

MEMORANDUM

TO: Council, SSC, and AP Members

FROM: Chris Oliver *CO*
Executive Director

DATE: June 3, 2003

SUBJECT: Alaska Groundfish Programmatic SEIS

ESTIMATED TIME 12 HOURS

ACTION REQUIRED

- (1) Review analysis from revised draft.
- (2) Select a preliminary preferred alternative to include a policy statement and bookends.
- (3) Identify a preliminary timeline for implementing the additional management measures associated with the preferred alternative (identified in the bookends).
- (4) Review methodology for revised draft analysis (SSC only).

BACKGROUND

In June 2002, the Council adopted a set of alternatives to be analyzed in the revised draft Programmatic SEIS for the Alaska Groundfish Fisheries. The revised draft is nearing completion, and in order to keep on the court-ordered schedule for releasing the document, the Council needs to select a preliminary preferred alternative at this meeting.

Although the complete draft document is not available for review at this meeting, due to the size of the document and the accelerated schedule on which the analysis has been undertaken, the key impacts sections of the document have been made available to the Council family (mailed out separately) and the public. A copy of the policy-level impact summary is attached as Item C-2(a). Mr Steve Davis and other project authors will present a detailed overview of the PSEIS findings at this meeting.

The Council will recommend a preliminary preferred alternative that will be identified in the revised draft PSEIS. This alternative consists of two parts: (1) a preliminary preferred policy statement, that includes a management approach statement and a series of goals and objectives, and (2) an accompanying set of example FMP bookends, that will indicate the range of management measures the Council intends to pursue in order to further implement its policy. A set of worksheets has been included as Item C-2(b) to assist the Council in this process. The alternatives and example FMP bookends have also been attached for your reference (Item C-2(c)), as well as a narrative description of the alternatives and example FMPs (Item C-2(d)).

Additionally, the Council will also be asked to identify a preliminary timeline that will indicate the relative priority level and approximate timeline under which the Council will seek to implement the management measures identified in the example FMP bookends. A timeline of ongoing and pipeline management actions that are already within the Council's notice is attached as Item C-2(e), as a tool to assist the Council in developing the timeline.

The Council's preliminary preferred alternative will be analyzed and included with the timeline in the revised draft PSEIS to be released to the public in early September. In spring of 2004, after the public comment period and analysis of the comments, the Council will be asked to revisit its preliminary preferred alternative and finalize it for inclusion in the Final PSEIS, to be released to the public in summer of 2004. The schedule milestones are shown in more detail below.

PROJECT MILESTONES:

- June 2003 Council to select a preliminary preferred alternative and a draft timeline
- September 2003 Release of revised draft PSEIS for public review, beginning of 45 day comment period
- December 2003 Summary of public comment presented to Council
- Spring 2004 Council finalizes the preferred alternative and timeline for the Final PSEIS; project team revises draft document
- Summer 2004 Release of Final PSEIS
- September 1, 2004 Record of Decision on the PSEIS is published by NOAA Fisheries
- Fall 2004 Preparation of FMP amendments to adopt the Council's new management policy; initiation of any other measures to implement the new policy

Additionally, as a follow-up to the multi-species model presented in April 2003, the SSC will also receive a presentation from project authors on the methodology for the revised draft PSEIS. This will include discussion of the significance criteria formulated for the analysis, and the models used.

TABLE 4.11-2 COMPARISON OF POLICY-LEVEL IMPACTS OF THE ALTERNATIVES

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	PPA
NOTE: The implication of a split color rating is that major components within the category will undergo a different impact under the alternative in question. To the extent possible, the rationale is explained in the bullets beneath.					
What is the impact of the policy on the sustainability of target stocks (preventing overfishing)?	<ul style="list-style-type: none"> • successful at preventing overfishing of target stocks, ensures sustainable fishery • no incentive to research those stocks on which impacts of fishing are unknown; possible to overharvest a vulnerable member of a stock complex 	<ul style="list-style-type: none"> • maximizes economic yield while preventing overfishing of target stocks, but not effective at preventing stocks from becoming overfished • increases the chance of unintentionally overfishing a stock 	<ul style="list-style-type: none"> • prevents overfishing of target stocks through precautionary harvest policies • acceleration of efforts to identify methods for reducing the number of stocks where the status relative to an overfished condition is unknown 	<ul style="list-style-type: none"> • establishes a very conservative harvest policy which is likely to prevent stocks from becoming overfished • protects most vulnerable species of a complex, but the resulting management would be difficult to implement 	
What is the impact of the policy on the stability of the food web and community structures (preserving the food web)?	<ul style="list-style-type: none"> • likely effective in protecting food web components that are more well-studied than others and those that are at critical population thresholds • uncertain whether sufficient protection is provided to others for which less-complete information is available 	<ul style="list-style-type: none"> • high potential to create adverse food web impacts through its lack of precaution for many food web components, which leaves no room for uncertainty 	<ul style="list-style-type: none"> • many improvements provide additional protection against uncertainty in order to achieve the goal of preserving the food web • if implemented, this strategy is likely to provide protection to a broad range of food web components 	<ul style="list-style-type: none"> • very successful in meeting the goal of preserving the food web, by providing large buffers against scientific uncertainty about ecosystem impacts • achieves protection of virtually all food web components and thus ecosystem function 	
What is the impact of the policy on bycatch (discards) and incidental catch?	<ul style="list-style-type: none"> • effective at limiting incidental catch of non-target species and reducing of bycatch • insufficient reporting of individual species catch, and catch in shallow water environments 	<ul style="list-style-type: none"> • may not be consistent with the goal of reducing and avoiding bycatch through developing practical measures that minimize bycatch 	<ul style="list-style-type: none"> • reductions likely to be achieved through incentives for more efficient use of fishery resources under cooperatives, comprehensive rationalization of fisheries or other bycatch incentive programs 	<ul style="list-style-type: none"> • bycatch and incidental catch reduction policies are effective • achieved through extreme reductions in target groundfish catch and strong bycatch and incidental catch limits 	
What is the impact of the policy on seabird and marine mammal interactions?	<ul style="list-style-type: none"> • effective at providing protection to ESA-listed seabirds and marine mammals • no objectives for protecting non-listed species 	<ul style="list-style-type: none"> • retains protection measures for ESA-listed species, but does not go beyond ESA-required measures • high potential to increase fishery interactions with seabirds and marine mammals which may result in adverse impacts to those species 	<ul style="list-style-type: none"> • goal of minimizing human-caused threats to protected species is largely met • likely to provide increased protection to marine mammals and seabirds 	<ul style="list-style-type: none"> • very successful at avoiding impacts to seabirds and marine mammals • specific objectives to protect all seabirds from fishing interactions, and extend protection measures for Steller sea lion critical habitat and prey base 	
What is the impact of the policy on protecting marine habitat?	<ul style="list-style-type: none"> • likely effective in protecting habitat components that are more well studied than others; uncertain whether sufficient protection provided to habitat components for which there is less complete information • coupled with historical impacts could cause long term and possible irreversible loss of living habitat, especially long-lived, slow growing species 	<ul style="list-style-type: none"> • increased impacts to habitat because of less precautionary management measures • potential changes may result in adverse impacts that may be hard to reverse, especially for long-lived, slow recovering living habitats 	<ul style="list-style-type: none"> • historical impacts could cause long-term and possible irreversible loss of living habitat, especially long-lived, slow growing species • potential to reduce and avoid impacts to habitat by careful placement of closures; in lightly/not fished areas could result in avoidance of future impacts; in heavily fished areas can mitigate for impacts, reduce unintended consequences and achieve overall benefits 	<ul style="list-style-type: none"> • combination of highly precautionary measures associated with increasing marine reserves and other closure areas will likely achieve protection of, and avoidance of impacts to, habitat 	
What is the impact of the policy on the value of marine resources (commercial and non-commercial)?	<ul style="list-style-type: none"> • continues to provide economic and community stability within the current system while adapting management programs when the need arises 	<ul style="list-style-type: none"> • potential to increase allowable catches is expected to significantly increase revenues, but would also increase operating costs • non-market, recreational, and tourism values are expected to decline because of the reduced emphasis on these benefits 	<ul style="list-style-type: none"> • increased social and economic benefits through the elimination of the race-for-fish while also emphasizing the long-term economic value of the fishery • promotes ecosystem based management and is likely to increase non-commercial values assigned to the ecosystem 	<ul style="list-style-type: none"> • results in substantial reductions in allowable catches and could also result in the closure of large portions of traditional fishing areas, could jeopardize the continued viability of coastal communities • goals of incorporating and enhancing non-consumptive use values are met 	
What is the impact of the policy on Alaska Native participation in fishery management, and their traditional ways of life?	<ul style="list-style-type: none"> • Alaska Native consultation and participation in fishery management, and subsistence, would continue to comply with federal law 	<ul style="list-style-type: none"> • Alaska Native consultation and participation in fishery management, and subsistence, would continue to comply with federal law • increased fishing effort would result in increased economic benefits to fishery participants (particularly CDQ), but potentially increased salmon bycatch 	<ul style="list-style-type: none"> • increase current participation and consultation in fishery management by expanding informal and formal consultation and TK data collection • rationalization and additional area closures may benefit subsistence by reducing salmon bycatch 	<ul style="list-style-type: none"> • directly involves Alaska Natives in fishery management through the development of co-management or cooperative research programs • other goals, that greatly reduce or eliminate commercial fishing, would adversely impact Native communities 	
What is the impact of the policy on data quality, monitoring and research requirements?	<ul style="list-style-type: none"> • data collection program will continue to meet minimum acceptable standards • aspects of the program, such as non-random coverage in the 30% component of the fleet, could be improved 	<ul style="list-style-type: none"> • maintains a minimum level of data collection to meet conservation requirements • consideration to repeal the Observer Program may compromise management on the best science available 	<ul style="list-style-type: none"> • likely to be effective in reducing uncertainty through data collection measures, such as improved observer catch monitoring data of target and non-target species, and expanded economic reporting data 	<ul style="list-style-type: none"> • expands research and monitoring programs to fill critical data gaps that may result in the modification of restrictive conservation and management measures • expansion of observer program coverage would result in more complete fishery data, particularly on vessels <125' LOA 	

KEY:

adverse impact may include adverse conclusions that are based on assumptions

no adverse impact if assumptions are correct; no room for uncertainty

no adverse impact if assumptions are correct; accounts for some level of uncertainty

beneficial impact if assumptions are correct; accounts for large level of uncertainty

PRELIMINARY PREFERRED ALTERNATIVE WORKSHEET

Management Approach

Prevent Overfishing:

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Preserve Food Web:

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Reduce and Avoid Bycatch and Incidental Catch:

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PRELIMINARY PREFERRED ALTERNATIVE WORKSHEET (con't)

Avoid Impacts to Seabirds and Marine Mammals:

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Reduce and Avoid Impacts to Habitat:

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Allocation Issues Promote Equitable and Efficient Use of Fishery Resources:

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Increase Alaska Native Consultation:

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Improve Data Quality, Monitoring and Enforcement:

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**REVISED DRAFT PSEIS
PRELIMINARY PREFERRED ALTERNATIVE WORKSHEET**

ITEM C-2(b)
JUNE 2003

		Preliminary Preferred Alternative	
		0.1	0.2
TAC-setting Process	ABC, OFL, TAC, & OY definitions	↔	↔
	Precautionary adjustments	↔	↔
	management categories	↔	↔
	ecosystem considerations	↔	↔
	inseason management		
Spatial/ Temporal Mgmt of TAC		↔	
MPAs and EFH	closure areas	↔	↔
	EFH and HAPC		

REVISED DRAFT PSEIS
PRELIMINARY PREFERRED ALTERNATIVE WORKSHEET

ITEM C-2(b)
 JUNE 2003

		Preliminary Preferred Alternative	
		0.1	0.2
SSL Measures	SSL protection closure areas	↔	
	SSL prey base protection measures	↔	
Bycatch and Incidental Catch Restrictions	PSC limits	↔	
	IRIU	↔	
	bycatch and incidental catch restrictions, incentive programs	↔	
	closure areas	↔	
	inseason management measures	↔	
Seabird Measures		↔	
		↔	

**REVISED DRAFT PSEIS
PRELIMINARY PREFERRED ALTERNATIVE WORKSHEET**

ITEM C-2(b)
JUNE 2003

		Preliminary Preferred Alternative	
		0.1	0.2
Gear Restrictions and Allocations	gear restrictions (incl spatial)	↔	
	gear allocations		
Overcapacity		↔	
		↔	
		↔	
		↔	
		↔	
Alaska Native Issues	TK	↔	
	Consultation	↔	
		↔	
Observer Program	Coverage	↔	
	Conflict of interest	↔	
	Improvement in data	↔	
Data and Reporting Requirements	Reporting requirements	↔	
	Scales		
	VMS	↔	

ALTERNATIVE 1(a)

Current BSAI Policy Statement (same as original 1979 FMP)

Section 3.2 of Bering Sea/Aleutian Islands FMP Goals for Management Plan

The North Pacific Fishery Management Council has determined that all its fishery management plans should, in order to meet the requirements of its constituency, the resources and FCMA, achieve the following goals:

1. Promote conservation while providing for the optimum yield from the Region's groundfish resource in terms of: providing the greatest overall benefit to the nation with particular reference to food production and recreational opportunities; avoiding irreversible or long-term adverse effects on the fishery resources and the marine environment; and insuring availability of a multiplicity of options with respect to the future uses of these resources.
2. Promote, where possible, efficient use of the fishery resources but not solely for economic purposes.
3. Promote fair and equitable allocation of identified available resources in a manner such that no particular group acquires an excessive share of the privileges.
4. Base the plan on the best scientific information available.

In accomplishing these broad objectives a number of secondary objectives have been considered:

1. Conservation and management measures have taken into account the unpredictable characteristics of future resource availability and socioeconomic factors influencing the viability of the industry.
2. Where possible, individual stocks of fish are managed as a unit throughout their range, but such management is in due consideration of other impacted resources.
3. In such instances when stocks have declined to a level below that capable of producing MSY, management measures promote the rebuilding the stocks. In considering the rate of rebuilding, factors other than biological considerations have been taken into account.
4. Management measures, while promoting efficiency where practicable, are designed to avoid disruption of existing social and economic structures where fisheries appear to be operating in reasonable conformance with the Act and have evolved over a period of years as reflected in community characteristics, processing capability, fleet size and distribution. These systems and the resources upon which they are based are not static, but change in the existing regulatory regime should be the result of considered action based on data and public input.
5. Management measures should contain a margin of safety in recommending allowable biological catches when the quality of information concerning the resource and ecosystem is questionable. Management plans should provide for accessing biological and socioeconomic data in such instances where the information base is inadequate to effectively establish the biological parameters of the resource or to reasonably establish optimum yield. This plan has identified information and research required for further plan development.
6. Fishing strategy has been designed in such a manner as to have minimal impact on other fisheries and the environment.

Current GOA Policy Statement (adopted through Amendment 14 in 1985)

Section 2.1 of GOA FMP Goals and Objectives for Management of Gulf Groundfish Fisheries

The North Pacific Fishery Management Council (NPFMC or the Council) is committed to develop long-range plans for managing the Gulf of Alaska groundfish fisheries that will promote a stable planning environment for the seafood industry and will maintain the health of the resource and the environment for the seafood industry and will maintain the health of the resource and the environment. In developing allocations and harvesting systems, the Council will give overriding considerations to maximizing economic benefits to the United States. Such management will:

1. Conform to the National Standards and to the NPFMC Comprehensive Fishery Management Goals.
2. Be designed to assure that to the extent possible:
 1. Commercial, recreational, and subsistence benefits may be obtained on a continuing basis.
 2. Minimize the chances of irreversible or long-term adverse effects on fishery resources and the marine environment.
 3. A multiplicity of options will be available with respect to future use of the resources.
 4. Regulations will be long-term and stable with changes kept to a minimum.

Principal Management Goal. Groundfish resources of the Gulf of Alaska will be managed to maximize positive economic benefits to the United States, consistent with resource stewardship responsibilities for the continuing welfare of the Gulf of Alaska living marine resources. Economics benefits include, but are not limited to, profits, benefits to consumers, income and employment.

To accomplish this goal, a number of objectives will be considered:

Objective 1: The Council will establish annual harvest guidelines, within biological constraints, for each groundfish fishery and mix of species taken in that fishery.

Objective 2: In its management process, including the setting of annual harvest guidelines, the Council will account for all fishery-related removals by all gear types for each groundfish species, sport fishery and subsistence catches, as well as by directed fisheries.

Objective 3: The Council will manage fisheries to minimize waste by:

1. Developing approaches to treating bycatches other than as a prohibited species. Any system adopted must address the problems of covert targeting and enforcement.
2. Developing management measures that encourage the use of gear and fishing techniques that minimize discards.

Objective 4: The Council will manage groundfish resources of the Gulf of Alaska to stimulate development of fully domestic fishery operations.

Objective 5: The Council will develop measures to control effort in a fishery, including systems to convert the common property resource to private property, but only when requested to do so by industry.

Objective 6: Rebuilding stocks to commercial or historic levels will be undertaken only if the benefits to the United States can be predicted after evaluating the associated costs and benefits and the impacts on related fisheries.

Objective 7: Population thresholds will be established for economically viable species complexes under Council management on the basis of the best scientific information, and acceptable biological catches (ABCs) will be established as defined in this document. If population estimates drop below these thresholds, ABC will be set to reflect necessary rebuilding as determined in Objective 6.

ALTERNATIVE 1(b)

Management Approach

Continue to work toward the goals of maintaining sustainable fisheries, protecting threatened and endangered species, and to protect, conserve, and restore living marine resource habitat through existing institutions and processes. Continue to manage the groundfish fisheries through the current risk averse conservation and management program that is based on a conservative harvest strategy. Under this management strategy, fishery impacts to the environment are mitigated as scientific evidence indicates that the fishery is adversely impacting the ecosystem. Management decisions will utilize the best scientific information available; the management process will be adaptive to new information and reactive to new environmental issues; incorporate and apply ecosystem-based management principles; consider the impact of fishing on predator-prey, habitat, and other important ecological relationships; maintain the statutorily mandated programs to reduce excess capacity and the race-for-fish; draw upon federal, state, and academic capabilities in carrying out research, administration, management, and enforcement; and consider the effects of fishing and encourage the development of practical measures that minimize bycatch and adverse effects of essential fishing habitat. This strategy is based on the assumption that fishing does produce some adverse impact on the environment and that as these impacts become known, mitigation measures are developed and FMP amendments are implemented. Issues will be addressed as they ripen and are identified through Council staff tasking and research priorities. The Council will continue to use the National Standards and other applicable law as its guide in practicing adaptive management and responsible decision making and to consistently amend FMPs accordingly. To meet the goal of this overall program, the Council and NMFS will seek to achieve the following management objectives:

Prevent Overfishing:

1. Adopt conservative harvest levels for single species fisheries and specify Optimum Yield (OY). [M, MSA-NS1; NAS SF]
2. Continue to use existing OY cap for BSAI and GOA groundfish fisheries.
3. Provide for adaptive management by continuing to specify OY as a range. [M, MSA to set OY; D to set as range]

Preserve Food Web:

4. Incorporate ecosystem considerations into fishery management decisions. [NAS SF]
5. Continue to protect the integrity of the food web through limits on harvest of forage species.
6. Develop a conceptual model of the food web. [EPAP]

Reduce and Avoid Bycatch:

7. Continue current incidental catch and bycatch management program.
8. Continue to manage incidental catch and bycatch through seasonal distribution of TAC and geographical gear restrictions.
9. Continue to account for bycatch mortality in monitoring annual TACs.
10. Control the bycatch of prohibited species through PSC limits.
11. Continue program to require full utilization of target species.
12. Continue to respond to evidence of population declines by closing areas and implementing gear and seasonal restrictions in affected areas.

Avoid Impacts to Seabirds and Marine Mammals:

13. Continue to cooperate with USFWS to protect ESA-listed and other seabird species. [M, ESA - listed species; D, other species]
14. Maintain current protection measures in order to avoid jeopardy to ESA-listed Steller sea lions. [M, ESA]

Reduce and Avoid Impacts to Habitat:

15. Respond to new scientific information regarding areas of critical habitat by closing those regions to all fishing (i.e., no-take marine reserves such as Sitka Pinnacles).
16. Evaluate the impacts of trawl gear on habitat through the stepwise implementation of a comprehensive research plan, to determine appropriate habitat protection measures.
17. Continue to evaluate candidate areas for marine protected areas. [EO 13158]

Allocation Issues:

18. Continue to reduce excess fishing capacity, overcapitalization and the adverse effects of the race for fish. [M, SFA to continue AFA Pollock cooperative program; D, other programs; NAS SF]
19. Provide economic and community stability by maintaining current allocation percentages to harvesting and processing sectors.

Increase Alaska Native Consultation:

20. Continue to incorporate traditional knowledge in fishery management.
21. Continue current levels of Alaska Native participation and consultation in fishery management. [EO 13084]

Data Quality, Monitoring and Enforcement:

22. Continue the existing reporting requirements and Observer Program to provide catch estimates and biological information.
23. Continue on-going effort to improve community and regional economic impact assessments.
24. Increase the quality of monitoring data through improved technological means.

ALTERNATIVE 2

Management Approach

Amend the current FMPs to establish a more aggressive harvest strategy while still preventing overfishing of target groundfish stocks. The goal would be to maximize biological and economic yield from the resource. Such a management approach will be based on the best scientific information available, take into account individual stock and ecosystem variability; involve and be responsive to the needs and interests of affected states and citizens; continue to work with state and federal agencies to protect threatened and endangered species; maintain the statutorily mandated programs to reduce excess capacity and the race-for-fish; draw upon federal, state, and academic capabilities in carrying out research, administration, management, and enforcement; and consider the effects of fishing and encourage the development of practical measures that minimize bycatch and adverse effects of essential fishing habitat. This strategy is based on the assumption that fishing does not have an adverse impact on the environment except in specific cases as noted. To meet the goal of this overall program, the Council and NMFS will seek to achieve the following management objectives:

Prevent Overfishing:

1. Prevent overfishing by setting an Optimum Yield (OY) cap at the sum of OFL or the sum of the ABCs for each species.
2. Provide for adaptive management by continuing to specify OY as a range. [M - MSA to set OY; D - to set as range]

Preserve Food Web:

(none)

Reduce and Avoid Bycatch:

3. Monitor the bycatch of prohibited species and adjust or eliminate PSC limits.
4. Manage incidental catch and bycatch through closure areas for selected gear types.

Avoid Impacts to Seabirds and Marine Mammals:

6. Maintain current protection measures to protect ESA-listed seabird species. [M, ESA]
7. Maintain current protection measures to avoid jeopardy to ESA-listed Steller sea lions. [M, ESA]

Reduce and Avoid Impacts to Habitat:

8. Evaluate the impacts of trawl gear on habitat through the implementation of the existing research plan, identify EFH, and determine appropriate habitat protection measures.
9. Continue to evaluate candidate areas for marine protected areas. [EO 13158]

Allocation Issues:

10. Maintain AFA and CDQ program as authorized by MSA. [M, SFA to continue AFA Pollock cooperative program; D other programs; NAS SF]

Increase Alaska Native Consultation:

11. Continue to incorporate traditional knowledge in fishery management.
12. Continue current levels of Alaska Native participation and consultation in fishery management.

Data Quality, Monitoring and Enforcement:

13. Continue the existing reporting requirements to provide catch estimates and biological information.
14. Continue on-going effort to improve community and regional economic impact assessments.
15. Consider repealing the Observer Program.

