1999 yearclass**
- **Constant-buffer scheme used**
- **No adjustments to the 2002 Shelikof Strait survey estimate**

## NMFS trawl survey catchability



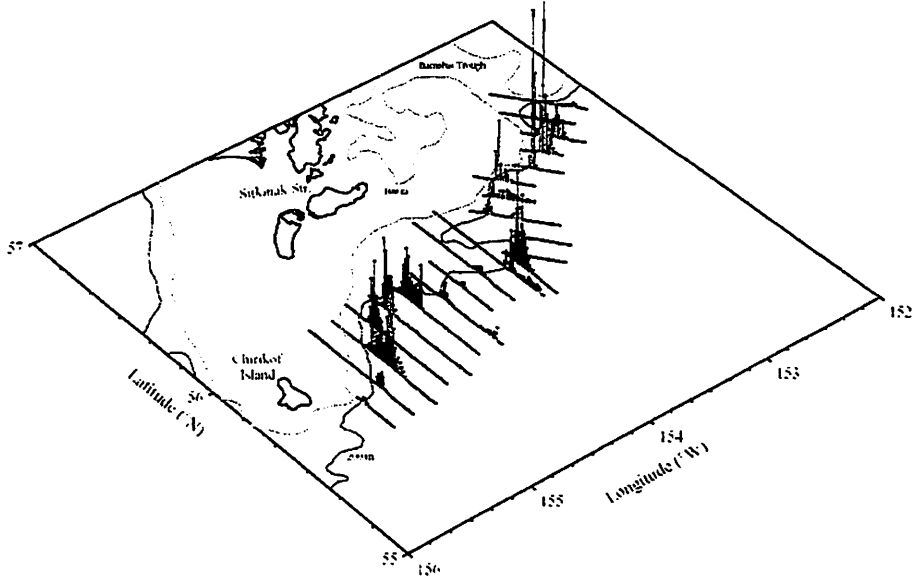
Gulf of Alaska Groundfish Plan Team

Shelf  
break



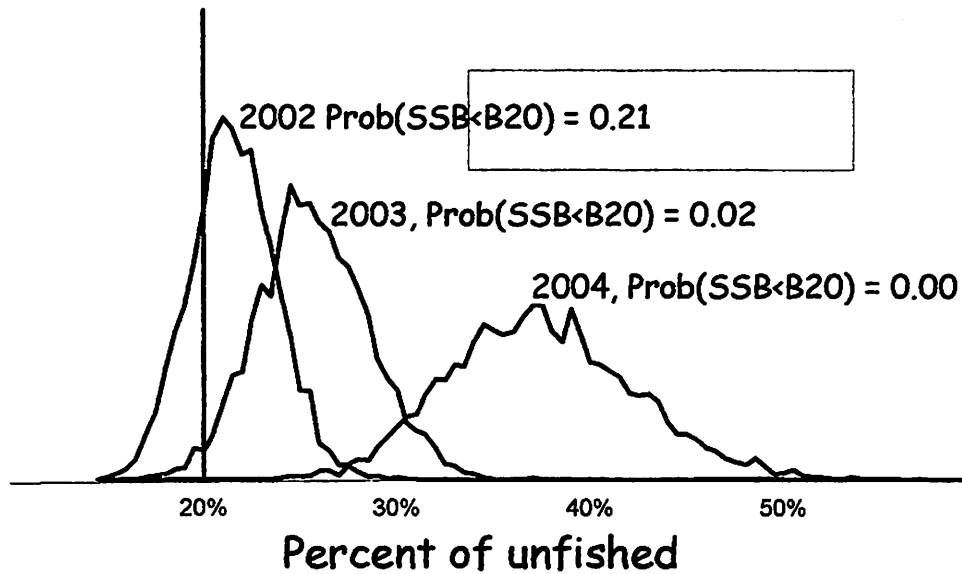
Gulf of Alaska Groundfish Plan Team

Shelf break



# Pollock 2003 ABC

	Average 1999 year class	1999 year class as estimated
Author's adjustment	49,600	86,000
Maximum permissible	59,200	102,000



## Pollock Spawning biomass

- **Spawning biomass (1,000's tons)**

- ★ 2003 = 177

- ★  $B_{40\%}$  = 240

- ★  $B_{20\%}$  = 120

## Pacific cod

- **Notes:**

- ★ Selectivity estimated over three stanzas:

