


MEMORANDUM

TO: Council, SSC and AP Members
FROM: Chris Oliver 
Executive Director
DATE: September 27, 2005
SUBJECT: Staff Tasking

ESTIMATED TIME 2 HOURS

ACTION REQUIRED

- (a) Review tasking and committees and provide direction
- (b) PSEIS Priorities, review objectives and develop workplan

BACKGROUND

- (a) Review tasking and committees and provide direction

The list of Council committees is attached as Item D-4(a)(1). Item D-4(a)(2) is the three meeting outlook, and Item D-4(a)(3) and Item D-4(a)(4) are the summary of current projects, timelines, and tasking. The Council may wish to discuss tasking priorities to address previously tasked projects that have not yet been initiated, and potential additions discussed at this meeting, given resources necessary to complete existing priority projects. In particular, there are a few projects that have been on the back burner for some time (e.g., SR/RE retention, repeal of VIP program, vessel level catch/bycatch disclosure), and the Council may wish to address their priority at this meeting.

At the last meeting, the Council initiated three new amendments and one discussion paper: change QS/IFQ transfer provisions to allow transfers for war-time situations; VMS application in GOA and BSAI to meet enforcement, monitoring and safety issues; removals of Cape Sarishef closure for 2006 fisheries; and a discussion paper on shifting the Bering Sea pollock A-season 5 days earlier.

The Council also discussed the possibility of issuing a call for proposals to amend the FMP or regulations, with a focus on some particular issue, such as rockfish management, and/or on PSEIS priority items (see below). The Council may want to discuss whether to go out with a call for proposals at this time, and if so, consider the existing workload and discuss a filtering process to review and prioritize proposed changes. The Plans Teams have traditionally been responsible for reviewing proposals and providing advice to the Council on the relative priority of the proposals. In earlier years, the Council also maintained a Plan Amendment Advisory Group (PAAG), to further prioritize proposals and provide additional advice to the Council. The PAAG consisted of 3 Council members, 2 SSC members and 2 AP members. Upon recommendation of the PAAG chair (Bob Mace), the group was disbanded in December 1994. If we call for proposals it may be time to revive some form of PAAG Committee.

b) PSEIS Priorities, review objectives and develop workplan

In adopting the revised management policy for the groundfish FMPs in April 2004, the Council committed to conduct an annual review of the forty-five objectives that are part of the management policy. Specifically, the FMP language reads:

Adaptive management requires regular and periodic review. Objectives identified in the management policy statement (Section 2.2) will be reviewed annually by the Council. The Council will also review, modify, eliminate, or consider new issues, as appropriate, to best carry out the goals and objectives of the management policy.

The management approach statement and the forty-five objectives are included in the FMP, and are attached as Item D-4(b)(1).

In June 2004, the Council developed a workplan to bring groundfish management in line with its revised management policy. This workplan is reviewed by the Council at each meeting as part of the staff tasking agenda item, and is posted on the Council's website. The workplan, updated to reflect the current status of each item, and its relationship to the management objectives, is attached as Item D-4(b)(2).

At this meeting, the Council is scheduled to review the policy objectives. Item D-4(b)(3) provides a summary of the objectives which may help the review.

Any additions, deletions, or modification to the objectives will require an FMP amendment. The type of NEPA document that would be required to support any change to the objectives will depend on the nature of the change; we would need to determine whether the suggested change has already been analyzed in the PSEIS, and if so, whether there were any significant environmental effects associated with the action.

The Council is also scheduled to redevelop the workplan, as necessary. Some of the items on the workplan have been achieved; the revised workplan might replace these items with other emerging priorities from the management policy.

At the June meeting, the Council discussed the possibility of a call for proposals relating to the revised groundfish workplan. The Council might wish to issue a call for amendment proposals that focuses on specific groundfish policy objectives or workplan items. Item D-4(b)(4) provides some suggestions on specific issue areas that might be appropriate for a call for amendment proposals, as well as on a procedure for evaluating any proposals received.

NPFMC Committees and Workgroups
Revised September 28, 2005

AP Committee

<u>Status:</u> Idle	Roy Hyder, Chair [Vacant]
Staff: Chris Oliver	[Vacant]

Council/Board of Fisheries Joint Protocol Committee

Updated: 7/28/03	<u>Council</u> Dave Benson Hazel Nelson Doug Hoedel	<u>Board</u> Mel Morris Art Nelson [Vacant]
Staff: Jane DiCosimo		

Council/Board of Fisheries Interim Joint Protocol Committee

Appointed April 2005	<u>Council</u> Stephanie Madsen Dave Benson Sue Salveson	<u>Board</u> Mel Morris Art Nelson [Vacant]
Staff: Chris Oliver		

Council Chairman and Executive Director Committee

Appointed April 2005	<u>CFMC:</u> C: Eugenio Pinerio ED: Miguel Rolon	<u>NPFMC:</u> C: Stephanie Madsen ED: Chris Oliver
Staff: Chris Oliver	<u>GMFMC</u> C: Julie Morris ED: Wayne Swingle	<u>PFMC:</u> C: Donald Hansen ED: Don McIsaac
	<u>MAFMC</u> C: Ricks Savage ED: Dan Furlong	<u>SAFMC:</u> C: Louis Daniel ED: Robert Mahood
	<u>NEFMC</u> C: Francis Blount ED: Paul Howard	<u>WPFMC:</u> C: Roy Morioka ED: Kitty Simonds

NPFMC Committees and Workgroups

Revised September 28, 2005

Council Executive Committee

Updated: as needed Staff: Chris Oliver	Chair: Stephanie Madsen (ADF&G) Jim Balsiger (WDF) Roy Hyder
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Crab Interim Action Committee

[Required under BSAI Crab FMP]

(ADF&G) Jim Balsiger, NMFS (WDF)
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Ecosystem Committee

Updated: January 2005 <u>Status:</u> Active Staff: Chris Oliver/David Witherell/Diana Evans	Chair: Stephanie Madsen Jim Balsiger Doug DeMaster John Iani Dave Fluharty Jim Ayers Dave Benton
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Enforcement Committee

Updated: July 2003 <u>Status:</u> Active Staff: Jane DiCosimo	Chair: Roy Hyder Hermann Savikko, ADF&G Bill Karp - NMFS James Cockrell, F&W Protection Jeff Passer, NMFS-Enforcement Mike Cerne, USCG Sue Salveson, NMFS-Mgmt. Lisa Lindeman, NOAA - GC
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Finance Committee

Updated: 9/28/05 <u>Status:</u> Meet as necessary Staff: Gail Bendixen/Chris Oliver	Chair: Stephanie Madsen (ADF&G) Jim Balsiger/Sue Salveson (WDF) Dave Hanson Roy Hyder SSC
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NPFMC Committees and Workgroups

Revised September 28, 2005

Fur Seal Committee

<p>Updated: 7/25/03</p> <p><u>Status</u>: Active</p> <p>Staff: Bill Wilson</p>	<p>Chair: David Benson Anthony Mercurief Larry Cotter Paul MacGregor Aquilina Lestenkof Steve Minor</p>
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GOA Community Committee

<p>Appointed: November 2004</p> <p>Staff: Nicole Kimball</p>	<p>Chair: Hazel Nelson Patrick Norman Chuck Totemoff Julie Bonney Chuck McCallum Joe Sullivan Ernie Weiss Duncan Fields</p>
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Halibut Charter IFQ Implementation

<p><u>Status</u>: Pending SOC submittal</p>

IFQ Implementation Committee

<p><u>Status</u>: Reconstituted as shown (July 2003).</p> <p>Staff: Jane DiCosimo</p>	<p>Chair: Jeff Stephan Bob Alverson Arne Fuglvog/Cora Crome Dennis Hicks Don Iverson Don Lane</p>	<p>Gerry Merrigan Kris Norosz Paul Peyton David Soma</p>
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IRIU Technical Committee

<p>Appointed: 7/12/02</p> <p><u>Status</u>: Pending reconstitution</p> <p>Staff: Jon McCracken Marcus Hartley, Northern Econ. Lauren Smoker, NOAA GC</p>	<p>Chair: Dave Hanson Michelle Ridgway Susan Robinson John Henderschedt Donna Parker Eric Olson Greg Baker Gerry Merrigan</p>	<p>Teressa Kandianis Matt Doherty Bill Orr Ed Richardson Dave Wood</p>
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NPFMC Committees and Workgroups

Revised September 28, 2005

Magnuson-Stevens Act Reauthorization Committee

<u>Status</u> : Pending appointment of additional members. Staff: Chris Oliver	Chair : Stephanie Madsen (ADF&G) (WDF) Roy Hyder John Bundy
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Non-Target Committee

Updated: 8/6/04 Appointed: 7/26/03 Staff: Jane DiCosimo, Sarah Gaichas, NMFS	Chair : Dave Benson Jule Bonney Karl Haflinger Whit Sheard Michelle Ridgway Eric Olson Lori Swanson Dave Wood Janet Smoker Paul Spencer
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Observer Advisory Committee

Updated: February 2004 <u>Status</u> : Active Staff: Chris Oliver/ Nicole Kimball	Chair : Joe Kyle LeeAnne Beres Julie Bonney Pete Risse Kim Dietrich [Alt: Gillian Stoker] John Gauvin Rocky Caldero	Tracey Mayhew Paul MacGregor Bob Mikol Kathy Robinson Susan Robinson Arni Thomson Jerry Bongen Brent Paine
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Pacific Northwest Crab Industry Advisory Committee

Updated: 6/2/04 Staff: Diana Stram	Chair : Steve Minor Keith Colburn Lance Farr Phil Hanson Kevin Kaldestad Garry Loncon Gary Painter	Rob Rogers Clyde Sterling Gary Stewart Tom Suryan Vic Sheibert Arni Thomson, Secretary [non -voting]
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NPFMC Committees and Workgroups

Revised September 28, 2005

Steller Sea Lion Mitigation Committee

Appointed: 2/10/01 Updated: Jan 2004 Pending membership adjustment [formerly SSL RPA Committee; renamed at Feb 02 meeting] Staff: Bill Wilson	Chair: Larry Cotter David Benson Jerry Bongen Julie Bonney Shane Capron Tony DeGange Doug DeMaster Steve Drage John Gauvin Sue Hills	John Iani Terry Leitzell Denby Lloyd Chuck McCallum Matt Moir Bob Small Beth Stewart Farron Wallace John Winther
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U.S.-Russia International Committee

<u>Status:</u> Pending reconstitution. Staff: Chris Oliver	Chair: Stephanie Madsen (WDF) John Bundy Earl Krygier CDR. Mike Cerne
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VMS Committee

Appointed: 06/02 <u>Status:</u> Idle, pending direction Staff: Jane DiCosimo	Chair: Earl Krygier Al Burch Guy Holt	Bob Mikol Ed Page CDR Mike Cerne Lori Swanson
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DRAFT NPFMC THREE-MEETING OUTLOOK - updated 9/28/05

October 3, 2005 Anchorage, Alaska	December 5, 2005 Anchorage, Alaska	February 6, 2006 Seattle, Washington
<p>Flatfish IRIU Am 80: Initial Review</p> <p>CDQ Amendment 71: Receive Report CDQ Management of Reserves: Initial Review CDQ Blue Ribbon panel: Receive Report</p> <p>Bairdi Crab Amendment: Final Action</p> <p>Crab Management: Review SAFE report</p> <p>BS Habitat Conservation: Review strawman problem statement and alternatives.(T)</p> <p>GOA Rationalization: Action as necessary</p> <p>Halibut Charter GHL: Status Report and action as necessary</p> <p>BOF/NPFMC pollock fishery sub-committee: Receive Report</p> <p>SSL consultation review: Discuss and action as necessary</p> <p>BSAI pollock A-season start date: Review Discussion Paper</p> <p>Rockfish Management: Review Discussion Paper</p> <p>Groundfish specs for 2006/07: Adopt proposed specs/EA/IRFA SAFE Ecosystem Chapter: Review AI FEP and EAM: Update</p> <p>BSAI P.cod sector allocations: Action as Necessary</p> <p>BSAI salmon bycatch: Final Action on Am. 84; Discuss Package B</p>	<p>Flatfish IRIU Am 80: Final Action (T)</p> <p>CDQ Management of Reserves: Final Action CDQ community eligibility Reg amendment: Initial Review</p> <p>BS Habitat Conservation: Finalize alternatives for analysis (T)</p> <p>GOA Rationalization: Action as necessary</p> <p>IFQ Omnibus 5 Amendments: Initial Review</p> <p>BOF Action on State pollock fishery: Action as necessary</p> <p>ESA Consultation on FMPs: Action as necessary</p> <p>Right Whale Critical Habitat: Review proposed rule</p> <p>Groundfish specs for 2006/07: Adopt final specs and EA/IRFA Groundfish SAFE Report: Review and Adopt AI FEP and EAM: Discussion/Direction</p> <p>BSAI P.cod sector allocations: Initial Review (T)</p> <p>BSAI Salmon Bycatch Package B: Action as necessary Salmon genetic research: Report</p> <p>Scallop Assessment Methods: SSC Review</p>	<p>CDQ community eligibility Reg amendment: Final Action</p> <p>Observer Program: Initial Review (T)</p> <p>GOA Rationalization: Action as necessary</p> <p>IFQ Omnibus 5 Amendments: Final Action</p> <p>ESA Consultation on FMPs: Action as necessary</p> <p>GOA Dark rockfish: Initial Review (T)</p> <p>Research Priorities: Review Non-target mgmt: Prelim. review O.species breakout</p> <p>BSAI P.cod sector allocations: Final Action (T)</p> <p>BSAI Salmon Bycatch Package B: Action as necessary</p>

