

North Pacific Fishery Management Council

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December 4, 2008

DRAFT AGENDA
190th Plenary Session
North Pacific Fishery Management Council
December 10-16, 2008
Hilton Hotel

The North Pacific Fishery Management Council will meet December 10-16, 2008 at the Hilton Hotel, 500 West Third Avenue, Anchorage, AK Other meetings to be held during the week are:

<u>Committee/Panel</u>	<u>Beginning</u>
Advisory Panel	Dec 8 - 8am – Dillingham/Katmai Room
Scientific and Statistical Committee	Dec 8, Mon - 8am – King Salmon Room
Ecosystem Committee	Dec 9, Tue 9am – 12pm – Iliamna Room
Enforcement Committee	Dec 9, Tue – 1pm – 5pm – Iliamna Room
Arctic Presentation by USCG	Dec 10, Wed – 6pm – Aleutian Room

All meetings are open to the public, except executive sessions of the Council. Other committee and workgroup meetings may be scheduled on short notice during the week, and will be posted at the hotel.

INFORMATION FOR PERSONS WISHING TO PROVIDE PUBLIC COMMENTS

Sign-up sheets are available at the registration table for those wishing to provide public comments on a specific agenda item. Sign-up must be completed **before** public comment begins on that agenda item. Additional names are generally not accepted **after** public comment has begun.

Submission of Written Comments. Written comments and materials to be included in Council meeting notebooks must be received at the Council office by 5:00 pm (Alaska Time) on **Wednesday, December 3, 2008**. Written and oral comments should include a statement of the source and date of information provided as well as a brief description of the background and interests of the person(s) submitting the statement. Comments can be sent by mail or fax—please **do not** submit comments by e-mail. **It is the submitter's responsibility to provide an adequate number of copies of comments after the deadline.** Materials provided **during** the meeting for distribution to Council members should be provided to the Council secretary. A minimum of **25** copies is needed to ensure that Council members, the executive director, NOAA General Counsel, appropriate staff, and the official meeting record each receive a copy. If copies are to be made available for the Advisory Panel (**28**), Scientific and Statistical Committee (**18**), or the public after the pre-meeting deadline, they must also be provided by the submitter.

NOTE: Council may take action as necessary on all matters listed on the Agenda

FOR THOSE WISHING TO TESTIFY BEFORE THE ADVISORY PANEL

The Advisory Panel has revised its operating guidelines to incorporate a strict time management approach to its meetings. Rules for testimony before the Advisory Panel have been developed which are similar to those used by the Council. Members of the public wishing to testify before the AP **must** sign up on the list for each topic listed on the agenda. Sign-up sheets are provided in a special notebook located at the back of the room. The deadline for registering to testify is when the agenda topic comes before the AP. The time available for individual and group testimony will be based on the number registered and determined by the AP Chairman. **The AP may not take public testimony on items for which they will not be making recommendations to the Council.**

FOR THOSE WISHING TO TESTIFY BEFORE THE SCIENTIFIC AND STATISTICAL COMMITTEE

The usual practice is for the SSC to call for public comment immediately following the staff presentation on each agenda item. In addition, the SSC will designate a time, normally at the beginning of the afternoon session on the first day of the SSC meeting, when members of the public will have the opportunity to present testimony on any agenda item. The Committee will discourage testimony that does not directly address the technical issues of concern to the SSC, and **presentations lasting more than ten minutes will require prior approval from the Chair.**

COMMONLY USED ACRONYMS

ABC	Acceptable Biological Catch	NPFMC	North Pacific Fishery Management Council
AP	Advisory Panel	OY	Optimum Yield
ADFG	Alaska Dept. of Fish and Game	POP	Pacific ocean perch
BSAI	Bering Sea and Aleutian Islands	PSC	Prohibited Species Catch
CDQ	Community Development Quota	SAFE	Stock Assessment and Fishery Evaluation
CVOA	Catcher Vessel Operational Area	SSC	Scientific and Statistical Committee
EAM	Ecosystem Approach to Management	SSL	Steller Sea Lion
EA/RIR	Environmental Assessment/Regulatory Impact Review	TAC	Total Allowable Catch
EEZ	Exclusive Economic Zone	USFWS	United States Fish & Wildlife Service
EFH	Essential Fish Habitat		
ESA	Endangered Species Act		
FEP	Fishery Ecosystem Plan		
FMP	Fishery Management Plan		
GHL	Guideline Harvest Level		
GOA	Gulf of Alaska		
HAPC	Habitat Areas of Particular Concern		
IFQ	Individual Fishing Quota		
IPHC	International Pacific Halibut Commission		
IRFA	Initial Regulatory Flexibility Analysis		
IRIU	Improved Retention/Improved Utilization		
ITAC	Initial Total Allowable Catch		
LLP	License Limitation Program		
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act		
MMPA	Marine Mammal Protection Act		
MRA	Maximum Retainable Amount		
MSY	Maximum Sustainable Yield		
mt	Metric tons		
NMFS	National Marine Fisheries Service		
NOAA	National Oceanic & Atmospheric Adm.		

NOTE: Council may take action as necessary on all matters listed on the Agenda

December 4, 2008

**DRAFT AGENDA
190th Plenary Session
North Pacific Fishery Management Council
December 10-16, 2008**

Estimated Time

A. CALL MEETING TO ORDER

- (a) Approval of Agenda
- (b) Approval of Minutes

B. REPORTS

(4 hrs)

- B-1 Executive Director's Report
- B-2 NMFS Management Report (includes Draft plan for EFH 5yr review)
- B-3 ADF&G Report (includes report on BOF proposals)
- B-4 USCG Report
- B-5 USFWS Report
- ~~B-6 Protected Species Report (T)~~

C. MAJOR ISSUES/FINAL ACTION ITEMS

C-1 Report of MPA Nomination Process

(2 hrs)

C-2 GOA Groundfish Management

(6 hrs)

- (a) Initial review GOA fixed gear LLP recency.
- (b) Initial review of GOA Pacific cod sector split.

C-3 Groundfish Catch Specifications

(8 hrs)

- (a) Approve final BSAI groundfish specifications and SAFE reports.
- (b) Approve final GOA groundfish specifications and SAFE reports.
- (c) Review discussion papers on Pacific cod area split (BS and AI)

C-4 BSAI Crab Issues

(16 hrs)

- (a) Receive BSAI Crab Program 3-Year Review Report.
- (b) Receive Crab Committee Report/Crew Proposals.
- (c) Review of BSAI Crab 90/10 Amendment alternatives and analysis outline.
- (d) Receive Report on Crab EDR Metadata.

C-5 Observer Program

(4 hrs)

- (a) Review discussion paper on program restructuring.
- (b) Review NMFS letter on Level 2 observer issues.

NOTE: Council may take action as necessary on all matters listed on the Agenda

D. OTHER ISSUES

- D-1 AI Sideboards (2 hrs)
(a) Discussion paper on sideboards for AI Cod Processing.
(b) Discussion paper on sideboards for AI POP/Atka Mackerel Processing.
- D-2 Miscellaneous Groundfish Management (6 hrs)
(a) Committee report on comprehensive data collection. (T)
(b) Discussion paper on changes to GOA Rockfish Program.
(c) Discussion paper on BSAI Chum Salmon Bycatch alternatives. (Council only)
(d) Discussion paper on GOA salmon and crab bycatch.
- D-3 Arctic FMP (0 hrs)
Progress report to SSC on Arctic FMP; Council action if necessary.
- D-4 Staff Tasking (4 hrs)
(a) Review Committees and tasking (including NMFS letters on Amendment 80 analysis and parallel waters analysis).
(b) Receive report on AK Native/Community Outreach.
- D-5 Other Business

(T) = tentative

Total Hours: (52 hrs)

DECEMBER 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8 SSC/AP – Anch Hilton	9 SSC/AP	10 SSC/AP Council	11 AP/Council	12 AP/Council	13 Council
14 Council	15 Council	16 Council	17	18	19	20
21	22	23	24	25 Christmas	26	27
28	29	30	31			

JANUARY 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 New Year's Day	2	3
4	5	6	7	8	9 Enforcement Committee Trawl Sea Trial Sweep thru – Sea 10 th	10
11	12	13 IPHC meeting – Vancouver, BC thru 16th	14	15 Salmon Bycatch Outreach Mtg - Nome	16 NPRB AOOS Arctic Data Workshop	17
18 Marine Science Symposium – Anch thru 22nd	19 Martin Luther King Day	20 Salmon Bycatch Workgroup mtg - Hilton	21	22	23	24
25	26	27	28	29	30	31

FEBRUARY 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 SSC/AP – Seattle	3 SSC/AP	4 SSC/AP Council	5 AP/Council	6 AP/Council	7 AP/Council
8 Council	9 Council	10 Council	11	12	13	14
15	16 President's Day	17	18 Interim CCC mtg – DC thru 20th	19 Scallop Plan Team – Anchorage thru 20th	20	21
22	23	24	25	26	27	28

MARCH 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30 SSC/AP – Anch Hilton	31 SSC/AP				

APRIL 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SSC/AP/Council	2 AP/Council	3 AP/Council	4 AP/Council
5 Council	6 Council	7 Council	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

MAY 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11 Crab Plan Team - Anch - thru 15th	12	13	14	15	16
17	18	19 Annual CCC mtg - Boston, MASS thru 22	20	21	22	23
24/31	25	26	27	28	29	30

**ADVISORY PANEL MINUTES
North Pacific Fishery Management Council
September 29 – October 4, 2008
Anchorage Sheraton Hotel**

Approved _____

Date _____

The following members were present for all or part of the meeting:

Joe Childers
Mark Cooper
Craig Cross
John Crowley
Julianne Curry
Jerry Downing
Tom Enlow

Tim Evers
Bob Gunderson
Jan Jacobs
Simon Kinneen
Chuck McCallum
Mike Martin
Matt Moir

John Moller
Rex Murphy
Ed Poulsen
Michelle Ridgway
Beth Stewart
Lori Swanson

Bob Jacobson was absent.

The AP unanimously elected Lori Swanson as Co-Vice Chair, to serve in cooperation with Joe Childers, and approved the minutes of their previous meeting.

C-1 Charter Halibut

2C 3A Halibut Catch Sharing Plan

The AP notes that the purpose of the proposed action is to reflect the intent to prevent charter harvest from exceeding annual catch limits by relying on the best available information, the most timely and accurate catch accounting system, and the most responsive management strategy. **Additions are in bold, and deleted parts are shown with a strikeout.**

“The purpose of the proposed action is to create a catch sharing plan that establishes: 1) a clear allocation between charter and setline sectors with sector accountability; 2) a responsive management system with proactive accountability measures to prevent annual catch limit overages; 3) a mechanism for limited transfer of quota share between sectors.”

~~The purpose of the proposed action is to (1) create a catch sharing plan that would set an initial allocation between the charter halibut and commercial longline halibut sectors, and tighten the timeline between occurrence of an overage and a management response; and (2) design a program to compensate the commercial sector for any future reallocations, above the level set at initial allocation. Along with restrictive control measures that were considered by the Council separately from these proposed actions, because the GHL has been exceeded in Area 2C and Area 3A each year since its implementation in 2004, the proposed sector allocations are intended to stop the *de facto* reallocation from the commercial sector to the charter sector. Over the past 11 years, charter halibut harvests have grown at an annualized rate of 6.8 percent in Area 2C, and 4.1 percent in Area 3A. The number of active vessels, the total number of clients, the average number of clients per trip, and the average numbers of trips per vessel, are all at their highest level in the recorded data period of 1998 through 2006. The number of clients per trip (which is one of the best measures of upward pressure on demand) has increased steadily in recent years. This increase indicates that the number of clients is rising faster than the number of trips, and likely indicates healthy demand for the services provided by the charter sector.~~

Part 1—Elements and options

Element 1: Initial allocation

The AP recommends a fixed percentage tied to abundance. Specifically,
 Option 1(a) - fixed percentage based on existing GHLS for area 2c and 3A
 2C 13.1% 3A 14.0%

Element 2 – Annual regulatory cycle

The AP recommends the Council clarify its intent to prevent charter harvest from exceeded annual catch limits by relying on the best available information, the most timely and accurate catch accounting system, and the most responsive management strategy.

The initial charter allocation would be a common harvest pool for all charter limited entry permit holders. It would not close the fishery when the charter allocation is exceeded. **Instead, the Council's intent is to implement management measures that prevent charter allocation overages. The Council will annually evaluate the efficacy of existing management measures, taking into account the projected CEY and the projected charter harvest for the following year as well as any overages from past years. The Council will rely on the best available information and most timely management system to manage the charter sector to its annual catch limit.** ~~Instead, the allocation would be linked to an annual regulatory analysis of management measures (delayed feedback loop) that take into account the projected CEY for the following year and any overages by the charter industry in the past year(s). This system would work best if there is not a time lag between the overage year and the year of implementation of new regulations. The Council will not revisit or readjust the sector split. An allocation overage would trigger the regulatory process automatically, in contrast with current GHL management. Any underages would accrue to the benefit of the halibut biomass and would not be reallocated or paid forward.~~

Element 3 – Management toolbox

The AP recommends removing the language regarding the delayed feed back loop from this paragraph.