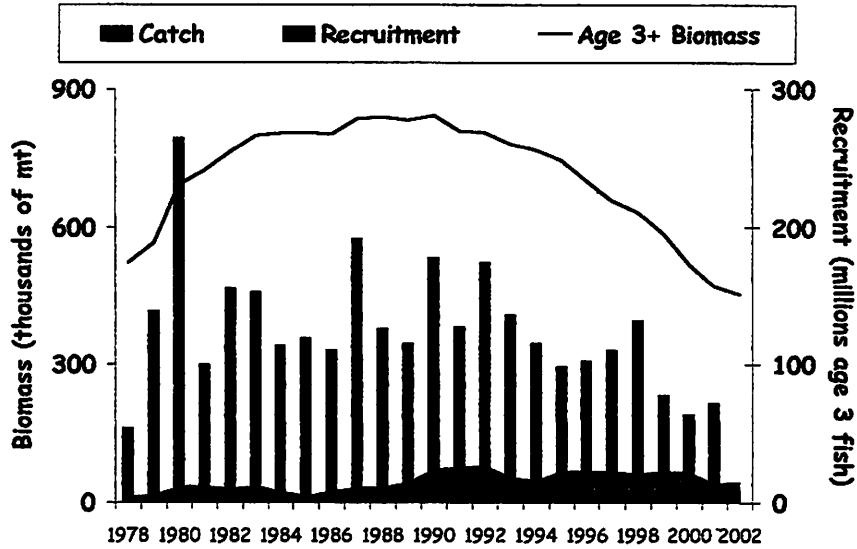
- 1978-86, 1987-99, & 2000 to the present

- ★ Risk-averse ratio applied to  $F_{40\%}$

- ★ Steller sea lion prey species

- ★ Last survey in 2001 (next in 2003)