TAC - Total Allowable Catch
BSAI - Bering Sea and Aleutian Islands
IFQ - Individual Fishing Quota
EEAM - Ecosystem Approach to Management
HAPC - Habitat Areas of Particular Concern
LLP - License Limitation Program
PSC - Prohibited Species Catch

AI - Aleutian Islands
GOA - Gulf of Alaska
SSL - Steller Sea Lion
BOF - Board of Fisheries
FEP - Fishery Ecosystem Plan
CDQ - Community Development Quota
IRIU - Improved Retention/Improved Utilization

SAFE - Stock assessment and fishery evaluation
VMS - Vessel Monitoring System
EAM - Ecosystem Approach to Management
SSC - Scientific & Statistical Committee
FMP - Fishery Management Plan
DPSEIS - Draft Programmatic Groundfish SEIS
(T) Tentatively scheduled

Council Project Summary Updated September 28, 2005

Projected Council/
Weeks NMFS %

Council Priorities

Comments

Council Priorities	Projected Weeks	Council/NMFS %	Comments
GOA Rationalization	?	70/30	Review Options in Oct (Diana S,Jane,Mark,Nicole,Elaine,contractors,NMFS)
IR/IU flatfish adjustments (Am 79)	0	20/80	Amendment 79 being prepared for Secretarial review
IR/IU flatfish trailing amendments (Am 80)	4	80/20	Initial Review in October (Jon /contract help)
Halibut Charter IFQ	?	90/10	Discuss in October (Jane/NMFS)
Break out other species category into TAC groups	6	80/20	Initial Review in April 2006 (T) (Jane/NMFS)
Non-target (other rockfish, other flatfish, other species) developmen	?	80/20	Discuss in Dec 05 (Jane/NMFS).
Rockfish management discussion paper	3	80/20	Review in Oct 2005. (Jane/NMFS)
Observer Program (fee and deployment mechanism)	10	80/20	Initial review in February 2006 (Nicole/Chris)
Aleutian Islands Special Management Area	10	90/10	Discuss in December (Diana E.)
BSAI Pacific cod Allocations	6	90/10	Review alternatives in October (Nicole/Jim)

Other Projects Previously Tasked

BSAI Salmon Bycatch (Package A)	2	80/20	Final Action in October (Diana S./NMFS)
BSAI Salmon Bycatch (Package B	10	70/30	Discuss in October (Diana S./other)
GOA other species calculation		20/80	Being prepared for Secretarial Review (Diana/NMFS)
GOA Dark Rockfish	4	?	Initial Review in February 2006? (Diana S./NMFS)
Bering Sea <i>C. bairdi</i> split	1	90/10	Final Action in October (Mark/NMFS)
IFQ Omnibus 5 Package	2	90/10	Initial Review in December (Jane/Jim/NMFS)
SR/RE retention	4	80/20	Not started. (Jane/NMFS)
Repeal of VIP	2	0/100	Delayed (NMFS)
GOA Salmon and Crab Bycatch Controls	12	80/20	Review data in October (Diana S./Cathy/Elaine/ADF&G)
Opilio VIP	2	50/50	Not started -Pending action on existing VIP
Catch/bycatch disclosure (vessel level)	2	70/30	Discussion paper - Postponed

Other Projects Previously Tasked (Continued)

Paper on fee/loan program for IFQ Charter	1	10/90	Awaiting Secretarial Decision on Charter IFQ (NMFS)
Charter IFQ Community Set-Aside analysis	6	90/10	Awaiting Secretarial Decision on Charter IFQ (Nicole)
GOA Rockfish Demonstration Program	1	20/80	Being prepared for NMFS Review (Mark/NMFS)
Groundfish overfishing definitions	?	10/90	FR notice on NS 1 comments thru Oct. 21 (SSC comments)
Subsistence halibut amendment	0	90/10	Being prepared for NMFS Review (Jane/Jim/NMFS)
AFA s/b caps to quotas and trawl LLP recency	10	80/20	Pending further Council direction
Industry proposal for pollock bycatch	?	90/10	Pending proposal and Council Direction
Crab Overfishing definition revision	?	10/90	Initial review in April 06 (NMFS/ADF&G/Diana S)
CDQ eligible communities	0	20/80	Legislation passed 8/10/05; all 65 communities eligible (Nicole)
CDQ Amendment 71	?	50/50	Discuss/direction on revised suite of alternatives in Oct. (Nicole/NMFS)
CDQ: Management of CDQ Reserves	1	10/90	Initial Review in October (NMFS/Nicole)
Bering Sea habitat conservation	8	50/50	Discuss in October (NMFS/Cathy)
Bering Sea A-season start date	?	90/10	Review Discussion paper in October (Bill)
Ecosystem-based Management	?	Oct-90	Discuss in October (Diana E.)

Project timeline and major tasking for council staff. Updated 9/28/05

Analytical Staff	September	October	November	December	January	February
David Witherell, Deputy Director Administrative MPAs & Special Projects						
Mark Fina, Sr. Economist GOA Rationalization C. bairdi split Miscellaneous Oversight		Final Action	forward analysis to NMFS			
Jon McCracken, Economist Am. 80 IRIU (lead) Misc. economic assistance		Initial Review		Final Action (T)	forward analysis to NMFS	
Jim Richardson, Economist GOA Rationalization (assist) Halibut subsistence review IFQ omnibus 5 Miscellaneous assistance				Initial Review		
Elaine Dinneford, Fishery Analyst Data Support (all projects) EcoSAFE, GOA bycatch AKFIN Liaison						
Jane DiCosimo, Sr. Plan Coord GOA Rationalization NEPA Lead IFQ Omnibus 5 Package Rockfish Management Other species/non-target State/Federal Co-Management	AFS mtg 9/11-15 Plan Team 9/20-22	Disc. Paper	Plan Team 11/14-18	Initial Review		Prelim. Review
Diana Stram, Plan Coordinator GOA Salmon/Crab Bycatch (Lead) BSAI Salmon bycatch (Lead) GOA Other spp. Crab Overfishing GOA dark rockfish	AFS mtg 9/11-15 CPT mtg (3 days) Plan Team 9/20-22	review options Final Action	forward analysis to NMFS		Plan Team 11/14-18	
Bill Wilson, Protect Species Protected species issues BS Pollock A-season State pollock fishery Ecosystem based mgmt	AFS mtg 9/11-15	Disc. Paper				
Diana Evans, NEPA Specialist AI Special Management EAM project BSAI P.cod analysis NEPA assistance Miscellaneous		status report	Eco. committee NEPA training	Disc. Paper Status report Initial Review		
Cathy Coon, Fishery Analyst GOA Salmon/Crab Bycatch (assist) BSAI Salmon bycatch (assist) Being Sea EFH (lead)		review options Final Action	forward analysis to NMFS			
Nicole Kimball, Fishery Analyst CDQ Projects (lead) Observer Program (lead) Community Issues GOA Rationalization (community) BSAI P.cod Allocation (lead)	OAC meeting	status report Disc. Paper Disc. Paper		Disc. Paper Initial Review	OAC meeting	Initial Review Final Action

Excerpt from chapter 2 of the BSAI [GOA] Groundfish FMPs

2.2 Management Approach for the BSAI [GOA] Groundfish Fisheries

The Council's policy is to apply judicious and responsible fisheries management practices, based on sound scientific research and analysis, proactively rather than reactively, to ensure the sustainability of fishery resources and associated ecosystems for the benefit of future, as well as current generations. The productivity of the North Pacific ecosystem is acknowledged to be among the highest in the world. For the past 25 years, the Council management approach has incorporated forward looking conservation measures that address differing levels of uncertainty. This management approach has in recent years been labeled the precautionary approach. Recognizing that potential changes in productivity may be caused by fluctuations in natural oceanographic conditions, fisheries, and other, non-fishing activities, the Council intends to continue to take appropriate measures to insure the continued sustainability of the managed species. It will carry out this objective by considering reasonable, adaptive management measures, as described in the Magnuson-Stevens Act and in conformance with the National Standards, the Endangered Species Act (ESA), the National Environmental Policy Act, and other applicable law. This management approach takes into account the National Academy of Science's recommendations on Sustainable Fisheries Policy.

As part of its policy, the Council intends to consider and adopt, as appropriate, measures that accelerate the Council's precautionary, adaptive management approach through community-based or rights-based management, ecosystem-based management principles that protect managed species from overfishing, and where appropriate and practicable, increase habitat protection and bycatch constraints. All management measures will be based on the best scientific information available. Given this intent, the fishery management goal is to provide sound conservation of the living marine resources; provide socially and economically viable fisheries for the well-being of fishing communities; minimize human-caused threats to protected species; maintain a healthy marine resource habitat; and incorporate ecosystem-based considerations into management decisions.

This management approach recognizes the need to balance many competing uses of marine resources and different social and economic goals for sustainable fishery management, including protection of the long-term health of the resource and the optimization of yield. This policy will use and improve upon the Council's existing open and transparent process of public involvement in decision-making.

2.2.1 Management Objectives

Adaptive management requires regular and periodic review. Objectives identified in this policy statement will be reviewed annually by the Council. The Council will also review, modify, eliminate, or consider new issues, as appropriate, to best carry out the goals and objectives of this management policy.

To meet the goals of this overall management approach, the Council and NMFS will use the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (PSEIS) (NMFS 2004) as a planning document. To help focus consideration of potential management measures, the Council and NMFS will use the following objectives as guideposts, to be re-evaluated, as amendments to the FMP are considered over the life of the PSEIS.

Prevent Overfishing:

1. Adopt conservative harvest levels for multi-species and single species fisheries and specify optimum yield.
2. Continue to use the 2 million mt optimum yield cap for the BSAI groundfish fisheries. [Continue to use the existing optimum yield cap for the GOA groundfish fisheries.]
3. Provide for adaptive management by continuing to specify optimum yield as a range.
4. Provide for periodic reviews of the adequacy of F_{40} and adopt improvements, as appropriate.
5. Continue to improve the management of species through species categories.

Promote Sustainable Fisheries and Communities:

6. Promote conservation while providing for optimum yield in terms of the greatest overall benefit to the nation with particular reference to food production, and sustainable opportunities for recreational, subsistence, and commercial fishing participants and fishing communities.
7. Promote management measures that, while meeting conservation objectives, are also designed to avoid significant disruption of existing social and economic structures.
8. Promote fair and equitable allocation of identified available resources in a manner such that no particular sector, group or entity acquires an excessive share of the privileges.
9. Promote increased safety at sea.

Preserve Food Web:

10. Develop indices of ecosystem health as targets for management.
11. Improve the procedure to adjust acceptable biological catch levels as necessary to account for uncertainty and ecosystem factors.
12. Continue to protect the integrity of the food web through limits on harvest of forage species.
13. Incorporate ecosystem-based considerations into fishery management decisions, as appropriate.

Manage Incidental Catch and Reduce Bycatch and Waste:

14. Continue and improve current incidental catch and bycatch management program.
15. Develop incentive programs for bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, vessel bycatch allowances, or other bycatch incentive systems.
16. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits, as information becomes available.
17. Continue program to reduce discards by developing management measures that encourage the use of gear and fishing techniques that reduce bycatch which includes economic discards.
18. Continue to manage incidental catch and bycatch through seasonal distribution of total allowable catch and geographical gear restrictions.
19. Continue to account for bycatch mortality in total allowable catch accounting and improve the accuracy of mortality assessments for target, prohibited species catch, and non-commercial species.

20. Control the bycatch of prohibited species through prohibited species catch limits or other appropriate measures.
21. Reduce waste to biologically and socially acceptable levels.