Tier 1 measures will be utilized by the Council to try to manage the charter common pool for a season of historic length and a two-fish daily harvest limit. Tier 2 measures will be utilized if Tier 1 measures are inadequate to constrain harvest by the charter common pool to its allocation. ~~Due to the delayed feedback loop in implementation of management measures,~~ Management measures will, in general, be more restrictive to ensure that the charter sector allocation is not exceeded. In providing predictability and stability for the charter sector, it is likely that charter fish may be left in the water.

Element 4 – Timeline

Consistent with the AP's intent that the charter allocation be managed to prevent allocation overages by relying on the best available information, the most timely and accurate catch accounting system, and the most responsive management strategy, We recommend all scenarios under this element be DELETED.

~~Example Scenario 1: four year feedback loop~~

~~Charter fishery ends 2007~~

~~October 2008: Council receives ADF&G report on final charter halibut harvest estimates for 2007. If the ADF&G report indicates that an allocation overage occurred in 2007, the Council would initiate the analysis of management measures necessary to restrict charter halibut harvests to its allocations.~~

~~December 2008: Council reviews staff analysis (possibly in the form of a supplement) that updates the previous year's analysis with final 2007 harvest estimates.~~

~~January 2009: IPHC adopts combined catch limits for 2009.~~

~~February 2009: Council takes final action on year 2010.~~

~~Winter 2009: NMFS publishes the rule that would be in effect for 2010.~~

Example Scenario 2: three year feedback loop

~~Charter fishery, with in season monitoring, ends 2007~~

~~October 2007: Council receives ADF&G report on charter halibut harvest estimates for 2007. The report would likely be based on projections of the current year logbook data. Some data will still be in the process of being entered, so the data will be considered preliminary. If the ADF&G report indicates that an allocation overage occurred in 2007, the Council would initiate the analysis of management measures necessary to restrict charter halibut harvests to its allocations.~~

~~December 2007: Council reviews staff analysis (possibly in the form of a supplement) that updates the previous year's analysis with final 2007 harvest estimates.~~

~~January 2008: IPHC adopts combined catch limits for 2008.~~

~~February 2008: Council takes final action on management measures that would be implemented in year 2009~~

~~Winter 2008: NMFS publishes the rule that would be in effect for 2009~~

Element 5 – Supplemental, individual use of commercial IFQ

The AP recommends that the Council include all provisions in the motion.

- A. 3. No more than 400 fish may be leased per LEP
 - Suboption. LEPs w/endorsement for more than 6 clients may not lease more than 600 fish.
- E. 2. Unused GAF may revert back to pounds of IFQ and be subject to the underage
 - Provisions applicable to their underlying commercial QS.
 - Option a: automatically on October 1 of each year.**

There was general consensus among the AP members on the following clarification:

If an IFQ holder chooses to lease to a CQE, then the same limitations apply as if they were leasing to an individual charter operator – 1500 lbs or 10% whichever is greater – the 100% has no application here. With regard to CQE leasing: any quota which a CQE holds, regardless of its origin, could be leased up to 100% to eligible residents of the CQE community. For example, a CQE may hold quota share derived from purchase, lease from another qualified CQE, or leased from an individual, and then lease out up to 100% of the quota it holds.

Element 6 – Catch accounting system

The AP recommends adding the word verified in part 1.

1. The current Statewide Harvest Survey and/or **Verified** logbook data would be used to determine the annual harvest.
2. A catch accounting system will need to be developed for the GAF fish landed in the charter industry.
3. As part of data collection, recommend the collection of length measurements when supplemental IFQs are leased for use and compare to the annual average length to make sure that accurate removable poundage is accounted for and to allow length measurement information gathered to be used in the formulation of the average weight used in the conversion of IFQs to GAF.

Motion passed 15/3.

(c) 3A Charter Halibut GHL

The AP maintains that resource conservation and sustainable management depends on preventing catch limit and GHL overages. To prevent future overages in 3A, the AP recommends implementation of options 2 and 6 (32").

In addition, the AP recommends the revision of the analysis to reflect the conservation impacts of catch limit and GHL overages, as well as the impacts of overages on other sectors.

Motion passed 15/2/1.

C-2 (a) Crab SAFE

The AP recommends the Council approve the SAFE and OFLs. *Motion passed 18/0.*

C-2 (b) St. George Protection Measures

The AP recommends the Council take no action regarding this issue. *Motion passed 15/0.*

C-2 (c) Crab Program 3 year review

The Council's Problem Statement in April identified many concerns regarding the implementation and operation of the Crab Rationalization Program. Since that problem statement was passed, Council staff has completed thorough and complete reviews of the program. The 18 month review and the 3 year review have addressed the concerns raised in the Council's problem statement. Those reviews provide important results from the first three years of the program.

1. There have been no Search and Rescue missions, no loss of life, or vessels since implementation;
2. The condition and health of the crab resources have dramatically improved. There are longer pot soak times; fewer pot lifts; and reduced handling mortality due to extreme weather. These factors may be contributing to the health of the resource;
3. Significant reductions in environmental impacts due to efficient uses of harvesting and processing capacity;
4. Some crab dependent communities are again receiving their historic share of crab landings;
5. There have been only five price arbitrations out of more than 700 price negotiations between harvesters and processors with low cost and minimum disruption to the prosecution of the fishery
6. Significant and transparent information regarding the wholesale marketing and sales information for all crab species harvested under the program;
7. The harvest sector which was grossly over-capitalized and on the brink of economic disaster has been restored to stability;
8. The processing sector, which saw the loss of several dozen participants in the years leading up to the program, has been stabilized and there are new processing entities for the first time since 1992; and
9. The industry is now operating with professional crew enjoying stable and high paying jobs.

The AP believes the crab program is achieving most of its objectives and that many of the major changes identified in the Council's April Motion would de-stabilize the harvesting, processing, and community sectors and are not necessary based on the findings from the Council's 18 month and 3 year reviews. The AP further believes that the Council has effectively utilized its Crab Advisory Committee to address real issues arising from the implementation of the program. Therefore, the AP supports the committee and moves the Council, as a substitute for its April Motion, to direct the committee to:

1. Identify elements and options for resolving crew issues by working with the harvesting, processing, and community sectors and the Deep Sea Fishermen's Union to
 - a. Refine the "hinkel proposal's" potential re-designation of IFQ shares to crew and specifically look at a range of allocation and how to phase it in and bring back to the Council at its February meeting with recommendations;
 - b. Analyze the potential for a private contractual proposal to increase crew participation and ownership in the crab program.
2. To work with the holders of Western Aleutian Golden King Crab IFQ and IPQ to identify any required changes in the program necessary to solve any real problems occurring in that fishery.

Regarding ROFRs, the AP moves that the Council initiate action including the purpose and needs statement regarding needed changes to the community right of first refusal provisions in the crab management program:

1. removing the lapse of the right after three consecutive years of IPQ use outside the committee;
2. extending the short period of time in the current program allowed for responding to and exercising the ROFR;
3. not allowing the ROFR to lapse even if the entity opts out of the ROFR; and
4. developing possible funding options for communities to allow them to exercise their ROFRs.

Motion passed 15/4.

The minority maintains that it is premature to assert that the Crab Rationalization Program fully meets its original objectives, conservation goals or community protection needs. Rather than support the Council's April motion, we recommend that analysis of the 90/10 split continue, while additional analysis on crew shares, WAG issues, and ROFRs be initiated. Signed: Beth Stewart, Michelle Ridgway, Chuck McCallum, and John Moller.

The AP recommends the addition to Henkel's proposal included in the action memo:

Option 2, i,

a. A pro rata reduction in "non-participating" ownership QS pool. ("non-participating" is defined as QS ownership that no longer have a vessel participating or a captain/crewmember participating in an Alaska Federal Fishery.) *Motion passed 19/0.*

The AP recommends the Council direct that the EDR data not be used for analysis for Council or academic purposes until the metadata is reviewed. *Motion passed 19/0.*

C-2 (g) Crab Regional Delivery Emergency Relief

The AP recommends the Council send forward for analysis the purpose and needs statement, and the following alternatives and options:

Method of defining the exemption and compensations:

Option 2: The exemption shall be generally defined in regulation. To receive an exemption, however, an IFQ holder the holder of matched IPQ, and the entity holding (or formerly holding) the right of first refusal for the IPQ shall have entered a contract that defining conditions under which an exemption will be granted and the terms of any compensation that:

Suboption 2: defines any compensation that may be exchanged by the IFQ holder, IPQ holder, and the community entity holding (or formerly holding) the right of first refusal on the IPQ on using the exemption

Administration:

Option 2: The exemption shall be administered through submission of an affidavit by the holder of the IFQ for which the exemption is applied. An affidavit attesting to the satisfaction of requisite conditions for the exemption shall constitute conclusive evidence of qualification for the exemption.

Qualifying circumstance: An unavoidable circumstance that prevents the delivery or processing of crab in a region as required by regionally designated IFQ and matched IPQ will qualify for the exemption from regional landing requirements. To qualify for the exemption a circumstance must: a) be unavoidable, b) be unique to the IFQ and/or IPQ holder, c) be unforeseen or reasonably unforeseeable, and d) have actually occurred.¹

Option: Additional specificity of the exemption and its term may be included in any contract between the IFQ holder, the holder of matched IPQ and the entity holding (or formerly holding) a right of first refusal on the matched IPQ.

Requirement to attempt to mitigate:

Option 1 and Option 2

Option 1: To receive an exemption the IFQ holder and the holder of matched IPQ shall have exerted all reasonable efforts to avoid the need for the exemption, which may include attempting to arrange delivery to other processing facilities in the designated region unaffected by the unavoidable circumstance, attempting to arrange for the use of IFQ (and IPQ, if needed) not requiring delivery in the affected region, and delaying fishing.

Option 2: An IFQ holder will not be granted an exemption, if the IFQ holder holds any unused Class B IFQ, C share IFQ, or Class A IFQ that may be delivered outside of the affected region.

Compensation:

Option 2: Compensation shall be as agreed by the holder of IFQ, the holder of matched IPQ, and the entity holding the right of first refusal on the matched IPQ.

Motion passed 19/0.

C(3)a Final Action on GOA sideboards for BSAI crab vessels.

The AP recommends the following choices for final action:

Action I: Exempted Vessel Status of GOA Pacific Cod

Option 2.4: Exempt non-AFA crab vessels from the GOA Pacific cod sideboards if the vessel's Bering Sea opilio catch history is less than 750,000 pounds over the period 1996 - 2000 and the vessel has landed more than 680 mt of GOA Pacific cod over the period 1996 - 2000. The total Bering Sea *C. opilio* catch

¹ These criteria are taken from the exemption to 'cooling off' provision landing requirements that applied on a community basis to some IPQ in the first two years of the program (see 50 CFR 680.42(b)(4)(ii)).

history includes both qualified and unqualified catch history pounds from non-AFA crab vessels. *Passes 17/0/2*

Action II: Exempted Vessel Status of GOA Pollock

Option 2.3 - 20 pollock deliveries from 1996 - 2000.

Passes 17/0/2

Action III: Proposed Exemption from B Season Pacific Cod Sideboard Limit after November 1

Alternative 1: No changes to B season Pacific cod sideboard limit

Motion passed 19/0

C(3)b Final Action on sideboards for the GOA rockfish fishery.

The AP recommends that the Council adopt Alternative 4 for final action:

Alternative 4: Amend the CGOA rockfish pilot program to remove the provision that requires certain catcher processors to stand down from participating in directed BSAI groundfish fisheries for a period in July.

Motion passed 17/0.

C(3)c Initial Review of sideboards for Amendment 80 PSC

The AP recommends that the document not be released for public review

Motion passed 19/0.

The AP recommends that the Council take no further action on this item

Motion passed 11/8.

Minority Report

The minority of the AP believes that there is the potential for the accounting system for halibut in the Amendment 80 CP sector in the GOA 3rd quarter deep water fisheries to limit the ability of that sector to access the sideboards approved under Amendment 80. The current problem statement may not clearly address this issue, making it difficult to develop appropriate alternatives. The minority recommends that the Council request staff to revise the analysis to further explore options to account for catch by CPs in the limited access sector of the Rockfish Pilot Program from the halibut which was set aside for that program, including a regulatory modification to allow this to occur. Signed: Lori Swanson, Craig Cross, Tom Enlow, Jan Jacobs, Chuck McCallum, Rex Murphy, Ed Poulsen, John Crowley, and Beth Stewart.

C(3)d Discussion paper on GOA sideboards for AFA CVs

The AP recommends that the Council take no further action on this item

Motion passed 14/5.

C-4 (a) BSAI Non-Chinook Salmon Bycatch

The AP recommends that the Council request staff proceed with the development of an initial review draft analysis on Non Chinook Salmon Bycatch Reduction Measures in the BSAI Pollock Trawl Fisheries.