## Pacific cod



## Pacific cod

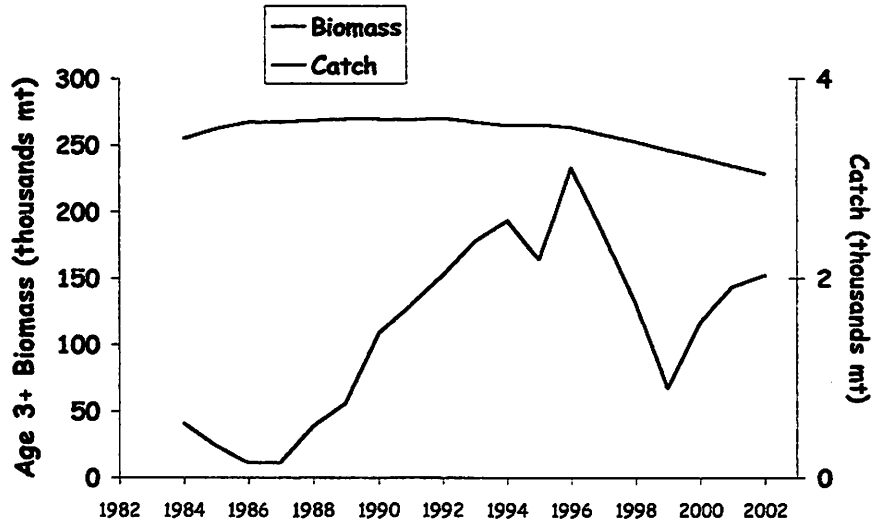
- **Female spawning biomass (tons)**

★ 2003 = 88,300

★  $B_{40\%}$  = 90,300

★  $B_{20\%}$  = 45,150

## Flathead sole (new assessment)



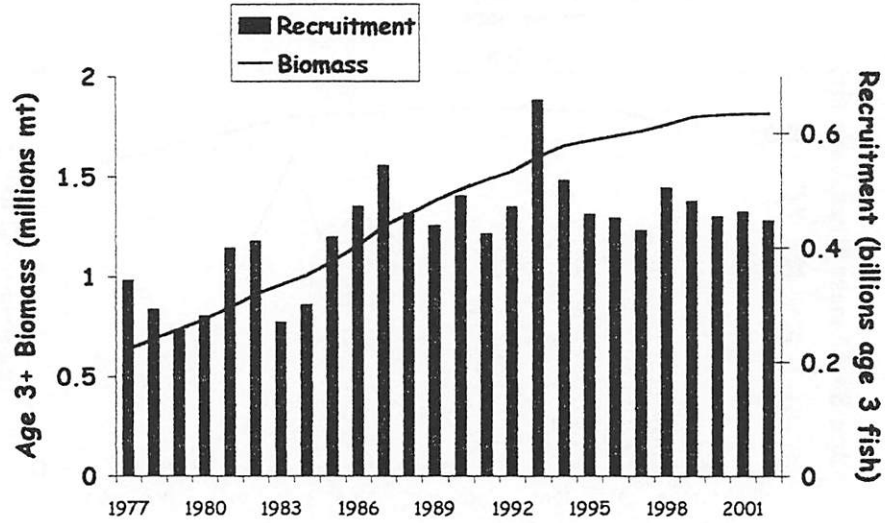
## Flathead sole

### ▪ Female spawning biomass (tons)

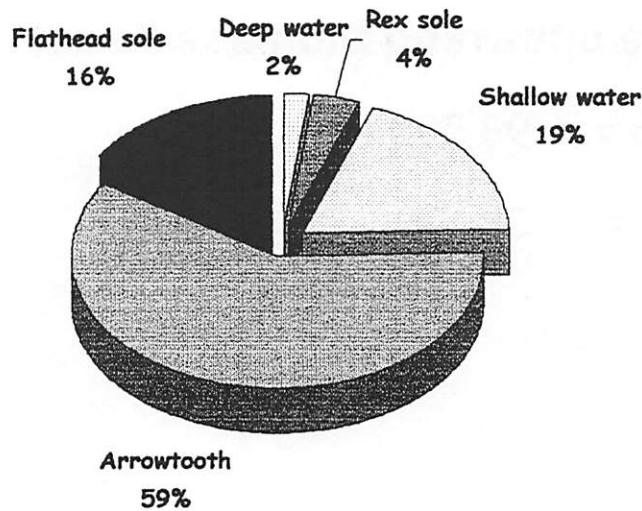
★2003 = 93,500

★ $B_{40\%}$  = 38,100

## Arrowtooth flounder



## Flatfish 2003 ABC's 260,220 tons total



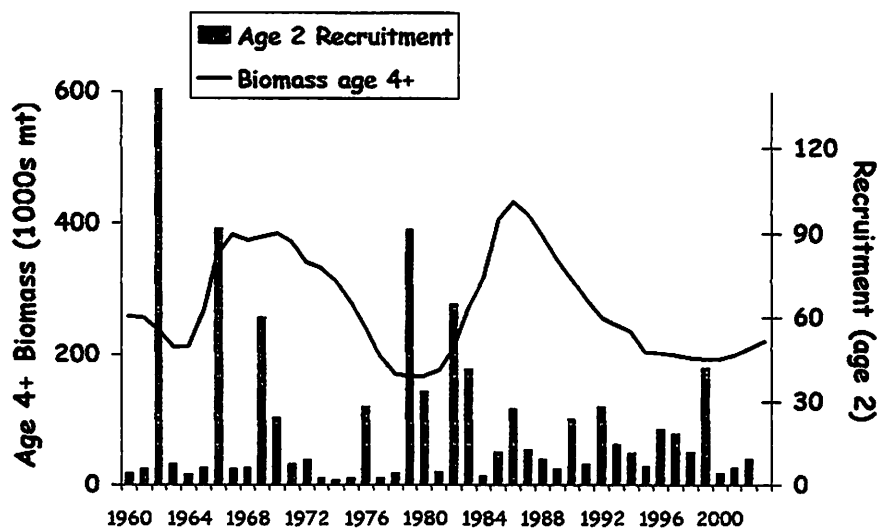


# Sablefish

## Notes

- \* Survey abundance increased ~6% from 2001 estimate
- \* Status "moderate" and increased from recent low levels (nearly at  $B_{40\%}$  level)
- \* Authors proposed ABC recommendation based on estimates of probability of future stock sizes
- \* Plan Team agreed with ABC (in general) but not the method