Avoid Impacts to Seabirds and Marine Mammals:

22. Continue to cooperate with U.S. Fish and Wildlife Service (USFWS) to protect ESA-listed species, and if appropriate and practicable, other seabird species.
23. Maintain or adjust current protection measures as appropriate to avoid jeopardy of extinction or adverse modification to critical habitat for ESA-listed Steller sea lions.
24. Encourage programs to review status of endangered or threatened marine mammal stocks and fishing interactions and develop fishery management measures as appropriate.
25. Continue to cooperate with NMFS and USFWS to protect ESA-listed marine mammal species, and if appropriate and practicable, other marine mammal species.

Reduce and Avoid Impacts to Habitat:

26. Review and evaluate efficacy of existing habitat protection measures for managed species.
27. Identify and designate essential fish habitat and habitat areas of particular concern pursuant to Magnuson-Stevens Act rules, and mitigate fishery impacts as necessary and practicable to continue the sustainability of managed species.
28. Develop a Marine Protected Area policy in coordination with national and state policies.
29. Encourage development of a research program to identify regional baseline habitat information and mapping, subject to funding and staff availability.
30. Develop goals, objectives and criteria to evaluate the efficacy and suitable design of marine protected areas and no-take marine reserves as tools to maintain abundance, diversity, and productivity. Implement marine protected areas if and where appropriate.

Promote Equitable and Efficient Use of Fishery Resources:

31. Provide economic and community stability to harvesting and processing sectors through fair allocation of fishery resources.
32. Maintain the license limitation program, modified as necessary, and further decrease excess fishing capacity and overcapitalization by eliminating latent licences and extending programs such as community or rights-based management to some or all groundfish fisheries.
33. Provide for adaptive management by periodically evaluating the effectiveness of rationalization programs and the allocation of access rights based on performance.
34. Develop management measures that, when practicable, consider the efficient use of fishery resources taking into account the interest of harvesters, processors, and communities.

Increase Alaska Native Consultation:

35. Continue to incorporate local and traditional knowledge in fishery management.
36. Consider ways to enhance collection of local and traditional knowledge from communities, and incorporate such knowledge in fishery management where appropriate.
37. Increase Alaska Native participation and consultation in fishery management.

Improve Data Quality, Monitoring and Enforcement:

38. Increase the utility of groundfish fishery observer data for the conservation and management of living marine resources.
39. Develop funding mechanisms that achieve equitable costs to the industry for implementation of the North Pacific Groundfish Observer Program.
40. Improve community and regional economic impact costs and benefits through increased data reporting requirements.
41. Increase the quality of monitoring and enforcement data through improved technology.
42. Encourage a coordinated, long-term ecosystem monitoring program to collect baseline information and compile existing information from a variety of ongoing research initiatives, subject to funding and staff availability.
43. Cooperate with research institutions such as the North Pacific Research Board in identifying research needs to address pressing fishery issues.
44. Promote enhanced enforceability.
45. Continue to cooperate and coordinate management and enforcement programs with the Alaska Board of Fish, Alaska Department of Fish and Game, and Alaska Fish and Wildlife Protection, the U.S. Coast Guard, NMFS Enforcement, International Pacific Halibut Commission, Federal agencies, and other organizations to meet conservation requirements; promote economically healthy and sustainable fisheries and fishing communities; and maximize efficiencies in management and enforcement programs through continued consultation, coordination, and cooperation.

General Priority (in no particular order of importance)	Specific priority actions	Related to management objective:	Status (updated 9-16-05)	2005		2006				
				Oct	Dec	Feb	Apr	Jun	Oct	Dec
Protection of Habitat	a. complete EFH action as scheduled	27	Amendment approved by Council							
	b. recommend to NOAA Fisheries increased mapping of benthic environment	29								
	c. develop and adopt definitions of MPAs, marine reserves, etc.	30	discussion paper presented in Feb 05							
	d. review all existing closures to see if these areas qualify for MPAs under established criteria	30	discussion paper presented in Feb 05							
	e. evaluate effectiveness of existing closures	26	discussion paper presented in Feb 05							
Bycatch Reduction	a. complete rationalization of GOA fisheries	17 (32)	analysis ongoing	█	█					
	b. complete rationalization of BSAI non-pollock fisheries	17 (32)	partially addressed through IRIU Amd 80 (initial review Oct 05); also Pacific cod sector allocations (initial review Dec 05)	█	█					
	c. explore incentive-based bycatch reduction programs	15	partially addressed through GOA rationalization; BSAI salmon bycatch final action in Oct 05	█						
	d. explore mortality rate-based approach to setting PSC limits	20								
	e. consider new management strategies to reduce incidental rockfish bycatch and discards	17	discussion paper in Oct 05	█						
Protection of Steller Sea Lions	a. continue to participate in development of mitigation measures to protect SSL including development of an EIS and participation in the ESA jeopardy consultation process	23	Council/BoF committee is tracking proposals to open areas to a State pollock fishery that may require re-initiation of SSL ESA consultation	█						
	b. recommend to NOAA Fisheries and participate in reconsideration of SSL critical habitat	23	on hold pending completion of recovery plan; discussion in October	█						
Prevent Overfishing	a. continue to participate in the development of "lumping and splitting" criteria	5	'other species' breakout analysis initiated; non-target actions on hold pending National Standard 1 guideline revisions	█	█	█				
	b. consider new harvest strategies for rockfish	4	discussion paper in Oct 05	█						
	c. set TAC at or < ABC	1	Amendment approved by Council	█						
Ecosystem Management	a. revisit calculation of OY caps	11, 4	research paper presented to SSC in Feb 05							
	b. recommend to NOAA Fisheries and participate in the development and implementation of ecosystem indicators as part of stock assessment process	10	development ongoing; ecosystem SAFE chapter to be presented each year; PICES workshop to develop indicators for the BS	█				█		
Improve Data Quality and Management	a. expand or modify observer coverage and sampling methods based on scientific data and compliance needs	38, 39	initial review scheduled for Dec 05 or Feb 06	█	█					
	b. develop programs for economic data collection that aggregate data	40	partially addressed through GOA rationalization							
	c. modify VMS to incorporate new technology and system providers	41								

Management Objectives from the Groundfish FMPs

* indicates that objective is reflected on Council's workplan

Goal	Objectives relating to actions already established as part of groundfish management program (does not preclude further actions under these objectives)	Objectives relating to actions currently under Council consideration	Objectives relating to actions that are on hold from Council consideration, or have not yet been initiated	Objectives relating to considerations that are applied to all management actions
Prevent Overfishing	2. Use existing OY caps. 3. Specify OY as a range.	*4. Periodic reviews of F ₄₀ and adopt improvements *5. Improve management through species categories		1. Adopt conservative harvest levels
Promote Sustainable Fisheries and Communities				6. Promote conservation while providing for OY 7. Promote management measures that avoid social and economic disruption 8. Promote fair and equitable allocation 9. Promote safety
Preserve Food Web	12. Limit harvest on forage species.	*10. Develop indices of ecosystem health *11. Improve ABC calculations to account for uncertainty and ecosystem		13. Incorporate ecosystem considerations in fishery management
Manage Incidental Catch and Reduce Bycatch and Waste	14. Continue and improve current incidental catch and bycatch program 18. Continue to manage incidental catch and bycatch through seasons and areas 19. Account for bycatch mortality in TAC accounting *20. Control prohibited species bycatch through PSC limits	*15. Develop incentive programs for bycatch reduction *17. Develop management measures that encourage techniques to reduce bycatch	16. Encourage research for non-target species population estimates	21. Reduce waste to biologically and socially acceptable levels

Goal	Objectives relating to actions already established as part of groundfish management program (does not preclude further actions under these objectives)	Objectives relating to actions currently under Council consideration	Objectives relating to actions that are on hold from Council consideration, or have not yet been initiated	Objectives relating to considerations that are applied to all management actions
Avoid Impacts to Seabirds and Marine Mammals	22. Continue to protect ESA-listed and other seabirds *23. Maintain or adjust SSL protection measures 25. Continue to protect ESA-listed and other marine mammals	24. Encourage review of marine mammal and fishery interactions		
Reduce and Avoid Impacts to Habitat	27. Identify EFH and HAPC, and mitigate fishery impacts as necessary		*26. Review and evaluate efficacy of habitat protection measures for managed species 28. Develop MPA policy *29. Encourage research on baseline habitat mapping *30. Develop goals and criteria for MPAs; implement as appropriate	
Promote Equitable and Efficient Use of Fishery Resources		*32. Maintain LLP and initiate rights-based management programs	33. Periodically evaluate effectiveness of rights-based management programs	31. Provide economic and community stability through fair allocation 34. Consider efficiency when adopting management measures
Increase Alaska Native Consultation			36. Consider ways to enhance local and traditional knowledge collection 37. Increase Alaska Native participation in fishery management	35. Incorporate local and traditional knowledge into fishery management
Improve Data Quality, Monitoring, and Enforcement		*38. Increase utility of observer data *39. Develop equitable funding mechanisms for the NPGOP	*40. Increase economic data reporting requirements *41. Improve technology for monitoring and enforcement 42. Encourage development of an ecosystem monitoring program	43. Cooperate with NPRB to identify needed research 44. Promote enforceability 45. Coordinate management and enforcement programs with Federal, State, international, and local partners

Suggestions for a Call for Amendment Proposals based on the Groundfish Policy Objectives and Workplan

Suggestions for Topics

Objectives of the Council policy for which action is on hold or has not been initiated:

- Non-target species population estimates
- Efficacy of habitat protection measures for managed species
- Goals and criteria for MPAs
- Baseline habitat mapping
- Evaluation of effectiveness of rights-based management programs
- Ways to enhance local and traditional knowledge collection
- Increase Alaska Native participation in management
- Economic data reporting requirements
- Technology for monitoring and enforcement
- Development of an ecosystem monitoring program

Suggestions from Public Comment in June 2005:

- Ecosystem Indicators
- VMS
- Rockfish (both target and non-target)

Suggested Procedure for Proposal Evaluation

1. Call for proposals to follow October meeting October 15
2. Public to submit proposals within a two month period Oct 15-Dec 20
3. Initial classification of proposals by NPFMC and NMFS staff Dec 20-Jan 20
 - initial sort by topic area, type of proposal
 - assessment of timeline, resources required, and feasibility of proposal as outlined
4. Initial Presentation of proposals to SSC, AP, Council Feb meeting
 - based on number and complexity of proposals, Council determines whether separate committee should be established to review proposals
5. OPTIONAL: Review of proposals by Council committee March
6. Council initiates action on selected proposals (and assigns priorities based on available staff resources) April

MEMORANDUM

TO: Council, SSC and AP Members
FROM: Chris Oliver *CO*
Executive Director
DATE: September 29, 2005
SUBJECT: Groundfish fishery management

ESTIMATED TIME 1 HOUR

ACTION REQUIRED

Receive discussion paper on BSAI pollock fishery "A" season start date and take action as appropriate.

BACKGROUND

At its June 2005 meeting, the Council received a request from industry to consider initiating analyses and possible future changes in regulations to allow the BSAI pollock fishery "A" season to begin 5 days earlier – on January 15 - instead of the current opening date of January 20. The "A" season primarily focuses on pollock roe, and industry testified that roe maturation seems to be occurring earlier in recent years. Industry suggested that starting the "A" season earlier would give more flexibility to the fleet in harvesting pollock with higher quality roe and thus market a more economically valuable product.

The Council requested that staff prepare a discussion paper that examines the various potential issues associated with starting the BSAI pollock "A" season fishery 5 days earlier, with a 5-day earlier closure of that season as well.

Attached as Item D-1(d)(1) is a discussion paper that examines some of the potential issues associated with an earlier "A" season pollock fishery in the BSAI. The paper addresses such issues as effects on other BSAI fisheries, effects on GOA sideboard fisheries, possible Steller sea lion issues, and effects on PSC bycatch. Council staff will present the discussion paper and answer questions.