Recommended draft purpose and need as well as draft alternatives, elements and options are as follows:

AP DRAFT PURPOSE AND NEED STATEMENT

An effective approach to minimizing non-chinook salmon bycatch in the Bering Sea pollock trawl fishery is needed. Current information suggests these harvests include stocks from Asia, Alaska, Yukon, British Columbia, and lower-48 origin. Non-chinook salmon (primarily made up of chum salmon) harvested as bycatch in the Bering Sea pollock trawl fishery serve an important role in Alaska subsistence fisheries. However, in response to low salmon runs, the State of Alaska has been forced to close or greatly reduce some commercial and subsistence fisheries in Western Alaska. At times, Bering Sea bycatch may have contributed to observed low returns in these river systems.

Conservation concerns acknowledged by the Council during the development of the Salmon Savings Areas have not been resolved. Hard caps, area closures, and/or other measures may be needed to reduce salmon bycatch to the extent practicable under National Standard 9 of the MSA. We recognize the MSA requires use of the best scientific information available. The Council intends to develop an adaptive management approach, which incorporates new and better information as it becomes available. Non-chinook salmon bycatch must be minimized to address the Council’s concerns for those living in rural areas who depend on local fisheries for their sustenance and livelihood and to contribute towards efforts to reduce bycatch of Yukon River salmon under the U.S./Canada Yukon River Agreement obligations.

Alternatives and options

NON-CHINOOK SALMON (CHUM)

Alternative 1: Status Quo (non-Chinook)

Alternative 2: Hard Cap (non-Chinook)

Component 1: Hard Cap Formulation

Option 1: Range of numbers for hard cap formulation

Range of suboptions for hard cap for non-Chinook with breakout for CDQ allocation (10.7%) and remainder for non-CDQ fleet

Sub Option	Non-Chinook	CDQ	Non-CDQ
i)	58,176	6,225	51,951
ii)	76,252	8,159	68,093
iii)	147,204	15,751	131,453
iv)	203,080	21,730	181,350
v)	220,614	23,606	197,008
vi)	347,984	37,234	310,750
vii)	488,045	52,221	435,824

Component 2: Sector Allocation

Divide the final cap by sectors based on:

Option 1) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% inshore CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet.

Option 2) Historical average of percent bycatch by sector based on:

a) 3 year (2004-2006) average CDQ 1%; inshore CV fleet 86%; mothership fleet 2%; offshore CP fleet 11%.

- b) 5 year (2002-2006) average: CDQ 2%; inshore CV fleet 84%; mothership fleet 3%; offshore CP fleet 11%.
- c) 10 year (1997-2006) average: CDQ 2%; inshore CV fleet 82%; mothership fleet 4%; offshore CP fleet 12%.

Component 3: Sector Transfer

Option 1) Transfer salmon bycatch among sectors (industry initiated)

Suboption: Limit transfers to the following percentage of salmon that is available to the transferring entity at the time of transfer:

- a) 50%
- b) 70%
- c) 90%

Option 2) NMFS will rollover unused salmon bycatch to other sectors still fishing based on the proportion of pollock remaining for harvest.

The above options are mutually exclusive.

Component 4: Cooperative provisions

Cooperative transfer options

When a salmon coop cap is reached, the coop must stop fishing for pollock and may:

Option 1) Lease their remaining pollock to another coop (inter-cooperative transfer) within their sector for that year (or similar method to allow pollock harvest with individual coop accountability).

Option 2) Transfer salmon bycatch from other inshore cooperatives.

Suboption: Limit transfers to the following percentage of salmon that is available to the transferring entity at the time of transfer:

- a) 50%
- b) 70%
- c) 90%

Alternative 3 -4: Triggered closures (non-Chinook)

Component 1: Trigger Cap Formulation

The trigger cap amount will be within the range of hard caps established under Alternative 2.

Component 2: Sector Allocation

Sector allocations are equivalent to those under consideration for hard caps.

Component 3: Sector Transfer

Option 1) Transfer salmon bycatch among sectors (industry initiated)

Suboption: Limit transfers to the following percentage of salmon that is available to the transferring entity at the time of transfer:

- a) 50%
- b) 70%
- c) 90%

Option 2) NMFS will rollover unused salmon bycatch to other sectors and other cooperatives still fishing based on the proportion of pollock remaining for harvest.

The above options are mutually exclusive.

Component 4: Area options

- Option 1:** Areas (note all B season closures for non-Chinook)
- Option 1a)** Small closure

Suboption: Periodic adjustments to areas based on updated bycatch information.

Motion passed 18/0.

C-5 Arctic FMP

The AP would like to note that Michelle Longo Eder, Commissioner, US Arctic Research Commission gave a presentation to the AP and noted that the Commission will continue to work with NPRB, Council, and NOAA to support necessary funding for research for the Arctic FMP.

The AP appreciates the outstanding efforts made by staff to develop a progressive and sophisticated analysis on Arctic Fishery Management. However, the AP recommends the Council delay sending out the document for Public Review until staff addresses the SSCs comments. This document should come back to the Council at the February 2009 meeting.

Motion passes 16/1.

C-7 Groundfish Specifications

The AP recommends the Council adopt the proposed GOA specs for 2009-2010 OFLs and ABCs as noted in the action memo C-7 (b) (3).

Set the 2009 and 2010 GOA proposed specifications where TAC is equal to ABC for all stocks with the following exceptions:

The Pcod TAC is reduced according to the action memo (page 2) to account for the apportionment to the State waters fishery in 2009 and 2010.

Roll over the 2008 TAC for 2009 and 2010 for:

- a. Shallow water flatfish and flathead sole in the Central and Western GOA
- b. Arrowtooth flounder for all areas
- c. Other slope rockfish in the EYAK/SEO
- d. GOA Atka mackerel
- e. GOA other species

Motion passed 16/0

Additionally, the AP recommends the Council adopt the proposed GOA halibut PSC apportionments, annually and seasonally, for 2009-2010 as noted in the action memo C-7 (b) (4).

Motion passed 14/0

The AP recommends the Council adopt the BSAI OFL, ABC and TAC recommendations for 2009-2010 as included in the attached sheet. *Motion passed 14/1/1.*

Further, the AP recommends the Council adopt 8A, 8B and 8C – Apportionments of PSC allowances in the BSAI.

The AP recommends the council adopt the halibut discard mortality rates as noted in table 9 of the action memo. Further, the AP recommends that the Council change the release date for halibut apportioned to the BSAI rockfish fishery to April 15. *Motion passed 14/1.*

D-2 Miscellaneous Groundfish issues

(b) BSAI Fixed Gear Parallel fisheries

The AP recommends the Council proceed with analysis on the proposed problem statement and elements and options with the following additions:

- Extend Option 1 to apply to vessels that hold either LLPs *or* FFPs.
- Discuss appropriate time period for surrendering Federal permits.
- Revise Option 3 to state that IFQ permit holders would not be eligible to fish their IFQ on board any CP that fishes in the BSAI Pacific cod parallel waters fishery during a given calendar year or other time period specified by the Council.

Motion passed 17/0

The AP would like to state that while there may be some value in this action, there are much bigger issues regarding parallel fisheries that the Council should identify and devote resources to. *Motion passed 17/0.*

(c) BS Bottom trawl sweep requirements

The AP recommends that the purpose and need statement reflect that the Council intends to evaluate potential gear modification measures for non-pelagic trawl gear used to target flatfish. Research has suggested that these modifications may allow efficient harvest operations while reducing the impact of trawl sweeps on the seafloor. Further, the flatfish industry has identified an area east of St Matthews Island (now referred to as the 'wedge'), now closed as part of the Northern Bering Sea Research Area, as important to the fishery due to industry report of high concentrations of flatfish and low concentrations of other bycatch species. Therefore, the Council will consider exempting the flatfish fishery from the closure of that portion of the Northern Bering Sea Research Area, or removing that portion from the NBSRA. This action is needed to ensure fishers can efficiently harvest flatfish as flatfish stocks are likely to shift locations in the Bering Sea.

Motion passed 15/0.

The AP notes that there may be a discrepancy on the position of the Eastern border of the St. Matthew's Habitat Conservation Area and the Western border of the 'wedge.' The AP recommends that Council direct staff to review these boundaries with regard to the Council intent at the time of final action. *Motion passed 15/0.*

The AP recommends that the Council endorse the inclusion of a housekeeping change to the FMP as part of the proposed amendment. *Motion passed 15/0.*

The AP recommends that the Council direct industry to work with NMFS Enforcement personnel to address practicable enforcement of the regulations associated with this action. *Motion passed 15/0.*

(d) Pcod area split

The AP recommends that the staff develop this issue for initial review. The AP would like this amendment to be scheduled for final action along with the BS/AI cod split for the 2010 year. Further, AP recommends that the Council establish a BSAI cod split allocation committee and charge that committee with creating allocation neutral proposals for fishing under a BSAI cod split. *Motion passed 15/0/1.*

(e) Amendment 80 vessel replacement

The AP recommends that the Council direct staff to develop an analysis of recommended changes to FMP text and regulatory language to address lost vessels in the Amendment 80 program.
Motion passed 15/0.

AP Proposed BSAI OFL, ABC, and TAC Recommendations for 2009-'10

Species	Area	2008				2009			2010		
		OFL	ABC	TAC	Catch	OFL	ABC	TAC	OFL	ABC	TAC
Pollock	EBS	1,440,000	1,000,000	1,000,000	832,813	1,320,000	1,000,000	1,000,000	1,320,000	1,000,000	1,000,000
	AI	34,000	28,200	19,000	1,066	26,100	22,700	19,000	26,100	22,700	19,000
	Bogostof	58,400	7,970	10	0	58,400	7,970	10	58,400	7,970	10
Pacific cod	BSAI	207,000	176,000	170,720	119,305	207,000	176,000	170,720	207,000	176,000	170,720
Sablefish	BS	3,380	2,860	2,860	750	2,910	2,610	2,610	2,910	2,610	2,610
	AI	2,890	2,440	2,440	754	2,510	2,230	2,230	2,510	2,230	2,230
Atka mackerel	Total	71,400	60,700	60,700	24,237	50,600	47,500	47,500	50,600	47,500	47,500
	EAI/BS		19,500	19,500	9,220		15,300	15,300		15,300	15,300
	CAI		24,300	24,300	8,113		19,000	19,000		19,000	19,000
	WAI		16,900	16,900	6,904		13,200	13,200		13,200	13,200
Yellowfin sole	BSAI	265,000	248,000	225,000	105,658	296,000	276,000	225,000	296,000	276,000	225,000
Rock sole	BSAI	304,000	301,000	75,000	47,778	379,000	375,000	75,000	379,000	375,000	75,000
Greenland turbot	Total	15,600	2,540	2,540	2,623	16,000	2,540	2,540	16,000	2,540	2,540
	BS		1,750	1,750	2,024		1,750	1,750		1,750	1,750
	AI		790	790	599		790	790		790	790
Arrowtooth flounder	BSAI	297,000	244,000	75,000	16,430	300,000	246,000	75,000	300,000	246,000	75,000
Flathead sole	BSAI	86,000	71,700	50,000	19,253	83,700	69,700	50,000	83,700	69,700	50,000
Other flatfish	BSAI	28,800	21,600	21,600	3,332	28,800	21,600	21,600	28,800	21,600	21,600
Alaska plaice	BSAI	248,000	194,000	50,000	13,240	277,000	217,000	50,000	277,000	217,000	50,000
Pacific Ocean perch	BSAI	25,700	21,700	21,700	13,143	25,400	21,300	21,300	25,400	21,300	21,300
	BS		4,200	4,200	402		4,100	4,100		4,100	4,100
	EAI		4,900	4,900	3,809		4,810	4,810		4,810	4,810
	CAI		4,990	4,990	3,442		4,900	4,900		4,900	4,900
	WAI		7,610	7,610	5,490		7,490	7,490		7,490	7,490
Northern rockfish	BSAI	9,740	8,180	8,180	936	9,680	8,130	8,130	9,680	8,130	8,130
Shortraker	BSAI	564	424	424	105	564	424	424	564	424	424
Rougheye	BSAI	269	202	202	139	269	202	202	269	202	202
Other rockfish	BSAI	1,330	999	999	387	1,290	968	968	1,290	968	968
	BS		414	414	184		414	414		414	414
	AI		585	585	203		554	554		554	554
Squid	BSAI	2,620	1,970	1,970	1,240	2,620	1,970	1,970	2,620	1,970	1,970
Other species	BSAI	104,000	78,100	50,000	18,605	104,000	78,100	50,000	104,000	78,100	50,000
Total	BSAI	3,205,693	2,472,585	1,838,345	1,221,794	3,191,843	2,577,944	1,824,204	3,191,843	2,577,944	1,824,204

Sources: 2008 OFLs, ABCs, and TACs and 2009 OFLs and ABCs from the specifications adopted by the Council in 12-07; 2010 OFLs and ABCs equal to 2009; 2008 catches through August 30 from AKR Catch Accounting.