ALTERNATIVE 3

Management Approach

Accelerate precautionary management measures through community or rights-based management, ecosystem-based management principles, and where appropriate and practicable, increased habitat protection and additional bycatch constraints. This policy objective seeks to provide sound conservation of the living marine resources; provide socially and economically viable fisheries and fishing communities, minimize human caused threats to protected species; maintain a healthy marine resource habitat; and incorporate ecosystem-based considerations into management decisions. This policy recognizes the need to balance many competing uses of marine resources and different social and economic goals for fishery management. This policy will utilize and improve upon existing processes to involve a broad range of the public in decisionmaking. Further, these objectives seek to maintain the balanced goals of the National Standards and other provisions of the MSA as well as the requirements of other applicable law, all as based on the best scientific information available. This policy takes into account the National Academy of Science's Sustainable Fisheries Policy Recommendations. Under this approach, additional conservation and management measures will be taken as necessary to respond to social, economic or conservation needs, or if scientific evidence indicates that the fishery is negatively impacting the environment.

Prevent Overfishing:

1. Adopt conservative harvest levels for multi-species and single species fisheries.
2. Provide for adaptive management. Continue to specify OY as a range or a formula. [M - MSA to set OY; D - to set as range]
3. Initiate a scientific review of the adequacy of F_{40} and implement improvements accordingly. [D, MSA]
4. Continue to collect scientific information and improve upon MSSTs including obtaining biological information necessary to move Tier 4 species into Tiers 1-3 in order to obtain MSSTs.

Preserve Food Web:

5. Incorporate ecosystem-based considerations into fishery management decisions. [NAS SF]
6. Develop indices of ecosystem health as targets for management. [EPAP]
7. Improve the procedure to adjust ABCs as necessary to account for uncertainty and ecosystem factors such as predator-prey relationships and regime shifts.
8. Initiate a research program to identify the habitat needs of different species that represent the significant food web. [EPAP]

Reduce and Avoid Bycatch:

9. Continue and improve current incidental catch and bycatch management program.
10. Developing incentive programs for incidental catch and bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, VBAs, or other bycatch incentive systems.
11. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits as information becomes available.
12. Continue program to reduce discards by developing management measures that encourage the use of gear and fishing techniques that reduce discards.

Avoid Impacts to Seabirds and Marine Mammals:

13. Continue to cooperate with USFWS to protect ESA-listed and other seabird species. [M, ESA - listed species; D, other species]
14. Initiate joint research program with USFWS to evaluate current population estimates for all seabird species that interact with the groundfish fisheries.
15. Maintain or adjust current protection measures as appropriate to avoid jeopardy to ESA-listed Steller sea lions. [M, ESA]
16. Encourage programs to review status of other marine mammal stocks and fishing interactions (right whales, sea otters, etc.) and develop fishery management measures as appropriate.

Reduce and Avoid Impacts to Habitat:

17. Develop goals, objectives and criteria to evaluate the efficacy of marine protected areas and no-take marine reserves as tools to maintain abundance, diversity, and productivity of marine organisms. Consider implementation of MPAs if and where appropriate, giving due consideration to areas already closed to various types of fishing operations. [NRC MPA; EO 13158]
18. Develop a research program to identify regional baseline habitat information and mapping.
19. Evaluate the impacts of all gear on habitat through the implementation of a comprehensive research plan, to determine habitat protection measures as necessary and appropriate.
20. Identify and designate EFH and HAPC.

Allocation Issues:

21. Provide economic and community stability to harvesting and processing sectors through fair allocation of fishery resources.
22. Maintain LLP program and further decrease excess fishing capacity and other adverse effects of the race for fish by eliminating latent licences and extending programs such as community or rights-based management to some or all groundfish fisheries. [NAS SF]
23. Provide for adaptive management by periodically evaluating the effectiveness of rationalization programs and the allocation of property rights based on performance.
24. To support fishery management, extend the cost recovery program to all rationalized groundfish fisheries.

Increase Alaska Native Consultation:

25. Continue to incorporate traditional knowledge in fishery management.
26. Consider ways to enhance collection of traditional knowledge from communities, and incorporate such knowledge in fishery management where appropriate.
27. Increase Alaska Native participation and consultation in fishery management.

Data Quality, Monitoring and Enforcement:

28. Increase the utility of groundfish fishery observer data for the conservation and management of living marine resources.
29. Improve groundfish Observer Program, and consider ways to address the disproportionate costs associated with the current funding mechanism.
30. Improve community and regional economic impact assessments through increased data reporting requirements.
31. Increase the quality of monitoring data through improved technological means.
32. Establish a coordinated, long-term ecosystem monitoring program to collect baseline information and compile existing information from a variety of ongoing research initiatives.
33. Adopt the recommended research plan included in this document.
34. Cooperate with research institutions such as the North Pacific Research Board in identifying research priorities to address pressing fishery issues.

ALTERNATIVE 4

Management Approach

Adopt an extremely precautionary approach to managing fisheries under scientific uncertainty in which the burden of proof is shifted to the user of the resource to demonstrate that the intended use will not have a detrimental effect on the environment. Modify restrictive conservation and management measures as additional, reliable scientific information becomes available. Establish a fishery conservation and management program to maintain ecological relationships among exploited, dependent and related species as well as ecosystem processes that sustain them. Management decisions assume that science cannot eliminate uncertainty and that action must be taken in the face of large uncertainties, guided by policy priorities and the strict interpretation of the precautionary principle. Management decisions will involve and be responsive to the public but decrease emphasis on industry and community concerns; incorporate and apply strict ecosystem principles; address the impact of fishing on predator-prey, habitat and other important ecological relationships in the marine environment; implement measures that avoid or minimize bycatch; include the use of explicit allocative or cooperative programs to reduce excess capacity and allocate fish to particular gear types and fisheries; identify and incorporate non-consumptive-use values; and draw upon federal, state, academic and other capabilities in carrying out research, administration, management, and enforcement. This strategy is based on the assumption that fishing does produce adverse impacts on the environment but due to lack of information and uncertainty, we know little about these impacts. This strategy would result in a number of significant changes to the FMPs that would significantly curtail the groundfish fisheries until more information is known about the frequency and intensity of fishery impacts upon the environment. Expanded research and monitoring programs will fill critical data gaps. Once more is known about fishery effects on the ecosystem, scientific information will be used to modify and relax the precautionary measures initially adopted. To meet the goals of this overall program, the Council and NMFS will seek to achieve the following management objectives:

Prevent Overfishing:

1. Prevent overfishing by transitioning from single-species to ecosystem-oriented management of fishing activities.
2. Close an additional 20-50% of known spawning areas of target species across the range of the stock to protect the productivity and genetic diversity.

Preserve Food Web:

3. Develop and implement a Fishery Ecosystem Plan through the modification or amendment of current FMPs. [EPAP, NRC]
4. Conserve native species and biological diversity at all relevant scales of genetic, species, and community interactions.
5. Reduce the ABC to account for uncertainty and ecological considerations for all exploited stocks, including genetic, life history, food web and habitat considerations.
6. Set fishing levels in a highly precautionary manner to preserve ecological relationships between exploited, dependent, and related species.

Reduce and Avoid Bycatch:

7. Include bycatch mortality in TAC accounting and improve the accuracy of mortality assessments for target, non-target, and PSC bycatch, including unobserved mortality.
8. Reduce bycatch, incidental catch, and PSC limits (e.g., by 10%/year for five years).
9. Phase out fisheries with >25% incidental catch and bycatch rates.
10. Establish PSC limits for salmon, crab and herring in the Gulf of Alaska.
11. Set stringent bycatch limits for vulnerable non-target species based on best available information.

Avoid Impacts to Seabirds and Marine Mammals:

12. Set protection measures immediately for all seabird species and cooperate with USFWS to develop fishing methods that reduce incidental takes to levels approaching zero for all threatened or endangered species and for USFWS's list of species of management concern.
13. Initiate joint research program with USFWS to evaluate current population estimates for all seabird species that interact with the groundfish fisheries and modify protection measures based on research findings.
14. Increase existing protection measures for ESA-listed Steller sea lions by further restricting gear in critical habitat and setting more conservative harvest levels for prey base species.

Reduce and Avoid Impacts to Habitat:

15. Zone and delimit fishing gear use in the action area and establish no-take marine reserves (both pelagic and nearshore) encompassing 20-50% of management areas to conserve EFH, provide refuges from fishing, serve as experimental controls to test the effects of fisheries, protect genetic and biological diversity, and foster regeneration of depleted stocks in fished areas.
16. To protect habitat and reduce bycatch, prohibit trawling in fisheries that can be prosecuted with more selective gear types and establish trawl closure areas.
17. Manage fisheries in an explicitly adaptive manner to facilitate learning (including large no-take marine reserves that provide experimental controls).
18. Protect marine habitats, including EFH, HAPC, ESA-designated critical habitats and other identified habitat types.
19. Commit to funding a comprehensive research plan in order to provide baseline habitat atlas.

Allocation Issues:

20. Reduce excess fishing capacity and employ equitable allocative or cooperative programs to end the race for fish, reduce waste, increase safety, and promote long-term stability and benefits to fishing communities.
21. Consider non-consumptive use values.

Increase Alaska Native Consultation:

22. Utilize traditional knowledge in fishery management, including monitoring and data-gathering capabilities, through co-management and cooperative research programs.
23. Increase participation of and consultation with Alaska Native subsistence users and explicitly address the direct, indirect and cumulative fishery impacts on traditional subsistence uses and cultural values of living marine resources.

Data Quality, Monitoring and Enforcement:

24. Increase the precision of observer data through increased observer coverage and enhanced sampling protocols, and address the shortcomings of the current funding mechanism by implementing either a federally funded or equitable fee-based system for a revamped Observer Program Research Plan.
25. Improve enforcement and in-season management through improved technological means.
26. Establish a coordinated, long-term monitoring program to collect baseline information and better utilize existing research information to improve implementation of the Fishery Ecosystem Plan.
27. Adopt the recommended research plan included in this document.

KEY:

ABC	Acceptable Biological Catch
AFA	American Fisheries Act
BSAI	Bering Sea and Aleutian Islands
D	Discretionary (if no indication, action is discretionary)
EFH	Essential Fish Habitat
EO	Executive Order
EPAP	Ecosystem Principles Advisory Panel Recommendations on Ecosystem-Based Management
ESA	Endangered Species Act
FCMA	Fishery Conservation and Management Act (now called the Magnuson Stevens Act)
FMP	Fishery Management Plan
GOA	Gulf of Alaska
HAPC	Habitat Areas of Particular Concern
IR/IU	Improved Retention/Improved Utilization
M	Mandatory
MSA	Magnuson Stevens Fishery Conservation and Management Act
MSA NS#	MSA National Standard #
MSST	Minimum Stock Size Threshold
MSY	Maximum Sustainable Yield
NAS SF	National Academy of Sciences Policy Recommendations for Sustainable Fisheries
NMFS	National Marine Fisheries Service
NMFS BYC	NMFS National Bycatch Plan
NPFMC	North Pacific Fishery Management Council
NRC	National Research Council
NRC MPA	National Research Council Marine Protected Areas Report
OFL	Overfishing Level
OY	Optimum Yield
PSC	Prohibited Species Catch
SFA	Sustainable Fisheries Act
TAC	Total Allowable Catch
USFWS	U.S. Fish and Wildlife Service

COMPARISON OF FMP FRAMEWORKS FOR REVISED DRAFT ALTERNATIVES

	Alt 1	Alt 2		Alt 3		Alt 4	
	1	2.1	2.2	3.1	3.2	4.1	4.2
TAC-setting Process	<ul style="list-style-type: none"> Set ABC < OFL Sum of TAC has to be within OY range OY specified as range for BSAI: 1.4 - 2.0 mill MT and OY specified as range for GOA: 116,000 - 800,000 MT; BSAI OY cap if the sum of TAC > 2 mill MT then TAC will be adjusted down B₉₀ rule for prey species (pollock, P. cod, Atka mackerel) ABC tier system (Amendment 56) No directed fishery for forage fish (forage fish ban; Amendment 36/39) Specify MSSTs for Tier 1-3 stocks Set group TAC for 'other species' Precautionary adjustments exist, but vary with uncertainty only in Tier 1 Develop ecosystem indicators for future use in TAC-setting Target species closures when harvest limit reached 	<ul style="list-style-type: none"> Set ABC = OFL Sum of TAC has to be within OY range (No changes from Alt 1) OY specified as range; OY cap = sum of OFL No changes from Alt 1 OFL management (Amendment 56 OFL definitions with inflection points removed in tiers 1-3) No forage fish ban No changes from Alt 1 No changes from Alt 1 No changes from Alt 1 OFL management only No ecosystem indicators No changes from Alt 1 No changes from Alt 1 	<ul style="list-style-type: none"> Set ABC < OFL (No changes from Alt 1) Sum of TAC has to be within OY range (No changes from Alt 1) OY specified as range for BSAI: 1.4 - 2.0 mill MT and OY specified as range for GOA: 116,000 - 800,000 MT; BSAI OY cap: if the sum of TAC > 2 mill mt then TAC will be adjusted down (No changes from Alt 1) B₉₀ rule for prey species (pollock, P. cod, Atka mackerel) (No changes from Alt 1) Review F_{MSY} and adapt ABC tier system where F_{MSY} is maximum permissible for stocks without estimate of MSY No directed fishery for forage fish (forage fish ban, Amendment 36/39; No changes from Alt 1) Identify minimum required elements, resources, cost and a realistic time frame necessary to establish MSSTs for additional stocks and prioritize a list of candidate stocks Break sharks and skates out of 'other species' group for TAC setting (Amendment 63/63) Develop criteria for breaking out a species from a species complex Conduct F_{MSY} review and adopt appropriate measures Develop criteria for using key ecosystem indicators in TAC-setting No changes from Alt 1 	<ul style="list-style-type: none"> No changes from Alt 1 Same as 3.1 No OY range in plan, OY = TAC which is < ABC TAC is fishery specific Revise harvest control rule by incorporating a constant buffer for prey species (pollock, P. cod, Atka mackerel) When possible, biological reference points based on species specific production patterns and ecosystem considerations (will use F_{MSY} for rockfish as proxy for analysis) No changes from Alt 1 Initiate analysis of MSSTs for priority stocks based on the timeframe determined by additional availability of required resources Break sharks and skates and additional groups out of 'other species' group for TAC setting Develop criteria to bring a non-specified species into a managed category Develop, implement and update as necessary, procedures to account for uncertainty in estimating ABC Adopt, update as necessary, and use ecosystem indicators in TAC-setting No changes from Alt 1 Species TAC distributed spatially for all BSAI and GOA species except 'other spp.' (No changes from alt 1) Develop objectives and criteria for allocating TAC in space and time 0-20% of BS, AI, GOA as MPAs and no take marine reserves (o.g., 5% = no take, 15% = MPA) across a range of habitat types <ul style="list-style-type: none"> no take areas allow no fishing and serve as research control areas could encompass existing closures GOA selected sites for slope rockfish closures BS EFH closures No bottom contact MPA BSAI/GOA No changes from Alt 1 Identify and designate EFH and HAPC (No changes from Alt 1) Identify and designate EFH and HAPC EFH mitigation measures listed above 	<ul style="list-style-type: none"> No changes from Alt 1 TAC = 0 for all species unless fisheries are proven to have no adverse effect on the environment OY = 0, No fishery TAC is fishery specific Set F₉₀ for prey species (pollock, P. cod, Atka mackerel) TAC = 0 for all species Set F_{MSY} for vulnerable (o.g., long-lift, slow-growing) species (will use F₉₀ for rockfish as proxy) TAC = 0 for all species Same as 4.1 No changes from Alt 1 Adopt MSSTs appropriate to the harvest policy for each stock, with B₉₀ as the limit (rather than the target) TAC = 0 for all species In the face of uncertainty, set TAC = 0 for all species unless fisheries are proven to have no adverse effect on the environment Evaluate a range of ABCs using the lower bound of a confidence limit to address uncertainties in stock assessment advice No changes from Alt 1 Harvest limit = 0 Distribute TAC spatially for all species except 'other spp.', and distribute on smaller scales for all possible species (for analytical purposes, use BS pollock as proxy) 100% closure areas Example areas in BSAI include Submarine canyons: Unimak Pass, old Crab Pot sanctuary (into area 512), near Pribilof Islands, AI (SSL CH), SW of St. George, Misty Moon, RKC savings area Example areas in GOA include: Davidson Bank, Shumagin Islands, and region around Kodiak Island (previous crab closure areas), Gulf Shelf breaks, Sitka Pinnacles 100% closure areas to protect coral/live bottom habitats 100% closure areas as spawning area reserves for exploited species that are fished intensively at spawning time [may be same areas as for MPAs identified above] 		
Spillover/ Temporal Mgmt of TAC	<ul style="list-style-type: none"> Species TAC distributed spatially for all BSAI and GOA species except 'other spp.' 	<ul style="list-style-type: none"> No changes from Alt 1 	<ul style="list-style-type: none"> No changes from Alt 1 	<ul style="list-style-type: none"> No changes from Alt 1 	<ul style="list-style-type: none"> No changes from Alt 1 	<ul style="list-style-type: none"> No changes from Alt 1 	<ul style="list-style-type: none"> No changes from Alt 1
MPAs and EFH	<ul style="list-style-type: none"> EO13158 description and evaluation of potential MPA areas Maintain current closed/restricted areas such as: Walnut Island closures, RKC savings area, Bogoslof area, Pribilof Island closure, Nearshore Bristol Bay closures, Kodiak Type I-III areas, eastom GOA trawl closures Sitka Pinnacles marine reserve Identify and designate EFH and HAPC 	<ul style="list-style-type: none"> No MPAs Repeal current closed/restricted areas such as: Walnut Island closures, RKC savings area, Bogoslof area, Pribilof Island closure, Nearshore Bristol Bay closures, Kodiak Type I-III areas, eastom GOA trawl closures (except those included in SSL measures) Repeal Sitka Pinnacles marine reserve No changes from Alt 1 No changes from Alt 1 	<ul style="list-style-type: none"> No changes from Alt 1 No changes from Alt 1 	<ul style="list-style-type: none"> Develop MPA efficacy methodology including program goals, objectives and criteria for establishing MPAs and no take marine reserves MPAs may include no take areas Review existing closures such as Sitka Pinnacles to see if these areas qualify for MPAs under established criteria Could include restrictions of specific gear types or fisheries Identify and designate EFH and HAPC (No changes from Alt 1) 	<ul style="list-style-type: none"> Establish 20-50% of the management area as no take MPAs covering the full range of marine habitats Example areas in BSAI include Submarine canyons: Unimak Pass, old Crab Pot sanctuary (into area 512), near Pribilof Islands, AI (SSL CH), SW of St. George, Misty Moon, RKC savings area Example areas in GOA include: Davidson Bank, Shumagin Islands, and region around Kodiak Island (previous crab closure areas), Gulf Shelf breaks, Sitka Pinnacles 100% closure areas to protect coral/live bottom habitats 100% closure areas as spawning area reserves for exploited species that are fished intensively at spawning time [may be same areas as for MPAs identified above] 		

COMPARISON OF FMP FRAMEWORKS FOR REVISED DRAFT ALTERNATIVES

	Alt 1	Alt 2	Alt 3	Alt 4
SSL Measures	<p>Alt 1</p> <ul style="list-style-type: none"> 2002 SSL closures: no fishing in Sogam Pass, 3m no transit zones around moles, trawl and fixed gear closures in nearshore and critical habitat areas Abolish Islands (AI) Closures until 2003 Big rule for prey species (pollock, P. cod, Alia mackerel) 	<p>Alt 2</p> <ul style="list-style-type: none"> No changes from Alt 1 	<p>Alt 3</p> <ul style="list-style-type: none"> 2002 SSL closures: no fishing in Sogam Pass, 3m no transit zones around moles, trawl and fixed gear closures in nearshore and critical habitat areas (No changes from Alt 1) AI Closures (same as Alt 1) Big rule for prey species (pollock, P. cod, Alia mackerel) (No changes from Alt 1) Extend AI Closures Revis harvest control rule by incorporating a constant buffer for prey species (pollock, P. cod, Alia mackerel) 	<p>Alt 4</p> <ul style="list-style-type: none"> Comprehensive trawl exclusion zones to protect all designated SSL critical habitat TAC = 0 for all species
Bycatch and Incidental Catch Restrictions	<ul style="list-style-type: none"> PSC limits for herring, crab, halibut and salmon in BSA, and for halibut in GOA 	<ul style="list-style-type: none"> Eliminate PSC limits Where sufficient stock status information is available, adjustable PSC limits will be set based on a percentage of the annual stock status 	<ul style="list-style-type: none"> BSA: Reduce PSC limits for herring, crab, halibut and salmon to the extent practicable (10-30%) (for purposes of analysis will use 30%) GOA: Establish PSC limits on salmon NTE a 25,000 fish cap for Chinook and a 20,500 fish cap for "other salmon"; establish PSC limits on crab and herring based on biomass or other fishery data; reduce all PSC (for purposes of analysis will use 50%) Reduce GOA halibut PSC limit 10-30% (for purposes of analysis will use 30%) For those PSC species where annual population estimates exist, the Team will explore a mortality ratio-based approach to setting limits No changes from Alt 1 	<ul style="list-style-type: none"> BSA: Reduce PSC limits for herring, crab, salmon, halibut by 30-50% (for purposes of analysis will use 50%) GOA: Establish PSC limits on salmon NTE a 25,000 fish cap for Chinook and a 20,500 fish cap for "other salmon"; establish PSC limits on crab and herring based on biomass or other fishery data; reduce all PSC (for purposes of analysis will use 50%) Reduce GOA halibut PSC limit 30-50% (for purposes of analysis will use 50%) For those PSC species where annual population estimates exist, the Team will explore a mortality ratio-based approach to setting limits Extend IR/U to all target species No incidental catch
	<ul style="list-style-type: none"> IR/U for pollock, P. cod 	<ul style="list-style-type: none"> Repeat IR/U 	<ul style="list-style-type: none"> No changes from Alt 1 	<ul style="list-style-type: none"> IR/U for pollock, P. cod
	<ul style="list-style-type: none"> Current bycatch and incidental catch restrictions VIP (vessel incentive program) Domestic Shell Rockfish (DSRF) full-retention 	<ul style="list-style-type: none"> No bycatch restrictions Same as 2.1 	<ul style="list-style-type: none"> Incentive program for incidental catch and bycatch reduction, e.g. (a) Harvest Priority (10% of TAC reserved to reward clean fishing) (b) bycatch reduction standards established (c) Coop managed Harvest Priority (10-10% TAC or PSC reserved to reward clean fishing) (d) HMAP 	<ul style="list-style-type: none"> Reduced bycatch: BSA: reduce all by 30-50% GOA: reduce all by 30-50% Bycatch limits for non-target stocks as information becomes available
	<ul style="list-style-type: none"> Crab trawl closures Cook Inlet prohibition for bottom trawl In-season bycatch management measures (a) establishment of fishing seasons for bycatch mgmt (b) limiting closures for areas (red fishery) Take of more than 4 short-tailed albatross within 2 years triggers avoidance measures, including those approved in 2001 	<ul style="list-style-type: none"> Eliminate all closure areas (except SSL measures) and no Cook Inlet trawl ban Eliminate all in-season bycatch measures Take of more than 4 short-tailed albatross within 2 years triggers consultation (No changes from Alt 1) No 2001 seabird avoidance measures Same as 2.1 	<ul style="list-style-type: none"> Develop appropriate closure areas in order to address bycatch for halibut Revised or modify MRBs and establish a system of caps and quotas No changes from Alt 1 Take of more than 4 short-tailed albatross within 2 years triggers consultation (No changes from Alt 1) Cooperate with USFWS to develop scientifically-based fishing methods that reduce incidental take for all threatened or endangered species and other seabirds 	<ul style="list-style-type: none"> Establish gear closure areas and marine reserves to reduce and avoid bycatch No changes from Alt 1 100% protection of seabirds from fishing species Cooperate with USFWS to develop scientifically-based fishing methods that reduce incidental take to levels approaching zero for all threatened or endangered species and for USFWS's list of species of management concern
Seabird Measures				