# Sablefish



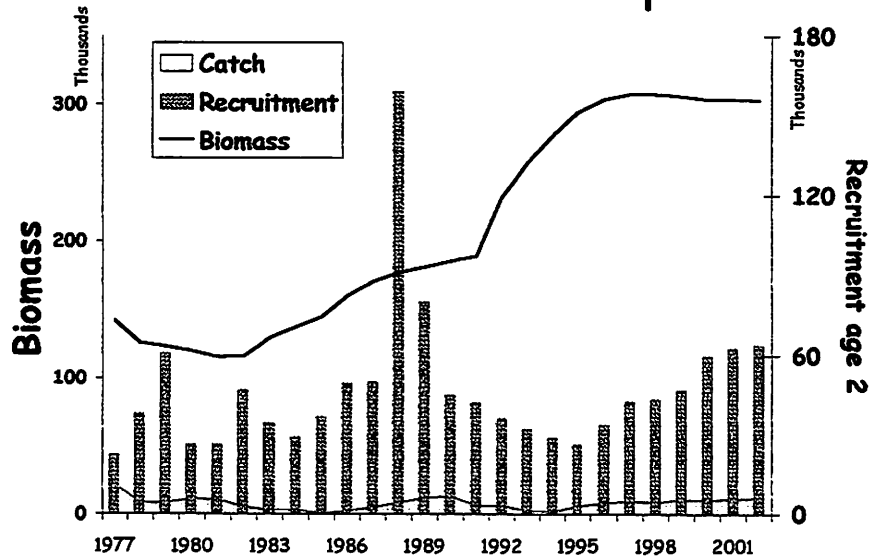
## Sablefish spawning biomass

### ▪ Spawning biomass (1,000's tons)

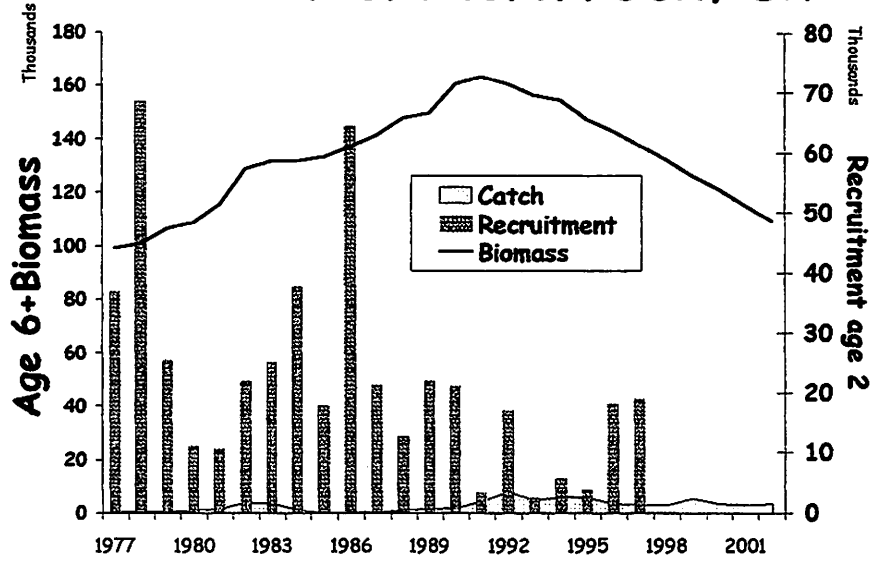
\*2003 = 210

\*B<sub>40%</sub> = 216

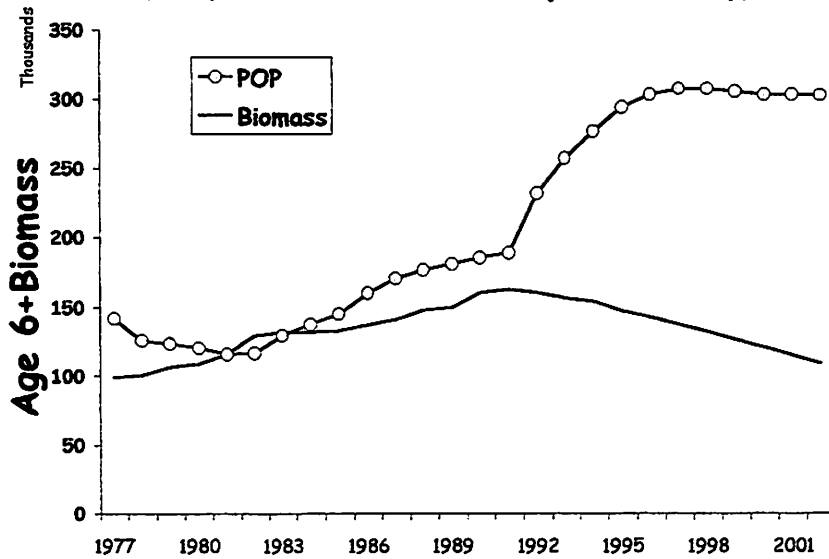
## Pacific ocean perch



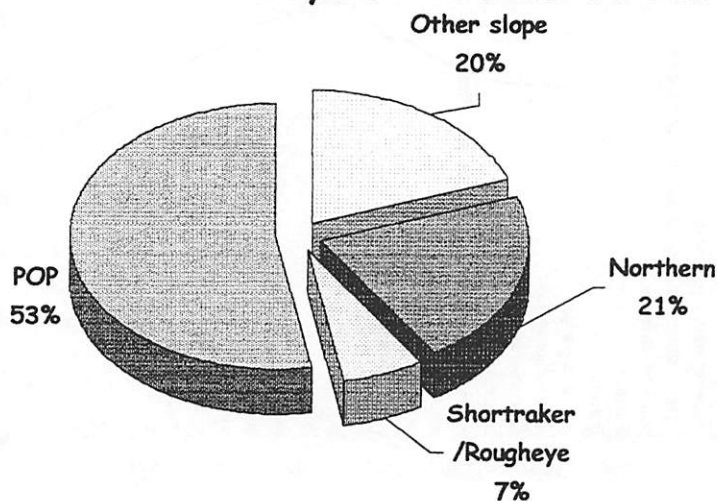