GOA SSC OFL and ABC recommendations, AP TAC recommendations for 2009-'10 (Page 1)

Species	Area	2008				2009			2010		
		OFL	ABC	TAC	Catch	OFL	ABC	TAC	OFL	ABC	TAC
Pollock	W(61)		17,602	17,602	9,265		23,700	23,700		23,700	23,700
	C(62)		19,181	19,181	15,687		25,821	25,821		25,821	25,821
	C(63)		13,640	13,640	5,721		18,367	18,367		18,367	18,367
	WYAK		1,517	1,517	1,161		2,042	2,042		2,042	2,042
	Subtotal	72,110	51,940	51,940	31,834	95,940	69,930	69,930	95,940	69,930	69,930
	EYAK/SEO	11,040	8,240	8,240	2	11,040	8,240	8,240	11,040	8,240	8,240
Total	83,150	60,180	60,180	31,836	106,980	78,170	78,170	106,980	78,170	78,170	
Pacific cod	W		25,932	19,449	12,680		25,932	25,932		25,932	25,932
	C		37,901	28,426	19,365		37,901	37,901		37,901	37,901
	EYAK/SEO		2,660	2,394	276		2,660	2,660		2,660	2,660
	Total	88,660	66,493	50,269	32,321	88,660	66,493	66,493	88,660	66,493	66,493
Deep water flatfish	W		690	690	9		707	707		707	707
	C		6,721	6,721	496		6,927	6,927		6,927	6,927
	WYAK		965	965	1		995	995		995	995
	EYAK/SEO		527	527	4		543	543		543	543
	Total	11,343	8,903	8,903	510	11,583	9,172	9,172	11,583	9,172	9,172
Rex sole	W		1,022	1,022	148		948	948		948	948
	C		6,731	6,731	2,296		6,241	6,241		6,241	6,241
	WYAK		520	520	0		483	483		483	483
	EYAK/SEO		859	859	0		796	796		796	796
	Total	11,933	9,132	9,132	2,444	11,065	8,468	8,468	11,065	8,468	8,468
Flathead sole	W		12,507	2,000	257		13,001	2,000		13,001	2,000
	C		28,174	5,000	2,383		29,289	5,000		29,289	5,000
	WYAK		3,420	3,420	0		3,556	3,556		3,556	3,556
	EYAK/SEO		634	634	0		659	659		659	659
	Total	55,787	44,735	11,054	2,640	57,962	46,505	11,215	57,962	46,505	11,215
Shallow water flatfish	W		26,360	4,500	740		26,360	4,500		26,360	4,500
	C		29,873	13,000	5,281		29,873	13,000		29,873	13,000
	WYAK		3,333	3,333	0		3,333	3,333		3,333	3,333
	EYAK/SEO		1,423	1,423	0		1,423	1,423		1,423	1,423
	Total	74,364	60,989	22,256	6,021	74,364	60,989	22,256	74,364	60,989	22,256
Arrowtooth flounder	W		30,817	8,000	2,796		31,080	8,000		31,080	8,000
	C		167,936	30,000	21,418		169,371	30,000		169,371	30,000
	WYAK		15,245	2,500	31		15,375	2,500		15,375	2,500
	EYAK/SEO		12,472	2,500	48		12,579	2,500		12,579	2,500
	Total	266,914	226,470	43,000	24,293	269,237	228,405	43,000	269,237	228,405	43,000
Sablefish	W		1,890	1,890	1,529		1,727	1,727		1,727	1,727
	C		5,500	5,500	4,766		5,026	5,026		5,026	5,026
	WYAK		2,120	2,120	1,889		1,937	1,937		1,937	1,937
	SEO		3,220	3,220	2,578		2,943	2,943		2,943	2,943
	WYAK+SEO		5,340	5,340	4,467		4,880	4,880		4,880	4,880
	Total	15,040	12,730	12,730	10,762	12,924	11,633	11,633	12,924	11,633	11,633

Sources: 2008 and 2009 OFLs, ABCs, and TACs from the specifications adopted by the Council in 12-07; 2010 OFLs and ABCs equal to 2009; 2008 catches through 8-30-08 from AKR Catch Accounting. Note: the 2008 sablefish for WYAK and SEO incorporate 2008 corrections to the originally published specifications. 2009 sablefish WYAK and SEO estimates are based on numbers supplied by Tom Pearson of NMFS Sustainable Fisheries in July 2008.

Proposed September GOA OFL and ABC AP Recommendations for 2009-'10 (Page 2)

Species	Area	2008				2009			2010		
		OFL	ABC	TAC	Catch	OFL	ABC	TAC	OFL	ABC	TAC
Pacific ocean perch	W	4,376	3,686	3,686	3,567	4,397	3,704	3,704	4,397	3,704	3,704
	C	9,717	8,185	8,185	7,124	9,764	8,225	8,225	9,764	8,225	8,225
	WYAK		1,100	1,100	1,100		1,105	1,105		1,105	1,105
	EYAK/SEO		2,028	2,028	0		2,038	2,038		2,038	2,038
	E (subtotal)	3,714	3,128	3,128	1,100	3,732	3,143	3,143	3,732	3,143	3,143
Total		17,807	14,999	14,999	11,791	17,893	15,072	15,072	17,893	15,072	15,072
Shortraker	W		120	120	132		120	120		120	120
	C		315	315	219		315	315		315	315
	E		463	463	191		463	463		463	463
	Total	1,197	898	898	542	1,197	898	898	1,197	898	898
Rougheye	W		125	125	76		124	124		124	124
	C		834	834	175		830	830		830	830
	E		327	327	109		325	325		325	325
	Total	1,548	1,286	1,286	360	1,540	1,279	1,279	1,540	1,279	1,279
Other slope rockfish	W		357	357	266		357	357		357	357
	C		569	569	417		569	569		569	569
	WYAK		604	604	49		604	604		604	604
	EYAK/SEO		2,767	200	18		2,767	200		2,767	200
	Total	5,624	4,297	1,730	750	5,624	4,297	1,730	5,624	4,297	1,730
Northern rockfish	W		2,141	2,141	1,591		2,047	2,047		2,047	2,047
	C		2,408	2,408	2,015		2,302	2,302		2,302	2,302
	E		0	0	0		0	0		0	0
	Total	5,430	4,549	4,549	3,606	5,120	4,349	4,349	5,120	4,349	4,349
Pelagic shelf rockfish (Alternative 1: including dark rockfish)	W		1,003	1,003	475		986	986		986	986
	C		3,626	3,626	2,791		3,566	3,566		3,566	3,566
	WYAK		251	251	195		247	247		247	247
	EYAK/SEO		347	347	1		341	341		341	341
	Total	6,400	5,227	5,227	3,462	6,294	5,140	5,140	6,294	5,140	5,140
Pelagic shelf rockfish (Alternative 2: excluding dark rockfish)	W						804	804		804	804
	C						3,339	3,339		3,339	3,339
	WYAK						230	230		230	230
	EYAK/SEO						318	318		318	318
Total					5,695	4,690	4,690	5,695	4,690	4,690	
Thornyhead rockfish	W		267	267	271		267	267		267	267
	C		860	860	289		860	860		860	860
	E		783	783	140		783	783		783	783
	Total	2,540	1,910	1,910	700	2,540	1,910	1,910	2,540	1,910	1,910
Big skate	W		632	632	127		632	632		632	632
	C		2,065	2,065	883		2,065	2,065		2,065	2,065
	E		633	633	50		633	633		633	633
	Total	4,439	3,330	3,330	1,060	4,439	3,330	3,330	4,439	3,330	3,330
Longnose skate	W		78	78	17		78	78		78	78
	C		2,041	2,041	591		2,041	2,041		2,041	2,041
	E		768	768	89		768	768		768	768
	Total	3,849	2,887	2,887	697	3,849	2,887	2,887	3,849	2,887	2,887
Other skates	Total	2,806	2,104	2,104	977	2,806	2,104	2,104	2,806	2,104	2,104
Demersal shelf rockfish	SEO	611	382	382	132	611	382	382	611	382	382
Atka mackerel	Total	6,200	4,700	1,500	1,685	6,200	4,700	1,500	6,200	4,700	1,500
Other species	Total	n.a.	n.a.	4,500	1,670	10,558	7,943	4,500	10,558	7,943	4,500
Total	GOA	665,642	536,201	262,826	138,259	701,446	564,126	295,488	701,446	564,126	295,488

Sources: 2008 and 2009 OFLs, ABCs, and TACs from the specifications adopted by the Council in 12-07; 2010 OFLs and ABCs equal to 2009; 2008 catches through 8-30-08 from AKR Catch Accounting. Other species 2009-10 OFL and ABC from Amendment 79 calculations summing across estimated individual species group OFLs and ABCs. Notes: totals include total for PSR with dark rockfish, but not the total for PSR without dark rockfish. Alternative PSR without dark rockfish estimates calculated by Chris Lunsford of the Auke Bay Lab in July 2008.

North Pacific Fishery Management Council

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Certified: Dan Bendz
Date: 12/1/08

SCIENTIFIC AND STATISTICAL COMMITTEE to the NORTH PACIFIC FISHERY MANAGEMENT COUNCIL September 29-October 1, 2008

The SSC met during September 29-October 1, 2008 at the Sheraton Hotel, Anchorage, Alaska. Members present were:

Pat Livingston, Chair

NOAA Fisheries—AFSC

Bill Clark

International Pacific Halibut Commission

Anne Hollowed

NOAA Fisheries—AFSC

Kathy Kuletz

US Fish and Wildlife Service

Lew Queirola

NMFS—Alaska Region

Keith Criddle, Vice Chair

University of Alaska Fairbanks

Robert Clark

Alaska Department of Fish and Game

George Hunt

University of Washington

Seth Macinko

University of Rhode Island

Farron Wallace

Washington Dept of Fish and Wildlife

Troy Buell

Oregon Department of Fish and Wildlife

Sue Hills

University of Alaska Fairbanks

Gordon Kruse

University of Alaska Fairbanks

Franz Mueter

University of Alaska Fairbanks

Doug Woodby

Alaska Department of Fish and Game

Members absent were:

Terry Quinn II

University of Alaska Fairbanks

B-1(g, h, i) Plan Team Nominations

The SSC reviewed the nominations of: Dr. Nancy Friday (NMFS-AFSC), Dr. Paul Spencer (NMFS-AFSC), and Dr. Michael Dalton (NMFS-AFSC) to the GOA groundfish plan team; Dr. Dana Hanselman (NMFS-AFSC) and Dr. Alan Haynie (NMFS-AFSC) to the BSAI groundfish plan team; Dr. Brian Garber-Yonts (NMFS-AFSC) to the BS crab plan team; and, Dr. Henry Cheng (WDFW) to the GOA and BSAI groundfish plan teams. **The SSC recommends approval of these nominations by the Council.**

C-2 (a) Crab plan team report, Crab SAFE, OFLs

The SSC received a report from Diana Stram (NPFMC) highlighting activities and outcomes of the September Crab Plan Team (CPT) meeting, which included a review of the status of BSAI crab stocks and OFLs. The SSC also received an updated version of the BSAI Crab SAFE report, which included some revisions to the draft document provided to us in June 2008.

The SSC agrees with the plan team's recommendations for OFLs, and provides a few specific comments in regards to individual stocks below.

The SSC commends the CPT for the detailed review of the revised stock assessments conducted at its September meeting. In particular, the SSC supports the CPT's intention to compile the checklist of items to be included in stock assessment documents as a template for authors. The SSC especially appreciates the CPT's identification of the need to include tables of annual survey estimates of abundance, including a standardized measure of precision.

The SSC supports the CPT's recommendation to conduct a stock assessment workshop this winter to resolve issues related to the weighting of data sources, such as appropriate weights for different likelihood components and the most appropriate ways to estimate effective sample sizes for length and size composition data. The SSC recommends that the workshop include both crab and groundfish stock assessment scientists as these issues pertain to all model-based assessments.

Following the adoption of Amendment 24 and the current implementation of the new OFL specification process, **there are three BSAI crab stocks with rebuilding plans that need to be revised. Of these, the Pribilof Island blue king crab rebuilding plan most urgently needs revision** to prepare for the ACL implementation deadline of 2010 for overfished stocks. The two other plans, for St. Matthew blue king crab and EBS snow crab, also need revision.

Comments specific to individual stock assessments are as follows (no comments were made for Pribilof Islands blue and golden king crab):

EBS Snow Crab

In June, 2008, the SSC requested further work on refining estimates of selectivity and natural mortality, with the expectation of seeing the results in June, 2009. To clarify, we request that attention be given to the treatment of survey selectivity, noting that the model estimates of selectivity, which are close to 1 (Figure 24), are in conflict with the results of the underbag experiment shown in that Figure.