COMPARISON OF FMP FRAMEWORKS FOR REVISED DRAFT ALTERNATIVES

	Alt 1		Alt 2		Alt 3		Alt 4	
	1	2.1	2.2	3.1	3.2	4.1	4.2	
Gear Restrictions and Allocations	<ul style="list-style-type: none"> - Retain existing no-trawl zones and fixed gear restrictions, Bottom trawl ban in BSAI for pollock - No pot fishing in GOA for sablefish - Retain existing gear restrictions and allocations - Sablefish and P. cod allocated by gear in BSAI; sablefish allocated by gear in GOA 	<ul style="list-style-type: none"> - Eliminate all trawl closure areas and (trawl and fixed gear restrictions (except SSL measures) 	↔ No changes from Alt 1	<ul style="list-style-type: none"> - BSAI prohibition on bottom trawl for pollock - No changes from Alt 1 - No changes from Alt 1 - No changes from Alt 1 	<ul style="list-style-type: none"> - BSAI and GOA prohibition on bottom trawl for pollock - Restrict fishing to areas where fishing has previously been concentrated - see MPA/EFH measures - No changes from Alt 1 - No changes from Alt 1 	↔ No changes from Alt 1	<ul style="list-style-type: none"> - Prohibit trawling in all fisheries that can be prosecuted with other gear types (e.g., fisheries with > 25% bycatch) - Restrict bottom trawling for flatfish to specific areas; No trawling in areas identified (previous) as MPAs - SEE GEAR RESTRICTIONS ABOVE 	<ul style="list-style-type: none"> - Prohibit all fishing - Prohibit all fishing - Close fisheries with bycatch
Overcapacity	<ul style="list-style-type: none"> - LLP and moratorium - AFA Coops - COQ Program - Sablefish IFQ - Community quota shares for sablefish 	<ul style="list-style-type: none"> - Eliminate LLP and moratorium - AFA Coops (No changes from Alt 1) - Repeal COQ except for pollock and crab - Eliminate Sablefish IFQ - No community quota share for sablefish - No further work on rationalization 	<ul style="list-style-type: none"> ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 	<ul style="list-style-type: none"> - LLP and moratorium (No changes from Alt 1) - Rights-based mgmt, fishery by fishery basis as needed (e) IFQs (f) Coops (i) community-based (ii) sector-based (c) COQs (d) Other community-based programs (e.g. halibut community share program as applied to other species) 	<ul style="list-style-type: none"> ↔ No changes from Alt 1 ↔ Rationalize all fisheries (all GOA, BSAI non-pollock/sablefish) - Ensure COQ program maximizes benefits in rural communities 	<ul style="list-style-type: none"> - AFA and COQ - LLP and moratorium - IFQ sablefish - Effort-based regulations - Effort, trip, gear size limits, vessel size and hp limits, limits on tender vessels, seasonal exclusive area registration 	<ul style="list-style-type: none"> ↔ Zero fishing effort; No fishery 	
Alaska Native Issues	<ul style="list-style-type: none"> - Incorporation of traditional knowledge through existing literature - AFSC anthropologist position - AP and Council representation - Allow for subsistence uses consistent with Federal Law 	<ul style="list-style-type: none"> - No changes from Alt 1 - No changes from Alt 1 - No changes from Alt 1 	<ul style="list-style-type: none"> ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 	<ul style="list-style-type: none"> - Develop and implement procedures to incorporate traditional knowledge into fisheries management - Increase consultation with Alaska Native and encourage increased participation 	<ul style="list-style-type: none"> ↔ Incorporate additional traditional knowledge from research ↔ Rationalize all fisheries (all GOA, BSAI non-pollock/sablefish) - Increase consultation with and representation of Alaska Natives in fishery management 	<ul style="list-style-type: none"> - Initiate cooperative research programs for data gathering and monitoring in order to enhance use of traditional knowledge in fishery management - Increase consultation with and encourage participation of subsistence users (native and non-native) - Provide for traditional Native subsistence uses of fish and wildlife within protected areas 	<ul style="list-style-type: none"> ↔ No fishing including subsistence in the EEZ 	
Observer Program	<ul style="list-style-type: none"> - Fixed 0/30/100% coverage - 100% for AFA & CDQ catcher boats > 60 ft. and 200% for AFA & CDQ catcher processors and motherhips - Industry pays for employment related costs - OMNI rule - ATLAS rule - 2003 Regulation package 	<ul style="list-style-type: none"> - Repeal all observer programs except AFA and CDQ - No changes from Alt 1 - No changes from Alt 1 - No changes from Alt 1 - No changes from Alt 1 - No changes from Alt 1 	<ul style="list-style-type: none"> ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 	<ul style="list-style-type: none"> - Observer coverage same as Alt 1 or modified based on data and compliance needs, and should be scientifically-based e.g., random placement, flexibility, variable rate - Address conflict of interest (a) Federal contract funding (annual appropriation); use of contract hires vs. Federal employees (b) Research Plan (e.g., fee-based) (c) TAC set aside - Improve sampling stations - Improve species identification for non-target - Develop uncertainty estimates for target species data 	<ul style="list-style-type: none"> ↔ Extend to 100% > 60' CDQ & AFA to stay the same as Alt 1 ↔ Same as 3.1 ↔ Same as 3.1 ↔ Same as 3.1 ↔ Expand uncertainty estimates to all possible stocks 	<ul style="list-style-type: none"> - Expand level of observer coverage (a) 100% coverage on vessels (vessels <60' = 30% coverage) (b) 100% hauls are observed - Address conflict of interest (a) Federal contract funding (annual appropriation) (b) Research Plan (e.g., fee-based) (c) TAC set aside - Expand uncertainty estimates to all possible stocks (same as Alt 3.2) 	<ul style="list-style-type: none"> ↔ Same as 4.1 ↔ Same as 4.1 ↔ Same as 4.1 ↔ Same as 4.1 	
Data and Reporting Requirements	<ul style="list-style-type: none"> - Current reporting requirements - AFA requires all C-P and Motherhips to weigh all pollock catch on NMFS-approved scales - All CDQ Groundfish catch to be weighed on NMFS-approved scales - Mandatory VMS for Alaska mackerel fleet, pollock and P. cod 	<ul style="list-style-type: none"> - No changes from Alt 1 - No at-sea weighing of catch required except under AFA C-Ps - No VMS 	<ul style="list-style-type: none"> ↔ No changes from Alt 1 ↔ No changes from Alt 1 ↔ No changes from Alt 1 	<ul style="list-style-type: none"> - Collect and verify economic data through independent third party (accounting firm/other) - No changes from Alt 1 - Modify VMS to incorporate new technology and system providers 	<ul style="list-style-type: none"> ↔ Mandatory economic data reporting by vessels and processors, i.e. earnings, expenditure and employment data ↔ Mandatory VMS for Alaska mackerel fleet, pollock and P. cod, and all vessels over 125' ↔ Same as 3.1 	<ul style="list-style-type: none"> - Requirement of motion-compensated scales to weigh all catches at sea or at shore-based processing plants - Mandatory VMS for all groundfish vessels 	<ul style="list-style-type: none"> ↔ No fishing ↔ No fishing 	

4.2 Introduction of Analytical Framework – Example FMPs

Four policy alternatives are under consideration in this document. In order to provide sufficient detail to the analysis of the policies, each alternative is accompanied by, and associated with, a FMP framework consisting of a set of example FMPs. A description of the framework concept, followed by a summary of each alternative policy and their associated FMPs, is provided below.

4.2.1 Concept of the Analytical Framework

Each alternative is comprised of three elements: a management approach statement that describes the goals of, and rationale and assumptions behind, the alternative; a set of management objectives that complement and further refine the goals set forth in the management approach; and, except for Alternative 1 (status quo), a pair of example FMP "bookends" that illustrate and frame the range of implementing management measures for that alternative. The management approach statement and objectives serve to define the direction the NPFMC wishes to follow in the management of the fisheries. The example FMP bookends serve two purposes: first, they provide an additional level of analytical detail that will facilitate the comparison of the physical, biological and socioeconomic effects of the alternatives and the status quo; and second, they provide the public with an illustration of the types of management measures the NPFMC envisions it will use to achieve the goals of the alternative. Ultimately, the NPFMC's preferred alternative will include a policy statement accompanied by a set of management objectives and a set of example FMP bookends that will illustrate a range of management actions that further the selected policy. This FMP framework structure will communicate to the public the NPFMC's intent as to how it plans to pursue its policy objectives in the future. By providing, as part of its preferred alternative, a range of potential management measures (as illustrated by the example FMP bookends), the NPFMC retains its management flexibility under the MSA to adaptively manage the fishery through FMP amendments.

4.2.2 Description of the Example FMP Frameworks

Alternative 1: Continue Under the Current Risk Averse Management Policy

Under this alternative, the NPFMC would continue to manage the groundfish fisheries based upon the present risk-averse policy. Alternative 1(a) represents the policy language currently stated in the FMPs, dating from 1979 and 1985 for the BSAI and GOA FMPs, respectively. These policies, based on the best scientific information available, avoid irreversible or long-term adverse effects on fishery resources and the marine environment, while at the same time providing for optimum yield.

Alternative 1(b) is a substitute for the written policy language in the current FMPs and would include objectives that specifically address the variety of concerns that are balanced by the NPFMC in current management considerations. Alternative 1(b) encapsulates a risk-averse conservation and management program that is based on a conservative harvest strategy. This policy assumes that fishing does result in some adverse impacts to the environment and that, as these impacts become known, mitigation measures will be developed and appropriate FMP amendments will be implemented.

FMP 1 (Current BSAI and GOA Groundfish FMPs)

Draft Introduction of Analytical Framework - Alaska Groundfish PSEIS

The Alternative 1(a) and 1(b) policies are both represented by FMP 1, which is the current fisheries management program for the BSAI and the GOA and incorporates management measures approved by the NPFMC through the June 2002 meeting.

In the current FMPs, the total allowable catch (TAC) is determined annually based on a conservative harvest strategy that calculates the overfishing level (OFL) and the acceptable biological catch (ABC) for each managed stock or stock complex. The current FMPs specify the OFL and maximum ABC (\max_{ABC}) by means of a six-tier system wherein the amount and quality of information available for a given stock or stock complex determine the formula that is used to define F_{OFL} and $\max F_{ABC}$ (Tiers 1-5) or OFL and \max_{ABC} directly (Tier 6). Most stocks are currently managed under Tier 3, where $\max F_{ABC}$ equals $F_{40\%}$ if biomass is above $F_{40\%}$. Precautionary adjustments are made, including decreasing F_{OFL} and F_{ABC} linearly with biomass whenever biomass falls below a tier-specific reference level, but only Tier 1 stocks include an uncertainty variation in \max_{ABC} . The status of each stock in Tiers 1-3 is also examined annually with respect to the minimum stock size threshold (MSST), as defined in the National Standard Guidelines.

Optimum yield (OY) is specified in the current FMPs as a range that is aggregated across all stocks and does not vary with biomass. The current FMPs require the sum of the individual groundfish TACs to fall within the OY range. In the BSAI, the high end of the range, 2 million mt, acts as a cap on the TACs, as the aggregated ABCs regularly exceed this limit. In practice, although it is not required in the current FMPs, TACs are never set higher than the corresponding ABCs. Taking into account the ecosystem considerations of the food web, the FMPs also prohibit directed fishing for forage species.

Through amendments over the last twenty years, the current FMPs have built up a network of spatial and temporal closed areas, intended to protect resources of concern, as well as to minimize gear conflicts. In the BSAI, various areas around the Pribilof Islands and in Bristol Bay are closed year-round to trawling in order to protect red and blue king crab habitat, and a chinook and a chum salmon area are closed seasonally. Also in the BSAI, waters within 12nm of Walrus Islands are closed to groundfish fishing to minimize disturbance of walrus haulouts. In the BSAI and the GOA, Steller sea lion protection measures permanently close to all fishing the area within 3nm of rookeries, as a no-transit zone. Additionally, they impose trawl prohibitions within 10-20nm of all rookeries and haulouts, and prohibit fishing in Seguam Pass. In the GOA, trawling is prohibited in SE Alaska west of 140° West. Also, a 2.5 nm² area designated as the Sitka Pinnacles Marine Reserve in the GOA is closed to groundfish fishing to protect habitat for rockfish and lingcod (see Figure FMP 1 map).

The current BSAI FMP prohibits directed fishing for pollock with non-pelagic trawl gear. There is no similar restriction on pollock trawling in the current GOA FMP. Directed fishing for sailfish with longline pot gear is prohibited in the GOA. Non-pelagic trawling is prohibited in the Bristol Bay Red King Crab Savings Area in the BSAI and in the Cook Inlet in the GOA. Additionally, various areas around Kodiak Island are closed to non-pelagic trawling either year-round or seasonally to protect crab stocks (see Figure FMP 1 map; specific details on the FMP 1 map illustration are provided in Section 4.2.3 below).

Groundfish fisheries in the BSAI and GOA are required to discard any incidental catch of halibut, salmon, crab, herring, or Steelhead trout, known collectively as prohibited species. The FMPs currently set prohibited species catch (PSC) limits on many of these species, with penalties ranging from closure of a particular zone or of the whole management area to a directed fishery or fisheries for a specified season or for the remainder

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of the year. In the BSAI FMP, stairstep limits for trawl bycatch within specified zones are set for red king crab and *C. bairdi* crab. The catch limit varies based on stock abundance. The BSAI FMP also specifies an absolute trawl catch limit for chinook salmon and "other salmon" within specified zones. Once the apportioned PSC limit for a trawl fishery is reached within a zone, the fishery is prohibited from fishing within that zone. The BSAI FMP specifies a trawl catch limit for herring in the BSAI at 1 percent of annual biomass. Catch limits on *C. opilio* crab and halibut bycatch in the BSAI are established in regulation. The *C. opilio* catch limit applies to a specified zone and is based on an adjusted percentage of biomass that must fall within a certain range. The halibut catch limit is a BSAI-wide mt limit and is based on halibut mortality. In the GOA FMP, catch limits on halibut bycatch are authorized and set by the NPFMC as part of the annual procedure for setting groundfish harvest levels. There are no other prohibited species catch limits set in the GOA.

Other bycatch reduction measures are required under FMP 1. The Increased Retention/Increased Utilization (IR/TU) program requires full retention, by vessels fishing for groundfish, of all pollock and Pacific cod fish for human consumption, as well as full utilization of the two species by inshore processors. A minimum utilization standard of 15 percent is set for all at-sea processors. The NPFMC is also adopting a policy to require full retention of Demersal Shelf Rockfish by hook-and-line and jig vessels in the Southeast Outside District of the GOA. A Vessel Incentive Program (VIP) encourages bycatch reduction by setting bycatch reduction standards biannually. If a vessel fails to meet these standards, it can be penalized. Inseason bycatch management measures establish fishing seasons for bycatch management and give the NOAA Fisheries/Alaska Regional Administrator the authority to close areas with high bycatch.

The Reasonable and Prudent Alternative (RPA) measures adopted from the most recent US Fish and Wildlife Service (USFWS) biological opinion on the short-tailed albatross stipulate the use of certain seabird avoidance measures and require that the take of more than 4 short-tailed albatross within 2 years trigger consultation with the USFWS and the potential closure of fisheries. To further reduce the possibility of the take of albatross impacting the fisheries, the NPFMC in 2001 required all longline vessels to adopt more stringent seabird avoidance methods.

A Licence Limitation Program for groundfish vessels over 32' LOA (with certain jig gear exceptions) and a moratorium on entry into the groundfish fisheries is in place for the BSAI and the GOA. An IFQ program is in place for sablefish in the BSAI and GOA, which includes provisions for community purchase of quota share. In the BSAI, the directed fishery for pollock is organized into cooperatives as authorized under the American Fisheries Act (AFA). A multispecies community development quota (CDQ) program apportions 7.5-10 percent of all BSAI groundfish quota to 65 eligible western Alaska communities.

FMP 1 monitors the groundfish fishing effort through Federal and State reporting requirements and through the use of the North Pacific Groundfish Observer Program. All vessels between 60' and 125' LOA are required by regulation to have an observer on board 30 percent of the time; for vessels over 125' LOA this increases to 100 percent. For AFA and CDQ catcher boats greater than 60' LOA, one observer must be on board at all times, and for catcher processors and motherships, two observers must be on board at all times. The program also has observers at inshore processing plants. An additional monitoring tool is the reporting requirements for BSAI and GOA vessels that submit daily or weekly logbooks including information on the composition of catch and the locations of the hauls. The Alaska Department of Fish and Game (ADF&G) also

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collects data from fish tickets at the point that catch is sold. Mandatory vessel monitoring systems (VMS) for all directed Atka mackerel, pollock, and Pacific cod fishing verify vessel location.

Alternative 2: Adopt a More Aggressive Harvest Management Policy

This policy would maximize biological and economic yield from the resource while still preventing overfishing of the groundfish stocks. Such a management approach would, among other things, be based on the best scientific information available, take into account individual stock and ecosystem variability, and continue to work with other agencies in protecting threatened and endangered species. A more aggressive harvest strategy would be implemented based upon the concept that the present policy is overly conservative and that higher harvests can be taken without overfishing the target groundfish stocks. This policy assumes that fishing at the recommended levels would have no adverse impact on the environment, except in specific cases that are known and mitigated.

Example FMP 2.1

Example FMP bookend 2.1 illustrates a more aggressive harvest strategy than Alternative 1 by removing many of the existing constraints from the fisheries. As the policy is based on an assumption that the impacts of fishing on the environment are generally known and mitigated, the precautions currently built into the existing TAC-setting process will be alleviated. The buffer between the ABC level and the OFL is removed, and the maximum OY for the groundfish stocks in the BSAI is released from its 2 million mt cap and allowed to float as the sum of the OFLs for the BSAI groundfish stocks. Additionally, FMP 2.1 removes the precautionary element of the current FMPs that decreases F_{ABC} linearly with biomass when the biomass falls below a specific reference level.

FMP bookend 2.1 also removes physical constraints from the fisheries by repealing the various closure areas currently in place. The fishery would be returned to an open-access scenario, where time and area closures, gear restrictions, and prohibited species catch restrictions are repealed. The potential impact of the groundfish fisheries on Steller sea lions, however, means that the current mitigating suite of protection measures that constrain fishing around rookeries and haulouts and protect Steller sea lion prey species (pollock, Pacific cod and Atka mackerel) when at low biomass levels would remain in place (see Figure FMP 2.1 map; specific details on the example FMP 2.1 map are provided in Section 4.2.3 below). This is required by the Endangered Species Act (ESA) to avoid determinations of jeopardy and adverse modification. The same applies to the impact of groundfish fishing on short-tailed albatross, with the consequent take limits remaining in effect.

The federally-mandated effort limitation program for the directed BSAI pollock fishery, enacted under the AFA, would remain in place, with its accompanying CDQ allocation, but all other effort limitation programs (such as the sailfish IFQ program and the multispecies CDQ program) would be repealed. Reporting requirements would remain in place, in order to keep track of the impact of the fisheries, but the observer program, except as federally mandated by the AFA, would be repealed, as would VMS requirements.

Example FMP 2.2

A more moderate illustration of Alternative 2, example FMP bookend 2.2, also represents a more aggressive harvest strategy than Alternative 1. In this case, the mechanisms for setting ABC and TAC remain the same

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as in the current FMPs (see FMP 1 for further detail), but the existing regulatory capped maximum OY of 2 million mt in the BSAI would be removed in favor of a maximum OY equaling the sum of individual groundfish ABCs in the BSAI. Additionally, bycatch reduction incentives and bycatch restrictions would be repealed, other than those related to PSC limits or IR/IU. Under the assumption that fishing does not have an impact on the environment other than what is generally known and mitigated, the NPFMC's more stringent seabird avoidance measures enacted in 2001 would be repealed, leaving only the mitigation measures recommended by USFWS to avoid jeopardy or adverse modification for short-tailed albatross. Closure areas in FMP 2.2 mirror those in FMP 1 (see Figure FMP 2.2 map; specific details on the example FMP 2.2 map are provided in Section 4.2.3 below).

Alternative 3: Adopt a More Precautionary Management Policy

This policy would seek to accelerate the existing precautionary management measures through community or rights-based management, ecosystem-based management principles and, where appropriate and practicable, increased habitat protection and additional bycatch constraints. Under this approach, additional conservation and management measures would be taken as necessary to respond to social, economic or conservation needs, or if scientific evidence indicated that the fishery was negatively impacting the environment. This policy recognizes the need to balance many competing uses of marine resources and different social and economic goals for fishery management.

Example FMP 3.1

Example FMP bookend 3.1 illustrates a management approach that accelerates precautionary management measures by increasing conservation-oriented constraints on the fisheries where necessary, formalizing precautionary practices in the FMPs, and initiating scientific review of existing practices as a necessary precursor to the decision of how best to incorporate adequate precautions.

Example FMP bookend 3.1 implements changes to the TAC-setting process following a comprehensive review. Precautionary practices such as setting TAC less than or equal to the ABC, and specifying MSSTs for Tiers 1-3 in accordance with National Standard Guidelines, would be formalized in the FMP. Sharks and skates would be removed from the Other Species management category and given their own TACs, and criteria to do the same for other target stocks would be developed. Efforts to develop ecosystem indicators to be used in TAC-setting, as per ecosystem management principles, would be accelerated.

In order to balance the needs of social and economic stability with habitat protection and resource conservation, the NPFMC would conduct a review of the existing system of closure areas in the BSAI and the GOA (for closure areas under FMP 3.1, see Figure FMP 3.1 map and Section 4.2.3 below), and evaluate them against a MPA methodology to be developed as part of this alternative. The NPFMC would also seek to initiate joint consultation and research with USFWS to develop fishing methods that reduce incidental take of threatened and endangered species. To mitigate any adverse impacts of fisheries management decisions on fishing communities, and to comply with other national directives, the NPFMC would implement formal procedures to encourage increased participation of Alaska Natives in fishery management.

Example FMP bookend 3.1 recognizes that the anticipated community or rights-based management programs may address bycatch reduction objectives (a review of bycatch rates under existing such programs is

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initiated), but in the meantime a moderate reduction of PSC limits will be initiated as an intermediary step. Additionally, PSC limits for crab, herring and salmon would be authorized in the GOA, in addition to the halibut PSC limits authorized under the current GOA FMP. Effective monitoring and timely reaction to change in the environment and the fisheries would be enhanced through improvements in the observer program and third party verification of economic data.

Example FMP 3.2

Example FMP bookend 3.2 implements the acceleration of existing precautionary measures on a more rapid timeline than example FMP bookend 3.1. Rather than reviewing existing practices prior to incorporating increased precaution, this bookend implements changes to many aspects of the FMPs concurrently with the initiation of scientific research efforts necessary to bring management measures in line with a precautionary policy.

Example FMP bookend 3.2 significantly accelerates precautionary management by incorporating an uncertainty correction into the estimation of ABC for all species. Additionally, OY would be specified separately for each stock or stock complex rather than for the groundfish complex as a whole (i.e., OY would be set as a formula rather than as a range, eliminating the BSAI 2 million mt OY cap), and would be set equal to the respective stock or stock complex's TAC. The current precautionary practice of setting TAC less than or equal to ABC would be formalized in the FMP. FMP bookend 3.2 would also incorporate stock-specific biological reference points in the tier system where scientifically justifiable. This could result in Tier 3 rockfish stocks, for example, being capped at $F_{60\%}$ rather than $F_{40\%}$. In implementing this bookend, criteria would be developed for specifying MSSTs for Tiers 4-6, along with a list of priority candidate stocks; and the development of criteria for moving stocks from the Other Species and Nonspecified Species management categories would minimally result in sharks and skates being given their own TACs.