Issues Associated with Changing the Start Date of the Eastern Bering Sea Pollock Fishery "A" Season from January 20 to January 15

Prepared by:
Bill Wilson
North Pacific Fishery Management Council
October 2005

A. Introduction

The eastern Bering Sea pollock fishery accounts for a major proportion of the harvest tonnage in the BSAI region and a large amount of the ex-vessel revenues generated from the BSAI groundfish fisheries. Pollock roe is a valuable by-product from the EBS pollock fishery, nearly all of which comes from the "A" season. Current fishery regulations prohibit fishing for pollock before January 20. The eastern Bering Sea pollock fleet is concerned that a portion of the peak roe production is missed due to the January 20 start date, partly because roe-bearing pollock appear to be maturing earlier. An earlier start date, as little as five days, could enable the fleet to better maximize its production of high quality roe. Industry's interest is to start this fishery, on January 15, with an "A" season closure 5 days earlier as well (June 5). There would be no changes to the "B" season (June 10-November 1). The presumption is there could be a 5-day "stand down" between seasons as a result, although this issue needs to be addressed. This discussion paper outlines some of the issues associated with changing the opening date for the EBS pollock fishery "A" season as requested by the Council at its June 2005 meeting.¹

B. Brief Overview of the Eastern Bering Sea Pollock Fishery

The EBS pollock fishery is the largest fishery managed by the Council, accounting for 65 percent of the nearly 2.3 million mt combined TAC for the BSAI and GOA groundfish fisheries for 2005. Prior to 1990, the EBS pollock fishery opened January 1 and the fishery was prosecuted in a single season. In 1990, the Council approved Amendment 14 to the BSAI FMP which prohibited pollock roe stripping and divided the EBS pollock fishery into a roe fishery ("A" season) and a non-roe fishery ("B" season). In 1992 under Amendment 19 to the BSAI FMP, the Council changed the starting date for some EBS trawl fisheries, including pollock, to January 20 (from January 1). In 1998, Steller sea lion protection measures were proposed and later implemented that established a 40/60

¹ Note that regulations at 50 CFR 679.23(c) prohibit trawling between January 1 and 20 in the BSAI and GOA; these regulations would have to be changed if the BSAI pollock "A" season start date is earlier than January 20.

percent split of the pollock TAC between the "A" and "B" seasons. Also in 1998 under the American Fisheries Act (AFA) the Council approved allocating 10 percent of the BSAI pollock quota to CDQ groups; after subtracting incidental catch allowance amounts for other fisheries, the remainder of the quota is apportioned 10 percent to catcher vessels delivering to motherships, 40 percent to catcher/processors processing offshore, and 50 percent to catcher vessels delivering inshore. Vessels harvesting pollock for their roe content are required to fully retain all fish under IR/TU requirements.

The AFA also provided for a system of pollock fishery cooperatives for each fishing sector, and prohibited the entry of new vessels into the fishery. The AFA also provided a system of harvesting and processing restrictions or "sideboards" on fishermen and processors who received the exclusive fishing rights under AFA to protect the interests of fishermen and processors who have not directly benefited from AFA.

In summary, under current regulations and provisions in the BSAI FMP, the EBS pollock fishery is entirely prosecuted by AFA fishing vessels – either through AFA-style harvesting cooperatives, or in connection with the CDQ program. The "A" season AFA pollock roe fishery is prosecuted by a fleet comprised of catcher vessels that deliver pollock to shoreside processors, catcher-processors, and catcher vessels delivering pollock to motherships. The fishery is entirely rationalized and vessels participate in this fishery under a cooperative management system. The "A" season begins January 20 and ends June 10. After reducing the annual TAC by 10 percent for the CDQ fisheries, and a certain amount for incidental catch allowances for other fisheries (3.35 % in 2005), the remaining directed fishing allowance (DFA) is divided so that 40 percent may be harvested in the "A" season and the remaining 60 percent in the "B" season. In 2005, the "A" season pollock roe fishery DFA (including CDQ) was 573,569 mt.

C. Origin of January 20 Start Date

Under Amendment 19 to the BSAI FMP (September 23, 1992), among several other management measures, the Council changed the opening date for certain trawl fisheries in the EBS from January 1 to January 20. The primary purpose for such a change was to reduce bycatch of halibut and salmon (especially Chinook salmon) as well as crab and herring in the EBS trawl fisheries. The amendment analysis also noted that the pollock fishery could benefit from a season delay "...that results in more of the harvest occurring later in the first quarter when the roe is at peak quality and value." For the years analyzed in the Amendment 19 EA, Chinook salmon bycatch rates were highest in the first few weeks of the year. The analysis also showed savings in halibut, crab, and other salmon bycatch with a later starting date in EBS trawl fisheries (excluding flatfish), but these results were more variable. Chinook bycatch seemed to be the primary motivation for moving the start date to January 20. Note that some concerns over halibut and crab bycatch were alleviated under Amendment 57 (June 2000) which prohibited the use of nonpelagic trawl gear in the directed pollock fishery.

Another consideration involved in changing the start dates to January 20 was the desire for both the BASI and the GOA trawl fisheries to start on the same date. If the GOA

season opened earlier than the BSAI, the GOA fleet was concerned that the large-capacity BSAI trawl fleet could harvest a large proportion of the GOA quota and then move to the BSAI and continue to fish, potentially disadvantaging the GOA fleet. Such concerns may have been reduced to some extent by the subsequent implementation of the inshore/offshore amendments and AFA sideboard provisions which limit the ability of certain BSAI vessels to fish in the GOA.

D. Issues Associated with a January 15 EBS Pollock Fishery Start Date

Much of the following information was obtained from discussions with various sectors of the industry. Some of these issues may be tempered by certain future management regimes such as new rationalization programs, IR/IU amendments, etc.

The primary benefit of opening the EBS pollock fishery "A" season would be allowing the AFA fleet the opportunity to harvest roe-bearing pollock closer to the time the roe is of optimal quality. But some industry representatives believe that by implementing such a measure, other fishery sectors may be disadvantaged. Some of these concerns are outlined below. A shift in the "A" season dates also may have bycatch, protected resources, and other effects. The following provides a brief summary of these issues. Environmental and socioeconomic analyses would be required to determine the full nature and magnitude of these effects.

1. Increased Economic Return to the Pollock Fishery

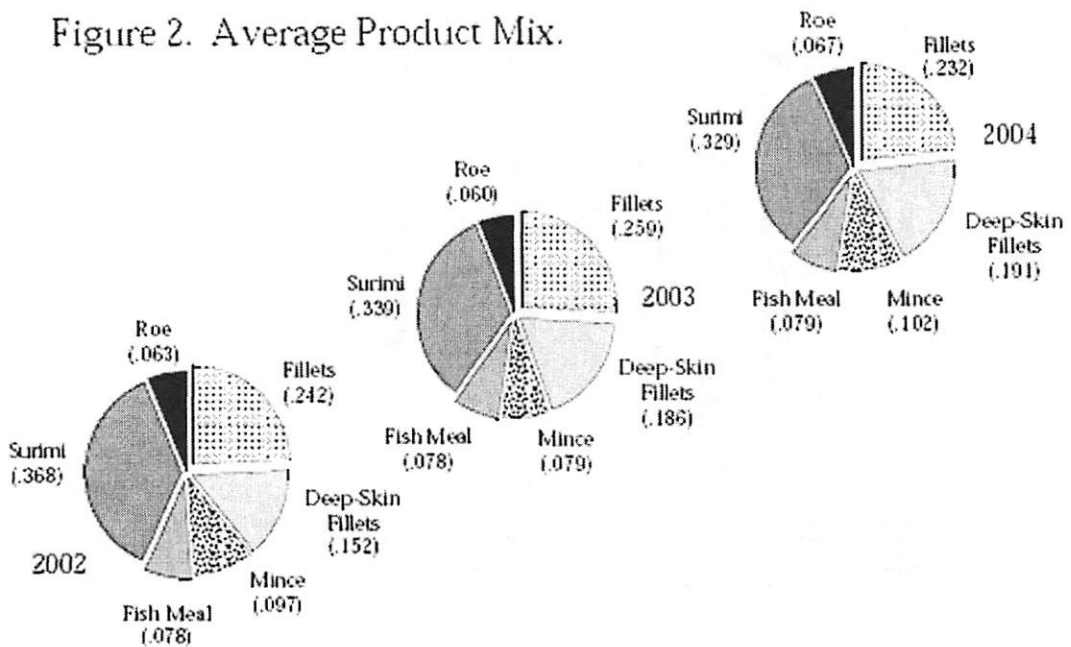
The Roe Fishery

Under BSAI FMP Amendment 11 (52 FR 45966, December 3, 1987) and later Amendment 14, the EBS pollock fishery was divided into an "A" season and a "B" season. The "A" season is primarily a fishery for roe-bearing female pollock. During the roe-bearing time of year, pollock group into spawning aggregations, and can be harvested with less fishing effort than later in the year; in the "A" season these fish are harvested primarily for roe which provides for a profitable market overseas, mainly in Japan. Roe is a term for female ovaries that are filled with maturing individual eggs held in sacs or skeins. Male testes ("milt") may be mature during the "A" season as well, and also are marketed, but roe provides the greatest economic return from the suite of pollock products from the "A" season. While the "A" season is focused on roe (and some milt), fillets and surimi are also produced. Approximately 14-15 % by weight of a headed/gutted mature gravid female pollock can be roe. Roe and milt combined range from 3.5 to 5 % of the catch by weight of fish in the round. These figures are averages, as the recovery of roe (and milt) can be highly variable as can the ratio of male to female fish taken during fishing operations. Larger horsepower vessels that can fish deeper waters may harvest pollock that can yield 5-6 % roe. Some roe is produced from pollock harvested in the "B" season as well, but recovery is significantly lower (generally around 0.5 % of round weight) during that time of year.

The average product mix from pollock in the Bering Sea is shown on Figures 1 and 2 based on data from the Pollock Conservation Cooperative. For the years 2002 through 2004, roe constituted 6 to 6.7 percent of products generated from the annual pollock harvest.

Figure 1. Pollock products marketed from Bering Sea fishery, 2002-2004 (Source: Figure 2 in Pollock Conservation Cooperative Annual Report for 2004)

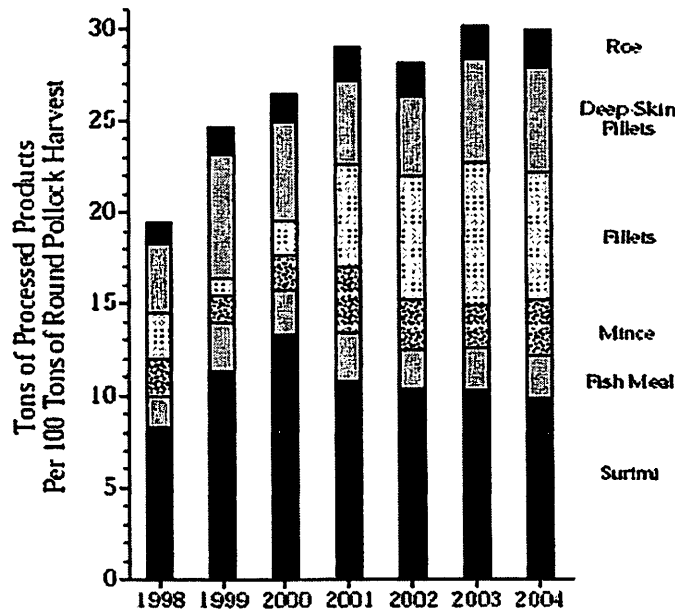
Figure 2. Average Product Mix.



Source: NMFS AK Region Pacific cod and pollock products by processing mode, 2002-2004. Note that this figure does not show individual product recovery rates, but instead the average product mix that was produced from the total amount of pollock harvested throughout the entire year. Pollock Conservation Cooperative vessels produce small amounts of pollock cheeks, mill, oil, stomachs and whole round pollock that are not shown in the product mix pies.

Figure 2. Range of products and recovery rates from pollock harvested in the Bering Sea fishery, 1998-2004. (Source: Figure 3 in Pollock Conservation Cooperative Annual Report for 2004)

Figure 3. Total Product Recovery and Mix.



During 2001-2004 total product recovery is estimated to have increased by 50% over the 1998 open-access "race-for-fish" baseline.

Source: SeaState, Inc. PCC and CDO catch per haul, 1998-2004; NARS AK Region Pacific cod and pollock products by processing mode, 1998-2004; BSAI groundfish quotas and preliminary catch in round metric tons, 1999-2004, and CDO participation and catch by gear, 1999-2004. Note that this figure does not show product recovery rates but instead the average product mix produced from the total amount of pollock harvested throughout the entire year by all PCC member vessels.

Catcher vessels and catcher/processor vessels harvest pollock with pelagic trawls. Generally fishermen try to avoid filling the nets to capacity so as to minimize potential bruising and crushing of the fish – a practice which improves roe quality. Pollock delivered to processors onshore or to motherships or on board catcher/processor vessels are processed by automatic fillet machines, and viscera are hand sorted by specially trained crew members. Headed/gutted pollock continue through filleting machines and fillets are packed or further processed into surimi. Milt and roe are separated from the viscera, graded, packed, and frozen. Frozen lots are packaged and shipped to distribution centers to await auction. Samples from each lot are retained for examination by buyers during the auction process; auctions generally occur in February and April each year.