Bristol Bay Red King Crab

The SSC suggests that the authors address ecosystem considerations beyond predation by groundfish on crab (which was well covered). This section should also address apex predators, such as seabirds that rely on juvenile crab during winter, which might be affected by changes in the crab population. Although data on crab predation from apex predators may not be specific to this stock, there are data available for the region.

EBS Tanner Crab

During the June, 2008 meeting, the SSC was presented with an analysis for calculating gamma based on selectivities set equal to values given in the overfishing EA. The most recent three years of data suggest that selectivities in both the directed fishery and pot fisheries differ significantly from those used in the EA and therefore the June 2008 analysis may provide misleading results and should not be used. The SSC therefore concurs with the CPT and author to set $\gamma=1$ for OFL and that B_{ref} be estimated as the average male mature biomass (MMB) at the time of mating for the period 1969-1980.

Pribilof Islands Red King Crab

The SSC appreciates the SAFE authors' response to our request to see an estimate of a proxy BMSY based on the 1980-2007 time period for comparison to the value estimated using the 1991-2007 period. The SSC does not disagree with the CPT and SAFE authors' choice of the 1991-2007 base period.

St. Matthew Island Blue King Crab

Jie Zheng (ADF&G) reported on an update of the assessment reviewed by the SSC in June, which included two new scenarios. The Crab Plan team selected the scenario with q and M fixed but with M estimated for the one anomalous year, 1999.

For the upcoming assessment cycle, and in concurrence with the CPT, the SSC would like the author to explore alternative models in which M is held constant and the anomaly in 1999 is handled differently. The 1999 data point may be the result of the combination of low temperatures and an early survey in that year. Some other stocks appear to show the same 1999 anomaly.

Norton Sound Red King Crab

Jie Zheng (ADF&G) presented an overview of the Norton Sound red king crab model.

The SSC provides the following recommendations for exploration of the model in the upcoming assessment cycle.

1. The analyst should examine the implications of dropping the preseason survey from the model.
2. The analysts should examine the tradeoffs between the assumption of higher M for the last length class and lower selectivity for the last length class after 1992. In addition, the model should provide a rationale for changing selectivities in 1993.
3. The analyst should conduct a sensitivity analysis on the weights applied to the different data sources. A rationale for the values used to account for the aggregation effect should be provided. It is not clear why the weights used were appropriate corrections for aggregation effects.
4. It would be useful if reference points F_{MSY} proxy and B_{MSY} proxy were included on a phase plot of fishing mortality and mature male biomass.
5. The SSC encourages continued exploration of likelihood profiles on the natural mortality rate including runs with fixed natural mortality for all length classes.
6. The SSC requests a justification of the assumption of zero handling mortality for this stock.

AI Golden King Crab

M.S.M Siddeek (ADF&G) presented an overview of the AI golden king crab assessment model that he has recently developed. Dick Tremaine (Norton Sound Economic Development Corporation) and Linda Kozak (Catcher Processor - Patricia Lee) provided public testimony.

The SSC encourages further development of the model in the upcoming assessment cycle. The SSC reviewed the CPT recommendations for improvements to the model and made the following additions to their advice:

1. Standardization of the CPUE data prior to their incorporation into the model is desirable. The SSC recommends that effort be standardized for soak time, area, vessel, and season. The SSC also suggests that a "core" fleet approach be investigated as an aid to understanding changes in fishery performance.
2. The SSC agrees that temporal partitions in fishery selectivity should be incorporated into the model to account for changes in the mesh size used in crab pots since 1999, provided that there is evidence that changes in mesh size were adopted by all or nearly all of the fleet.
3. The SSC notes that the inclusion of the tagging data did not make marked improvements to the model.

4. The SSC recommends that the weights applied to different components of the model (e.g. retained CPUE, discard CPUE, pot survey CPUE, catch biomass, recruitment deviations and natural mortality penalties) be explored in a systematic manner. The selection of "arbitrary" weights is not recommended.

In addition to the comments above, the SSC notes that if this model is approved, continuation of the ADF&G pot survey will be an important element of future assessments.

The SSC encourages research on the size selectivity of pots with different mesh types. The SSC also encourages ADF&G to adopt a protocol for collection of information regarding the condition of pots that might influence CPUE, especially whether the pot is incapable of retaining crab, for example, due to premature failure of biodegradable twine.

Adak Red King Crab

The SSC notes that the procedure for setting the OFL in the upcoming assessment cycle should be reviewed to address the undesirable attributes of the current method, including erratic swings in MSY resulting from the inclusion of zero catches if the fishery remains closed, and the lack of rationale for excluding the 1984/85 catch. The catch history illustrates that directed fishing can occur on this stock and that recent high levels of catch cannot be sustained. There is an urgent need for systematic survey data for this stock, to move the stock from Tier 5 to Tier 4. The SSC recommends that analysts design a survey that would provide reliable biomass estimates. In addition, the analysts should provide an estimate of the cost and amount of crab required to implement either an industry cooperative test fishery or an agency directed survey.

C-2 (c) BSAI crab 3-yr review

Mark Fina (NPFMC) and Mike Downs (EDAW) presented a summary of the 3-year review report on the BSAI crab rationalization management plan. Ron Felthoven (NMFS-AFSC) provided an overview of a time series analysis of king crab prices, as well as an analysis of post-rationalization restructuring of crew opportunities. Public testimony was provided by Frank Kelty (City of Unalaska), Arni Thomson (Alaska Crab Coalition), and Dick Tremaine (Norton Sound Economic Development Corporation).

3-Year Review

The report provides a useful description of changes in catch, annual average exvessel prices, number of participating vessels and crew, overages, patterns of participation and deliveries, pot usage, pot soak times, etc. Understandably, but regrettably, the report does not present quantitative estimates of changes in net benefits to the Nation, changes in net revenues to catchers and processors, changes in the distribution of net revenues between catchers and processors, or changes in the regional economic impact of crab-fishery-related activities. Derivation of quantitative estimates of these effects cannot be completed until the BSAI crab EDR metadata have been appropriately assembled, documented, verified, and organized; this has not yet occurred. The SSC encourages every reasonable effort be made by analysts and industry to finalize the BSAI crab EDR metadata descriptions and to use the EDR data to develop sound quantitative estimates of the magnitude and distribution of costs and benefits of BSAI crab rationalization. **Without quantitative estimates of these changes, it is not possible to determine if implementation of crab rationalization has resulted in improvements or losses of net benefits to the Nation or if it has resulted in changes in the distribution of net benefits that have resulted in unintended harm to particular regions, communities, or segments of the fishery.** Certainly by the time the Council's 5-year program review is prepared, the SSC anticipates that rigorous quantitative estimates of these outcomes will be available. At that time, analyses that compare the impacts predicted in the Crab Rationalization EIS to actual impacts would be very useful.

Anecdotal evidence suggests that changes in fuel prices may have had important effects on fishing behavior. The report could benefit from inclusion of a table or figure that presents a monthly time series of representative fuel prices.

Time Series Analysis of King Crab Prices

The time series analysis of king crab prices is an interesting and useful approach to tease out changes in prices for U.S. king crab product as a function of changes in the volume of king crab imports from Russia and the implementation of the BSAI crab rationalization program. The shortness of the time series of observations reduces the power of the statistical analyses. The statistical results indicate that the hypotheses that U.S. king crab prices were unaffected by imports of Russian king crab or implementation of the BSAI crab rationalization program cannot be rejected at standard significance levels. However, it is important to remember that failure to reject the null hypothesis does not constitute proof of the alternate hypothesis. Thus the results should not be construed as positive evidence that U.S. wholesale prices have been unaffected by crab imports from Russia and unaffected by implementation of the BSAI crab rationalization program. The SSC encourages continued development of this model. Extending the data set, through use of panel data or through use of monthly or weekly observations, are promising avenues for investigation. Additional avenues for investigation could include expanding the VAR to include additional time series, such as prices for snow crab and Tanner crab, use of constrained indirect least squares (Wegge, L. 1978, *Econometrica*) or a similar pre-test estimator to conserve degrees of freedom through reducing the number of off-diagonal terms in the coefficient matrices, and use of mixed structural time series methods that combine simple approximate structural models and vector time series analysis of the structural residuals. In addition, consideration should be given to validating model performance through ex-sample testing.

Social Impact Assessment and Crab Crew Survey

The SSC offers the following comments on the SIA and the NMFS study of crab crew:

- The SIA is structured similar to a pre-implementation social assessment in terms of communities studied, methods, and substantive areas of inquiry. In theory, this similar structure should permit critical analyses of pre- and post-implementation changes in the structure of community ties to the crab fisheries. However, data confidentiality restrictions limit the questions that can actually be addressed and reported to the public using conventional data sources. The SSC commends the SIA analysts for supplementing these data sources with the results of field interviews that do permit examination of pre- and post-implementation changes (the interview data are incorporated into the narrative sections of the SIA). The SSC notes one caution in interpreting some of the information in the SIA. In some cases, data are presented that suggest direct ties to specific communities but this locational specificity may be misinterpreted. It is the understanding of the SSC that labels such as “Kodiak vessels” reflect only the reported residency of the vessel owner, not the homeport of the vessel or, perhaps more importantly, nothing about where the crab from that vessel is landed or earnings spent, etc.
- The NMFS crew study and the SIA are complementary in many instances and the replicability observed provides a measure of confidence in some of the reported findings. For example, both efforts found that one reason crew may not prefer jobs under the rationalization program compared to the derby conditions has to do with what is known as occupational pluralism. The extended season length under rationalization (which, in general, is regarded as a positive benefit of the program) is, for some crew, an unappealing aspect of the rationalized fishery because it can represent both lower remuneration per time invested and an impediment to a pattern of multiple employment options that is not possible if committed to an extended crab season.
- The SSC notes that consideration of the influence of rising fuel prices on structural changes within the crab fleet could be qualified (i.e., put into context) in terms of annual changes in the

fishery based upon key variables (vessels in the fishery, crew positions) relative to annual changes in the price of fuel.

- The SSC recommends that estimates of crab crew position losses be retained in the report on the NMFS study. These data can be updated as further work of this kind is done and as the EDR data becomes available in the future.

C-2(d) Crab committee report/Crew proposals

Mark Fina (NPFMC) provided an update on the initial development of this analysis. There is nothing to review at this time. Public testimony was provided by Tim Henkel (Deep Sea Fishermen's Union of the Pacific).

C-2(e) BSAI Crab 90/10 alternatives and analysis outline

Mark Fina (NPFMC) provided an update on the initial development of this analysis. There is nothing to review at this time. Public testimony was provided by Tim Henkel (Deep Sea Fishermen's Union of the Pacific).

C-2(f) Report on Crab EDR Metadata

Mark Fina (NPFMC) provided an update progress of this effort. The crab EDR metadata remains a work in progress. These metadata descriptions have been much anticipated and completion of this task should be a priority. The metadata descriptions are important information that will aid analysts who are planning analyses using EDR data to assess the performance and consequences of the BSAI crab rationalization. The SSC anticipates reviewing a completed report on the successful development of the EDR metadata during the December, 2008 meeting.

C-3(a) GOA sideboards BSAI crab vessels

Jon McCracken (NPFMC) provided an overview of the public review analysis. Public testimony was not offered in relation to this agenda item. The SSC was unable (due to time constraints) to review the initial draft analysis during the June 2008 meeting. The current analysis is much improved and has incorporated comments provided informally to the analyst. It provides an appropriate discussion of the alternatives and their impacts that are sufficient for Council decision-making. The SSC offers a suggested revision to the generic boilerplate language regarding market failures in an appendix to this report (labeled "Miscellaneous").

C-3(b) GOA sideboards GOA rockfish

Diana Evans (NPFMC) presented the RIR/IRFA for the proposed amendment to the "stand down" provisions for catcher-processors in the Rockfish Pilot Program (RPP) established in December 20, 2008, under GOA FMP Amendment 68. Public testimony was received from Todd Loomis (Cascade Fishing).

Initial review of this item was on the SSC agenda in June 2008, but owing to the press of other business, the SSC was unable to formally take the report. Individual comments were informally supplied to the author. The Final Action draft now presented to the SSC reflects a well-designed and informative presentation of the issues, objectives, and available alternatives. The document now provides sufficient information for Council decision-making.

The SSC notes that the document calls for clarification of Council intent (regarding integration with the CDQ program) but that this issue is now up for final action. The document should be edited to reflect that

the problem statement has now been adopted by the Council. The SSC repeats earlier comments stressing that the Council should be articulating their problem statements, rather than having staff attempt to intuit Council goals and objectives. The SSC offers a suggested revision to the generic boilerplate language regarding market failures in an appendix to this report (labeled "Miscellaneous").

C-3(c) Initial review sideboards Am 80 PSC

Jon McCracken (NPFMC) presented the on an initial draft analysis RIR/IRFA proposed to adjust the 3rd season deep-water halibut prohibited species catch (PSC) sideboard allowance for Amendment 80 vessels. Public testimony was offered by Julie Bonney (Alaska Groundfish Data Bank) and Todd Loomis (Cascade Fisheries).