# Northern rockfish



# POP & northern rockfish biomass



## Slope Rockfish 2003 ABC's 25,860 tons total



## Rockfish spawning biomass

### ▪ Spawning biomass (1,000's tons)

#### \*POP:

• 2003 = 112

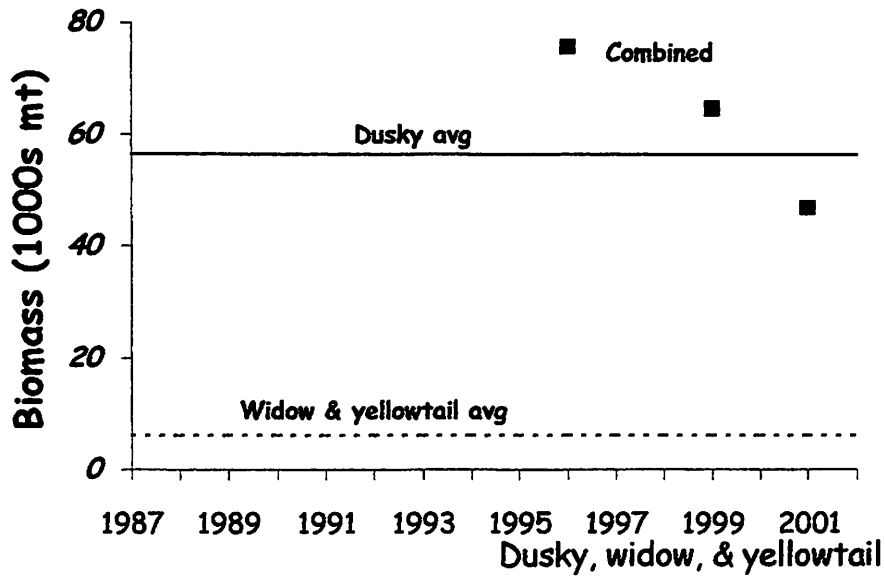
• B<sub>40%</sub> = 105

#### \*Northern:

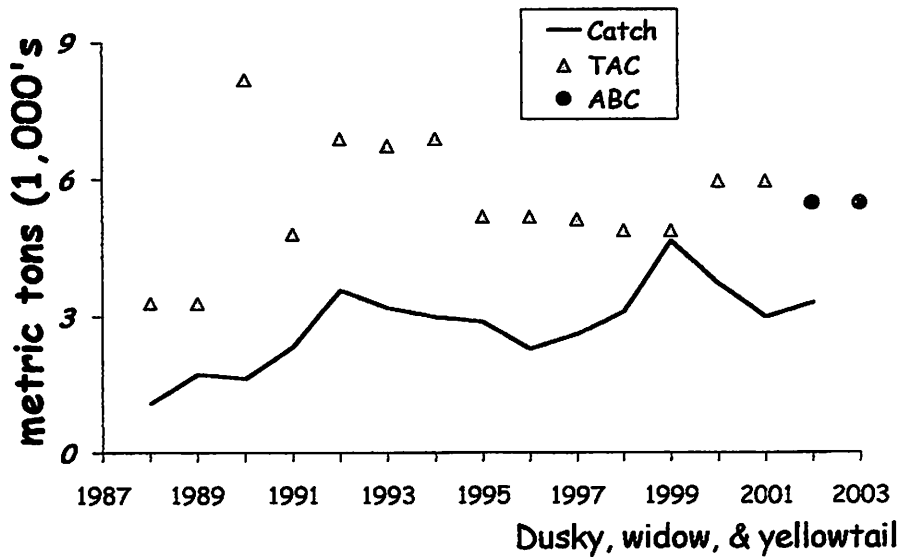
• 2003 = 43