From 1992-1998, the pre-rationalization period that was characterized by the “race for fish”, the duration of the EBS pollock “A” season gradually shortened from 46 days to 25 days for the offshore sector and from 46 days to 30-37 days for the inshore sector. After

the AFA and new Steller sea lion protection measures came into place in the late 1990s, the "A" season lasted longer: 58-68 days for the mothership sector, 79-96 days for the catcher-processor sector, and 75-88 days for the inshore sector (2001-2003, excluding CDQ fisheries).

Roe Maturation

The industry's goal for the "A" season is to harvest as much of the seasonal pollock quota as possible, when roe is in optimum condition. Pollock roe is graded on multiple factors, including size, color, condition of the eggs (maturity), and damage. The optimal grade that would enjoy the highest value in the overseas market is generally a combination of these factors, with highest value from roe that are large mature skeins with no damage and good color. Combinations of these factors can lead to many possible roe grades, but industry has settled on approximately 16-17 grades. "Mako" grade is considered the premium, but buyers are the final determinant of quality, and thus price. Pollock fishermen and processors make pre-season and in-season decisions that attempt to optimize economic return.

In recent years, industry has encountered changing environmental conditions in the Bering Sea. Whether from climate regime shifts or other factors, industry has reported that Bering Sea waters seem to be warmer and more ice free in winter, and some suggest that warming trends may have affected the onset of pollock egg and sperm maturation. This effect has been noticed by the fleet in recent years as it has generally found more mature and higher quality roe-bearing pollock earlier in the season and in the cooler, more northern waters, particularly around the Pribilof Islands or even further north. The geographic location of fishing is not only determined by locations of highly concentrated pollock schools, but fishing also may be constrained geographically if salmon bycatch levels are reached that trigger closure of the Chinook Salmon Savings Area (CSSA), forcing the fleet to vacate the closed areas. The fleet also is constrained geographically by regulations restricting the amount of the "A" season TAC that can be harvested from the Steller Sea Lion Conservation Area (SCA).

In recent years, the quality of roe has become more unpredictable, and in some areas early in the "A" season, parts of the fleet have occasionally encountered spawned out schools while in other parts of the Bering Sea pollock schools harvested at the same time have yielded marketable roe. Given the geographic and temporal uncertainty in locations of optimal roe-bearing pollock, coupled with increased fuel and other costs to fish further from port, particularly for the shore-based fleet, the pollock industry believes that more harvesting efficiency, and therefore higher economic return, from the "A" season pollock quota could be achieved by allowing more flexibility in the start date of the "A" season. Given the small window of opportunity to harvest pollock during the period of peak roe maturity, an earlier start date for the "A" season would allow the industry the opportunity to capitalize on what appears to be a trend toward earlier maturity and enjoy greater economic return from the "A" season pollock quota.

Roe Value and Markets

The pollock fishery is unique and is affected by many factors. Each pollock fishing company develops its own fishing strategies as to where and when it will fish – decisions that remain proprietary to the individual fishing companies. As a consequence, each individual vessel, even those fishing for the same processor partner, will likely employ its own particular strategies to optimize return from the “A” season pollock fishery. For example, some roe buyers may prefer roe produced from a particular vessel because of its past performance, crew experience, or other factors, and thus that vessel and crew may seek to repeat past successful fishing strategies. Some indicate that given the changing conditions in the Bering Sea, the fleet has encountered more difficulty in repeating these strategies that may have worked well in past years. Some reports indicate that roe packed from the 2000 “A” season was much higher in quality than the roe packed from the 2004 season; for some companies 80% of the 2000 season was mako quality while 40% was marketed at that grade in 2004. According to the Southwest Regional Office, NMFS, the January-April 2004 average wholesale price for pollock roe marketed at several major central wholesale markets in Japan was 2,178 yen/kg. High quality roe can command significantly higher market value; some report that mako grade roe can command 2,400 yen per kilogram or higher, while the lowest grades wholesale at 400-500 yen per kilogram. The average price for pollock roe was 3,077 yen/kg in late 2000 (State of Alaska, Japan Office 2001).² Of course, exchange rates will affect roe value in overseas markets.³ Industry reports that earlier season fishing routinely produces a higher percentage of prime quality roe, while late season fishing routinely produces a higher percentage of lower quality roe (and spawned-out fish).

Some vessels or fishing companies that have encountered a higher proportion of lower quality roe in recent years have sought to produce higher quantities of lower grades to compensate. The spectrum of factors including sea ice and temperature changes, geographic closures (CSSA and SCA), and highly variable roe maturity from school to school appear to have created a narrower window of prime roe production than existed in the 1990s. Industry believes that that window can be widened if the start date for the “A” season is moved to an earlier date than January 20.

According to industry, the economic value of the 2005 “A” season roe fishery was about \$230 million. Roe is a significant proportion of the total economic return from the overall Alaskan pollock fishery (Figure 3). Some fishing companies report a threefold higher value of roe from the first 10 days of the season versus the last ten days based on a blend of shoreside and at-sea product values. Markets are primarily in Japan and Korea (Figure 4), although roe is also sold in Canada, China, and Europe. February and March are the largest export value months of the year for pollock roe (Figure 5). According to the U.S. Department of Agriculture Fishery Products Market News, U.S. pollock product exports totaled \$519 million in 2004, increasing 19 percent from 2003 exports. The European Union, Japan and Korea accounted for over 95 percent of U.S. exports in 2004. Pollock exports through the first five months of 2005 are up eight percent over

² Biweekly Seafood Narrative Report Vol 3, No 2, January 26, 2001.

³ Yen/dollar on September 26, 2005 was 112.17.

2004 exports through May. Pollock roe and fillets account for the majority of the exports with fillet exports increasing from \$21 million in 2000 to over \$212 million in 2004. The roe exports were valued at \$287 million in 2004 (Fishery Products Market News).

Other countries have a pollock roe fishery, primarily Russia, and China and Japan also harvest pollock for roe. Russia's fishery is principally in the Sea of Okhotsk; Japan is their primary market. Some secondary processing of the Alaskan roe pack is conducted in China or South Korea.

Other Potential Benefits

A 5-day earlier "A" season could be an advantage to AFA vessels that may choose to enter other fisheries earlier than they would have without the 5-day early start to the "A" season. However, some in the EBS pollock industry have indicated a desire to avoid such a scenario, and the Council could institute a standdown requirement for the pollock fleet to eliminate such concerns.

There may be other advantages to the EBS pollock fleet including increased opportunity to better schedule product offloads or stagger offloads to optimize fishing time (e.g. less time spent waiting for freighter arrival).

There also may be a tax revenue advantage to the State of Alaska which taxes fish landed shoreside. A higher value roe pack could generate higher tax revenues.

Other sectors of the fishing industry that derive economic benefits from the BSAI pollock fishery could benefit from any higher revenues generated from a higher value "A" season fishery including crews, processing plants and associated businesses, coastal communities, etc.

Any Down Side for the Pollock Fleet?

Vessels participating in an earlier "A" season in the EBS would need to sail to the fishing grounds that much earlier. If that season opened January 15, some operations might need to mobilize early in January, potentially affecting crew holidays. This might be felt more acutely by larger AFA vessels, particularly motherships or larger catcher/processors with large crews. Fishery managers also would have to gear up earlier, and observers would be required to be deployed earlier in the year.

Figure 3. Primary market countries for pollock in recent years. (Source: Fishery Products Market News http://www.fas.usda.gov/ffpd/Fish-Circular/Market_News/market.html)

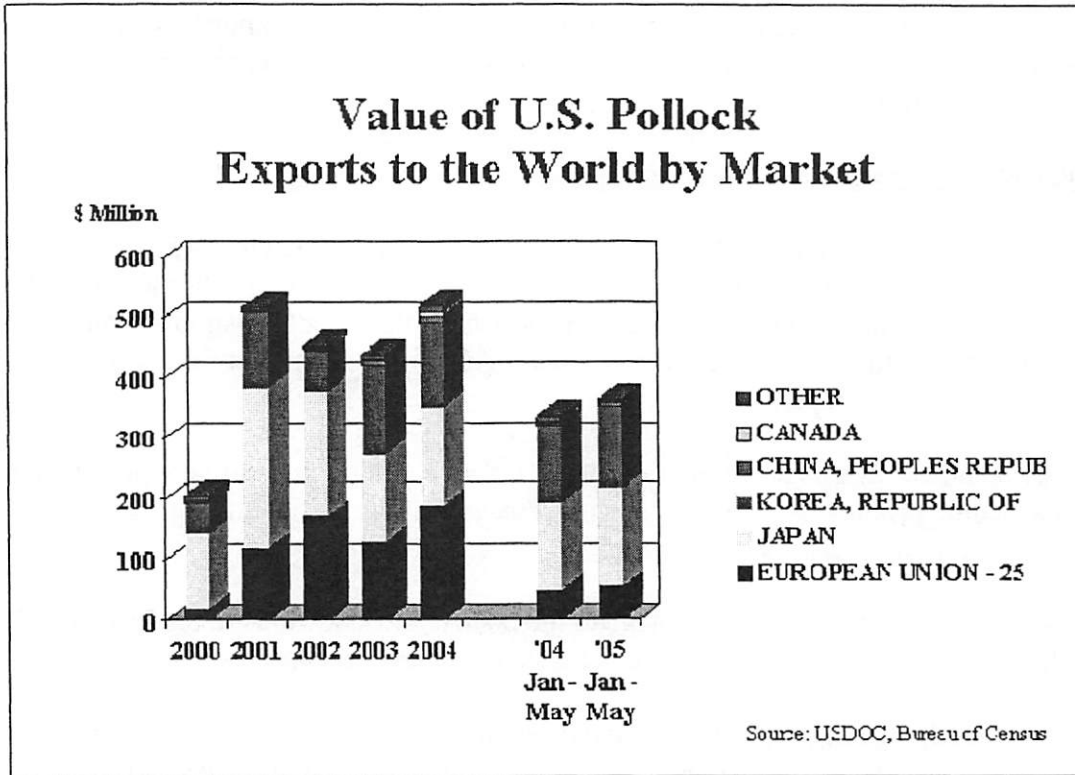


Figure 4. Value of pollock roe, fillets, and other products combined 2000-2004 and "A" season 2004 and 2005 compared. (Source: Fishery Products Market News http://www.fas.usda.gov/ffpd/Fish-Circular/Market_News/market.html)