This action pertains to a proposed change in the halibut PSC bycatch mortality accounting, associated with Amendment 80 catcher processors (CPs) participating in the Rockfish Pilot Program (RPP) "limited access" fishery in the Gulf of Alaska (GOA). The Council has not yet adopted a Problem Statement, nor identified a suite of alternatives for this action, both of which are necessary steps before the SSC can offer an informed judgment as to whether the document sufficiently explains and provides alternatives that address the problem statement.

Specific deficiencies were noted. The status quo is not well-defined. More explanation of Amendment 80 history and intent with respect to the reasons behind the original Amendment 80 PSC allocations needs to be added. Staff has proposed a "possible" problem statement, as well as "straw man" alternatives. Among the "draft" alternatives under consideration are actions which the SSC notes, would fundamentally alter the basic Amendment 80 Sideboard Limit structure, adopted by the Council and implemented only recently. Given the exceedingly brief period during which this program has been in place, it may be appropriate to ask whether the true effects of the sideboards are likely to have yet fully emerged. If they have not, the SSC wonders how the Council will judge whether modifying the status quo enhances or diminishes its original purpose in setting Amendment 80 PSC sideboard limits?

It is not clear from the document as to the purpose of this specific PSC sideboard limit. The Amendment 80 sideboards may primarily serve to limit strictly any spill-over impacts resulting from fixed allocation of target quota amounts to the qualifying CP fleet, as defined under Amendment 80. In the specific case at hand, it is the halibut PSC mortality sideboard limit that is at issue. There appears to be a clear distinction between a sideboard "allocation" and a sideboard "PSC allowance". The former imparts a harvest "use privilege", while the latter must be regarded as a "prohibition" against harvest (to the maximum extent practicable), with an absolute cap. No "use privilege" is implied by a PSC Sideboard Limit. Instead, every practicable effort is required to be made to avoid use of this PSC, and if avoidance is not possible, to minimize its occurrence. These distinctions are especially relevant to this proposed action, particularly with respect to meeting the intent of National Standard 9.

According to the preliminary analysis, when the Council established the GOA Rockfish Pilot Program (RPP), it consciously apportioned the Amendment 80 CP sideboard limit for halibut PSC between CPs that entered into a fishing cooperative structure in the RPP, and those that did not. Halibut PSC mortality incurred by CP co-op members was expressly not to be counted against the Amendment 80 halibut PSC sideboard limit. According to the analysis, the reason for this decision was to provide a strong "incentive" to encourage cooperative formation. Based upon experience with other fishing cooperatives, the expectation of the Council was that this incentive would lead to sufficient improvements in operational efficiency and bycatch management by co-ops in the Am-80/RPP fishery, to adequately compensate for the reduced accounting of RPP CP co-op removals from the Amendment 80 halibut PSC Sideboard Limit. No equivalent expectation concerning PSC sideboard management, and therefore no accounting accommodation, was attached to the AM-80/RPP CP limited access fishery.

Thus, the intent for this disparate bycatch accounting appears to have been to offer a choice to individuals in the CP sector to join a co-op and benefit from the incentive provision, or not to join and operate under the Amendment 80 halibut PSC Sideboard Limit provisions in the "limited access fishery." If this is not the correct interpretation, there would, in effect, be "no incentive" to the Council's incentive program. This clearly is illogical.

Because of these inconsistencies and deficiencies in the document, **the SSC believes this draft document is not yet ready for release to the public for review.**

C-5 Arctic FMP

Bill Wilson (NPFMC) and Grant Thompson (NMFS-AFSC) presented a draft Fishery Management Plan for Fish Resources in the Arctic and the accompanying EA. Melanie Brown (NMFS-AKR) presented the RIR/IRFA. Public testimony was provided by Chris Krenz (Oceana).

The SSC compliments the preparers of these documents for their excellent work. The EA/RIR/IRFA is well developed. The SSC comments on the previous draft reviewed in February 2008 have been addressed.

The SSC offers the following comments to be addressed before the documents are sent out for public review. Because our list of suggested changes is extensive, the SSC wishes to review the Arctic FMP and EA/RIR/IRFA one more time before it is released, preferably after response by NOAA General Counsel to legal questions about Option 2. Moreover, in scheduling a desired completion date for the revised draft FMP, it would be helpful if the timeline for revision did not coincide with the conclusion of the stock assessments. If completion of the Arctic FMP is not urgent, perhaps completion could be deferred until after the December Council meeting.

Much of the SSC discussion focused on the two options. Option 2 has much appeal, but it represents a new approach. At the time of our review, there was uncertainty about whether it is a legally valid approach. As noted by Option 2, there is too much uncertainty in the estimation of MSY to use these estimates for fishery management. Possibly, a simpler approach is to specify an MSY near 0 because no fisheries are established. Therefore, the SSC recommends adding a suboption to Option 2 that initially sets MSY near zero, leaving some room for subsistence harvest, bycatch in state fisheries and an allowance for exploratory surveys. At a minimum, the MSY estimates generated by comparison to the Barents Sea should be removed, as the SSC feels that differences between the Barents Sea and Arctic Ocean renders these estimates invalid. Baffin Bay in eastern Canada may be a more suitable comparison.

In Option 1, the procedures for estimating MSY are quite elegant and the preparers are to be commended for their ingenuity. However, many uncertainties lead to low confidence in these estimates, as well, including: (1) the number of assumptions to be made that are not informed by data, (2) the 1990 survey did not fully cover the region, so CPUEs were extrapolated to unsurveyed areas, (3) the Arctic has undoubtedly changed since the 1990 survey, so that the biomass estimate from 1990 likely does not reflect the current unfished biomass and B_0 is unlikely to be constant, and (4) biological parameters have not been estimated for Arctic cod, saffron cod, nor snow crab in this region. For instance, snow crabs do not grow as large as they do in the eastern Bering Sea and may not even attain maturity. Use of Bering Sea parameter estimates for snow crabs in the Chukchi and Beaufort Sea is likely to lead to overestimates of growth and productivity in the analysis.

For these reasons, the SSC recommends adding some text that qualifies the parameter estimates, including MSY. The text should also outline the expected steps by which uncertainty would be reduced in the future as new information becomes available. These include analyses of more recent (2008) survey data, which presumably will provide much better estimates of B_0 , research on the included species to estimate area-

specific biological parameters, and ultimate accumulation of survey time series and non-commercial fishery information, allowing the migration to age-structured analyses of the type applied in the GOA and BSAI.

The SSC recommends that the steps for designating a new target fishery listed in Option 2 should also be included in Option 1. Some of the more likely fisheries in the Arctic may be those on southern stocks (e.g., pollock), should range extensions occur. So, the document should indicate how fisheries may be developed on species at the northern tails of their geographic distribution. Likewise, the groundfish tier system of Option 2 should also be included in Option 1. The SSC notes that modified tiers have been developed for crab and these should be included in both Options 1 and 2. The crab tier system in both cases would need to be modified to include ABC determinations.

The SSC offers the following additional editorial comments on the draft Arctic FMP:

1. P. ES-3. Delete the last phrase in the box for permit pertaining to State of Alaska.
2. On p. 6 (item B), the list of those groups who may potentially provide a petition differs from the list provided on p. 23. The two should be reconciled.
3. On p. 7, several instances of "Alternative" should be changed to "Option" under Option 1. Note typos in first paragraph under Option 2.
4. Table 3-1, p. 12. The second sentence in the header for Table 3-1 should be deleted, as no ratio is provided. Also, the header should clarify whether the comparison between 1990 and 1991 pertains only to the 8 stations in common or the full set of stations.
5. Section 3.4.2.1.2 (p. 16). It might be noted that the estimate of B_{msy}/B_o (fraction of unfished biomass corresponding to maximum production) is equal to the fraction of unfished biomass at which fishery thresholds are typically set to close crab fisheries because of concerns about stock status.
6. P. 19-20. Revisit the section on non-consumptive use and consider expanding the discussion. Non-consumptive use may be valued more highly than indicated, particularly if the non-consumptive use of resources as a whole, rather than individually, are considered. Significant impacts will be difficult to define, given the lack of information on these populations.
7. P. 29, item a under 3.8.1. Define what "significant" means in the case of birds and mammals.
8. P. 31, under 3.15.1, no. 2. Include birds and mammals here. Also, consider adding references to ecosystem-based management.
9. P. 34, second paragraph, third sentence. Replace "although" with "because" and replace "can limit" with "limits".
10. P. 115. The section on likelihood of a large oil spill can be improved, perhaps borrowing from estimates and literature on other regions. The FMP cites an MMS report concluding that the threat of a spill is "very low". If the MMS report provides an estimate of the probability, that estimate should be included in the FMP. Although it is not the responsibility of the FMP to analyze threats from oil spills, both catastrophic and chronic spills can have cumulative effects. A discussion of how oiling could impact fisheries and their "ecosystem components" is warranted here.

The SSC offers the following comments on the EA/RIR/IRFA:

1. Comments offered above for the draft FMP should also be considered in the appropriate sections of the EA/RIR/IRFA.
2. Please clarify how management may differ if red king crabs were managed under the Arctic FMP versus the Crab FMP (i.e., Alternative 3 vs. 4). Also, clarify what is meant by “same size and scope” when referring to the purported historic red king crab fishery in the Chukchi Sea, and how these criteria will be quantitatively estimated.
3. For accuracy, replace “Alaska EEZ” with wording such as “EEZ off Alaska”.
4. New information is now available on bearded seals, and the SSC will provide this information to the authors.
5. Mammal diets are provided in Table 7-4. Please point to this table earlier in chapter 7.
6. Consideration of non-consumptive value should be included in the RIR. In particular, it may be non-trivial, when considered in a cumulative manner.

C-6 Research Priorities

The SSC compiled a list of research priorities at the June, 2008 Council meeting for those research topics needing attention within one year and this list was provided to the North Pacific Research Board for its consideration in developing its annual request for proposals. The priority list (attached as an appendix to these minutes) includes an update of that list, but incorporated into a new format. The new format is intended to be a list of 5-year research priorities mandated by the MSA that will be updated annually. This list is intended to meet the needs of both the NPRB and the Council. The major changes incorporated in this new format are the differentiation of critical and strategic issues, and the removal of the extensive listing of additional research priorities identified by the groundfish, crab, and scallop plan teams. Removal of the additional priorities identified by the plan teams does not diminish the importance of the many specific issues the teams have listed; rather, the list below is the SSC’s determination of the most important critical and strategic issues, many of which came from plan team recommendations.

Public testimony was provided by Michelle Longo-Eder (U.S. Arctic Research Commission and North Pacific Research Board member).

C-7(a) Groundfish plan team reports and new model reviews:

Diana Stram (NPFMC) and Grant Thompson (NMFS-AFSC) presented the BSAI and GOA groundfish plan team reports. New models presented at the plan team meetings were also presented to the SSC for review and comment. The SSC provides the following advice to stock assessment authors and the plan teams on these models:

BSAI and GOA Pacific cod

Grant Thompson (NMFS-AFSC) presented alternative assessments that had been shown and discussed at the groundfish plan team meetings. Public testimony was given by Craig Cross (Freezer Longliner Coalition) and John Warrenchuk (Oceana).

During the last two years there has been a lot of scrutiny of various aspects of the Pacific cod assessments, particularly the form of selectivity schedules, the appropriate value of natural mortality, the possibility of bias in the age readings, and the value of trawl survey catchability. For purposes of

specifying ABC and OFL, the SSC has requested model fits that use an externally estimated rate of natural mortality based on life history theory (set by the author at 0.34) and that include the age composition data in the fit. The SSC has not taken a position regarding selectivity schedules or trawl survey catchability, both of which can have a large effect on the estimates of abundance.

Five model configurations were reported for the BS/AI. Model 1 was the reference model used in the 2007 assessment. This model was endorsed by the SSC in December except for the method used to calculate average recruitment. (The calculation took in the 1974-2006 year-classes rather than the standard 1977-2006.) Models 2 and 3 were variants of Model 1 intended to respond to team comments. Model 4 was a purely length-based model requested in public comment. Model 5 was an exploratory model that, among other things, incorporated time-varying commercial selectivity. Only one version of this model was reported although the author considered a large number of alternative configurations.

At the team meetings the author posed, and the teams answered, a number of questions bearing on model choice. The SSC concurs with almost all of the teams' recommendations. In particular, we agree that estimating parameter L2 (length at age 20) externally is not worthwhile (Model 2), and that setting a lower bound of 5 on parameter P4 of trawl survey selectivity (which determines the width of the descending limb) is not advisable (Models 3 and 5). Except for this last feature, we also agree that Model 5 is an improvement on Model 1, because commercial fishery selectivity really does appear to vary over time. As a reference model for this year's BS/AI specifications, the SSC would therefore like to see a fit of Model 5 in which the constraint on parameter P4 is removed or relaxed. Because of continuing questions about the age data (including poor model fits to the age data), we would also like to see a fit of this modified Model 5 that does not include the age data. We do not need to see updated fits of Models 1, 2, or 3.