Example FMP bookend 3.2 also reexamines the existing closure system in the BSAI and the GOA. The bookend sets a guideline of 0-20 percent of the Exclusive Economic Zone (EEZ; 3 to 200 nm) to be closed as a MPA, of which no more than 5 percent should be completely closed to commercial fishing (designated No-Take Marine Reserve). The remainder of the closed area is designated as no-bottom-contact MPA. The objective of these measures is to provide greater protection to a full range of marine habitats within the 1,000 m bathymetric line (see Figure FMP 3.2 map; specific details on the example FMP 3.2 map are provided in Section 4.2.3 below). The guideline aims to provide greater protection for a wide range of species, from Steller sea lions to slope rockfish to prohibited species, while at the same time respecting traditional fishing grounds and maintaining open area access for coastal communities. Additionally, the bookend would extend the existing bottom-trawl ban on pollock to the GOA.

Additional conservation benefits would be realized in FMP bookend 3.2 through the comprehensive rationalization of all fisheries (except those already part of a cooperative or IFQ program.) In adopting rationalization programs such as cooperative-style programs with built-in community protections, the NPFMC would also be addressing habitat and bycatch concerns by reducing concentrated effort in the fisheries. To increase precaution regarding bycatch, PSC limits would be significantly reduced by the NPFMC (and set for all prohibited species in the GOA), but would not be expected to act as a proportionate restraint on the fisheries due to the incentives for bycatch reduction under cooperatives, or other bycatch incentive programs implemented as necessary under this bookend.

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In accordance with ecosystem principles, the NPFMC would seek to initiate joint consultation and research with USFWS to develop fishing methods that reduce incidental take of all seabird species. The NPFMC would also implement formal procedures to increase consultation with and representation of Alaska Natives in fishery management.

Effective monitoring and timely reaction to change in the environment and the fisheries would be enhanced through increase of observer coverage and improvements to the observer program, as well as an increase in the use of VMS and the range of economic data collected from industry.

Alternative 4: Adopt a Highly Precautionary Management Policy

This policy represents an extremely precautionary approach to managing fisheries under scientific uncertainty. It shifts the burden of proof to the users of the resource and the NPFMC/NOAA Fisheries to demonstrate that the intended use would not have a detrimental effect on the environment. It would involve a strict interpretation of the precautionary principle. Management discussions would involve and be responsive to the public, but would decrease emphasis on industry and community concerns in favor of ecosystem processes and principles. This policy assumes that fishing does produce adverse impacts on the environment, but due to a lack of information and uncertainty, we know little about these impacts. The initial restrictive and precautionary conservation and management measures would be modified or relaxed when additional, reliable scientific information becomes available.

Example FMP 4.1

Example FMP bookend 4.1 illustrates a fishery management plan where current levels of fishing are reduced and other precautionary restrictions are implemented until scientific research shows that the fisheries have no adverse effect on the sustainability of the resource and its environment.

Accordingly, example FMP bookend 4.1 would substantially reduce the potential of adverse environmental impacts of the fisheries. A modified TAC-setting process would create a more substantial buffer between ABC and the overfishing level (OFL) by setting the fishing mortality rate at $F_{75\%}$ for all Steller sea lion prey species (pollock, Pacific cod and Atka mackerel) and for rockfish (as long-lived, slow-growing species). Also, the max F_{ABC} for each stock or stock complex in Tiers 1-5 would be adjusted downward based on the lower bound of a confidence interval surrounding the survey biomass estimate. Optimum yield would be specified separately for each stock or stock complex rather than for the groundfish complex as a whole (i.e., OY would be set as a formula rather than as a range, eliminating the BSAI 2 million mt OY cap), and would be set equal to the respective stock or stock complex TAC. The current precautionary practice of setting TAC less than or equal to ABC would be formalized in the FMP. For species managed as members of a stock complex, rather than setting TAC as the aggregate of the individual members' ABCs, the maxABC value for each component stock would be determined and the TAC set equal to the lowest value. Where sufficient biological information is available, such as with Eastern Bering Sea pollock, TAC would be distributed on a smaller spatial scale. MSSTs would be determined for all tiers.

To further mitigate the possibility of the fisheries having a detrimental biological and ecosystem impact, 20 to 50 percent of the EEZ would be designated as No-Take Marine Reserve (i.e., no commercial fishing) covering the full range of marine habitats within the 1,000m bathymetric line (see Figure FMP 4.1 map;

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specific details on the example FMP 4.1 map are provided in Section 4.2.3 below). As part of this area in the Aleutian Islands, a Special Management Area would be established to protect coral and other live bottom habitats. The closed area would include spawning reserve areas for intensively fished species. Under the FMP 4.1 example, comprehensive trawl exclusion zones would be set to protect all Steller sea lion critical habitat, and trawling itself would be restricted to only those fisheries that cannot be prosecuted with other gear types (i.e., the flatfish fisheries.)

In an effort to reduce waste and the risk of adverse impact to the environment, existing PSC limits would be halved under this bookend, as would bycatch (discard) and incidental catch rates. Increased retention and utilization (IR/IU) would be extended to all target species. Stringent PSC limits would be set for salmon, crab and herring in the GOA, and as information becomes available, bycatch limits would be set for non-target species also. Protection measures would be set for all seabird species.

Because this policy alternative necessitates greater research and data-gathering efforts, example FMP bookend 4.1 would expand observer coverage to 100 percent for all vessels over 60' LOA and require 30 percent observer coverage on vessels presently exempted from observer coverage (i.e., vessels under 60' LOA). VMS would be made mandatory for all groundfish vessels, as would motion-compensated scales for weighing all catches at sea or at shore-based processors. Cooperative research and data-gathering programs would be initiated as well to expand the use of traditional knowledge in fisheries management.

Example FMP 4.2

Example FMP bookend 4.2 expands the precautionary principles of Alternative 4 by suspending all fishing until the fisheries can be shown to have no adverse effect on the resource and its environment. The TAC for all species would be set at zero. All areas of the EEZ would be closed to all fishing (e.g. commercial, recreational, and subsistence) (see Figure FMP 4.2 map; specific details on the example FMP 4.2 map are provided in Section 4.2.3 below); bycatch and incidental catch, as well as the take of seabirds and marine mammals, would then necessarily be reduced to zero.

Scientific research and data-gathering efforts would continue. When a fishery can be shown to pose no significant threat of adverse biological and environmental impacts, or if adverse effects can be successfully mitigated through use of fishery-specific regulations, the measures illustrated by this FMP bookend would be relaxed to allow fishing to resume.

Under this FMP illustration, it is assumed that each groundfish fishery currently conducted in federal waters in the BSAI and GOA would be individually reviewed by the NPFMC and NOAA Fisheries. Upon completion of this review (which may take up to 2 years), the agency would certify those fisheries that have no significant adverse impacts on the environment and authorize fishing under a specific set of regulations. If a fishery is found by this review to produce significantly adverse environmental effects, and mitigation measures can not be designed to mitigate those effects, that fishery would not be certified and would remain closed until more scientific information is known.

4.2.3 Description of the Example FMP Maps

FMP 1 Map

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This map illustrates six different types of spatial management areas across the BSAI and GOA. All of these areas currently comprise the spatial management regime for 2003. These areas are color-coded on the map as follows:

Yellow: 3nm No-Transit Zones (No-Take Reserves)
Blue: No Hook-and-Line (H&L) and Pot or Trawl for the Steller Prey Species
Red: No SSL Prey Species Trawling
Red Hatching: Harvest Limit Closures for Atka Mackerel and Pacific cod
Tan Hatching: Additional Atka Mackerel Closures
Blue Hatching: Additional Pollock Closures

Bathymetry data to 1,000 meters is also color-coded, running from dark green (zero meters) to a pale beige (1,000 m). In the legend itself, the titles for measures developed specifically for protection of Steller sea lions are printed in blue. Bycatch closures that are triggered once a PSC limit is reached are not included on the map or in the spatial analysis since in recent years some of these measures are no longer triggered.

FMP 1 illustrates the current Steller sea lion-related closures west of 144° West longitude necessary for the Alaska groundfish fisheries to avoid a determination of jeopardy and adverse modification. The Steller sea lion population west of 144° West longitude have been listed as endangered under the ESA since 1990. The portion of the Steller sea lion population found east of 144° West longitude are currently listed as threatened.

The No-Transit zones shown on the map have been in effect since 1992 and restrict traffic of all water-borne vessels, unless under a federal scientific permit. These no-transit zones are in effect all year.

The No-H&L and Pot or Trawl for the SSL Prey Species are those areas that currently restrict the harvest of Steller sea lion prey species by H&L and Pot and both bottom and pelagic trawl gear. These restrictions too are in effect all year.

The areas labeled No Trawl, restrict both bottom and pelagic trawl fishing for Steller sea lion prey species and are in effect all year.

Harvest limit closures for Atka mackerel and Pacific cod: In the BSAI, Atka mackerel fishing is closed all year within 20nm of Steller sea lion rookeries and haulout sites in waters east of 178° West. In waters west of 178° West, constraints on Atka mackerel harvest are triggered once 40 percent of the AI Atka Mackerel TAC is reached. After the 40 percent threshold is reached in the AI, all other Atka mackerel fishing must occur outside of 20nm of Steller sea lion rookeries and haulout sites. To prevent localized depletion of prey species, Pacific cod (which are managed under a single TAC for the BSAI) may not be targeted west of 178° West after 40 percent of that BSAI TAC is reached.

Additional Atka mackerel closures: The Western GOA (waters west of 144° West longitude) is closed to directed fishing for Atka mackerel all year.

Additional pollock closures: The entire AI subarea is closed to the targeting of pollock year round. Both the GOA and the BS have additional seasonal pollock restrictions.

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Non-Steller sea lion related spatial closures that were analyzed in the FMP 1, 2.2 and 3.1 maps.

Closed to All Trawl

- Nearshore Bristol Bay Closure Area: Bering Sea area closed since 1996.
- Pribilof Islands Area Habitat Conservation Zone: Bering Sea area closed since 1994.
- Southeast Outside Closed Area: closed since 1997.
- Chiniak Gully Research Area: closed from August 1 through September 20.

Closed to Non-pelagic Trawl

- Red King Crab Savings Area: Bering Sea area closed year-round since 1996.
- Kodiak Type I Crab Closure Areas: Gulf of Alaska area closed year-round.
- Kodiak Type II Crab Closure Areas: Gulf of Alaska area closed between February 15 to June 15.

Closed to All Fishing

- Cape Edgecumbe (Sitka) Pinnacles: closed to groundfish fishing since 1997.

All of these spatial measures (closures), when combined, protect 10.7 percent of the EEZ (Table of Alternative map statistics X). We have also defined "fishable area" for purposes of this analysis, as those waters over the Continental Shelf and Continental Slope, or all waters to a depth of 1,000 meters. In doing so, we provide a different view of the management area and this information is useful when assessing the impacts of these spatial measures on groundfish resources and essential fish habitat which is found in most cases, to be associated with the Continental Shelf and Slope. When examined in this way, the spatial measures described for example FMP 1 protect 28.8 percent of the fishable area of the BSAI and GOA. (Table X).

Example FMP 2.1 Map

This map illustrates six different types of spatial management areas across the BSAI and GOA. These areas are color-coded on the map as follows:

- Yellow: 3nm No-Transit Zones (No-Take Reserves)
- Blue: No-H&L and Pot or Trawl for the SSL Prey Species
- Red: No SSL Prey Species Trawling
- Red Hatching: Harvest Limit Closures for Atka mackerel and Pacific cod
- Tan Hatching: Additional Atka mackerel Closures
- Blue Hatching: Additional pollock Closures

The FMP 2.1 map illustrates only the current Steller sea lion-related closures west of 144 W. longitude, which remain in place to avoid a jeopardy determination under the ESA.

The No-Transit zones have been in effect since 1992 and restrict traffic of all water-born vessels, unless under a federal scientific permit. These zones are in effect all year.

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The No-H&L and Pot or Trawl for the SSL Prey Species zones restrict the fishing of Steller sea lion prey species by Hook-and-Line and Pot and both non-pelagic and pelagic trawl gear. These too are in effect all year.

The No-Trawl areas restrict fishing Steller sea lion prey species by non-pelagic and pelagic trawl gear and are also in effect all year.

Harvest Limit Closures for Atka mackerel and Pacific cod: in the BSAI, targeting of Atka mackerel is closed all year within 20nm of Steller sea lion rookeries and haulouts east of 178° West longitude. West of 178° West, Atka mackerel harvest limits apply at 40 percent of the AI Atka mackerel TAC. After the 40 percent of Atka mackerel TAC is reached in the AI, all other Atka mackerel must be caught outside 20nm of Steller sea lion rookeries and haulouts. To prevent the localized depletion of prey species fish, Pacific cod (which are managed under a single TAC for the BSAI) may not be targeted west of 178° West after 40 percent of the TAC is reached.

Additional Atka mackerel Closures: The Western GOA west of 144° West longitude is closed to Atka mackerel fishing all year.

Additional Pollock Closures: The entire AI subarea is closed to the targeting of pollock. Both the GOA and the BS have additional seasonal pollock restrictions.

All of these spatial measures (closures), when combined, protect 4.2 percent of the EEZ, and 14.6 percent of the fishable area of the BSAI and GOA (Table X).

Example FMP 2.2 and Example FMP 3.1 Maps

The maps for example FMPs 2.2 and 3.1 are identical to the FMP 1 map.

Example FMP 3.2 Map

FMP Map 3.2 illustrates seven types of spatial management areas that are color-coded as follows:

Yellow:	3nm No-Transit Areas
Purple:	No SSL Prey Species Trawling MPA
Dark Green:	No SSL Prey Species H&L, Pot, or Trawl Fishing MPA
Blue:	No-Take Marine Reserves
Pink:	No-Bottom-Contact Trawling MPA
Light Green:	Eastern GOA No SSL Prey Species H&L, Pot, or Trawl MPA
Red Circles:	SSL Critical Habitat

Bathymetry down to 1,000 meters is also color-coded, running from dark green (zero meters) to a pale beige (1,000 m). In the legend itself, the titles for measures developed specifically for protection of Steller sea lions are printed in blue.

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The map has been developed from the following information and data sources: bathymetry; essential fish habitat from the 1997 environmental assessment; Steller sea lion critical habitat; 2002 Steller sea lion closures; survey and bycatch data for coral and sponge distribution; historical commercial fisheries catch data; location of ports; locations of test and study areas, and review of various alternatives and potential mitigation measures being developed by the NPFMC EFH Committee. Using the latest data to determine Steller sea lion foraging behavior, a 15nm buffer from the coastline in the GOA and Bering Sea (BS) was applied, as were 15nm buffers from Steller sea lion rookeries and haulouts in the Aleutian Islands.

The ADF&G groundfish statistical areas were applied as management units to designate five different types of management areas including: No-Take Marine Reserves, No SSL Trawling MPA, No Bottom Trawling MPA, No SSL H&L, Pot or Trawl MPA, and in the Eastern GOA, No SSL H&L, Pot or Trawl and No-Trawl MPA.

The ADF&G statistical areas are one degree wide (approximately 35nm), and a half-degree tall (30nm). ADF&G subdivides their statistical areas at 3nm from the shoreline. These management units, when grouped into larger spatial regions, are presumably large enough to 1) prevent habitat fragmentation, 2) protect large portions of HAPC, 3) form clearly defined, manageable, navigable, and enforceable alternatives, 4) provide contiguous fishing restrictions for protecting spawning populations, key critical habitat, demersal and pelagic fish species, marine mammals, and 5), where possible, provide open areas near fishing ports.

From a biological and fishery point of view, the ADF&G groundfish statistical areas boundaries are arbitrary, and thus do not always line up with the spatial distribution of significant biological and habitat resources. Therefore a 40 percent rule was applied: when 40 percent of a statistical area was covered with a significant concern by a weighted qualitative factor, the area was tagged as a No-Take Marine Reserve, or one of the other MPAs. This effect was normalized to a certain extent during the analysis because a statistical area that did not quite meet the benchmark would not be so designated (e.g., an area where only 35 percent was overlaid would be left entirely open). In some cases, areas would be totally closed to create a contiguous closure necessary to capture a broad range of inshore to offshore habitats.

The benthic fishing habitat used in this analysis generally follows the continental shelf and goes out to a depth of 1,000 meters (500 fathoms), which area we consider here to constitute the fishable bottom habitat. Perpendicular blocks of closures sweep from the shore to a 1,000-meter contour, protecting a full range of habitat types. Area afforded protection by example FMP 3.2 spatial measures, when combined, protect 17.8 percent of the EEZ, and 47.8 percent of the fishable area of the BSAI and GOA (Table X).

Aleutian Islands

The Aleutian Islands subarea merits special attention since the fishing grounds are all relatively nearshore. Example FMP 3.2 defines a 5 percent No-Take Reserve and 15 percent MPA rule across a full range of habitat types. Where in the Bering Sea and GOA 15nm buffers from shore were described in the frameworks, in the AI a 15nm buffer was applied to each of the Steller sea lion rookeries and haulouts. This buffer does not specifically implement a no-take reserve or other MPA, but is likely to be a weighting factor in any future development of potential restrictions.

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Due to the narrow Continental Shelf along the Aleutian Island chain, and the fact that State statistical areas are utilized in this PSEIS, a much higher percentage of fishable area (79.9 percent) is afforded protection in the example FMP 3.2 in the AI area compared to the Bering Sea (32.6 percent) and the Western /Central GOA (65.6 percent).

Thirty-nine Steller sea lion rookeries fall within Steller sea lion Critical Habitat, nineteen of which are located in the Aleutian Islands. All rookeries carry a 3nm No Transit area with an additional 10nm (or more) no Steller sea lion prey species trawling area. The No Transit Areas are the only No-Take reserves in the Aleutian Islands. These closures have been in effect since 1992 – all of them are logical candidates for no-take marine reserves or MPAs. Many of these Steller sea lion No Transit\No-Trawl areas are clustered and thus transfer easily to corresponding ADF&G statistical areas. Although other non-Steller sea lion prey species fisheries such as the rockfish fisheries occur inside these Steller sea lion No-Trawl areas, these areas were weighted heavily in the analysis as representing conceptual No-Take reserves and less so for gear specific MPAs. Coral data from bycatch and trawl survey data, as well as from NOAA dive test areas, were used in the development of the No-Take marine reserve examples.

The MPAs considered in this analysis include: No SSL Prey Species H&L, Pot and Trawling MPAs, No SSL Prey Species Trawling MPAs, and No Bottom Contact Trawling MPAs. To encompass existing closures areas, the Pacific cod H&L and Pot and Trawling restrictions were extended to constitute No SSL Prey Species H&L and Pot MPAs, if not already closed as No-Take Reserves. Other current Steller sea lion prey species restrictions for Atka mackerel, pollock (the entire AI subarea), and Pacific cod trawl fisheries were closed to prey species trawling. And to better protect habitat, a suite of MPAs for No Bottom Contact Trawling (currently defined simply as Non-Pelagic Trawling) were created around areas of low and medium fishing intensity areas where bycatch or trawl survey data contained coral and sponge. Some of these low intensity areas can be seen on Bowers Ridge, west of Attu Island, and west of the Bogoslof District.

Through the development of these No-Take Reserves and MPAs, the 40 percent rule was applied to ADF&G statistical areas in order to illustrate a contiguous and fairly non-fragmented environment available for marine mammals, benthic habitats, seabird avoidance and spawning fish populations without jeopardizing commercial fisheries.

Bering Sea

Guidelines in the example FMP 3.2 MPAs and EFH component define a 5 percent No-Take Reserve and a 15 percent MPA rule across a full range of habitat types. With its broad, muddy and sandy shelf, the Bering Sea is much different than the Aleutian Islands. The Bering Sea also contains many legacy areas established for habitat protection, such as the Near Shore Bristol Bay No-Trawl area, the Red King Crab No Non-Pelagic Trawl area, the Pribilof Habitat No-Trawl area, and a full suite of No SSL Prey Species H&L and Pot and Trawl Areas. Other existing closures in the Bering Sea have been used for the creation of No-Take Reserves and MPAs examples: five No Transit zones and their associated 10nm No SSL Prey Species Trawling areas with various sized H&L and Pot closures. A large section of the Steller sea lion conservation area (the Bogoslof District) is closed to all Steller sea lion prey species fishing (with the small exemption area near Dutch Harbor for catcher vessels less than 60 ft LOA).

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Fifteen nm buffers from the shore (as described in the example FMP 3.2 Steller sea lion Measures component to mimic recent Steller sea lion foraging research, fishing effort, known locations of Steller sea lions and other marine mammals, spawning areas, crab protections areas, and essential fish habitat) were used as weights in the designation of the No-Take Reserves and the MPAs. As in the AI, we have applied a 40 percent rule to state statistical areas to illustrate contiguous and fairly non-fragmented environments.

The Bogoslof foraging area (district) now contains significant No-Take Reserves, with the rest of the Bogoslof foraging area covered by No SSL Prey Species H&L and Pot and Trawl areas. A suite of No-H&L and Pot and No SSL Trawl areas develop moving east along the lower Bering Sea shelf. The 3nm statistical areas around the land bordering the rookeries are listed as No-Take Marine reserves. Other No-Take Reserves include a large area around Cape Piece Walrus Protection area and the Walrus Island Steller sea lion rookery in the Pribilof Islands.

The Pribilof Habitat Conservation and Near Shore Bristol Bay Areas remain closed to trawling, and the Red King Crab Area remains closed to non-pelagic trawling. The two northernmost haulouts and the haulouts in the Pribilofs are closed to Steller sea lion Prey Species H&L and Pot and Trawling.

Along the northwestern shelf of the Bering Sea, three large No-Bottom-Contact Trawling MPAs were developed to coincide with the no-bottom-trawling areas the Essential Fish Habitat Committee is considering to protect these same benthic habitats. These general areas are being considered as potential sites for a rotational MPA, where areas are periodically opened and closed to particular types of fishing.

Gulf of Alaska – west of 144° West

Like the BSAI, the example FMP 3.2 for the GOA (west of 144° West) sets a 5 percent No-Take Reserve and a 15 percent MPA rule across a full range of habitat types. Unlike the Bering Sea, however, the GOA is somewhat more restrictive as to where effective closures can be designed while leaving areas open near fishing ports.

Fifteen Steller sea lion rookeries are listed in the GOA, thirteen of which carry 3 nm No transit areas and 10nm No SSL Prey Species No-Trawl areas. These areas, along with other existing Steller sea lion restrictions, such as the 15 nm buffers from the shore (as were described in the frameworks to mimic recent Steller sea lion foraging research), the Type I & II No-Trawl areas, and the Chiniak Gully Research area (seasonal), as well as known locations of Steller sea lions and other marine mammals (such as harbor seals), pollock spawning areas, bycatch and survey data of coral and sponge, the shelf's gullies, canyons and breaks, and essential fish habitat – all served as weighted measures for the illustration of the No-Take Reserves and the MPAs in the FMP 3.2.

The 40 percent rule was again applied to the ADF&G statistical areas to illustrate large non-fragmented environments.

In order to protect a full range of habitat, perpendicular tracks of No-Take Marine Reserves were created from the shoreline to the 1,000-meter break. Where possible, the No-Take Reserves were created at Steller sea lion rookeries and where existing No-H&L and Pot and Trawl for the SSL Prey Species closures coexist such as Marmot Island, south Chignik in RPA district 4, around selected Steller sea lion rookeries and haulouts, and

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the entire AI subarea, excluding a swath of fishable area to Unimak Pass, this is not shown on the map since the Bogoslof district and RPA districts 10 and 11 are already analyzed as No-Take Marine Reserves in their own regions.

The benthic fishing habitat used in this analysis was down to 1,000 meters (500 fathoms), which we considered fishable bottom habitat. In most cases, perpendicular blocks of closures sweep from one side of the 1,000 meters contour to the other, protecting a full and broad range of habitat.