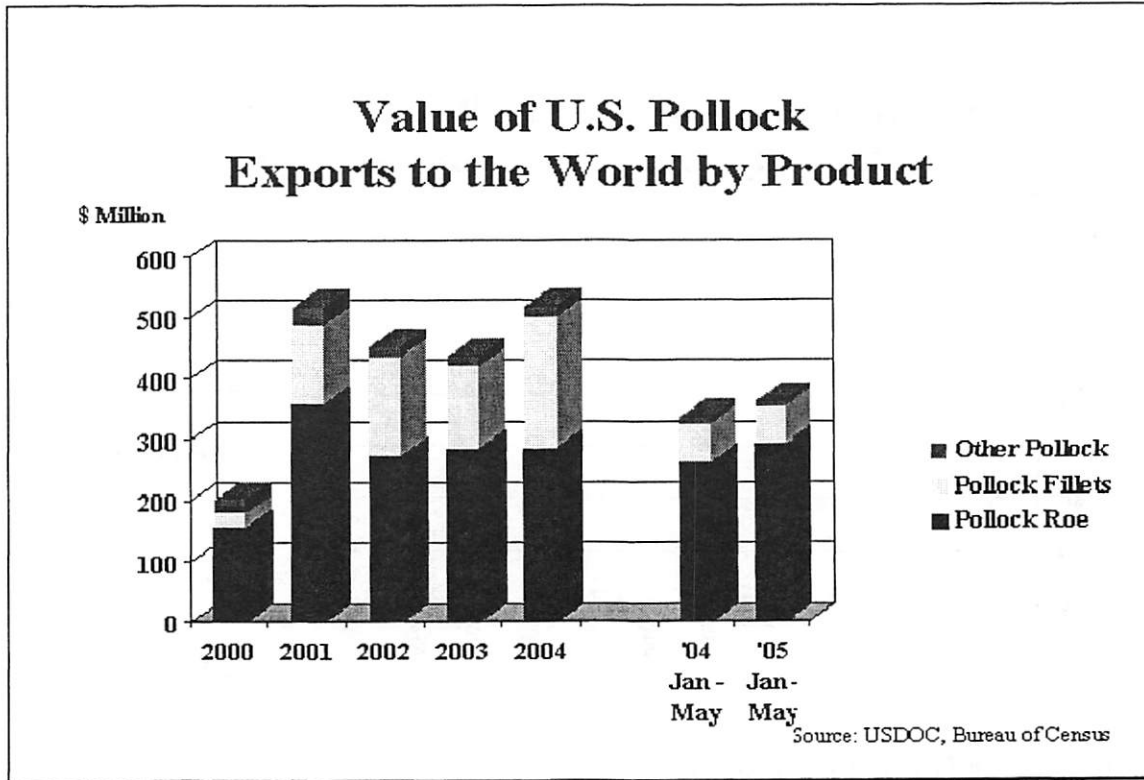
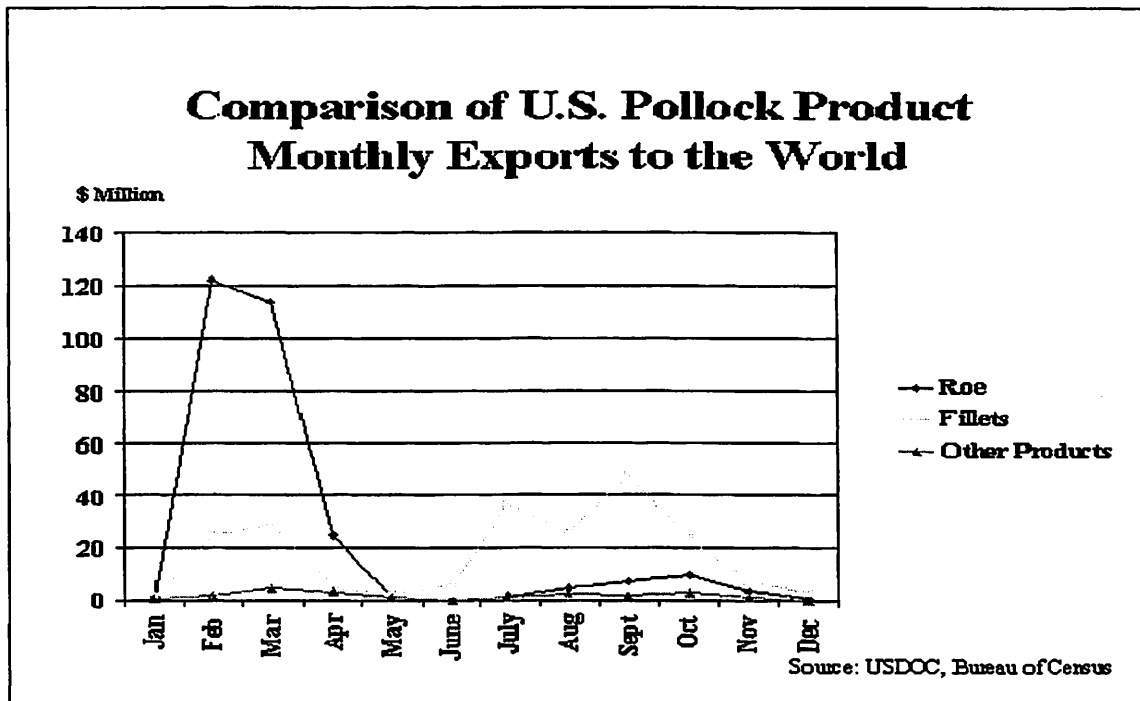


Figure 5. Monthly pollock export value by product type in 2004. (Source: Fishery Products Market News http://www.fas.usda.gov/ffpd/Fish-Circular/Market_News/market.html)



2. Impacts on Other BSAI Fisheries

Would the Season Change be for the Pollock Fishery Only?

An initial question for the Council to address is whether this 5-day earlier “A” season would be for the pollock fishery only or should it be applicable to other fisheries as well. Some industry sectors suggest that the Council should consider adjusting the start date for the “A” season for other groundfish trawl fisheries in the EBS so that they too commence with the pollock fishery.

Impacts on Other Trawl Fisheries

In effect, an earlier start of the pollock “A” season would provide an additional five days of fishing for the AFA fleet since the “A” season pollock quota is generally gone well before the regulatory end of the season. Some are concerned that providing an early start to the pollock season could result in listed AFA pollock catcher/processor vessels completing their harvest earlier, freeing these vessels to fish for other species such as yellowfin sole or P. cod earlier, or more intensively, than they would under the current season dates. Figure 6 illustrates locations of pollock harvesting activities during January 20-24 and Figure 7 shows P.cod and rock sole trawl locations during the same time period. Other sectors have expressed concern over the potential additional competition

for harvesting. The AFA pollock fleet has a large harvesting and processing capacity which could disadvantage other fisheries in a race for a particular species. Although sideboards for these species are in place, these AFA vessels have not always reached those limits; some believe that an earlier start by listed AFA catcher/processors in a sideboard fishery could result in them harvesting a larger proportion of the sideboard limits, reducing the volume of fish available to other fleets and increasing competition. Fisheries with sideboards for listed AFA catcher/processor harvests include primarily Pacific cod, yellowfin sole, rockfish, and several other flatfish fisheries.

Figure 6. Locations of pollock trawl locations during the period January 20-24 for the years 2001, 2002, and 2004.

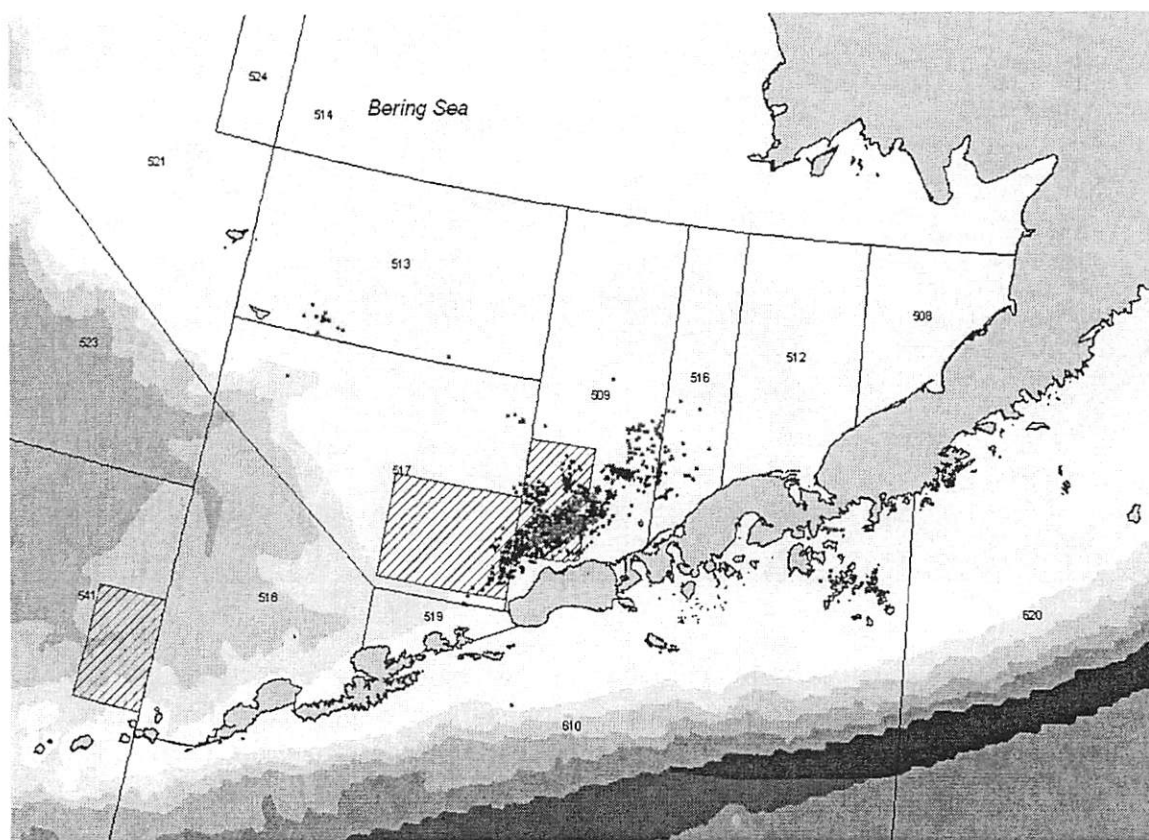
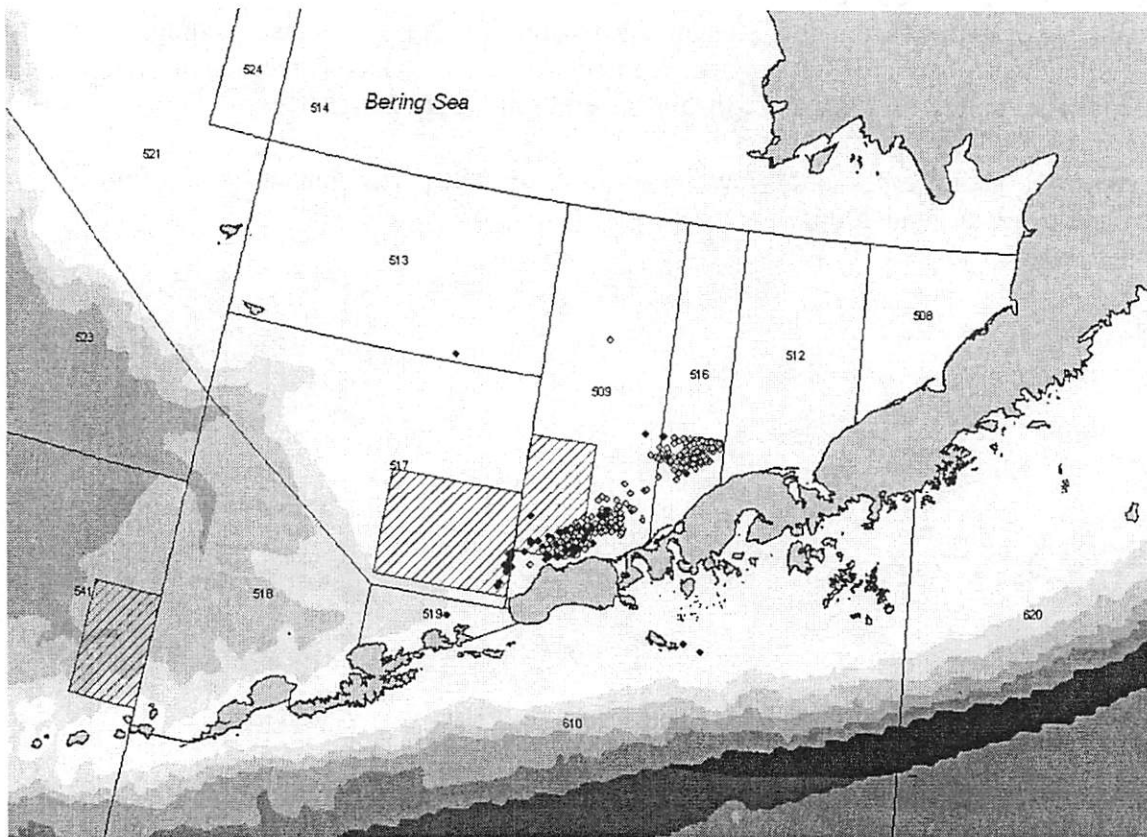


Figure 7. Locations of Pacific cod and rock sole trawl locations during the period January 20-24 for the years 2001, 2002, and 2004.



AFA catcher vessels are similarly restricted from harvesting other target groundfish stocks in the BSAI and have harvest sideboard limits for these fisheries. Similar effects from AFA catcher vessels on other fisheries could occur as described for listed AFA catcher/processors.

Some have raised a concern that in those years when pollock roe was not of optimal quality at the beginning of the “A” season, the AFA fleet (or portions of the fleet) could choose to delay fishing for pollock until roe maturity improved, and those vessels would instead focus on other groundfish. If the “A” season were set to begin even 5 days earlier, then under such a scenario other sectors might be further affected by the increased competition. Some in the pollock industry have suggested that this scenario could be eliminated by a provision limiting early “A” season AFA vessel fishing activity to pollock only.

Some industry representatives believe that, in practice, the BSAI currently experiences a race for P. cod among non-AFA vessels, AFA exempt vessels, and some AFA non-exempt vessels. Some assert that an earlier pollock “A” season would be a possible

advantage to AFA non-exempt vessels, because they could complete the pollock fishery and then move that much earlier into P. cod, adding competitive pressure to those already participating.