Three models were reported for the GOA. Models 1 and 2 were recycled versions of much earlier assessments that were not received enthusiastically at the time and were not used for specifications, but were carried forward because work on the BS/AI assessment had precluded any attention to the GOA. Model 3 was a new exploratory model similar to BS/AI Model 5. Only one version was reported, although the author had examined a large number of configurations. Recently retrieved commercial length composition data for years before 1990 were also added to the data file for Model 3.

As a reference model for the GOA specifications, the SSC would like to see a fit of a model analogous to the BS/AI reference model, namely GOA Model 3 with the constraint on parameter P4 removed or relaxed. The SSC would also like to see a fit of the reference model without the added length composition data, if time permits. The SSC is concerned about the inability of the present Model 3 to estimate a credible value for trawl survey catchability but do not expect that the author will have time to find a solution in the near term if that behavior persists.

BSAI rougheye rockfish

Grant Thompson (NMFS-AFSC) presented results from a new age-structured model for BSAI rougheye rockfish that was last assessed in 2006 within a shortraker/rougheye rockfish complex. The current rougheye rockfish assessment is now composed of two species including rougheye rockfish and a newly classified species, blackspotted rockfish. A variety of information on growth, mortality, age and size composition, area specific size-at-age and length are incorporated into this assessment. This assessment provides better information on population dynamics and setting of ABC and OFL's.

Blackspotted and rougheye rockfish were first differentiated in the 2006 AI trawl survey, and in 2008 in the EBS slope survey. The survey biomass estimates show that blackspotted rockfish comprised more than 90% of the blackspotted/rougheye rockfish biomass in the AI, while the proportion of blackspotted rockfish biomass in the EBS is approximately 60%. The SSC agrees with Plan Team recommendations for development of an additional model inclusive of data for the AI to better capture the population

dynamics for a complex that is largely composed of blackspotted rockfish. The SSC notes that data are insufficient to develop the same for the EBS and that ABC calculations for the EBS would need to be based upon Tier 5 calculations. The SSC would like to see both the combined BSAI model and the AI model with the Tier 5 BS options move forward to the plan teams in November.

BSAI skates

Grant Thompson (NMFS-AFSC) presented an update of the age-structured model for Alaska skate in the BSAI management area. The SSC reviewed the first iteration of this model in October 2007 and determined at the time that the model was not yet adequate for the purpose of ABC specifications. Most of the concerns expressed by the SSC have been addressed in the current version. The model provides a reasonable estimate of current biomass. In particular, concerns about historical catch data prior to the 1990s are no longer relevant as the authors chose to limit the analysis to the post-1991 period. Another concern relating to the lack of a spawner-recruitment relationship was addressed by fixing the steepness of the Beverton-Holt model at 1, which effectively assumes constant recruitment over the range of observed spawner abundances.

The SSC commends the authors for their creativity in dealing with the life history specifics of skates and their responsiveness to SSC concerns. We look forward to seeing an updated model incorporating 2008 survey data in December. The SSC has some remaining concerns and specific recommendations:

1. The fit to the size-at-age data has improved but remains biased: the LVB model tends to consistently overestimate length-at-age of younger fish and underestimate length-at-age of older fish (Fig. 35), probably due to limitations of the assumed growth model. This bias appears to result in an overestimation of the number of skates in intermediate size classes and an underestimation of the number of skates in larger size classes (Fig. A13). Because skates mature at relatively large sizes (Fig. A10), underestimating the abundance of large skates may greatly underestimate spawning biomass. It is our understanding that the new version of SS2 can accommodate more flexible growth models and we encourage the authors to fit one of these more flexible models to improve the fit to size-at-age data. For some elasmobranchs, growth rate shifts at or near size of maturity, and models (e.g., two-stage von Bertalanffy) have been developed to handle such situations. In addition, we encourage the author to explore and document the sensitivity of the model to the assumption that L_1 is fixed at 22 cm, given the large uncertainty (CV) of this parameter (Table A6).
2. The authors present output from a single model that was based on a number of assumptions that are difficult to evaluate. In particular, the authors make a strong assumption about the limited level of recruitment variability (fixed at $\sigma_R = 0.3$). The authors argue that skate recruitment should display low variability because skates are equilibrium strategists. However, recruitment is effectively estimated at age-4 by the model and variability in egg deposition and in the survival between egg deposition and emergence could easily lead to considerable variability in age-4 recruitment. The authors chose $\sigma_R = 0.3$ "...on the basis of improved model fits", but differences in model fits were not presented (last year's model assumed $\sigma_R = 0.1$). Therefore, the SSC recommends that the authors document the sensitivity of the model to the specification of σ_R or provide a stronger rationale for their choice. For example, alternative models with different levels of σ_R or a likelihood profile for σ_R could be presented.
3. The authors assume that egg case development takes 3.6 years based on a study by Hoff (2006). The SSC requests that the authors include a brief description of the available evidence for this determination, including some discussion of the reliability of skate aging data and of the methods used to determine development times and age determinations.

4. There should be some discussion on the sensitivity of model results to the assumptions that were made regarding selectivity parameters. The SSC notes that many of these parameters were arbitrarily bounded and parameter estimates were often near their specified bounds (e.g., p1 for longline length selectivity; and, p3, p4 and p6 for trawl length selectivities, Table A6).

Other, minor points:

1. Fig. A20: It would be useful to display biomass and spawning biomass on the same scale.
2. Table 6: Clarify which of the listed values are on the log-scale (e.g. CV of L2 is negative and appears to be on log-scale).
3. The authors should be careful in using statistical nomenclature. For example,
 - p. 5: "The level of recruitment ... results from...". It should be clarified that recruitment is not deterministic but there is some variability around the predicted recruitment from the Beverton-Holt model.
 - p.5: "Weighting of individual likelihood components was not performed...". More likely, weights were assumed to be 1 for each component.
 - It was stated that no priors were used for any parameters. However, SS2 requires the specification of bounds and assumes uniform priors within those bounds if no other prior is specified

C-7(b) Approve initial groundfish harvest specs

The SSC reviewed and approved the proposed specifications for 2009-2010 that are used to establish the proposed rule. The SSC agrees with the Plan Team approach of rolling over the actual specification set for 2009 for both 2009 and 2010 for the proposed rule.

The SSC notes that the 2008 acoustic midwater trawl winter surveys of the Shumagin Islands, Chirikof and Shelikof Strait areas suggest that the increase in proposed 2009/10 specifications may not be realized in the final ABC and OFLs. The SSC requests that a report documenting the results of the annual EIT surveys is provided to the Plan Teams in September and to the SSC in October.

D-2(a) Committee report on Comprehensive Data Collection

This agenda item was not presented or discussed.

D-2(d) BS/AI Pcod area split

In response to a request from the SSC in February 2008, staff at the Alaska Fisheries Science Center compiled all available evidence for separate Pacific cod stocks in the Aleutian Islands and in the Eastern Bering Sea. The groundfish plan team reviewed this information in September 2008. Plan team discussions of the issue were summarized for the SSC by Grant Thompson (NMFS-AFSC). Public testimony was provided by David Fraser (self) and Donna Parker (Arctic Storm).

Evidence for a biological split between EBS and AI Pacific cod include, among others, (1) an increase in genetic difference with distance of separation in Alaska, as well as along the entire coast of North America, although a clear break is not evident, (2) differences in the fatty acid composition of egg polar lipids between the BS and AI, which probably reflects genetic differences, (3) a clear gap in spawning locations between the two areas, (4) larger size at age in the AI than in the BS, and (5) a lack of small fish

in AI length frequencies compared to the large number of smaller fish present in the BS. The latter feature suggests that even if there are different stocks, AI juveniles may rear in the BS.

Based on a review of the biological information and comments from the groundfish plan team, the SSC feels that there is sufficient justification for a split in Pacific cod between the BS and AI areas. The SSC recommends that a precautionary approach should be taken by specifying separate ABCs for this species.

To facilitate the move towards an assessment model for AI Pacific cod the SSC encourages the modeling efforts of Kinzey and Punt (UW). We also recommend that ongoing tagging studies to assess movements of adult Pacific cod be continued.

Miscellaneous

a. Public testimony on issues not included in the SSC agenda

Public testimony was provided by Hans Radtke regarding C-1(b)—charter halibut catch sharing plan.

b. Comments on market failure rationale included in recent RIR/IRFA analyses

Several recent RIR analyses (e.g., the GOA sideboards analyses) include a section titled “Market Failure Rationale.” The inclusion of this new section is in response to recent requirements instituted by the President’s Office of Management and Budget (OMB). It appears to the SSC that this section is intended, primarily, as a *pro forma* response to this new OMB mandate, rather than as a rigorous treatment of specific sources of potential market failure in the context of specific proposed regulatory actions. Nevertheless, the section could benefit from some additional detail and precision in the description of sources and consequences of market failure. The SSC recommends that the following paragraphs be used in RIR documents prepared for the NPFMC.

OMB guidelines for the preparation of economic analyses under E.O. 12866 state:

“... in order to establish a need for the proposed action, the analysis should discuss whether the problem constitutes a significant market failure. *If the problem does not constitute a market failure, the analysis should provide an alternative demonstration of compelling public need such as improving governmental processes or addressing distributional concerns.* If the proposed action is a result of a statutory or judicial directive (sic) that should be so stated” (emphasis added).

The proposed regulatory action under review in this RIR is initiated in response to a market failure.¹ The following provides a general description of market failure that is characteristic the BSAI (GOA) groundfish (shellfish, etc.) fisheries. The presence of this market failure directly reduces net national benefits. Elimination of this market failure would be expected to lead to an increase in net national benefits. Therefore, addressing this market failure is a compelling reason for undertaking the proposed regulatory action.

Market failure is defined as circumstances or conditions where voluntary private transactions are unlikely to result in economically efficient outcomes. That is, it may be possible to increase benefits to one or more parties to a transaction by modifying the bundle of entitlements and obligations attached to the good or service being transacted, or by imposing constraints that affect the terms of the transaction. Market failure may arise when: (1) price does not reflect all of the costs or all of the benefits of production or consumption (externalities); (2) some of the benefits are non-rivalrous (public goods); (3) there is an

¹ A different suite of arguments will need to be presented if the proposed regulatory action is intended to improve governmental processes, address distributional concerns, or satisfy a statutory or judicial directive.

asymmetry in information available to participants in the transaction; or (4) one or some parties to the transaction have market power. While examples of each of these forms of market failure can be found in fisheries, a form of market failure that has attracted most attention in fisheries is the externality that arises when: (1) individual fish are unowned until they are reduced to possession, (2) catch shares are determined under a first-come-first-served allocation rule, and (3) the quantity of fish that harvesters are willing and able to catch exceeds nature's capacity. This externality is often mislabelled "the tragedy of the commons", but is better described as the "race-for-fish" or "derby". Under conditions that lead to the race-for-fish, competition among harvesters (commercial, sport, etc.) is intensely rivalrous (fish harvested by one person cannot be harvested by another) and has frequently led to overcapitalization (more gear and vessels than is optimal to harvest the quantity of fish that is available for harvest), combat fishing, excessive harvesting, and other inefficiencies.

c. Appendix A. Five-Year Research Priorities

The SSC has identified priorities for research in the next 1 to 5 years as those activities that are the most important for the conservation and management of fisheries in the Gulf of Alaska, Aleutian Islands and the eastern Bering Sea. This listing of priorities is intended for two purposes: 1) to meet the requirements of the revised Magnuson-Stevens Act for the Councils to identify research that is needed in the next 5 years, and 2) to provide guidance on research priorities to the research community and to funding agencies.

The research priorities are separated into two categories: critical and strategic. Critical issues include activities that must be addressed to satisfy federal requirements and to address pressing fishery management and ecosystem issues related to fishery management. Strategic issues include research that needs to be conducted to advance the Council's fisheries management goals as defined in the Groundfish PSEIS, other strategic documents of the Council (i.e., FMPs, AI FEP, and EFH, crab, salmon bycatch, and other EISs) and NMFS. Strategic research priorities include efforts on which the assessment models depend for their annual updates. For example, without the survey information, the annual process of setting ABCs and OFLs for the managed stocks would be compromised. The SSC sees these efforts as needed on an ongoing basis, and constituting the time series on which management is based. It should be recognized that research in these categories is being conducted or may be conducted through Federal, State of Alaska, North Pacific Research Board and other funding sources.

Critical Issues

I. Fisheries

A. Fish and Fisheries Monitoring

1. Design and implement an improved observer delivery program that allows accurate estimation of the catch by season and sector (Also see Strategic Priority II.A.1)
2. Improvements are needed in in-season catch accounting for crab in non-directed fisheries with high incidental catch rates.

B. Stock Assessment

1. Improve species identification in catches by both processors and observers for priority species within species complexes to avoid misidentifications, and to reduce the large numbers of unidentified individuals.