• B<sub>40%</sub> = 25

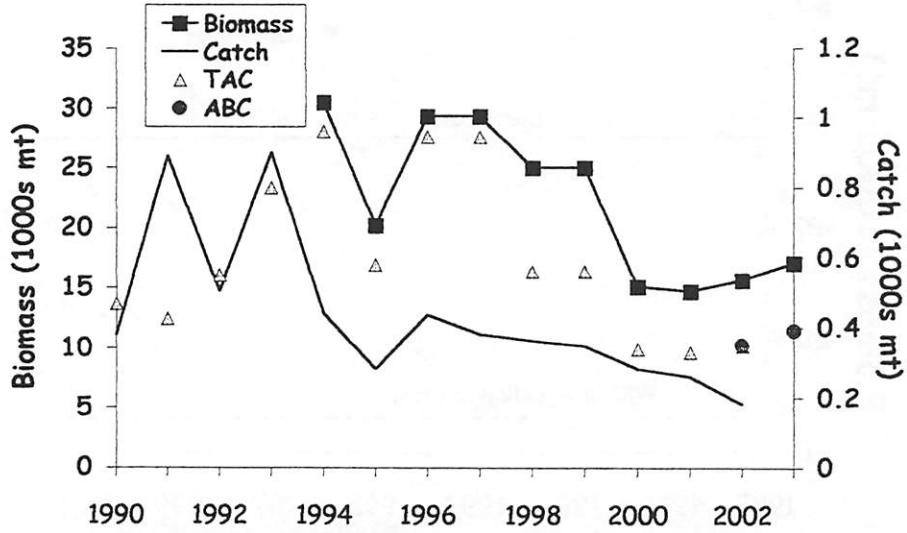
## Pelagic shelf rockfish: biomass



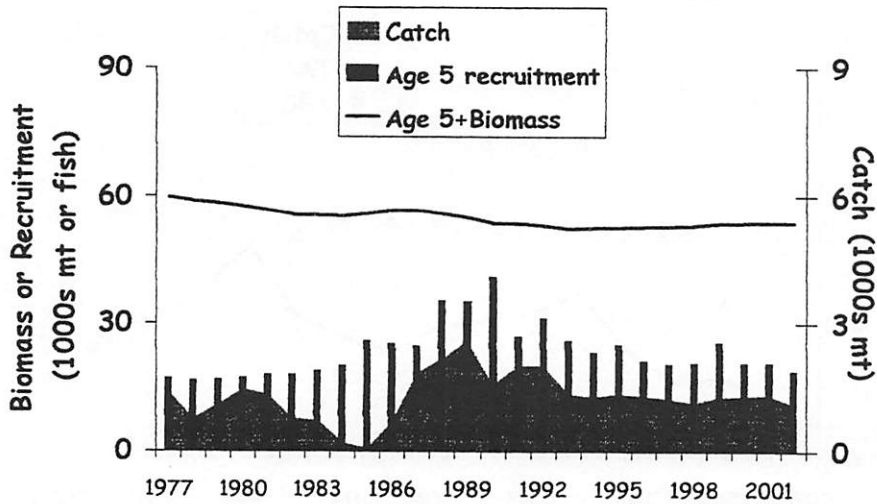
## Pelagic shelf rockfish: catch



## Demersal shelf rockfish



## Thornyheads



## Thornyhead spawning biomass

- **Spawning biomass (1,000's tons)**

\*2003 = 22.8

\*B<sub>40%</sub> = 15.8