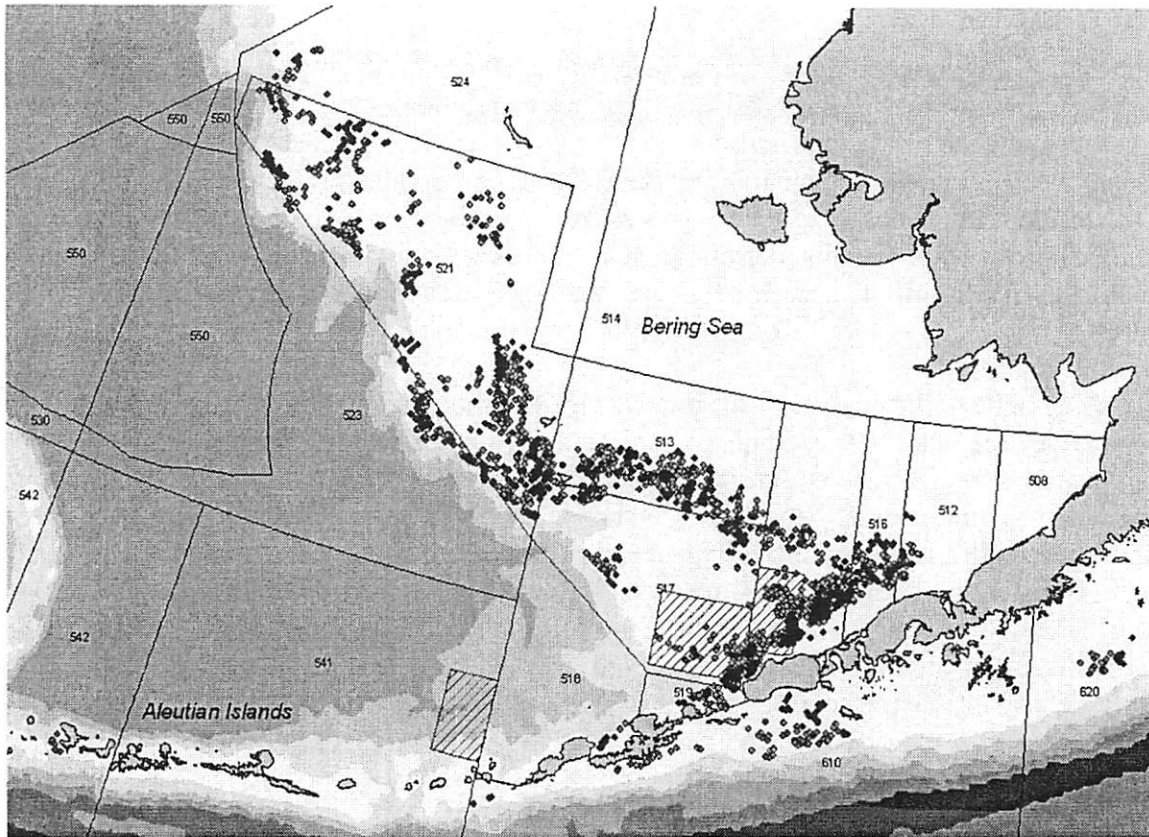
Options the Council could consider to reduce interactions between an AFA fleet fishing earlier in the "A" season and other BSAI fishermen might include a stand-down period or other measures to retain the current length of time listed AFA catcher/processor or catcher vessels can participate in other BSAI fisheries. Or some of these other non-AFA fisheries could be allowed to start 5 days earlier as well, either with or without restrictions on AFA vessel participation. Or the Council could restrict the AFA pollock fleet to a pollock-only fishery at the beginning of the EBS trawl season or for 5 days at the end.

But some believe that an early start for other trawl fisheries might have little or no compensating effect. For example, in mid January, some target species may not be aggregated or may not be mature, or markets may not be optimal, and thus providing an additional period of fishing for these sectors could have little or no benefit to them. Another scenario is that by providing an early start date for other trawl fisheries, this could result in their reaching their respective quotas more quickly. This could be considered a disadvantage if it lengthens the period these vessels must wait at the end of a particular fishery until the next fishery opens, causing vessels to stand down or return to port, thereby increasing cost.

Impacts on Fixed Gear Fisheries

Some assert that fixed gear fisheries could be affected to some extent by an earlier start date for the EBS pollock fishery. The longline fishing season opens in the Bering Sea on January 1, and the longline fleet has about 20 days of fishing time to prospect and locate optimal fishing grounds before trawl gear is deployed in the Bering Sea. Some in the fixed gear fishery sector believe they could be disadvantaged if that 20-day fishing period open only to fixed gear is shortened. The pollock trawl fleet might operate in some areas where fixed gear fisheries would operate, perhaps changing cod schooling behavior or preempting some areas of the fishing grounds and displacing fixed gear fisheries earlier than would occur under the status quo (Figure 8). Overlap of trawl and longline fisheries could be exacerbated in years when more geographically extensive ice conditions reduced the area of fishing grounds in the Bering Sea.

Figure 8. Locations of *P. cod* longline sets during January 1-20 for the years 2001, 2002, and 2004.



Impacts on Crab Fisheries

The EBS pollock "A" season occurs at the same time as the scheduled *opilio* and *bairdi* Tanner crab and brown king crab seasons, and may overlap spatially with these crab fisheries. While this overlap occurs currently, gear conflicts or grounds preemption issues have largely been avoided. It is unlikely that a 5-day earlier pollock "A" season would exacerbate this situation.

Now that a rationalization program is in place for the crab fisheries, it is unclear if there might be some kind of future effects of an earlier EBS "A" season on these crab fisheries. It may take some time for the crab fisheries to evolve and establish specific patterns of fishing activity in time and space before a clear answer might emerge. The complex interplay between weather, processor needs, markets, and other fisheries would require more research and analysis to better characterize how these issues might play out if there is a change in the EBS pollock "A" season.

3. Effects on Sideboard Fisheries in the GOA

If the EBS pollock fishery starts earlier, it is possible that the fishery could be completed earlier, allowing non-exempt and exempt AFA catcher vessels an earlier opportunity to move into the GOA and harvest groundfish there. To what extent earlier participation of these vessels in the GOA might affect the GOA-based fleet is unknown but could be similar to concerns listed above for other groundfish fishery sectors in the Bering Sea.

Under provisions of the AFA, non-exempt AFA catcher vessels have harvesting sideboard limitations in the GOA. AFA vessels that harvest pollock in the Bering Sea can fish in the GOA, but only up to specific quota limits. These limits protect GOA fishery sectors that have not benefited from provisions in the AFA from fishermen who have received exclusive harvesting privileges under the AFA. There is a segment of the AFA catcher vessel fleet that is exempt from harvesting sideboards – these are catcher vessels less than 125 ft LOA that have smaller harvesting privileges in the EBS pollock fishery and have significant historic participation in the GOA fisheries. There are approximately 16 exempt AFA catcher vessels.

Besides AFA catcher vessels being sideboarded based on harvesting history, there are additional restrictions that apply. Any catcher vessel fishing groundfish in the Bering Sea, when the Bering Sea is open to directed pollock fishing, cannot trawl in the WGOA or CGOA until three days after landing or offloading all groundfish. AFA catcher vessels are further restricted for pollock fishing in the GOA and are prohibited from fishing in the roe season or the non-roe season in both the EBS and the GOA during the same year. A vessel must choose between fishing in the EBS from January 20 to June 10 or fishing in the GOA from January 20 to May 31 for the roe season or fishing June 10 to November 1 in the EBS or August 25 to November 1 in the GOA for the non-roe season. Vessels less than 125 feet LOA are exempt from this restriction when fishing east of 157 degrees W (basically east of Sutwik Island at the eastern edge of the Shumagin Islands). Thus the pollock sideboard protection measures are more restrictive to AFA catcher vessels in the WGOA and part of the CGOA, and thus any possible effects of an earlier EBS pollock “A” season may be less in these areas. The above scenarios are largely theoretical. In practice, the GOA quotas for many fisheries for which AFA vessel sideboards exist close well before any AFA vessels could participate.

Given the above restrictions, and with a 5-day early start to the EBS pollock “A” season, an AFA cooperative could structure an intra-coop agreement that apportioned its pollock quota to all but, say, one of its member vessels, freeing that vessel to fish the GOA during the A/B season while the remaining coop vessels fished the coop’s EBS quota – using the extra 5 days of fishing time to harvest what the excluded vessel would have fished. Such a situation could result in greater harvesting capacity introduced into the GOA.

4. Impacts on PSC or Other Species Bycatch

When the Council approved Amendment 19 to the BSAI FMP (1992), the Council had determined that BSAI trawl fisheries bycatch rates for halibut, salmon, crab, and herring

often were higher early in the year, and decided to delay the start of the BSAI trawl fisheries to reduce those bycatch rates. While the Council recognized that bycatch rates were variable from year to year, the Council determined that delaying the start of trawl fisheries from January 1 to January 20 would benefit these PSC species, particularly Chinook salmon which showed the greatest potential benefit from a later season start date. Fixed gear fisheries were not considered a major concern and their start dates were left at January 1.

Today the Bering Sea pollock fishery is prosecuted under different conditions than were extant at the time Amendment 19 was implemented. The fishery in the early 1990s occurred before the American Fisheries Act and before the advent of pollock fishing cooperatives, and occurred under the Olympic system and its race for fish. Harvesting patterns and PSC bycatch rates and locations likely were different then than now. Also, Amendment 57 prohibited the use of nonpelagic trawl gear in the directed pollock fishery, thereby reducing concerns over bycatch of halibut and crab. In recent years, Chinook bycatch rates have been fairly level over the early part of the "A" season, occasionally spiking higher later in the "A" season (see Figure 9). It is probably reasonable to assume that the Chinook bycatch rate for the period January 15-20 would be similar to the recent January 20-25 rates.

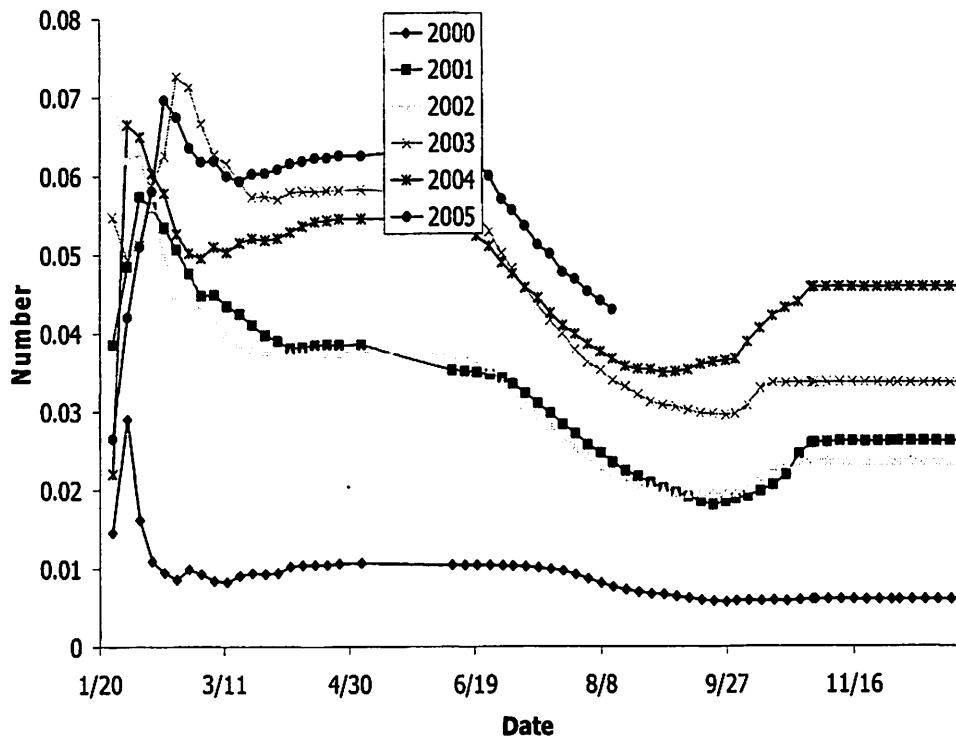
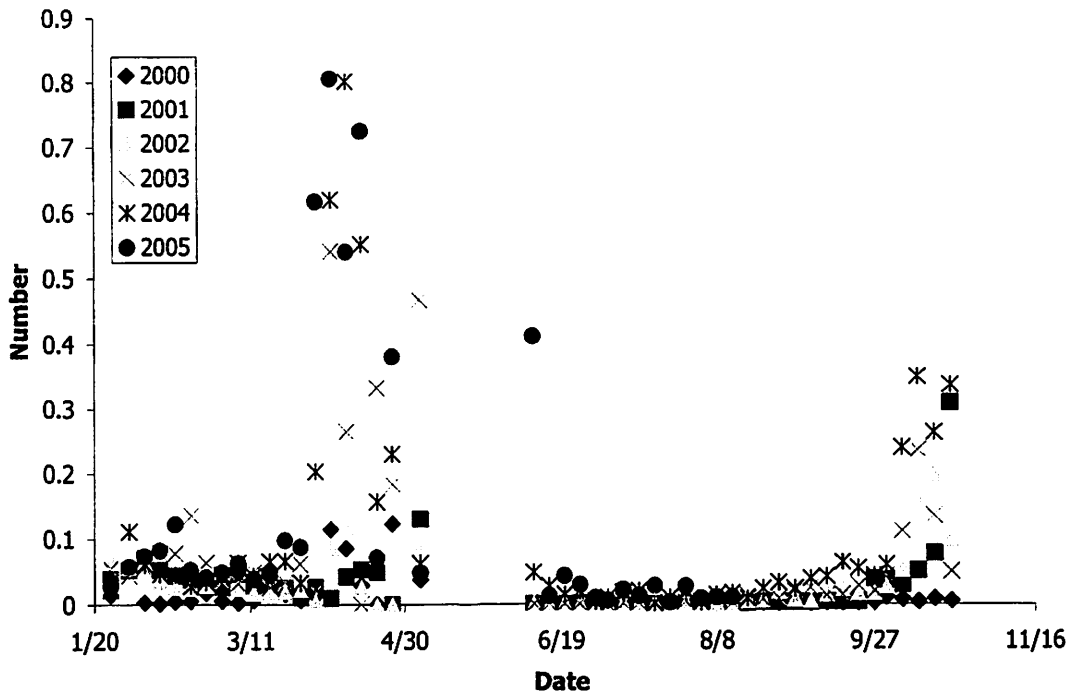