Thirty-nine Steller sea lion rookeries fall within Steller sea lion Critical Habitat; the AI contains nineteen of them. All rookeries carry a 3nm No-Transit zone and an additional 10nm No SSL Prey Species Trawling area. These closures have been in effect since 1992, all of them making excellent candidates for No-Take Marine Reserves under the Alternative 4 policy. Many of these areas are clustered and would transfer easily to the corresponding ADF&G stat areas. Areas that currently have high densities of No-Trawl, hook and line, and pot fishing were designated No-Take Marine Reserves in the example FMP 4.1 illustration. A good example of this can be seen in the area from 170° West to Seguam Pass. Blocks on the Petrel Banks were closed due to high coral bycatch. A string of closed statistical areas follows the Petrel Banks because these areas have seen at least some coral bycatch and are relatively unstudied. One block of the Southeastern side of Petrel Banks (North slope) was left open. Historically high catch rates in this area and a need to create at least some open areas for fishing prompted this action. No-take reserves along Steller sea lion Critical Habitat and the 1,000 meters contour created significant contiguous benthic and biologic protection in the AI.

Bering Sea

The example FMP 4.1 guidelines specified that 20 to 50 percent of each management area, including all representative habitats contained therein, should be managed as No-Take Reserves. Specifically mentioned in the example FMP 4.1 were submarine canyons, Unimak Pass, old Crab Pot Sanctuary, areas near the Pribilof Islands, area southwest of St. George, Misty Moons, and the RKC Savings Area. These examples were recommended by public stakeholders as candidate areas for analysis in this PSEIS.

Steller sea lion Critical Habitat (including the entire SCA) was closed to trawling as an illustration of a No-Trawl MPA or designated as No-Take Marine Reserves, as were other legacy closures such as the Near Shore Bristol Bay No-Trawl area. And since the Bering Sea has a much broader benthic plane, more options were available to analysts for illustrating a management scenario meeting the criteria of example FMP 4.1 by protecting a full range of habitat types using a combination of both No-Trawl MPAs and No-Take Marine Reserves.

For purpose of this analysis, we designated Bogoslof (RPA district 9) as a No-Take Marine Reserve, with blocks of reserve leading east to include large portions of old Crab Pot Sanctuary Area, thereby illustrating continued protection of this important crab spawning area and benthic habitat. A track of No-take Marine Reserve leaves the old Crab Pot Sanctuary area running north to intercept the coast near Cape Pierce and the Walrus Islands closures. A track of No-Trawl MPA extends from Cape Pierce to the west, intercepting the No-Trawl Marine Reserve formed by the Pribilof Conservation Area (PCA). Below the PCA is Misty Moon canyon; a No-Take Marine Reserve was designated here because of historically high bycatch of corals and sponges. An open fishing area was created both above and below the Misty Moon area to permit groundfish fishing where catches have been historically good, but with lower bycatch. For purposes of illustrating this

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policy, other large No-Take Marine Reserves were designated along the inner, middle, and outer BS shelf breaks. The five northern Steller sea lion haulouts became No-Take Marine Reserves using coincident ADF&G statistical areas. Unlike the AI, the area analysis includes only that part of the ADF&G statistical area that coincides with 1,000 meter bathymetry. The exception is that the Bogoslof foraging area is included in the percentage of BS EEZ calculation.

Gulf of Alaska – west of 144° West

As with the AI and BS, the GOA (west) guidelines suggested that 20 to 50 percent of each management area, including all representative habitats contained therein, should be managed as No-Take Marine Reserves. Specific areas mentioned for analysis were the Davidson Banks, Shumagin islands, the Type I & II area to the southeast of Kodiak Island, and the Gulf shelf breaks. Unlike the BS, the GOA is somewhat more restrictive as to where effective closures can be created while leaving some areas open.

Steller sea lion Critical Habitat, Steller sea lion current closures (trawl, hook and line, and pot), pollock spawning areas, fishing ports, and the shelf's gullies, canyons and breaks, were taken into account in the creation of No-Take Marine Reserves and No-Trawl MPAs. In order to protect a full range of habitat, perpendicular tracks of No-Take Marine Reserves, using state statistical areas, were created from the shoreline to the 1,000-meter break. Where possible, these No-Take Marine Reserves were created at Steller sea lion rookeries and where current Steller sea lion no-trawl and no-hook-and-line and pot closures coexist, such as Marmot Island and RPA districts 4, 10 and 11. Other areas that were designated as No-Take Marine Reserve in this example FMP included the Shumagin islands (an important pollock spawning area and high catch area), a portion of Davidson Bank, Portlock Banks shelf break, and blocks of areas in and around Prince William Sound. Unlike the AI, the area analysis includes only that part of the ADF&G statistical area that coincides with 1,000 meter bathymetry.

Gulf of Alaska – East of 144° West

Because the Southeast Outside District does not include Steller sea lion Critical Habitat but currently has a trawl ban east of 140° West, this area was analyzed separately from the western and central GOA. Again, a suggested 20 to 50 percent of each management area, including all representative habitats contained therein, should be managed as No-Take Marine Reserves. The Sitka Pinnacles are the only area currently designated as a "no-take" among the example FMPs. Coral and sponge bycatch, shelf breaks, and proximity to ports were used in the illustration of No-Take Marine Reserves. The No-Take Marine Reserves protect a full range of habitat from the coast to the 1,000 meter (fishable area) shelf break. Unlike the AI, the area analysis includes only that part of the ADF&G statistical area that coincides with 1,000 meter bathymetry.

FMP Map 4.1-2 contains all of the above spatial measures, but uses the same color-scheme as FMP maps 1 through 3.2:

Yellow:	3nm No-Transit Areas
Purple:	No SSL Prey Species Trawling MPA
Dark Green:	No SSL Prey Species Hook-and-Line (H&L), Pot, or Trawl Fishing MPA
Blue:	No-Take Marine Reserves
Pink:	No-Bottom-Contact Trawling MPA

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within RPA Districts 10 and 11 (below the Bogoslof District). Other areas that were designated No-Take Reserves for purposes of our analysis included a section of the shelf and slope below the Shumagin islands, Portlock Banks, and smaller sections of the shelf below Prince William Sound.

No SSL Prey Species H&L and Pot and Trawl Areas were created using the weighted measure when Steller sea lion restrictions were dominant but did not reach the benchmark for creating No-Take Reserves. No-Trawl for the SSL Prey Species and No-Bottom-Contact Trawling closures were created with the same sets of weighted criteria.

Gulf of Alaska – east of 144° West

As in the BSAI, the example FMP 3.2 for the Gulf of Alaska (east of 144° West longitude) defined a 5 percent No-Take Reserve and a 15 percent MPA rule across a full range of habitat types.

The current suite of Steller sea lion closures do not transit east of 144° West, but the Steller sea lions east of 144° West are listed as threatened and therefore we included an example measure to provide some protection to this part of the population. The state No-Trawl closure east of 140° West was strengthened in this illustration to include an MPA for No-H&L and Pot or Trawl for SSL Prey Species. This No-Trawl and No-H&L and Pot or Trawl for SSL Prey Species MPA also includes a smaller area near Icy Bay and Cape Yakataga.

The example No-Take Reserves were developed to protect habitat in areas with low to medium fishing intensity and within 3nm of three Steller sea lion rookeries. The Sitka Pinnacles are included within one of the illustrated No-Take Reserves.

Example FMP 4.1 Map

There are two versions of map FMP 4.1. Both illustrate the same suite of spatial closures. The difference is cosmetic. FMP map 4.1-1 use the same color (magenta) scheme as FMP map 4.2. Both of these FMP examples serve to illustrate a major shift in management policy. Unlike current management practice where generally speaking anything is permitted unless specifically prohibited (e.g., the maps are blank unless closures/restrictions are shown), FMP maps 4.1-1 and 4.2 illustrate a management policy where everything is closed unless shown open. FMP map 4.1-2 provides a map illustration where the magenta is converted to the color scheme used in FMP maps 1 through 3.2 to provide the reader with a version to make comparison among those maps easier.

FMP map 4.1-1 illustrates five types of spatial management areas that are color-coded as follows:

Yellow:	3nm No Transit Areas
White:	Areas Open to Fishing
Magenta Hatching:	Areas Open to Commercial Fishing Except Trawling
Magenta (solid):	No-Take Marine Reserves
Light Red Circles:	SSL Critical Habitat

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Bathymetry information to 1,000 meters is also color-coded, running from dark green (zero meters) to a pale beige (1,000 m). In the legend itself, the titles for measures developed specifically for protection of Steller sea lions are printed in blue.

The map has been developed from the following information and data sources: bathymetry; essential fish habitat from the 1997 environmental assessment (insert citation); Steller sea lion critical habitat; 2002 Steller sea lion closures; survey and bycatch data for coral and sponge distribution; historical commercial fisheries catch data; location of ports; locations of test and study areas; the Aleutian Islands (AI) special management area; public comments; and the legacy closures and restricted areas identified in Table X FMP Frameworks spreadsheet.

ADF&G statistical areas were applied as management units to designate open fishing areas, MPAs designated as No-Trawling areas (all species, all types of trawls), and No-Take Marine Reserves (where commercial fishing is prohibited). The ADF&G groundfish statistical areas are one degree wide (approximately 35nm), and a half-degree tall (30 nm). ADF&G subdivides their statistical areas at 3nm from the shoreline. These management units, when grouped into larger spatial regions, are presumably large enough to: 1) prevent habitat fragmentation; 2) protect large portions of Habitat of Particular Concern (HAPC); 3) form clearly defined, manageable, navigable, and enforceable alternatives; 4) provide contiguous fishing restrictions for protecting spawning populations, key critical habitat, demersal, pelagic fish species, and marine mammals; and 5), where possible, provide open areas near fishing ports.

From a biological and fishery point-of-view, the ADF&G statistical areas are arbitrary and do not always represent the spatial distribution of significant biological and habitat resources. Therefore, a 25-percent rule was applied in the following manner: When 25 percent of a state statistical area was covered with a significant concern, the area was designated as either a No-Take Marine Reserve or a No-Trawl MPA. This effect was normalized to a certain extent during the analysis because a statistical area that did not quite meet the benchmark would not be so designated (e.g., an area where less than 25 percent was overlaid would be left entirely open, as was the case when attempting to comprehensively close Steller sea lion Critical Habitat) In some cases, areas were shown totally closed even if the 25 percent benchmark was not reached for purposes of illustrating a contiguous closure to capture a broad range of inshore to offshore habitats.

Area afforded protection by example FMP 4.1 spatial measures, when combined, protect 19.0 percent of the EEZ, and 51.1 percent of the fishable area of the BSAI and GOA (Table X). The primary difference between this map and the FMP 3.2 map is that most of the spatial closures used in this illustration are of the form of No-Take Marine Reserves where all commercial fishing is prohibited. This form of closure is intended to illustrate a extremely precautionary policy that places emphasis on protecting marine mammals, target groundfish stocks, and essential fish habitat.

Aleutian Islands

The AI subarea merits special attention since the fishing grounds are nearshore. Guidelines in the Alternatives tables state that 20 to 50 percent of each management area, including all representative habitats contained therein, should be managed as a No-Take Marine Reserve. The AI Special Management Area illustrated in example FMP 4.1 covers a contiguous area specifically to protect coral and other living substrates and Steller sea lion critical habitat. Although the AI Special Management Area was originally intended to encapsulate

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Light Green: Eastern Gulf of Alaska (GOA) No SSL Prey Species H&L, Pot, or Trawl MPA
Red Circles: SSL Critical Habitat

Example FMP 4.2 Map

The FMP 4.2 map illustrates a management plan that completely closes the EEZ to groundfish fishing until such time that NPFMC and NOAA Fisheries have reviewed each fishery and determined whether it results in any significant adverse impacts on the physical or biological environment. This FMP illustrates one way to apply the extremely precautionary policy of Alternative 4. As described above, the process of review, certification, and development of fishery-specific regulations could take up to two years, at which time those fisheries authorized to harvest groundfish, would be permitted. This map would then change for those fisheries, with certain areas opening to them. Some fisheries may never receive authorization. As fisheries are authorized, their fishery-specific maps would begin to look similar to the FMP 4.1 map illustrations, depending on the fishery.

For purposes of this programmatic analysis, the FMP 4.2 map provides an opportunity to estimate the economic and social value of the commercial groundfish fisheries and realize the impact of a temporary suspension of groundfish fishing. Such a management plan serves as a useful bookend for comparing this FMP scenario with example FMP 4.1 that illustrates a significantly reduced fishery in lieu of total suspension.



AT-SEA PROCESSORS ASSOCIATION

Partners for Healthy Fisheries

AGENDA C-2

JUNE 2003

Supplemental

www.atsea.org

June 3, 2003

Mr. David Benton, Chairman
North Pacific Fisheries Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501

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N.P.F.M.C

Re: Draft PSEIS comments

Dear Mr. Chairman:

The At-sea Processors Association (APA) would like to submit comments regarding the Alaska Groundfish Revised Draft Programmatic SEIS, specifically the sector model for estimating socioeconomic effects (in sections 3.9 and 4.1.7).

The socioeconomic impacts model in the draft PSEIS ignores two crucial aspects of the benefits derived from the fishery: (1) the benefits derived from the ownership of Western Alaska Community Development Quota (CDQ) groups in pollock companies; and (2) the substantial employment opportunities provided to Alaskans as a result of CDQ ownership and partnerships in the fisheries, and as a result of hiring by the at-sea pollock catcher/processors in Anchorage. Unless the PSEIS model is corrected to include these important socioeconomic impacts, it will be useless to policy makers or anyone else concerned about ACTUAL socioeconomic impacts of the fisheries in Alaska.

The sector model "uses multi-species management model output of the species catch by gear and subarea, combined with their historical harvest and processing proportions, to estimate the distribution of catch and processing among the various sectors and regions that rely on the groundfish fishery¹". The model then attempts to describe how the sectors interact differently with different geographic regions. This model is fatally flawed, however, in that it gives no consideration to the significant socioeconomic benefits from the at-sea sector to various regions of Alaska, particularly as a result of CDQ ownership in the sector and the employment of Alaskans in the sector, but in other aspects as well. The model simply attributes all investment return and employment benefits from the at-sea sector to Washington State, the region where the at-sea companies are headquartered.

The draft PSEIS acknowledges – but does not correct -- this fault with respect to Alaskan employment (see footnote 3 on page 4.1-53). It relies on the false assumption that ALL

¹ Revised DPEIS, Section 4.1.7, Page 51



ANCHORAGE

431 West 7th Avenue, Suite 103
Anchorage, AK 99501
Tel: (907) 276-8252
Fax: (907) 276-8262

SEATTLE

4039 21st Avenue W., Suite 400
Seattle, WA 98199
Tel: (206) 285-5139
Fax: (206) 285-1841

at-sea employees are from Washington, even while acknowledging that, "it is known that significant numbers of at-sea processing employees are not from [Washington]." This is a seriously misleading and unacceptable model to be used in setting policy for the North Pacific fisheries.

Alaska/CDQ Ownership in At-Sea Catcher/Processors: The socioeconomic model completely ignores the benefits and importance of the substantial ownership of CDQ villages in pollock catcher/processors. Yet the ownership by CDQ villages of pollock catcher/processors may represent the most significant benefit that Alaska or Alaskans have ever derived from Alaska's groundfish fisheries. Since the advent of the CDQ program, five of the six regional CDQ groups have invested heavily in the at-sea sector (AFA-eligible catcher/processors) and the sixth group has invested into the mothership sector. An excerpt from the Council's 2002 AFA report to Congress identifies the ownership by Coastal Villages Region Fund and Central Bering Sea Fishermen's Association in American Seafoods alone as "*the greatest level of truly Alaskan investment in the BS/AI pollock fishery*"² (emphasis added). According to the North Pacific Council's report to Congress on impacts of the American Fisheries Act, the CDQ groups now have about \$200 million in assets/ownership interest in the fisheries. As a result, almost half (45%) of the total annual income of CDQ groups is now derived from return on investments, as opposed to royalties. The draft PSEIS socioeconomic model appears to attribute ALL of the benefits and income from Alaska CDQ group investments to Washington State! Doing so produces accounting errors in the model totaling tens of millions, if not hundreds of millions, of dollars annually. Unless corrected, a flaw of this magnitude will render the socioeconomic model in the final PSEIS completely useless.

Alaska Employment Aboard At-Sea Catcher/Processors: For many years, the APA has supported APA member company efforts to hire Alaskans for their operations. APA sponsors and organizes job fairs in Anchorage prior to each major pollock season. When APA moved its headquarters to Anchorage in 1999, we created a full-time staff position to serve as employment coordinator for Alaska hiring by all seven APA member companies. All member companies of the APA participate in the twice-annual Anchorage job fairs, and many companies use the APA's employment coordinator to seek more Alaskans to fill vacancies arising during the fishing seasons. Since the opening of our Anchorage office, over 1,000 job applicants have utilized the Association's services.

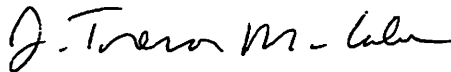
² "Impacts of the American Fisheries Act" A report to Congress and the Secretary of Commerce prepared by the North Pacific Fisheries Management Council, February 20, 2002, Page 208

The hundreds of Alaskans who have been hired as part of this Anchorage-based program the past four years are in addition to the at-sea Alaska hires from CDQ villages. As a result of their partnerships with, and ownership in, pollock catcher/processor companies, significant Alaska hiring in our sector takes place in western Alaska villages. According to the Council's 2002 AFA report, the CDQ program provides about 2,000 jobs annually for Alaska residents, with wages in excess of \$12 million annually. At least some, and perhaps a majority, of these Alaska employees are counted as a benefit to Washington State as a result of the PSEIS's flawed employment accounting system.

As mentioned above, the draft PSEIS socioeconomic model erroneously counts all employees aboard pollock catcher/processors as Washington State residents, and attributes no benefit to Alaska. It does so for the purposes of "simplification," using an assumption "consistent with U.S. Department of Labor standards which assign at-sea employment to the region in which the vessel is based," – even though the PSEIS model creators and authors acknowledge that "it is known that significant numbers of at-sea processing employees are not from the owner's region." This deficiency in the PSEIS model must be corrected if the model is to be of any consequential value to policy makers.

APA staff would gladly be available to your staff and NMFS staff to correct the flawed socioeconomic model. We also anticipate providing testimony on this matter during the Council's upcoming Kodiak meeting.

Sincerely,



Trevor McCabe
Executive Director
At-sea Processors Association



ALASKA OCEANS NETWORK

2140 SHATTUCK AVENUE, SUITE 208 • BERKELEY, CA 94704
(510) 540-5146 • JOSH@ALASKAOCEANS.NET
INFO@ALASKAOCEANS.NET • WWW.ALASKAOCEANS.NET

Status of North Pacific Groundfish

4 June 2003

by
Joshua Sladek Nowlis
Science Advisor
Alaska Oceans Network

Annually the North Pacific Fishery Management Council assesses a wide range of fish stocks under its management. These assessments range from detailed, population-specific modeling exercises to general examination of data histories, including reported catches, observer program results, and government-sponsored fishery surveys. From these efforts, the Council assigns stocks to tiers, ranging from Tier 1 (extensive data available on a stock) to Tier 6 (nothing more than a history of catches available). Generally speaking, we know the status of stocks in Tiers 1 through 3 relative to an estimate of unfished abundance, whereas we do not have this information for stocks in Tiers 4 through 6.

Also annually, the National Marine Fisheries Service produces a Report to Congress that summarizes the status of each federally-managed fish stock with respect to overfishing (whether the current rate of fishing is above maximum sustainable levels) and overfished condition (whether the current abundance is below a level that jeopardizes its productive capacity, with the actual threshold varying from fishery to fishery). In this report, none of the 21 known North Pacific groundfish stocks were identified as overfished, as compared to two of 33 for the North Pacific as a whole (6%) and 86 of 237 nationally (36%). On the other hand, the high proportion of stocks for which this information is unknown raises concerns. Overfished status is unknown for 170 of 191 total North Pacific groundfish stocks, representing 89% or eight out of every nine stocks, as compared to 186 of 219 for the North Pacific as a whole (85%) and 642 of 879 nationally (73%).

These results inadequately reflect the status of North Pacific groundfish for two reasons. First, they categorize stocks grossly into overfished or not overfished categories without any additional precision. These broad categories are particularly unhelpful because of a lack of scientific or even legal consensus on when to consider a stock overfished, as discussed below. Second, most stocks are actually categorized as unknown despite the fact that some information exists to guide a status determination.

A More Detailed Look

Assessments of stocks in Tiers 4 through 6 contain substantial information to help in determining their status. One can find an estimate of current abundance for stocks in Tiers 4 and 5, as well as a history of abundance estimates going back up to 20 years or more. But can we rely on this information? The data represent such cursory views of large phenomena that they are riddled with imprecision and likely inaccuracy. However, if used correctly and with an understanding of important caveats, they can provide some insight into the management system as a whole. The three caveats are:

- 1) The current abundance and largest historic abundance estimates are highly imprecise and may therefore be grossly inaccurate. However, these sources of error will not necessarily bias the results in any direction.
- 2) Even if the largest historic abundance estimates were accurate, they represent population levels after fishing had already taken place. This source of error would bias results towards seeing stocks as healthier than they really are.
- 3) Even if the largest historic abundance estimates were accurate and reflected pre-fishing conditions, the environment may have changed so that today's unfished abundance could be higher or lower. This source of error will not necessarily bias the results in any direction.

These caveats should give one pause about accepting the status of any particular stock based on the analyses presented here. However, most of the sources of imprecision are unbiased. Even those that are biased tend towards seeing stocks as healthier than they really are. In aggregate, assessments based on these data should be adequate for judging the performance of the North Pacific groundfish management system as a whole and especially for poorly understood stocks.

Categories

Stocks were assigned to categories of abundance relative to historical or unfished abundance. Categories were defined based on policy thresholds that have been established in the North Pacific or elsewhere. The threshold levels dividing categories were 10, 17.5, 35, 40, and 50 percent of historic abundance. I examined so many different levels because of a lack of consensus on when to consider a stock overfished. The lowest of these (10%) was included because it has been discussed in international circles as a possible threshold for endangered status. The second lowest (17.5%) was chosen because the North Pacific Fishery Management Council has stated that any stock at this level would be considered overfished. The middle level (35%) is also a reference point in North Pacific groundfish management, corresponding to both the highest level at which a stock might be considered overfished and the default assumption of abundance that would produce maximum sustainable yields. The second highest level (40%) corresponds to the national recommendation for a proxy for maximum sustainable yield abundance level, while the highest (50%) corresponds to the maximum sustainable yield abundance level in the Schaefer model, a commonly used population model in ecology. Note that some scientists and some conservation groups have identified these maximum sustainable

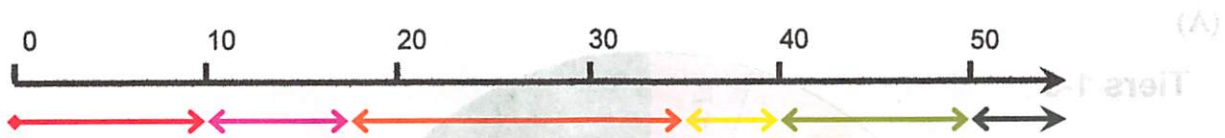


FIGURE 1—Illustration of status categories based on current abundance as a percentage of historic abundance, with policy oriented references. The red zone represents levels that might be considered endangered. The pink zone represents levels that the North Pacific Council would definitely consider overfished while the orange zone represents levels they might consider overfished. The yellow zone lies below levels the National Marine Fisheries Service has identified with maximum sustainable yields, while the olive zone lies below levels that would support maximum sustainable yields under a commonly used ecological modeling framework. Note that all of these zones might be considered overfished by some scientists and lawyers, while others would consider only some of these zones overfished. Finally, the green zone represents stocks above 50 percent of their historic abundance, levels that most fishery scientists would consider healthy.

yield levels as appropriate overfished thresholds. Consequently, these five thresholds break abundance levels into six categories, and all but the most abundant category (>50%) might be considered overfished by some (Fig. 1).