C. Fishery Management

1. An evaluation is needed of economic effects from the recently adopted crab rationalization program on Gulf of Alaska coastal communities, including Kodiak. This includes understanding the economic impacts (both direct and indirect impacts) and how the impacts are distributed among communities and economic sectors, conducting qualitative research to assess changes in community participation and effort in fisheries, and estimating net economic benefits.
2. As Kodiak is likely to be at the center of controversy over the likely consequences of Gulf rationalization, research should be designed to use Kodiak in addition to other Gulf communities as case studies in prospective analyses of the potential effects of Gulf rationalization options on fishing behavior, participation, and economic impacts.

II. Fisheries Interactions

A. Protected species

1. There is a need for studies of local fishery interactions. Whereas global fishery control rules may generally prevent overfishing on a broad regional basis, non-random patterns of fishing may cause high rates of removals in local areas important to apex predators such as Steller sea lions, ice seals, northern fur seals, spectacled eider, Steller's eider, and short-tailed albatross. More studies are needed to fully evaluate potential local effects of fishing on other components of the ecosystem (e.g., marine mammals, seabirds, and the impact on benthic habitat and fauna by bottom contact gear).
2. Further research is needed on gear modifications and fishing practices for reducing bycatch, particularly of PSC species (e.g., salmon).

III. Habitats

A. Evaluate habitats of particular concern:

1. Assess whether Bering Sea canyons are habitats of particular concern by assessing the distribution and prevalence of coral and sponge habitat, and comparing marine communities within the canyon areas, including mid-level and apex predators (such as short-tailed albatrosses) to neighboring shelf/slope ecosystems.
2. Assess the extent, distribution, and abundance of important skate nursery areas in the EBS to evaluate the need for designation of new HAPCs.

B. Arctic baseline habitat assessment

1. Dynamic ecosystem and environmental changes, on a pace not observed in recorded time, are occurring in the Arctic (among other regions). Given the establishment of a new FMP for the Arctic, assessment of the current baseline conditions is imperative. This effort should not supplant the regular surveys in the BSAI and GOA, which are the most important.

Strategic Issues

I. Fisheries

A. Fish and Fishery Monitoring

1. Continuation of State and Federal annual and biennial surveys in the GOA, AI and EBS, including BASIS surveys and crab pot surveys, is a critical aspect of fishery management off Alaska. It is important to give priority to these surveys in light of recent proposed federal budgets in which funding may not be sufficient to conduct these surveys. These surveys provide baseline distribution, abundance, and life history data that form the foundation for stock assessments and the development of ecosystem approaches to management. These surveys are considered the highest priority research activity contributing to assessment of commercial groundfish fisheries off Alaska.
2. Plan and implement routine surveys into the northern Bering Sea and conduct baseline surveys of the Arctic Ocean. These surveys will become increasingly important under ongoing warming ocean temperatures, because range expansions of harvested fishery resources are anticipated. If range expansions occur, data will be needed to adjust standard survey time series for availability.
3. Continue and expand cooperative research efforts to supplement existing surveys to provide seasonal or species-specific information for use in improved assessment and management. The SSC places a high priority on studies that provide data to assess seasonal movements of fish and shellfish for use in studies of species interactions in spatially explicit stock assessments.
4. For groundfish in general, and rockfish in particular, continue and expand research on trawlable and untrawlable habitat, to improve resource assessment surveys. For example, improved surveys, such as hydro-acoustic surveys, are needed to better assess pelagic rockfish species, including GOA POP stocks.
5. Continue research on the design and implementation of appropriate survey analysis techniques to aid the Council in assessing species that exhibit patchy distributions and, thus, may not be adequately represented (either over or under estimated) in the annual or biannual groundfish surveys.
6. Identification and recovery of archived data (e.g., historical agency groundfish and shellfish surveys) should be pursued.
7. There are needs to improve biological data collection (e.g., age, size, maturity, and sex) of some bycatch species (e.g., sharks, skates, octopus, squid, sculpins, and grenadiers) to better quantify potential effects of bycatch on these stocks.
8. Continue and expand existing efforts to collect maturity scans during fisheries that target spawning fish.

B. Stock Assessment

1. Assess discard mortality rates of Tanner crab by size, month, sex, and fishery type.

2. Improve information (specifically, natural mortality, size at maturity, and other basic indicators of stock production/productivity) for “other species” and data-poor stocks of crab to allow application of Tier 5 or Tier 4 assessment criteria. Two possibilities that would require dedicated research for development are: (1) directly estimate fishing mortalities through large-scale tagging programs; and (2) habitat-based estimates of abundance based on local density estimates in combination with large-scale habitat maps. Little information is available, especially for sculpins, skates, octopuses, squids, grenadiers, and some sharks.
3. Collect data to improve natural mortality (M) estimates. Estimates of M (obtained independently from models) are needed for several stocks, including Pacific cod and BSAI crab stocks.
4. Quantify the effects of climate variability and climate change on recruitment and growth by developing standard environmental scenarios for future variability based on observed patterns. There is also a clear need for information that covers a wider range of seasons than is presently available.
5. There is a need for the development of advanced stock assessment modeling techniques. Specifically, there is a pressing need to develop techniques for linking uncertainty into stock assessments, including both scientific uncertainty (measurement error, process error or model misspecification) and implementation error (enforcement and catch monitoring).
6. There is a need for the development of projection models to evaluate the performance of different management strategies relative to the Council’s goals for ecosystem approaches to management. Projection models are also needed to forecast seasonal and climate related shifts in the spatial distribution and abundance of commercial fish and shellfish (see Strategic Priority IV.A.1.a “Climate variability” below for more detail).
7. To identify stock boundaries, expanded studies are needed in the areas of genetics, reproductive biology, larval distribution, and advection. Expanded tagging efforts are needed to support the development of spatially explicit assessments. High priority species for spatially explicit models include: walleye pollock, Pacific cod, sablefish, yellowfin sole, rock sole, arrowtooth flounder, Pacific Ocean perch, and Atka mackerel (see element 5 in Expanded Ecosystem Studies below). Specific issues include: a) an evaluation of the location of potential boundaries for an AI – EBS split that would be needed to assess the implications of the creation of a separate Aleutian Island management area, and b) stock delineation for estimation of adult equivalence to appropriately account for the impact of incidental catches of salmon in pollock fisheries on salmon populations.
8. There is a need to investigate whether scallop beds coincide with retention zones, as determined by circulation patterns, and how this relates to stock structure. There is also a need to investigate movement of scallops within beds to determine whether scallops can and do fill in areas that have been previously harvested.

C. Fishery Management

1. Evaluate the effectiveness (e.g., potential for overharvest or unnecessarily limiting other fisheries) of setting ABC and OFL levels for data-poor stocks (Tier 5 and 6 for groundfish and Tiers 4 and 5 for crab) (e.g., squid, octopus, shark, sculpins, other flatfish, other rockfish, skates, grenadier, and crab).

2. Develop forecasting tools that incorporate ecosystem indicators into single or multispecies stock assessments to conduct management strategy evaluations under differing assumptions regarding climate and market demands. Standardization of “future scenarios” will help to promote comparability of model outputs.
3. Development of an ongoing database of product inventories (and trade volume and prices) for principal shellfish, groundfish, and salmon harvested by U.S. fisheries in the North Pacific and Eastern Bering Sea.
4. Analyze current determinants of exvessel, wholesale, international, and retail demands for principal seafood products from the GOA and BSAI;
5. Conduct pre- and post-implementation studies of the benefits and costs, and their distribution associated with changes in management regimes (e.g., changes in product markets, characteristics of quota share markets, changes in distribution of ownership, changes in crew compensation, as a consequence of the introduction of dedicated access privileges in the halibut/sablefish, pollock, and crab fisheries). “Benefits and costs” include both economic and social dimensions. For example, analyses are needed of the magnitude and distribution of economic effects of salmon bycatch measures for the Bering Sea pollock fishery. In this case, it is important to understand the ability of pollock harvesters to adapt their behavior to avoid salmon bycatch under various economic and environmental conditions and incentive mechanisms.
6. Conduct prospective analyses of the robustness and resilience of alternative management strategies under varying environmental and ecological conditions.
7. Conduct prospective and retrospective analyses of changes in the spatial and temporal distribution of fishing effort in response to management actions (e.g., time/area closures, marine reserves, bycatch restrictions, co-ops, IFQs).
8. Develop a framework for collection of economic information on commercial, recreational, charter fishing, and fish processing to meet the requirements of the MSFCMA sections 303(a)(5, 9, 13), 303(b)(6), and 303A.

II. Fisheries Interactions

A. Bycatch and Observer Issues

1. Improve estimation of total bycatch for marine mammals, seabirds, non-target groundfish and crab, and protected species. At present, it is clear that observer coverage in some fisheries is insufficient for estimation of total bycatch. Further, observer coverage must be analyzed to compare, to the extent possible, the total catch, bycatch, and fishing behavior between observed and unobserved fishing vessels. Examples include the CV trawl fisheries, sablefish longline fishery, Pacific cod pot and longline fisheries, halibut longline fishery, and guided recreational fisheries. Improved accuracy of identifications and enumerations of bycatch species is necessary. The current program results in imprecise bycatch (mortality) estimates for species such as skates, sharks, yelloweye rockfish, and sablefish in halibut longline fisheries, and discards in sport fisheries. Improved methods should include direct and alternative monitoring options (e.g., electronic logbooks, video monitoring), particularly on smaller groundfish, halibut, and commercially guided recreational fishing vessels.

B. Protected Species Interactions

1. Population dynamics, life history, and assessment of protected species, particularly Steller sea lions and northern fur seals, are a high priority. In particular, investigation of factors contributing to changes in natality of Steller sea lions is an important area of research.
2. Economic, social, and cultural valuation research on protected species (i.e., non-market consumptive use, passive use, non-consumptive use).

III. Habitat

A. Habitat Mapping

1. Improved habitat maps (especially benthic habitats) are required to identify essential fish habitat and distributions of various substrates and habitat types, including habitat-forming biota, infauna, and epifauna.
2. Begin to develop a GIS relational database for habitat, including development of a historical time series of the spatial intensity of interactions between commercial fisheries and habitat, which will be needed to evaluate impacts of changes in EFH on the growth, reproduction, and distribution of fish and shellfish.
3. Assess the extent of the distribution of *Primnoa* corals in the GOA.

B. Function of Habitat

1. Evaluate relationships between, and functional importance of, habitat-forming living substrates to commercially important species, including juveniles.
2. Develop a time series of the impact of fishing on GOA, AI, and EBS habitats that could be used to assess: a) the impact of changes in management on the rate of habitat disturbance, and b) the impact of habitat disturbance on the growth, distribution, and reproductive success of managed species.
3. Evaluate effects of fishing closures on benthic habitats and fish production. There are many closures that have been in effect for various periods of time for which evaluations have not been conducted. Recent examples include slope HAPCs designated in the western Gulf of Alaska.

IV. Other areas of Research Necessary for Management

A. Expanded Ecosystem Studies

1. Environmental influences on ecosystem processes
 - a) Climate variability: Changes in ocean temperature may affect managed species, upper level predators, and lower trophic levels.
 - (1) Sea ice: If recent changes in ice cover and temperatures in the Bering Sea persist, they may have profound effects on marine communities. Development and maintenance of indices of the timing and extent of the spring bloom is a high priority. For this, maintenance of moorings, especially M-2, is essential.

- (2) Zooplankton production: Apparent declines in zooplankton wet weight over the shelf, measured by the Oshoro Maru, could imply the loss of critical copepod and euphausiid prey of important commercial species, such as pollock, as well as the ESA listed North Pacific right whale.
- (3) NMFS and BSIERP scientists should evaluate EBS survey data collected in 2008 during the summer trawl survey, acoustic surveys, and the BASIS cruises to assess whether these surveys will provide reliable estimates of zooplankton species composition and abundance for the Eastern Bering Sea. Evaluate the potential of collaborative research with Japanese and Russian investigators to assess species composition and abundance in samples archived abroad.
- (4) Fish composition: NMFS and BSIERP scientists should complete proposed analysis of existing data sets (bottom trawl surveys, acoustic trawl surveys, and BASIS surveys) to quantify changes in relative species composition of commercial and non-commercial species, identify and map assemblages, and monitor changes in the distribution of individual species and assemblages. Additional monitoring may be necessary in the Aleutian Islands and other areas of the Gulf of Alaska.
- (5) Assess the movement of fish, to understand the spatial importance of predator-prey interactions in response to environmental variability.

2. Trophic interactions.

- a) Diet information, from seasons in addition to summer, is needed to assess spatial and temporal changes in predator-prey interactions, including marine mammals and seabirds. The diet information should be collected on the appropriate spatial scales for key predators and prey to determine how food webs may be changing in response to shifts in the range of crab and groundfish.
- b) Ecosystem structure studies: Studies are needed on the implications of food web interactions of global warming, ocean acidification, and selective fishing. For instance, studies are needed to evaluate selective removal of some components of the ecosystem (e.g., Pacific cod, pollock, and crab) relative to others (e.g., arrowtooth flounder).