Figure 9. Chinook salmon catch rate (number per ton of pollock) based on observed vessels only (2000-2005). Top panel represents the average bycatch at 5-day intervals while the bottom panel represents the cumulative number per ton of pollock. Data for 2005 are preliminary and extend to Aug. 13, 2005.

A related issue is the potential for an earlier closure of the Chinook Salmon Savings Area (CSSA) in the Bering Sea. If a 5-day earlier fishery results in sufficiently-increased Chinook bycatch amounts such that the Chinook cap is hit prior to April 15, then the CSSA would close prior to April 15. In recent years that trigger has not been pulled but it was close in 2003-2005 (table below). Perhaps starting the pollock fishery earlier could provide an opportunity for increased Chinook bycatch such that the cap is reached before April 15, causing the fishery to be excluded from the CSSA during part of the "A" season. This could force the fleet into less desirable fishing areas, possibly into areas with higher PSC or other target species bycatch rates. If the Council chooses to start other trawl fisheries early as well, those fisheries also could encounter higher Chinook bycatch rates.

Year	Chinook non-CDQ Bycatch cap to Close CSSA	Non-CDQ Chinook Bycatch Jan 20-April 15
2001	37,925	16,679
2002	34,225	20,378
2003	30,525	32,103*
2004	26,825	22,822
2005	26,825	26,346

* CSSA not closed prior to Apr 15 in 2003; bycatch amount calculated later in year
 Note: 2000-2001 data from blend; 2003-2005 from Catch Accounting System

Another factor to consider is that the cumulative annual Chinook and "other" salmon bycatch has increased in recent years; the reasons for these increases and potential measures to reduce bycatch are currently being examined by the Council. Under current salmon bycatch management in the EBS, the AFA cooperative fleet uses a voluntary hotspot salmon bycatch avoidance system, which would likely continue regardless what fishing season start dates were in place and perhaps maintain current rates. The Council is considering a change in how salmon bycatch is managed in the Bering Sea, possibly involving an expanded voluntary hot spot bycatch management program without salmon savings areas in place, and this future program also could affect salmon bycatch patterns. In turn, the analysis supporting the Council's preferred new alternative salmon bycatch program in the Bering Sea could be affected by a pollock fishery season change, and the new salmon bycatch program might be reevaluated accordingly. And the seasonal distribution of salmon may be different now because of changes in ocean conditions or salmon behavior, further affecting potential bycatch rates. Analysis of these factors and their various permutations would be required to better characterize the implications to salmon or other PSC bycatch from a change in the BSAI pollock fishery "A" season. An analysis of recent EBS pollock fishery salmon bycatch rates has been conducted by the Council; that analysis might be expanded to include alternative fishery start dates to examine potential effects on salmon bycatch.

Another possibility is that, with an earlier season start, and assuming pollock roe were in optimal quality and the harvest was more efficient and harvest amounts were higher early in the season, the pollock fleet might harvest its "A" season quota more quickly, shortening the season and potentially reducing PSC bycatch.

Industry is experimenting with alternative pollock trawl designs that include salmon excluder devices. If the industry sees a benefit from a salmon excluder in reducing salmon bycatch rates, it is likely that this new gear would affect salmon bycatch rates regardless what the season opening date was.

Listed AFA catcher/processors that harvest other target groundfish stocks in the BSAI area have PSC sideboard limits. PSC caught by listed AFA catcher/processors that participate in most BSAI groundfish fisheries other than pollock accrue PSC bycatch toward these PSC sideboard limits. Some of these listed AFA catcher/processors may fish earlier, or for a longer period of time, as a consequence of starting the EBS pollock "A" season earlier, perhaps encountering higher PSC bycatch rates. Harvest of sideboard quotas by these vessels could change if PSC limits are reached earlier. It is unclear that attaining sideboard PSC limits faster would affect other fisheries. Currently other groundfish fisheries experience seasons with low participation from AFA vessels, but if that changes to some degree, then the fishing opportunities they have also may change.

AFA catcher vessels are similarly restricted from harvesting other target groundfish stocks in the BSAI and have PSC sideboard limits for these fisheries. And non-exempt AFA catcher vessels that fish sideboard quotas in the GOA have PSC sideboard limitations. If these vessels fish earlier in the GOA, it is possible they may encounter different PSC bycatch rates that could affect how soon those PSC limits are reached. Again, it is unclear whether such scenarios could affect other fisheries.

As with salmon, other PSC bycatch rates could be different if the pollock fishery started earlier. Halibut, crab, other salmon, and herring bycatch rates would likely remain at similar rates during a fishery that occurred 5 days earlier, and higher bycatch amounts could accrue earlier in the season as a result. Bycatch of non-target groundfish also could change with a pollock season change.

If the Council extends the 5-day earlier season to other trawl fisheries, bycatch could change in each of those fisheries also. Or if the early season is not allowed in other trawl fisheries, but some level of grounds preemption or displacement occurs, other fisheries might incur different PSC or other target species bycatch rates in these other fishing areas. Analysis of historic bycatch rates in these fisheries could provide some insights into possible domino effects.

5. Effects on CDQ Fisheries

CDQ fisheries likely could be affected in ways similar to those discussed above. While these are individually smaller fisheries, CDQ groups may experience different effects on their fisheries performance depending on the nature of each group's fishing plans for a particular "A" season. For the most part, CDQ pollock fisheries are prosecuted by the same AFA vessels fishing the directed pollock quotas, so conflicts are unlikely. Some suggest that the CDQ fisheries could benefit from an enhanced economic return that could accrue to the overall pollock industry from a 5-day earlier start to the "A" season.

The CDQ pollock season in the BSAI is the same as the EBS pollock season, starting January 20. Would the Council consider changing the start date for the CDQ pollock fishery also if it chooses to begin the EBS pollock season earlier? And if other trawl fishery start dates are changed to match the EBS pollock fishery, would this apply to other CDQ fisheries? And to what extent might changes in CDQ fisheries affect the rates of PSQ bycatch in these fisheries? Currently CDQ fisheries are allocated 7.5 percent of the PSC for Chinook and other salmon and for halibut and the crab species.

6. Effects on Protected Species

Seabirds and marine mammals could be affected by an earlier pollock "A" season in the EBS. Additional fishing effort in the EBS could increase seabird injury or mortality, but probably at the rate currently experienced in this region in the mid- to late-January time period. An earlier closure of the season could reduce seabird and marine mammal interactions.

Similar interactions with marine mammals could be an issue of concern, particularly with Steller sea lions. In the 2001 Biological Opinion, NMFS determined that pollock is an important prey item for SSLs and established restrictions on the pollock fleet to buffer fishing activities from SSL prey in Critical Habitat. SSL researchers have determined that the winter season between November and April/May is a particularly sensitive time period for juvenile and lactating female sea lions that are foraging on pollock and other prey items. SSL protection measures provide for a closure of the GOA and BSAI to pollock fishing November 1-January 20. Starting the EBS pollock season earlier than January 20 would result in earlier removals of pollock from the EBS, possibly reducing the foraging opportunities for some SSLs. This issue could require a formal Section 7 consultation under the ESA to determine any possible concerns over jeopardizing SSLs or adversely modifying their critical habitat.

It is unclear how an earlier EBS pollock "A" season would affect the regulatory apportionment of the pollock DFA. Under Steller sea lion protection measures, only 40 percent of the quota can be harvested in the "A" season. And under regulations at 679.22(a)(7)(vii), the pollock harvest from the Steller sea lion conservation area (SCA) is limited to no more than 28 percent of the annual DFA before April 1. A 5-day longer pollock "A" season could speed the attainment of the 40 percent limit, or even the 28 percent limit in the SCA, although vessels in the SCA could simply move out to other fishing grounds. Historic patterns of fishing inside and outside the SCA, including PSC and other bycatch rates, would be required to better characterize this potential issue.

Also, endangered species of salmon and steelhead originating from streams in the Northwest U.S. may occur in the Bering Sea. In a 1999 Biological Opinion, NMFS determined that a Chinook bycatch limit of 55,000 would likely protect these ESUs from excessive bycatch mortality in groundfish fisheries in the BSAI region. The 1999 Incidental Take Statement (ITS) was superseded by the FMP 2000 BiOp and ITS which set a limit of 55,000 Chinook salmon in the BSAI groundfish fisheries. However, in

2004 this limit was exceeded, triggering a reinitiation of formal consultation between the NMFS Alaska Region and NMFS Northwest Region. At the current rate of Chinook salmon bycatch, the limit could be exceeded in 2005 as well, perhaps requiring another consultation depending on the actual level of bycatch. The bycatch of Chinook salmon was 40,866 as of September 17, 2005. An early start date for the pollock fishery could raise ESA issues with endangered or threatened salmonid ESUs if the bycatch of Chinook salmon were to increase as a result.

7. Effects on the Benthic Environment

Pollock harvest in the BSAI may only be conducted with pelagic trawls (regulations at 679.24(b)(4)) and operated within the trawl performance standard at 679.7(a)(14). This standard requires that no more than 20 crabs with a carapace width of >1.5 inches can be on board at any one time. Pelagic trawls can be fished near or on the seafloor, depending on where pollock targets occur or whether the seafloor is too rugged to risk fishing near bottom. While it may be unlikely that starting the "A" season earlier will result in more bottom contact, if pollock aggregations are found to be closer to the bottom earlier in the season, the potential increased bottom contact could affect benthic habitat.

Some Thoughts on the Current Fishery Management Balance

Based on the preceding discussion and the current state of the FMPs, one thing that is evident is the state of regulatory equilibrium. Some might characterize the status quo groundfish fisheries in the BSAI and GOA as being in a delicate but necessary "balance" among the many different and competing interests. Over a period of nearly 30 years under the Council process, gear groups have each established fishing patterns that "work" for them. The AFA has rationalized a large BSAI fishery and to some extent made fishing practices of the vessels involved in the AFA fishery more predictable. In all of the BSAI and GOA fisheries, PSC limits and apportionments have been developed through years of trials. Target species quotas and apportionments to sectors, seasons, CDQ groups, and as ICA for various fisheries have been established and many of the allocative decisions are largely suggested by industry itself. In short, the GOA and BSAI fisheries exist in a state of regulatory equilibrium.

Generally, change in a fishery, no matter how small it may be, may have consequences that alter this regulatory equilibrium. In rationalized fishery systems, every sector participating in those fisheries each has received a level of control over its own fishery. Change in a particular fishery sector, then, would be "felt" primarily in that sector and would be "worked out" within the sector in most cases. However, in a system not yet fully rationalized, where rationalized fisheries are prosecuted concurrently with fisheries that are still in a race for fish, even a change that may appear small and inconsequential in one sector, particularly a rationalized sector, can still have, or at least initially can be perceived to have, undesirable consequences to another sector. Thus, as is usually the case, a socio-economic review and analysis of the balance among these systems in the Bering Sea, as it might relate to a change in fishing seasons, would identify these issues.