Results

Current and historical abundance estimates were available for 82 stocks or regional populations from the stock assessment and fishery evaluation report (Tables 1 and 2; Fig. 2). Twenty of these stocks were categorized in Tiers 1 through 3 and had an estimate of unfished abundance as well as current abundance. The remaining 62 stocks did not have estimates of unfished abundance but did have histories of abundance estimates dating back from a few to over twenty years. There is one exception to this pattern. Bogoslof Island pollock were categorized as Tier 5, yet their unfished abundance had been estimated.

Of the 20 stocks in Tiers 1 through 3, none were below 17.5 percent of unfished abundance, the low range of overfished thresholds used for North Pacific groundfish (Fig. 2A). One stock—Gulf of Alaska pollock—was below 35 percent. This stock had the potential to be classified as overfished, according to the North Pacific groundfish management system, but further analysis concluded that it was not. An additional six stocks fell below 40 percent, the abundance the National Marine Fisheries Service recommends as a default for maximum sustainable yield levels. Five more stocks fell above this level but below 50 percent, the abundance that produces maximum sustainable yields in perhaps the simplest and most common ecological modeling framework. All told, seven stocks (35%) fell below 40 percent of unfished abundance, the level the National Marine Fisheries Service has recommended to maximize yields. On the other hand, eight of twenty (40%) were above 50 percent of unfished abundance, a level most fishery scientists would consider healthy.

The 66 stocks in Tiers 4 through 6 fared less well. Eight (12%, or one of every eight) had current abundance estimates less than 10 percent of historic abundance—a critically low level (Fig. 2B). Two more had current abundance estimates less than 17.5 percent of historic abundance, the lower range of overfished thresholds. Seven more fell between 17.5 and 35

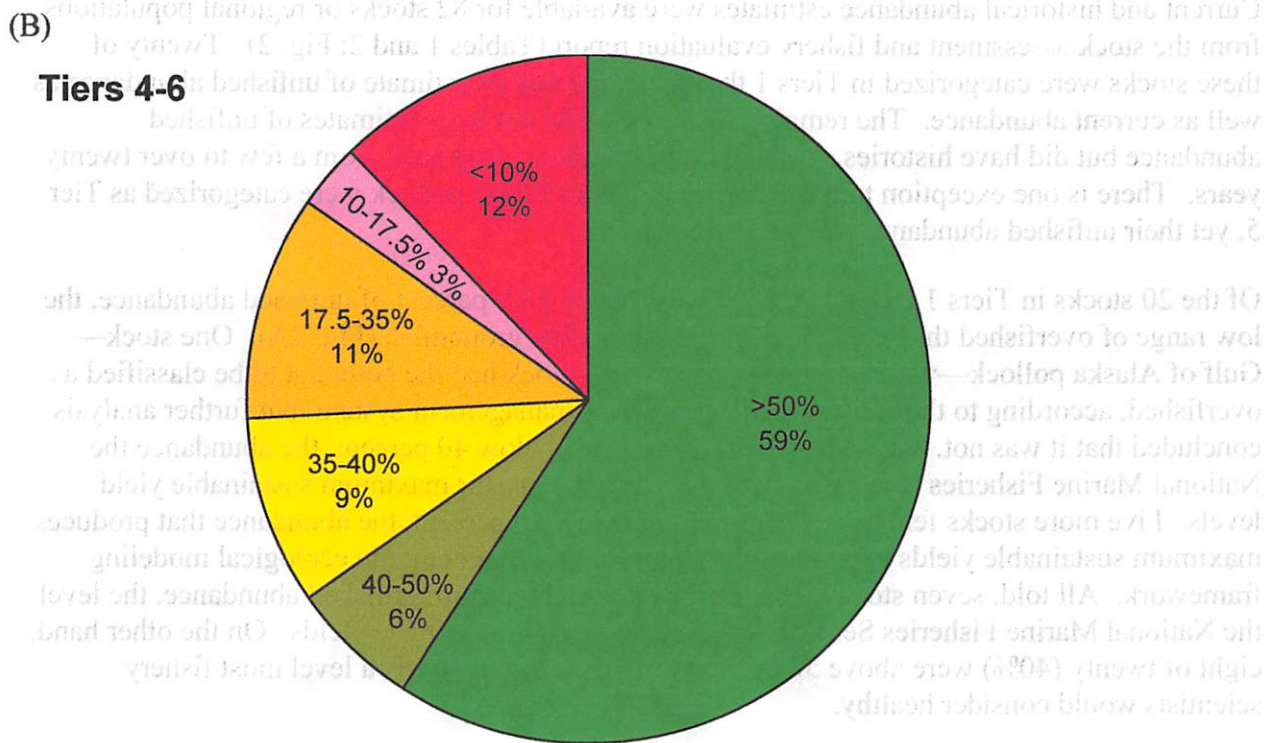
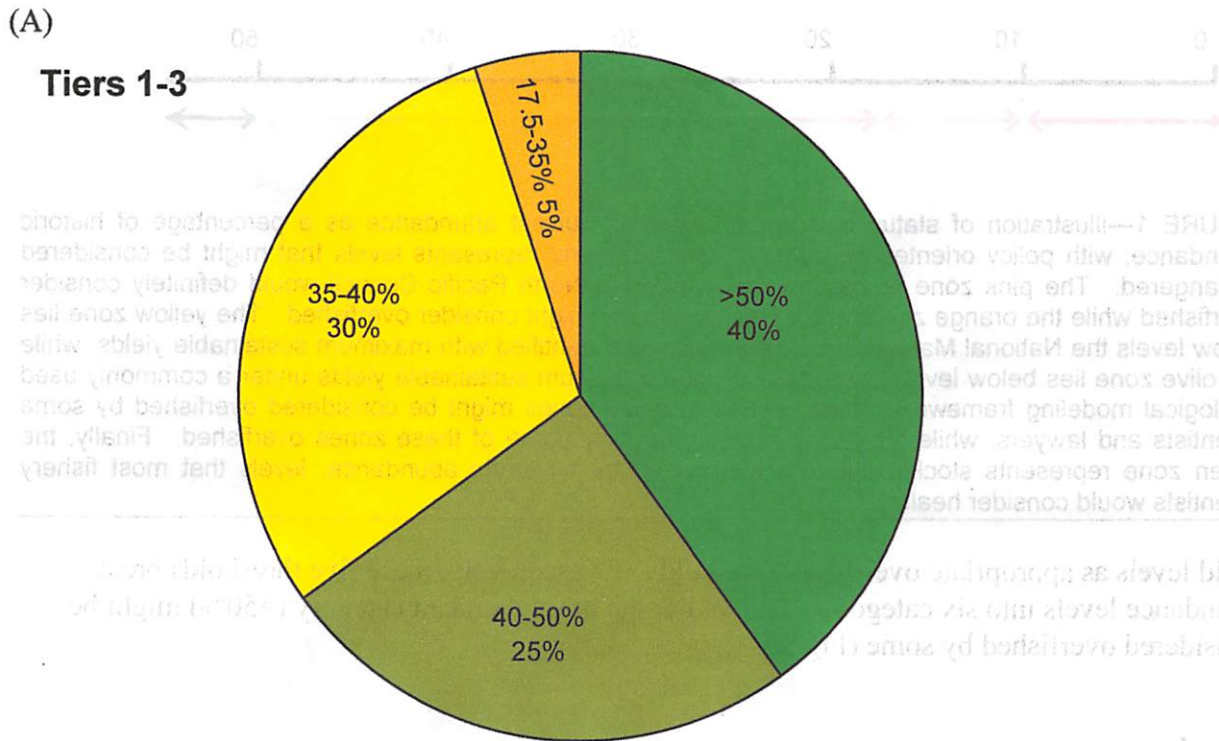


FIGURE 2—Status of North Pacific Groundfish, expressed as percent of historic or unfished abundance. See text for caveats, especially for stocks in tiers 4 through 6. (A) Tiers 1 through 3. (B) Tiers 4 through 6.

percent, bringing to 17 (26% of the total) the number of Tier 4 through 6 stocks that potentially warrant an overfished determination, according to the North Pacific groundfish management system. An additional six stocks fell below 40 percent, four more fell below 50 percent, while 39 (59%) were above 50 percent.

In sum, of the 86 stocks of North Pacific groundfish examined here, eight (9%) may have been below 10 percent of unfished abundance while a total of 10 (11%) may be at levels that would automatically trigger an overfished determination by the North Pacific Fishery Management Council if verified. An additional eight stocks (9%) may be at abundance levels that could be considered overfished according to the North Pacific groundfish management system, pending further analysis. Thirty (35%) stocks in total may be below levels the National Marine Fisheries Service has recommended as a proxy for maximum sustainable yields while 39 (45%) fall below maximum sustainable yield levels from the Schaefer model, which is near the high end of what anyone might consider overfished. On the other hand, 47 of the stocks (55%) may be at abundance levels that most fisheries scientists would consider healthy. While the status determinations using this technique may be off for any particular stock, in aggregate the results depict what is likely to be an accurate or even conservative (towards seeing stocks as healthier than they really are) perspective on the North Pacific groundfish management system. While these results identify a number of healthy stocks, they also indicate that many would qualify as overfished, depending on the definition used, and some may be at critically low levels.

Conclusions

While it would be dangerous to presume this analysis determined the correct status of any given stock, particularly those in Tiers 4 through 6, it is equally dangerous to ignore indications that a number of North Pacific groundfish stocks may be at very low levels. The Council does provide precautionary management tools for some of these stocks. For example, the total allowable catch for Bogoslof pollock, whose population may be less than 5 percent of historic abundance, is only one-tenth of a percent of what would be considered overfishing. Yet this precautionary approach is not universal. For example, Aleutian Islands squid, whose population may be less than 10 percent of historic abundance, has a total allowable catch equal to three-quarters of what would be considered overfishing. The results presented here highlight a significant but solvable weakness in the North Pacific groundfish management system—the lack of precaution built in for stocks with less information. Such precaution not only makes sense to account for the large uncertainties in managing them; it also makes sense because of the potentially poor status of some of these stocks. In fact, many stocks are at levels that might benefit from some or even substantial rebuilding. Additional precaution may also be advisable for some of the better-known stocks. Sixty percent of stocks in Tiers 1 through 3 fell below 50 percent of historic abundance, levels that some would consider overfished and that many would agree is of less certain health. Nevertheless, it is worth noting that this extensive analysis of groundfish stock status in the North Pacific identified most as healthy (above 50% of historic abundance), providing evidence that many parts of the management system do perform well.

TABLE 1—Status of North Pacific Groundfish, expressed as percent of historic or unfished abundance. See text for caveats, especially for stocks in Tiers 4 through 6.

(A) Tiers 1-3

Status →	>50%	40-50%	35-40%	17.5-35%
Gulf of Alaska	<ul style="list-style-type: none"> • Flathead sole • Arrowtooth • Northern rockfish • Thornyhead rockfish 	<ul style="list-style-type: none"> • POP 	<ul style="list-style-type: none"> • Pacific cod • Sablefish 	<ul style="list-style-type: none"> • Pollock
Bering Sea/ Aleutian Islands	<ul style="list-style-type: none"> • Arrowtooth flounder • Rock sole • Flathead sole • Alaska plaice 	<ul style="list-style-type: none"> • EBS pollock • Yellowfin sole • Greenland turbot • Atka mackerel 	<ul style="list-style-type: none"> • Pacific cod • BS sablefish • AI sablefish • POP 	
TOTALS	8	5	6	1

(B) Tiers 4-6

Status →	>50%	40-50%	35-40%	17.5-35%	10-17.5%	<10%	
Gulf of Alaska	<ul style="list-style-type: none"> • Dover sole • Rex sole • Rock sole • Yellowfin sole • Starry flounder • English sole • Shortraker rock • Roughey rock • Sharpchin rock • Redstripe rock • Harlequin rock • Silvergrey rock • Redbanded rock • Minor rock species • Light and dusky rock • Yelloweye rock 	<ul style="list-style-type: none"> • Alaska plaice 	<ul style="list-style-type: none"> • Widow rock 	<ul style="list-style-type: none"> • Deep-sea sole • Butter sole • Sand sole • Yellowtail rock 			<ul style="list-style-type: none"> • Greenland turbot

Bering Sea/ Aleutian Islands	<ul style="list-style-type: none"> • AI pollock (Unalaska) • AI rex sole • BS rex sole • AI starry flounder • BS starry flounder • AI Dover sole • EBS northern rock • AI northern rock • AI shortspine thornyhead • BS shortspine thornyhead • BS light dusky rock • AI dark dusky rock • BS dark dusky rock • EBS shelf sharks • EBS slope sharks • AI sharks • EBS shelf skates • EBS slope skates • AI skates • EBS shelf sculpins • EBS slope sculpins • EBS slope octopi • AI octopi 	<ul style="list-style-type: none"> • AI English sole • AI shortraker rock • AI sculpins 	<ul style="list-style-type: none"> • AI pollock (Aleutian) • BS butter sole • AI port of EBS rougheye rock • AI light dusky rock • AI grenadiers 	<ul style="list-style-type: none"> • AI butter sole • EBS rougheye rock • EBS shortraker rock 	<ul style="list-style-type: none"> • AI rougheye rock • AI port of EBS shortraker rock 	<ul style="list-style-type: none"> • Bogoslov pollock • BS Dover sole • BS longhead dab • BS Sakhalin sole • AI port of EBS northern rock • AI squid • EBS shelf octopi
TOTALS	39	4	6	7	2	8
Status →	>50%	40-50%	35-40%	17.5-35%	10-17.5%	<10%

TABLE 2—Abundance estimates. Information from stocks in Tiers 1 through 3 is pulled directly from stock assessments without interpretation. Information for stocks in Tiers 4 through 6 requires assumptions about the accuracy of current abundance and historic abundance estimates. See text for caveats. Also note that “stocks” are defined based on information provided in stock assessments and do not necessarily reflect independent populations. Only one assessment was done for sablefish throughout Alaska. However this species is managed as three stocks, treated as three stocks in the Report to Congress, and therefore treated as three stocks here.

GOA Tiers 1-3	B ₂₀₀₃	B ₁₀₀	B ₂₀₀₃ /B ₁₀₀
walleye pollock	177070	600000	29.51%
Pacific cod	88300	225800	39.11%
flathead sole	93524	95406	98.03%
arrowtooth	1117490	1236240	90.39%
sablefish	210000	540000	38.89%
Pacific ocean perch	112270	262050	42.84%
northern rockfish	42743	63170	67.66%
thornyhead rockfish	23235	35735	65.57%

BSAI Tier 1-3	B ₂₀₀₃	B ₁₀₀	B ₂₀₀₃ /B ₁₀₀
EBS walleye pollock	3150000	6886000	45.24%
Pacific cod	423000	1077500	39.26%
yellowfin sole	445000	962500	46.23%
Greenland turbot	64900	136000	47.72%
arrowtooth flounder	436000	515000	84.66%
rock sole	303000	395000	76.71%
flathead sole	225000	310000	72.58%
Alaska plaice	255000	327500	77.86%
BS sablefish	210000	540000	38.89%
AI sablefish	210000	540000	38.89%
Pacific ocean perch	135000	342500	39.42%
Atka mackerel	212000	445000	47.64%

GOA Tiers 4-6	B ₂₀₀₃	B _{max}	B ₂₀₀₃ /B _{max}
Dover sole	68211	96802	70.61%
Greenland turbot	0	292	0.00%
deep-sea sole	52	218	23.85%
rex sole	71326	95630	74.59%
rock sole total	190297	206343	92.22%
yellowfin sole	55303	91341	60.55%
butter sole	9812	29809	32.92%
starry flounder	76418	76418	100.00%
English sole	14166	14432	98.16%
sand sole	357	1216	29.36%
Alaska plaice	3639	8680	41.92%
shortraker rockfish	27929	28232	98.93%
roughey rockfish	42035	63410	66.29%
sharpchin rockfish	34276	64633	53.03%
redstripe rockfish	17564	26731	65.71%
harlequin rockfish	14894	19081	78.06%
silvergrey rockfish	23095	37500	61.59%
redbanded rockfish	6352	10943	58.05%

GOA Tiers 4-6 (cont.)	B ₂₀₀₃	B _{max}	B ₂₀₀₃ /B _{max}
minor rockfish species	4160	6489	64.11%
light and dusky rockfish	42339	81494	51.95%
widow rockfish	345	929	37.14%
yellowtail rockfish	4245	12671	33.50%
yelloweye rockfish	17509	30453	57.50%

BSAI Tiers 4-6	B ₂₀₀₃	B _{max}	B ₂₀₀₃ /B _{max}
AI pollock--Aleutian region	175283	495982	35.34%
AI pollock--Unalaska-Umnak	181334	282648	64.16%
Bogoslof walleye pollock	227000	5000000	4.54%
AI rex sole	7381	7381	100.00%
BS rex sole	26053	26053	100.00%
AI starry flounder	671	671	100.00%
BS starry flounder	59877	59877	100.00%
AI butter sole	127	505	25.15%
BS butter sole	2254	6341	35.55%
AI Dover sole	575	630	91.27%
BS Dover sole	7	137	5.11%
BS longhead dab	9740	103806	9.38%
BS Sakhalin sole	7	291	2.41%
AI English sole	47	95	49.47%
EBS rougheye rockfish	565	1716	32.93%
AI port of EBS rougheye rockfish	1251	3511	35.63%
AI rougheye rockfish	8361	48843	17.12%
EBS shortraker rockfish	1463	5176	28.27%
AI port of EBS shortraker rockfish	1463	13079	11.19%
AI shortraker rockfish	15382	37136	41.42%
EBS northern rockfish	33	53	62.26%
AI port of EBS northern rockfish	290	67394	0.43%
AI northern rockfish	175950	214673	81.96%
AI shortspine thomyheads	14243	14243	100.00%
BS shortspine thomyheads	1012	1545	65.50%
AI light dusky rockfish	446	1233	36.17%
BS light dusky rockfish	97	138	70.29%
AI dark dusky rockfish	318	524	60.69%
BS dark dusky rockfish	5	5	100.00%
AI squid	2087	28935	7.21%
EBS shelf sharks	5527	5527	100.00%
EBS slope sharks	25445	25445	100.00%
AI sharks	1557	2927	53.19%
EBS shelf skates	365249	534556	68.33%
EBS slope skates	69275	69275	100.00%
AI skates	34412	34412	100.00%
EBS shelf sculpins	174807	340877	51.28%
EBS slope sculpins	6409	6409	100.00%
AI sculpins	14248	33624	42.37%
EBS shelf octopi	2423	30815	7.86%
EBS slope octopi	979	979	100.00%
AI octopi	1384	1728	80.09%
AI grenadiers	218147	618102	35.29%

OCEANA
GREENPEACE
THE OCEAN CONSERVANCY
NATIONAL ENVIRONMENTAL TRUST

June 3, 2003

Dr. James Balsiger, Regional Administrator
NOAA Fisheries, Alaska Region
709 W. 9th St.
Juneau, AK 99802-1668

RECEIVED
JUN - 3 2003
N.P.F.M.C

David Benton, Chairman
North Pacific Fishery Management Council
605 W. 4th Ave., Suite 306
Anchorage, AK 99501-2252

RE: Revised Draft Programmatic Supplemental Environmental Impact Statement for North Pacific Groundfish Fisheries

Dear Dr. Balsiger and Chairman Benton:

We have written to you several times over the past year detailing our concerns with the approach that NMFS and the Council have taken in the Revised Draft Programmatic Supplemental Environmental Impact Statement for North Pacific Groundfish Fisheries (RPDSEIS), which NMFS is preparing pursuant to a Court order. These issues remain unresolved in the materials NMFS prepared for the June 2003 Council meeting, during which the Council will select a preliminary preferred alternative. Rather than reiterate these concerns at great length, we highlight them only briefly below, and refer you to our previous correspondence. Further, we ask that the agency and the Council adopt Example FMP 4.1 as their preferred alternative, as it is the only alternative FMP that is sufficiently protective of our ocean public resources to ensure that future generations enjoy a healthy ecosystem which supports vibrant and sustainable fisheries.

The PSEIS Approach is Flawed

As described in previous correspondence, we do not believe that an EIS that examines policy statements meets the dictates of the National Environmental Policy Act and the Court's order in the underlying litigation.¹

The draft materials correctly recognize that: "The proposed action is the continued authorization and management of the Alaska groundfish fisheries." Draft Executive Summary at 29. The authorization and management of the groundfish fisheries is conducted pursuant to the Fishery Management Plans, which comprise a myriad of regulations that govern every aspect of fisheries management. NMFS's legal obligation is to evaluate the current fisheries management regime

¹ Please see letters dated January 31, 2002; March 22, 2002; May 22, 2002; and September 24, 2002.

Dr. Balsiger & Chairman Benton
June 3, 2003

Page 2

and its effects, and to evaluate alternative fisheries management regimes and their effects, and then to select and implement a fisheries management regime. The alternatives evaluated in the EIS must be different FMPs with clear implementation schedules rather than different policy statements, coupled with an entirely hypothetical range of so-called bookended example FMPs that may or may not be implemented sometime in the future.

The folly of the current approach is demonstrated in the preliminary draft materials for the June 2003 Council meeting, which repeatedly admit the difficulty of predicting the effects of any particular policy alternative on the environment due to the uncertainty involved in defining the actual management measures that may or may not some day be implemented to further a policy. As structured, the current draft materials neither satisfy the analytical and action-forcing requirements of NEPA, nor provide a full analysis of the direct, indirect, and cumulative environmental impacts of the FMPs or of alternative FMPs. We reiterate once again our request that all so-called "bookend" alternatives be separated into stand-alone implementable FMP alternatives, and that the direct, indirect and cumulative environmental effects of each Example FMP be fully and fairly analyzed and disclosed.

Finally, even assuming that the current approach meets legal muster, the lack of an enforceable implementation schedule for any management measures associated with policy changes further illustrates the weakness of this PSEIS effort. The draft materials reference only reasonable time frames, or a schedule for implementation that will illustrate prioritization or intentions, rather than including a clear and established schedule for management changes. By regulation, the primary purpose of an EIS is to serve as an action-forcing device. 40 C.F.R. § 1502.1. An implementation schedule intended to illustrate "someday" or "maybe" intentions simply will not suffice.

NMFS and the Council Should Adopt Alternative 4.1 as the Preferred Alternative

As you are aware, NMFS has indicated that Alternative 4.1 (now Example FMP 4.1) was intended to reflect public comments on the 2001 Draft PSEIS. We reiterate the concerns we have previously detailed to the Council and NMFS about revisions made to Alternative 4.1 through this process, and continue to object to the coupling of Example FMP 4.1, a scientifically-defensible and adoptable alternative, to Example FMP 4.2, an alternative considered for analytical purposes only.

Despite these flaws, amongst the current policy alternatives and example FMPs, Example FMP 4.1 represents the best articulation of ecosystem-based management that addresses uncertainty in a risk-adverse manner and takes into account the ecological needs of the entire marine food web while still allowing for vibrant fisheries. None of the other policy alternatives articulates policies fully reflective of ecosystem-based management principles, or includes sufficient actions in their ranges of Example FMP management measures to be responsive to the existing body of science and manage sufficiently for uncertainty.

For example, Alternative 1 does not deal adequately with overharvesting weak stocks in stock complexes, does not sufficiently preserve the marine food web, does not contain sufficient provisions or incentives to avoid bycatch, does not expand observer coverage, is not sufficiently

Dr. Balsiger & Chairman Benton
June 3, 2003

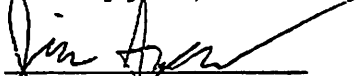
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protective of Steller sea lions and other marine mammals and birds, does not protect sufficient habitat, and does not include a comprehensive research program. Alternative 3, while styled as more precautionary than Alternative 1, continues at perhaps a more accelerated pace the incremental approach embodied in Alternative 1, and similarly fails to provide sufficient protection for habitat, the food web, marine mammals or sea birds, among other deficiencies. Alternative 2 would repeal many of the existing FMP programs and result in increased adverse effects to the marine ecosystem and its components, including target fish stocks.


Alternative 4.1 is the only alternative that satisfies NEPA's dictates and that would result in immediate actions to increase precautionary management in the North Pacific and move towards ecosystem-based management. For example, only Alternative 4.1 is responsive to the growing body of scientific literature calling for large MPAs; meets the Ecosystem Principles Advisory Panel's first ecosystem-based management principle to change the burden of proof; is successful in preserving the food web; contains effective bycatch and incidental catch reduction policies; is very successful at avoiding impacts to seabirds and marine mammals; provides the best protection and avoidance of impacts to habitat; formally incorporates non-consumptive uses; directly involves Alaska natives in fisheries management; and provides the most expansive research and monitoring program and observer coverage, among other features. As such, the Council and the agency should select Example FMP 4.1 as the preferred alternative.

As we all know, an EIS evaluating the BSAI and GOA FMPs is long overdue. While we appreciate the agency's and Council's efforts to prepare a programmatic EIS, we remain concerned that the approach taken in this EIS has rendered it a purely illusory and hypothetical exercise that will be of limited utility to the public and decisionmakers. While the agency and council apparently see a "NEPA advantage" in an approach that will result only in possible policy changes to be implemented at some undefined date, using largely undefined management measures, and requiring additional NEPA analysis, we see a NEPA compliance problem. We hope that as the Council and agency work through these preliminary draft materials, these problems will be rectified and the public will be presented with a draft EIS that is responsive to the requirements of NEPA and the Court order and that truly provides the opportunity to participate in the discussion of how our fisheries and oceans should be managed.

Sincerely yours,


Jim Ayers
Oceana


Charlotte DeFontaubert
Greenpeace


Kris Balliet
The Ocean Conservancy


Gerry Leape
National Environmental Trust

MARINE CONSERVATION ALLIANCE

P O Box 20676
JUNEAU, AK 99802

(907) 523-0731
FAX (907) 523-0732

ALYESKA SEAFOODS

June 2, 2003

ALASKA DRAGGERS
ASSOCIATION

ALASKA GROUND FISH DATA
BANK

David Benton
Chairman

ALASKAN LEADER FISHERIES

ALASKA PACIFIC SEAFOODS
ALEUTIAN ISLANDS BROWN
CRAB COALITION

North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501

ALEUTIAN PRIBILOF ISLAND
COMMUNITY DEVELOPMENT
ASSOCIATION

AKUTAN, ATKA, FALSE PASS, NELSON LAGOON,
NIKOLSKI, ST. GEORGE

BRISTOL BAY ECONOMIC
DEVELOPMENT CORP.
ALEDNAKIK, CLARK'S POINT, DILLINGHAM,
EGEGIK, EKUK, EKWOK, KING SALMON,
LEVELOK, MANGOKTAK, NAKNIK, PILOT POINT,
PORT HERZEN, PORTAGE CREEK, SOUTH NAKNIK,
TOGAK, TWIN HILLS, UGASHIK

RE: Selection of a Preliminary Preferred Alternative for the Programmatic Supplemental Environmental Impact Statement (PSEIS).

CENTRAL BERING SEA
FISHERMEN'S ASSOCIATION

Dear Chairman Benton,

ST. PAUL

CITY OF UNALASKA

COASTAL VILLAGES REGION
FUND

CHEFORNAK, CHEYAK, EDK, GOODNEWS BAY,
HOOPER BAY, KOPUK, KONGIGNAK,
KWILLINGOK, MEKORYUK, NAPAKAK,
NAPASKAK, NEWTON, NIGHTMUTE, OSCARVILLE,
PLATONUM, QUNAGAK, SCAMMON BAY,
TOSOOK BAY, TUNTUTLAK, TUNURAK

The Marine Conservation Alliance (MCA) is writing to you in support of Alternative 3 as the PSEIS preliminary preferred alternative and as modified to capture the critical components of Alternative 1. We are appreciative of the extraordinary efforts of the National Marine Fisheries Service staff in fully revising the comprehensive PSEIS analysis as ordered by the Secretary. However, we have concerns that the habitat analysis may be flawed and should be revised before the document goes out for public comment.

GROUND FISH FORUM

HIGH SEAS CATCHERS
COOPERATIVE

ICICLE SEAFOODS

MID-WATER TRAWLERS
COOPERATIVE

Our organization has reviewed in detail the alternative Policy Statements which include a narrative description of each Management Approach and a list of Policy Objectives to be accomplished over the life of the PSEIS. We have also reviewed the PSEIS "bookends" which describe illustrative examples of how a selected policy objective might be analyzed over the life of the PSEIS. We offer as attachments a modified Policy Statement and bookends which seek to combine the critical components of Alternative 1 (status quo management process) with many of the future guideposts offered in Alternative 3. We have also included for your consideration suggestions on how the habitat analysis may be revised so that its assumptions and qualitative judgments are consistent with the rest of the document based on the best scientific information available.

MOTHERSHIP GROUP
PV EXCELLENCE
PV OCEAN PHOENIX
PV GOLDEN ALASKA

NORTH PACIFIC FISHERIES
RESEARCH FOUNDATION

NORTH PACIFIC LONGLINE
ASSOCIATION

NORTH PACIFIC SCALLOP
COOPERATIVE

NORTON SOUND ECONOMIC
DEVELOPMENT
CORPORATION

BREYAG MISSION, DIOMEDE, ELM, GAMBELL,
GOLDVAK, KOYUK, NOME, SAINT MICHAEL,
SAVOONGA, SWAKTOOLIK, STEBBINS, TELLER,
UNALAKLEET, WALKER, WHITE MOUNTAIN

PACIFIC SEAFOOD
PROCESSORS ASSOCIATION

PROWLER FISHERIES

SEAFOOD COLD STORAGE
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NORTHERN VICTOR FLEET
PETER PAN FLEET COOPERATIVE
UNALASKA COOP
UNISEA FLEET COOPERATIVE
WESTWARD FLEET COOPERATIVE

WESTERN ALASKA
FISHERIES, INC.

YUKON DELTA FISHERIES
DEVELOPMENT

ASSOCIATION
ALAYAKUK, EKHONAK, GRAYLING, KOTLIK,
MOUNTAIN VILLAGE, NUNAM IOUA

The MCA is a broad-based coalition of coastal communities, fixed and mobile gear participants and CDQ groups. The coalition members have joined together to support science-based policy that protects the marine environment and the North Pacific fishing communities. We believe the modified version of Alternative 3 we have developed for your consideration as a Preferred Alternative for the PSEIS best provides balance to protect the marine resource and those dependent on its health. We also believe it best complies with the Magnuson-Stevens Fishery Management and Conservation Act, the Endangered Species Act, the National Environmental Policy Act and other applicable law. Additionally, we have crafted our recommendations to coincide with the ecosystem-based policy approach recommended by the National Research Council and designed to ensure sustainable fishery management. The waters of the North Pacific annually yield about 50% of all US seafood while not overfishing a single groundfish stock. We would like to keep it that way.

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Purpose and Use of PSEIS

It is our understanding that the purpose of the PSEIS is to assess the cumulative impact of fishery management decisions on the resource and to use that information to better design management decisions in the future. To assist in this endeavor, the Council has been asked to reassess its old Policy Statements including specific objectives to be used as a roadmap in planning future actions. It is our understanding that these objectives can be reevaluated and modified by the Council on a regular basis should the objective no longer seem justified or relevant or if the lack of funding and or staff requirements put the objective out of reach during the life of the PSEIS.

We also understand that the frameworked “bookends” were provided in the analysis as illustrative examples of how the different objectives as described in the Fishery Management Plan (FMP) might be analyzed in the future. The MCA supports use of hypothetical frameworked analysis in the alternatives. This methodology assists future decision-makers in assessing potential environmental impacts as well as trade-offs caused if such measures are considered for implementation in the future. However, it is our understanding that neither the “bookends” nor timeline, constructed to judge when the objectives as described in the Policy Statement might be accomplished, will be included in the FMP. Instead they will be included as part of the Record of Decision (ROD) and so are non-binding.

This comprehensive PSEIS will foster a fair and transparent decision-making process by better informing the public of the Council’s intended management direction. Importantly, it will serve as a useful tool for stakeholders and fishery managers to evaluate the effectiveness of past actions and to better ascertain the potential impacts and trade-offs of future management actions if the assumptions used in the assessment of alternatives are objective and based on the best scientific information available.

Update Policy Statement:

In recent years the Council has taken several management actions which have sought to begin rationalization of the fisheries and to embrace recent amendments to the MSA, including the Sustainable Fisheries Act’s direction to avoid overfishing, and to reduce bycatch and impacts to habitat when practicable. While both the policy and regulatory mandates of these measures have been incorporated in North Pacific Council actions, these changes are not reflected in the old policy statements crafted more than twenty years ago. The MCA believes that an updated Policy Statement which captures these intentions is the best way to ensure continued ecosystem-based decision-making in the future.

The MCA’s preferred alternative is a modified version of Alternative 3. In modifying Alternative 3 we have married with it the best management features of Alternative 1 (status quo management process) which we do not want to leave behind as we move into the future. The PSEIS document acknowledges that “the current policy for managing Alaska groundfish fisheries is conservative and risk averse.” In its overall assessment of Alternative 1 the document describes it as follows: *“Formally, mechanisms are built into the harvest policies which minimize the likelihood of inadvertently fishing at non-sustainable fishing mortality rates. Furthermore, there are extra*

measures of protection that limit the overall harvest including an overall cap on the amount of quota that can be specified in a given year, seasonal and area closures, and bycatch limits. Also, the quota management system has a high level of monitoring through the observer program which tracks target and non-target species catch. Monitoring in-season catch levels allows for fishery closures to ensure that allowable species-specific catch levels are not exceeded.” (See page 29 of PSEIS Executive Summary. Q&A #2)

With this in mind, MCA has incorporated some of the “management approach” narrative and “objectives” from Alternatives 1a and 1b into the Alternative 3 Policy Statement. We have also modified the proposed Alternative 3 bookends so that they accurately capture current management measures under 3.1 while leaving many of the proposed 3.2 bookend measures untouched. MCA feels that unless current, risk-averse management practices are captured in the range of preferred bookends, the illustration of potential, future analysis will be flawed by its lack of status quo as an option within the range. This will diminish its value as an effective planning document.

Two years ago the MCA submitted lengthy comments on the original draft PSEIS. As part of those comments we urged that the agency include in the PSEIS Policy Statement objectives developed by the National Research Council (NRC) to ensure future sustainable fisheries. At that time we noted that in recent years much thought had been given to ways in which ecosystem considerations could be incorporated into the management system so that they do not upset the balance of interests required by the National Standards. In 1999 the NRC recommended the adoption of an ecosystem-based approach for fishery management. The goal was to “rebuild and sustain populations, species, biological diversity, so as not to jeopardize a wide range of goods and services from marine ecosystems, while providing food, revenue and recreation for humans.” In making these recommendations, the NRC’s Sustainable Fisheries Committee noted “adopting a successful ecosystem-based management approach to fisheries is not easy, especially at a global or even continental scale. That is why the Committee’s recommendation includes incremental changes in various aspects of fishery management.”

The MCA continues to support the NRC’s goal, partly due to its recognition that human uses (“providing food, revenue, and recreation”) should be included and considered in an ecosystem-based approach. The MCA agrees that the transition to ecosystem-based management is not a simple matter and requires measured steps leading to the overall goal. The Council has been implementing this approach to ecosystem-based management for several years and we recommend that it continue to do so.

After extensive review of the proposed PSEIS alternatives and of the NRC approach, the MCA has crafted a revised policy statement, including a management approach and objectives as a roadmap to the future, that we recommend be adopted by the Council. The MCA approach achieves the NRC goal, based on the experience of the North Pacific Council in implementing an ecosystem-based approach to fisheries management.

Revise Habitat Assessment

Based on our review of the four policy alternatives, it is our understanding that three models were used to assess the impacts of the policy alternatives using the illustrative bookends as proxies for potential future action under each alternative; 1) the multi-species model, 2) the socio-economic sector model and 3) a modified Rose/Fujioka habitat model. MCA is troubled by the assumptions and use of qualitative and highly subjective analysis as applied in the assessment of the Rose/Fujioka habitat impacts in each of the alternatives which seem inconsistent with the approach taken in the remainder of the document.

The adverse impact determination for habitat protection measures in Alternatives 1 and 3 is based on a revised determination that the cumulative effects of fishing on benthic organisms occur at a rate that could result in reduced survival of these organisms relative to an un-impacted state. The revised calculations estimate that approximately 20% of certain habitat features may suffer some impact from bottom tending gear. Using this model in combination with the habitat authors' acknowledged "highly qualitative" assumptions, the approach taken in the draft PSEIS seems based on the highly precautionary approach used to design Alternative 4 and is inconsistent with the approach taken to assess the other categories of fishery management (i.e. TAC-setting, food-web, bycatch etc.). It is therefore no surprise that the only alternative to escape an adverse impact rating is Alternative 4. Members of MCA are puzzled by the conclusions relative to Alternative 1 and 3 which contradict the most quantifiable scientific data available as an indicator of adequate habitat protection measures: the sustained high productivity of the managed species in the North Pacific.

The new closure methodology in the draft PSEIS seems to support 1) small closures in heavily fished areas, 2) restriction of future fishing to areas of current fishery concentrations, 3) increased diversity of habitat types in closed areas and, 4) the conclusion that only year-around no-take zones provide adequate habitat protection. The problem with this closure methodology is multi-fold: First, areas that currently have high CPUES are not necessarily the ones that had high catch rates in the past. There is ample evidence of this in NMFS' historical CPUE study (Fritz et al.). Any management scheme that locks the fishery into the areas that currently have concentrations of FMP species will eventually cause these fisheries to fish on low concentrations of target species. In addition to potential economic failure, this will actually serve to increase fishing effects on habitat as fishermen will have to increase effort to catch the same amount of fish. Secondly, if these PSEIS alternatives include a reduction of existing high CPUE area from the outset, this alone would increase fishing effects even if fish concentrations do not shift. Thirdly, the author's presumption that existing no trawl closures are predominately one habitat type is doubtful. The vast no-trawl zones in the eastern GOA, Pribilof, Bristol Bay and other regions represent ranges in depth from a few fathoms to several thousand fathoms and across rocky, high relief areas as well as expanses of mud and sand. And finally, a presumption that only non-seasonal no-take zones provide adequate habitat protection seems premature. Neither the federal or state Marine Protected Area advisory committees, tasked with deliberating these issues, have yet to hold a single meeting.

This new approach also seems inconsistent with the guidance habitat scientists provided to the Council as it designed EFH mitigation measures proposals over the last two years. Specifically, that closures in heavily fished areas would displace fishing activity to less productive areas and could increase adverse impacts because of increased towing time.

The PSEIS' conclusions that fishing is actually having a detrimental effect on certain substrates such as corals also outstrips the current knowledge base regarding the extent to which fishing affects the overall abundance of corals. For example, a recent proposal submitted to the North Pacific Research Board by NMFS habitat scientists Jon Heifitz et al. acknowledged that there was insufficient information to determine the effects of fishing and other activities on coral populations in the Aleutian Islands. The proposal argued that the existing information base might cause policy makers to prematurely impose fishery management measures to protect corals that might, inadvertently, have the opposite effect. In outlining the reasons to support the proposal's objective to survey corals in the Aleutian Islands, (Pages 1-2 proposal 16 March 2003) the authors state:

“The problem: Based on fishery observer records, we know that deep water sponges and corals are inadvertently killed and damaged by major fisheries throughout much of the Aleutian archipelago. But when faced with the need to minimize fishing impacts on corals and sponges in the Aleutians, the North Pacific Fishery Management Council (NPFMC) and the Alaska Board of Fish (ABF) have far too little factual information to make defensible fishery management decisions.” And: “There is far too little known about the importance of coral and sponges as habitats for commercially valuable species”. And later: “Simply closing areas known to have corals and sponges is not the answer because fishing effort will be displaced to other areas, typically where catch rates will be lower and coral bycatch mortality may be just as great a problem”.

In addition to premature assumptions, the assertion of the PSEIS that existing habitat protections are inadequate seems based on recent revisions to the Rose/Fujiko habitat model that now incorporate much longer recovery rates for certain invertebrates. The results from the revised model, yet to be reviewed, have changed the mean values of outputs (results) for certain habitat types (features) to twice the values reported when the model was used for the development of EFH alternatives for that EIS. In effect, instead of the earlier 10%, the model now shows about 20% of certain habitat features are thought to be affected by fishing. Applied across the overall abundance of habitat at equilibrium, (aka “cumulative impact”), this still implies that 80% of habitat features are not affected by fishing. This low level of effect does not support the PSEIS' conclusion that the *status quo* effects of fishing are compromising the overall quality of fish habitat or its productivity in terms of FMP species.

It is important to remember that even the affected 20% are not necessarily without habitat function. No one actually knows the degree to which affected habitat still provides ecological function to FMP species because we don't know what ecological function is provided for by unaffected habitat. The PSEIS authors clearly feel that 20% affected is too much but fail to provide substantive data for this conclusion.

Conclusions about the baseline being adverse for habitat are also based on the assumed benefits of highly precautionary mitigation measures based on conclusions drawn from closures elsewhere in the world. However, as was highlighted in the comments by Dr. Franz Meuter in MCA's comments on the first PSEIS, it may be inappropriate to base conclusions on studies from areas around the world that may not be applicable to Alaska (tropical and subtropical areas)

as well as areas with similar groundfish species but vastly different management histories. For instance, on the East Coast of the United States and Canada, studies by some benthic ecologists have concluded that habitat function has been impaired by mobile fishing gear effects. The effect rate there has not been calculated directly but we can assume such a calculation would show a high percentage of effect because the intensity of fishing is thought to be much higher there as reported in the NRC's review of "Effects of Fishing on Benthic Habitats." Simultaneously, overfishing has been allowed to occur in those other areas and it is impossible to separate the cumulative effects of overfishing and other non fishing effects like pollution from potential impacts of fishing gear on benthic organisms. Simply, the presumed linkage of inferences from outside studies of effects on habitat and actual habitat function in terms of productivity of FMP species is speculative and lacks scientific basis

Finally, PSEIS data on presumed removal rates of benthic biota used to support the PSEIS' conclusions on effects on benthic invertebrates (see Table 4.1-8 in the habitat methodology section of the PSEIS) should be reviewed and reconsidered. These data suggest that coral catch rates are highest overall in the yellowfin sole fishery of the Bering Sea, in fact roughly three times higher than Aleutian Islands bottom trawl fisheries such as Atka mackerel or and Pacific Ocean perch. Clearly, the inability (within observer data categorizations) to distinguish long-lived corals from bryozoans and organisms of similar appearance (but much shorter lifespan relative to corals) makes these conclusions very suspect.

After considerable review of the methodology and assumptions used to determine adverse impacts to habitat in Alternatives 1 and 3, the MCA has concluded that remedial action is required. The conclusions of the PSEIS model contradict the sustained high groundfish productivity of FMP species in the North Pacific which suggest that habitat impacts are minor or insignificant either cumulatively or in their current state. This evidence of productive habitat, largely ignored by the current draft of PSEIS, is the most important evidence that fishing does not have an overall adverse effect on fish habitat. We feel this important evidence should be incorporated into the assessment before the full document goes out for public comment. MCA is further troubled that the PSEIS habitat authors have deviated from the guidance and analysis developed for the EFH EIS process which is relatively concurrent with the PSEIS process.

The MCA recommends that the Council direct the habitat authors to recalculate the PSEIS habitat impact assessment of the alternatives in a manner consistent with 1) the current risk-averse management policy which is based on the best scientific information possible and 2) the work reviewed earlier this year by the Council in the EFH EIS process. The development of EFH and PSEIS documents are both highly complex and require extensive effort to develop appropriate alternatives and to offer intelligent public comment. The Council should ensure consistency.

We feel confident in this recommendation because of the cumulative impact of other risk averse measures, which the habitat authors seem to have ignored or underrated, including the TAC reductions made annually to remain under the BSAI and GOA groundfish caps and existing closures which exceed 20% of all fishable grounds (depths less than 1000 meters.) Combined with other precautionary management measures that reduce adverse impacts to habitat, such as well-monitored catch quotas, seasonal bycatch closures and PSC caps, these measures have

cumulatively helped insure the uncontested high productivity of FMP species in the North Pacific.

Thank you for consideration of our proposals. Please find attached the MCA proposed Policy Statement for your consideration as a Preferred Alternative for the PSEIS. Also included is the MCA proposed modifications to the frameworked "bookends."

We applaud the efforts of the agency in assembling this comprehensive planning document and look forward to continued participation in this important management decision process.

Sincerely,



Ron Clarke
Executive Director

POLICY STATEMENT

MANAGEMENT APPROACH:

The productivity of the North Pacific ecosystem is acknowledged to be among the highest in the world. 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 do what it can 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 Sustainable Fisheries Act and in conformance with the National Standards, the Endangered Species Act, the National Environmental Policy Act and other applicable law. This management approach also takes into account the National Academy of Science's recommendations on Sustainable Fisheries Policy.

As part of its policy, the Council intends to consider measures that accelerate adaptive management measures through community 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. Under this management strategy, fishery impacts to the environment will be mitigated, to the extent practicable, as scientific evidence indicates that the fishery is adversely impacting the productivity of the marine resource. All management measures will be based on the best scientific information available.

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 utilize and improve upon existing processes to insure an open and transparent public process in decision-making.

The Council will retain its discretion to modify, eliminate or add issues as appropriate to best carry out the goals and objectives of this management policy. Objectives identified in this policy statement will be reviewed annually by the Council. At that time it will be determined whether the objectives remain relevant, timely and appropriately framed for Council consideration and subject to funding limitations.

To meet the goals of this overall management approach, the Council and NMFS will use the PSEIS as a planning document. To help focus its consideration of potential management measures, it will use the following objectives as guideposts to be re-evaluated as amendments to the FMP are considered over the life of this PSEIS.

OBJECTIVES: (Origin of objective is noted in parenthesis. Modifications are noted in italics)

Promote Sustainable Fisheries and Communities: (all from Alt.1a)

1. Promote conservation while providing for optimum yield in terms of providing 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.
2. Promote management measures that, when practicable, increase efficiencies.
3. Promote management measures that are designed to avoid significant disruption of existing social and economic structures.
4. 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.
5. Promote increased safety at sea.

Prevent Overfishing:

1. Adopt conservative harvest levels for single species fisheries and specify OY (Alt. 1b)
2. Continue to use existing OY cap for BSAI and GOA groundfish fisheries. (Alt. 1b)
3. Provide for adaptive management by continuing to specify OY as a range. (Alt. 1b)
4. Initiate a scientific review of the adequacy of F40 and *consider* improvements accordingly (modified Alt. 3)

Preserve Food Web:

1. Develop indices of ecosystem health as targets for management decisions. (Alt. 3)
2. Improve procedures to adjust ABCs as necessary to account for uncertainty and ecosystem factors. (modified Alt. 3)
3. Continue to protect the integrity of the food web through limits on harvest of forage species. (Alt.1b)

Reduce and Avoid Bycatch:

1. Continue and improve current incidental catch and bycatch management program. (Alt. 3)
2. Develop incentive programs for incidental catch and bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, VBAs, or other bycatch incentive systems. (Alt. 3)
3. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits as information becomes available. (Alt. 3)
4. Continue program to reduce discards by developing management measures that encourage the use of fishing techniques that reduce discards. (Alt. 3)
5. Continue to manage incidental catch and bycatch through seasonal distribution of TAC and geographical gear restrictions. (Alt. 1b)

6. Continue to account for bycatch mortality in monitoring annual TACs. (Alt. 1b)
7. Control the bycatch of prohibited species through PSC limits. (Alt. 1b)

Avoid Impacts to Seabirds and Marine Mammals:

1. Continue to cooperate with USF&WS to protect ESA-listed seabird species. (modified Alt. 3)
2. Maintain or adjust current protection measures as appropriate to avoid jeopardy to ESA-listed Steller sea lions. (Alt. 3)
3. Encourage programs to review status of *endangered or threatened* marine mammal stocks and fishing interactions and develop fishery management measures as appropriate. (modified Alt. 3)

Reduce and Avoid Impacts to Habitat:

1. Review and evaluate efficacy of existing closures insofar as habitat protection is concerned. (*New – this was not included in any of the lists of objectives but is discussed in Alt. 3*)
2. *Encourage* development of a research program to identify regional baseline habitat information and mapping, *subject to funding and staff availability.* (Alt. 3)
3. Identify and designate EFH and HAPC. (Alt. 3)
4. Develop an MPA policy in coordination with national and state policies. (*New – this was not included in the lists of objectives but MCA thought in important to work in cooperation with the development of federal and state policies rather than get out in front with a set of incongruous MPA policies.*)

Allocation Issues:

1. Continue to reduce fishing capacity, overcapitalization and adverse effects of the race for fish. (e.g. Continue AFA Pollock coops, *IFQ for Halibut & Sablefish and continue to move GOA, crab, BSAI non-pollock specie rationalization through the pipeline*) (modified Alt. 1b)
2. Provide economic and community stability to harvesting and processing sectors through fair allocation of fishery resources. (Alt. 3)

Increase Alaska Native Consultation:

1. Continue to incorporate traditional knowledge in fishery management. (Alt. 3)
2. Consider ways to enhance collection of traditional knowledge from communities and incorporate such knowledge in fishery management where appropriate. (Alt. 3)
3. Increase Alaska Native participation and consultation in fishery management. (Alt. 3)

Data Quality, Monitoring and Enforcement:

1. Increase the utility of groundfish fishery observer data for the conservation and management of the living marine resources. (Alt. 3)
2. Improve groundfish observer program and consider ways to address the disproportionate costs associated with the current funding mechanism. (Alt. 3)

3. Improve community and regional economic impact assessments through increased data reporting requirements. (Alt. 3)
4. Increase the quality of monitoring data through improved technological means.(Alt. 3)
5. *Encourage* establishment of a coordinated, long-term ecosystem monitoring program to collect and compile information from a variety of ongoing research initiatives, *subject to funding and staff availability.* (modified Alt. 3)
6. Cooperate with research institutions such as the North Pacific Research Board in identifying research priorities to address pressing fishery needs. (Alt. 3)

Marine Conservation Alliance Preferred Bookends

Notes on Bookends for Preliminary Preferred Alternative:

- The revised bookends are predominately a combination of elements from Alternative 1 and Alternative 3.1 – 3.2. The format of the revised bookends closely follows the draft bookends, except the revised bookends can be read without using a magnifying glass
- In the revised bookends There are also additional elements from Alternative 4.1 as well as a few new additions not included in the draft bookends (example: MPA definitions).
- The footnotes below the bookends provide the rationale for selection of the revised bookend as well as explaining any changes, modifications, additions or deletions to the draft bookends.
- For the most part, the revised bookends tried to use the same language contained in the draft bookends. When this has been done, it is noted in the bookend (example: “*same as draft Alt 3.1*”).
- If the language in the draft bookend was modified, it is noted in the bookend (example: “*modified from draft Alt 3.1*”).
- If a new concept has been added to the bookend, it is noted in the bookend (example: “*new*”).
- Many of the modifications are clarifications of the description of current management practice, i.e. status quo.
- Some of the issues are redundant and included in multiple sections, and have been deleted to eliminate redundancy.

TAC Setting Process

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
ABC & OFL	Set ABC < OFL. <i>(same as draft Alt 3.2)</i>	Set ABC < OFL. <i>(same as draft Alt 3.2)</i>
TAC	Sum of TACs has to be within OY range. <i>(same as draft Alt 1)</i>	Set TAC =<ABC for all targets and "other species" category. ¹ <i>(same as draft Alt 3.1)</i>
Optimum Yield (OY)	OY specified as a range for the BSAI: 1.4-2.0 million mt. BSAI OY cap: if the sum of TAC > 2.0 million mt then TAC will be adjusted downward. OY specified as a range for the GOA: 116,000-800,000 mt. <i>(same as draft Alt 3.1)</i>	No change from "Revised Bookend 3.1". ² <i>(same as in draft Alt 3.1)</i>
B 20 Rule	B 20 Rule for prey species (pollock, p-cod, Atka mackerel). <i>(same as draft Alt 3.1)</i>	No change from "Revised Bookend 3.1". ³ <i>(same as draft Alt 3.1)</i>

¹ Currently an ABC is determined for "other species" in the BSAI. An ABC is not determined for "other species" in the GOA. This bookend therefore represents a change from current practice.

² The revised bookends maintain the OY range. The OY range was eliminated in draft Alternatives 3.2, 4.1, and 4.2. This direction seems contrary to the previous experience of the NPFMC. The Council adopted the OY range, cap, and TAC framework in BSAI Amendment 1 and GOA Amendment 15. These actions were taken because the single species OY levels did not provide the flexibility needed to adjust to biological changes in a timely fashion. Plan amendments were required for each adjustment to the OY and proved to be a cumbersome, costly and slow process. Therefore, the revised bookends retain the OY range.

³ This bookend does not incorporate a constant buffer for all prey species in all areas as in draft Alt 3.2. The present constant buffer is a modified Harvest Control Rule (HCR) developed specifically for GOA pollock. The modified HCR was implemented in order to determine an appropriate ABC while addressing uncertainty in stock dynamics and distribution of GOA pollock. It allows the calculation of an ABC that is less than the max ABC provided by the GOA FMP. The modified HCR was not developed specifically to address mitigating concerns regarding SSL prey. In consideration of the origin of the HCR, it is not necessarily appropriate to apply the same methodology to all prey stocks in all areas. The present TAC setting process employed by the NPFMC provides for flexibility in addressing uncertainty and allows for setting TAC below ABC when appropriate. A mandated HCR rule applied to all SSL prey species in all areas may not be appropriate application of the methodology and lacks the flexibility that is incorporated in the current system.

TAC Setting Process (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
ABC Tier System	Conduct F 40 review and adopt appropriate measures as necessary. <i>(modified from draft Alt 3.1)</i> ¹	Develop, implement, and update as necessary, the procedures to account for uncertainty in estimating ABC, species-specific production patterns, and ecosystem considerations. ² <i>(modified from draft Alt 3.2)</i>
Forage Fish	No directed fishery for forage fish (forage fish ban, Amendment 36/39). <i>(same as draft Alt 3.2)</i>	No change from "Revised Bookend 3.1" <i>(same as draft Alt 3.2)</i>

¹ The Council has conducted an F 40 review and is presently evaluating recommendations from that report for possible future actions (see SSC minutes March 31-April 2, 2003). This bookend represents what is currently ongoing at the NPFMC.

² The existing tier system and TAC setting process incorporates the precautionary approach by design and application. The current process considers known parameters and uncertainty as well as providing for a rebuilding plan. Recommendations from the F 40 review are currently being evaluated, therefore it is premature to adopt those specific recommendations within this bookend. Consistent with NPFMC practice, as new peer-reviewed scientific information becomes available, it is incorporated into the current TAC setting process as was done in Amendments 44 and 56. Ecosystem considerations are presently incorporated into the SAFE documents. Harvest strategies that are derived from only one perspective and then applied across a broad number of species will impair the flexibility of the present system that addresses a wide range of available data. For example, the adoption of F 60 for all rockfish species (as suggested in draft Alt 3.2) may take into account long age spans and lower reproduction rates but does not take into account differences in abundance, distribution, and resiliency by individual rockfish species. The revised bookend acknowledges that the current ABC/TAC setting process has been successful. The success is due in part to design and in part to the level of expertise brought by members of the scientific community. The design includes both structure (tier system) and flexibility (ecosystem considerations, uncertainty, etc.) while incorporating new information as it becomes available. The ABC/TAC setting process is not frozen in time but it is an ongoing inclusive process. Another positive element of the current ABC/TAC setting process is that it is a public process (Plan Team, SSC, AP, and the Council).

TAC Setting Process (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
MSST/Spawning Stock Biomass ¹	Specify MSSTs for Tiers 1-3 (<i>same as draft Alt 1 with inclusion of possible revisions of the National Standard Guidelines, NSG</i>). Continue to use and improve current harvest control rules to maintain a spawning stock biomass with the potential to produce maximum yields on a continuing basis. (<i>new</i>)	Initiate analysis of MSSTs for priority stocks based on the timeframe determined by additional availability of required resources. (<i>same as draft Alt 3.2 with inclusion of possible revisions to NSG</i>). Improve biological information necessary to determine spawning stock biomass estimates, particularly for species in Tier 4-5. (<i>new</i>)
"Other Species", Species Complexes, and Non-specified Species.	Set group TAC for "other species". Maintain species categories (target, "other species", PSC, and non-specified species). ² (<i>modified from draft Alt 1</i>)	Develop criteria for "splitting and lumping" of species in order to have a consistent approach over a wide of range as possible ("other species", rock-fish, non-specified etc.). ³ (<i>modified draft Alt 3.2</i>)

¹ This issue has been expanded to include consideration of alternative approaches to MSSTs, consistent with current Council position. Explicit MSSTs are currently set for Tiers 1-3 in the SAFE documents. The current ABC/TAC setting process includes harvest control rules (Amendment 56) that result in implicit MSSTs. For most stocks where age-structured information is available, the implicit MSST is often less (more conservative) than the MSST derived from the NSG. NMFS is currently soliciting comments on possible revision of National Standard 1 Guidelines which includes designations of MSSTs. The Council has commented on the appropriate use of MSSTs (see SSC comments on National Standard 1, April 2003) and urged the use of alternative approaches such as automatic rebuilding programs. This bookend has been revised to include possible changes to the National Standard Guidelines as well as to reflect current practice (use of harvest control rules that result in an implicit MSSTs).

² This bookend expands the issue from "other species" to additional species and complexes that are potentially undergoing re-categorization. This bookend represents current practice.

³ The issue of "splitting and lumping" species out of (and into) species assemblages extends beyond "other species". There should be an accepted scientific criteria and method for evaluation of "splitting and lumping" of fishery populations. The criteria should include the minimum data necessary for each level of classification, the quality of the data, and inherent management considerations. It is not presently clear what the appropriate level of stratification should be. Levels in present literature range from species aggregations, species, subspecies, breeding units, production units, geographic structure, genetic structure, haplotypes, etc. The agreed upon criteria should be incorporated into a decision matrix that provides a consistent approach over as wide a range of species as possible along with associated management issues.

TAC Setting Process (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Precautionary Approach ¹	Delete	Delete
Ecosystem Indicators	Develop ecosystem indicators for future use in the TAC-setting. <i>(same as draft Alt 1)</i>	Develop and implement, as appropriate, criteria for using key ecosystem indicators in the TAC-setting process. <i>(modified from draft Alt 3.1 & 3.2)</i>
Target Species Closures	Target species closures when harvest limit is reached. <i>(same as draft Alt 3.1)</i>	No change from "Revised Bookend 3.1" <i>(same as draft Alt 3.2)</i>
Spatial/Temporal Management of TAC	Species TAC distributed spatially for some BSAI & GOA species. ² <i>(modified from draft Alt 3.1)</i>	No change from "Revised Bookend 3.1". <i>(modified from draft Alt 3.2)</i>

¹ Recommend deletion of this issue as it is redundant and is presently included as part of the "ABC Tier System" as well as in the F 40 review. The current tier system and ABC/TAC setting process incorporates the precautionary approach. As new scientific information becomes available (such as procedures to account for uncertainty), this information will be incorporated into the tier system and ABC/TAC setting process if appropriate.

² This bookend clarifies that TAC is presently distributed spatially for some species but not at the same level of stratification for all species as implied in draft Alt 1, Alt 3.1, & Alt 3.2. For example, TAC for some species are set for the Bering Sea and Aleutian Islands separately (BS sablefish and AI sablefish) while other species are set for the entire BSAI (BSAI p-cod and BSAI flatfish)

MPAs & EFH

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
MPA Process	Executive Order 13158: Initiative establishes MPA Advisory Committee, MPA Center, MPA website, agency tasks and list of existing U.S. MPAs ¹ . <i>(modified from draft Alt 1)</i> Development and adoption of definitions of MPAs, marine reserves, marine fishery reserves, protected marine habitats etc. ² <i>(new)</i>	Develop MPA efficacy methodology including program goals, objectives, and criteria, for establishing MPAs. ³ <i>(same as draft Alt 3.1)</i>
Closures	Maintain current closed/restricted areas such as Walrus Island closures, RKC Savings Area, Bogosolof, Pribilof Island closures, near shore Bristol Bay closures, Kodiak Type I-III areas, EGOA trawl closures, closures for herring & salmon, Sitka Pinnacles, etc. ⁴ <i>(modified draft Alt 1)</i>	Review all existing closures to see if these areas qualify for MPAs under established criteria. MPAs could include no-take reserves or have restrictions of specific gear types or specific fisheries or specific time periods. ⁵ <i>(modified from draft Alt 3.1)</i>

¹Executive Order 13158 includes many initiatives (as listed) but does not describe or evaluate potential MPAs as implied in draft Alt 1. Included in EO 13158 is the establishment of a MPA Advisory Committee which will assist in developing a MPA national policy with associated criteria. Prior to development of definitions, criteria and policy as specified in EO 13158, it would be premature to evaluate potential MPAs.

² Agreed definitions are an essential portion of the MPA process and have been added to this bookend.

³ MPA advisory committees have recently been appointed at both the national and state (Alaska BOF) levels. These committees are in their initial formative stages and have a considerable task ahead in developing criteria and guidelines for an MPA process. There is general recognition that any resulting MPA process will include an extensive public participation and stakeholder input. Given that these events have yet to happen, the specific MPA measures cited in draft Alternative 3.2 are premature. The revised bookend seeks to accommodate and not get ahead of the emerging federal and state processes.

⁴ Additional areas that are presently closed to specific fisheries, specific gear types, or specific seasons have been added to the closures listed in draft Alt 1 as well as including the Sitka Pinnacles closure.

⁵ The draft Alt 3.1 bookend was modified to include seasonal closures. The revised bookend allows the existing closures to be evaluated by the criteria and guidelines that will emerge from the NPFMC, state and federal processes. Again, the specific closures cited in draft Alt 3.2 are premature.

MPAs and EFH (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Sitka Pinnacles ¹	Delete	Delete
EFH & HAPC	Identify and designate EFH & HAPC. <i>(same as draft Alt 3.1)</i>	Identify and designate EFH and HAPC. Determine extent of adverse effects from fishing, if any. Implement mitigation measures, if necessary. ² <i>(modified draft Alt 3.2).</i>

Steller Sea Lion Measures

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
SSL Closures	2002 SSL Closures: no fishing in Seguam Pass, 3 nm no transit zones around rookeries, trawl and fixed gear closures in near shore and critical habitat areas. <i>(same as draft Alt 3.1)</i>	Modify 2002 SSL closures and designation of Critical Habitat as appropriate scientific information becomes available. ³ <i>(modified draft Alt 3.2)</i>

¹ Recommend deletion of this issue as it is previously included under "Closures". The Sitka Pinnacles closure will be reviewed along with all other existing closures to see if this area qualifies for MPAs after criteria and definitions are developed.

² This revised bookend does not include any specific EFH mitigation measures (as included in draft Alt 3.2). EFH and HAPC are ongoing works-in-progress at the Council. It would be premature to determine what mitigation measures should be adopted prior to that process being completed. It is problematic to cite specific mitigation measures before determining the extent of adverse impacts (if any) and if mitigation is necessary and practicable.

³ There is considerable amount of ongoing SSL research. As accepted scientific data becomes available, the SSL closures could be modified to reflect the new information. It is premature to decide what those specific modifications will be (as is cited in the draft Alt 3.2). The designation of Critical Habitat may also need to be revisited if the best scientific information available changes significantly.

Steller Sea Lion Measures (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Aleutian Islands	Aleutian Islands open (subject to SSL mitigation measures) and to allocation through the TAC specification process. ¹ <i>(modified draft Alt 3.1)</i>	Modify Aleutian I. SSL closures and designation of Critical Habitat as appropriate scientific information becomes available. ² <i>(new)</i>

Bycatch and Incidental Catch Reductions

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
B 20 Rule ³	Delete	Delete

¹ This bookend clarifies the current status of the Aleutian I. pollock closure.

² As information becomes available, the closure (or the opening) of the Aleutian Islands will be evaluated based on the scientific information available.

³ Recommend deletion of this issue as it was previously addressed under "B 20 Rule" in the TAC Setting Process section.

Bycatch and Incidental Catch Reductions (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
PSC Limits	<p>Maintain PSC limits for herring, crab, halibut, and salmon in BSAI; maintain PSC limit for halibut in GOA.¹ <i>(same as draft Alt 1)</i></p> <p>Review effectiveness of coop managed PSC reduction. <i>(same as draft Alt 3.1)</i></p>	<p>BSAI: reduce PSC limits for herring, crab, halibut, and salmon to the extent practicable (0% - 10%).</p> <p>GOA: Establish PSC limits on salmon (25,000 fish cap on chinook and a 20,500 fish cap on other salmon). Establish PSC limits on crab and herring based on biomass or other fishery data. Reduce halibut PSC limit to the extent practicable (0% - 10%).</p> <p>BSAI/GOA: For those PSC species where annual population estimates exist, a mortality rate-based approach to setting limits will be evaluated.² <i>(same as draft Alt 3.1)</i></p>
IRIU	IRIU for pollock and p-cod. <i>(same as draft Alt 3.2)</i>	Extend to other species as appropriate <i>(modified draft Alt 4.1)</i> ³

¹ This bookend represents current practice in regards to PSC with the addition of the review of coop managed PSC reductions from draft Alt 3.1.

² This bookend represents a very broad range of possible actions the Council might consider in the future.

³ Current Council direction in regards to IRIU is a work-in-progress. Several amendments are presently before the Council involving specific species as well as aggregate species (total groundfish retention standards). The relationship of the IRIU amendments has yet to be determined. Therefore this revised bookend reflects general Council direction without specificity as to species or process.

Bycatch and Incidental Catch Reductions (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Bycatch Restrictions	<p>Maintain current bycatch and incidental catch restrictions. Full retention of Demersal Shelf Rockfish (DSR) in SEO. <i>(same as draft Alt 1)</i></p> <p>Maintain coop managed "hot spot" closures to control bycatch.¹ <i>(modified draft Alt 3.1)</i></p>	<p>Incentive programs for incidental catch and bycatch reduction:</p> <p>a.) Individual Bycatch Quota.</p> <p>b.) Harvest Priority (10% of TAC reserved for clean fishing).</p> <p>c.) Establish bycatch reduction standards.</p> <p>d.) Coop managed Harvest Priority (0%-10% of TAC or PSC reserved to reward clean fishing).²</p> <p><i>(modified draft Alt 3.2)</i></p>
VIP Program	<p>Maintain VIP Program. <i>(same as draft Alt 1)</i></p>	<p>Repeal VIP Program. <i>(same as draft Alt 3.1)</i></p>
Closures	<p>Maintain existing inseason bycatch closures.³ <i>(modified draft Alt 3.1)</i></p>	<p>Evaluate effectiveness of existing closures. Develop appropriate inseason closures in GOA to address bycatch of halibut and/or crab when PSC cap is reached for that species.⁴</p> <p><i>(modified draft Alt 3.2)</i></p>
Inseason Bycatch Measures ⁵	<p>Maintain MRBs.</p>	<p>Repeal or modify MRBs and establish a system of caps and quotas. <i>(same as draft Alt 3.2)</i></p>

¹ This bookend represents current practice in regards to bycatch management.

² The only modification to this bookend was the deletion of HMAP. This program has not been deemed successful and alternative methods and programs may be more appropriate.

³ The draft Alt 3.1 only included the Cook Inlet trawl closures and crab trawl closures. The revised bookend includes any existing inseason closures to reduce bycatch.

⁴ This bookend was modified to include an evaluation of existing closures before establishing new closures. Additionally the GOA closures would only occur when the caps are reached inseason.

⁵ These bookends have been revised as there did not appear to be a logical progression across the draft bookends alternatives. The focus appeared to be MRBs, so the bookends were revised accordingly.

Seabird Measures

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Incidental Take	Take of more than 4 short-tailed albatrosses within 2 years triggers consultation in groundfish longline fisheries. ¹ (<i>modified draft Alt 3.2</i>)	No change from "Revised Bookend 3.1" (<i>modified draft Alt 3.2</i>)
Seabird Avoidance Measures	<p>Longline: Maintain current seabird avoidance measures. Implement measures approved in 2001 when final rule is published.² (<i>modified draft Alt 1</i>)</p> <p>Trawl: Evaluate interactions of endangered seabirds with trawl gear.³</p>	<p>Longline: Cooperate with USFWS to develop scientifically-based fishing methods that reduce incidental take for all seabird species. (<i>same as draft Alt 3.2</i>)</p> <p>Trawl: Evaluate avoidance measures for endangered seabirds and implement as necessary.</p>

Gear Restrictions and Allocations

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Closures	Retain existing no trawl zones and fixed gear restrictions. Bottom trawl ban in BSAI for pollock. (<i>same as draft Alt 1</i>)	BSAI & GOA prohibition on pollock bottom trawl. ⁴ (<i>modified draft Alt 3.2</i>)

¹ The only modification in this bookend is the clarification that the incidental take numbers cited are specifically for the groundfish longline fisheries.

² The modification is a clarification of Alt 1 (status quo). While the Council has passed revised seabird avoidance regulations in 2001, these regulations have yet to be implemented (pending publication of a final rule).

³ Consideration of trawl gear has been added to this section to reflect what is presently occurring at the NPFMC.

⁴ This bookend was modified in that references to MPA and EFH were deleted as those issues are previously covered in previous bookends.

Gear Restrictions and Allocations (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Allocations	Retain existing gear restrictions and allocations. No pot fishing in GOA for sablefish. Sablefish and p-cod allocated by gear in BSAI. Sablefish allocated by gear in GOA. <i>(same as draft Alt 1)</i>	Evaluate pot fishing in GOA for sablefish. Allocate p-cod between sectors in GOA. ¹ <i>(modified draft Alt 3.2)</i> .

Overcapacity

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Restricted Access Management	Maintain existing restricted access programs. (LLP and moratorium, AFA, IFQ sablefish etc.) Continue development of rights-based management, on a fishery by fishery basis as needed including: a.) IFQs b.) Coops c.) CDQs d.) other community-based programs. ² <i>(modified draft Alt 3.1)</i>	Rationalize all fisheries (all BSAI/GOA non-pollock and non-sablefish groundfish fisheries). Ensure CDQ program maximizes benefits in rural communities. <i>(same as draft Alt 3.2)</i>
Buybacks ³	Continue with BSAI crab buyback program. <i>(modified draft Alt 1)</i>	Develop buyback program for any over-capitalized fishery. <i>(modified draft Alt 3.2)</i>

¹ This bookend includes actions that are likely to be considered by the NPFMC. GOA p-cod is also addressed in "Overcapacity" in the bookend calling for rationalization of all fisheries..

² The only modification was the deletion of the specific references under "coops". The range of possible coop types is greater than the two examples given in draft Alt 3.1.

³ Buybacks were added as an issue that should be considered under "Overcapacity". While the Council is not involved in direct appropriations, it is involved with clarification of the issues and the management consequences concerning and resulting from buybacks.

Alaska Native Issues

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Traditional Knowledge	Develop and implement procedures to incorporate traditional knowledge into fisheries management. <i>(same as draft Alt 3.1)</i>	Incorporate additional traditional knowledge from research. <i>(same as draft Alt 3.2)</i>
AP and Council Representation	Increase consultation with Alaskan Natives and encourage increased participation. <i>(same as draft Alt 3.1)</i>	Increase consultation with and representation of Alaskan natives in fishery management. <i>(same as draft Alt 3.2)</i>

Observer Program

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Coverage and Monitoring	<p>Continue existing observer coverage or modify based on data or compliance needs.¹ <i>(modified from draft Alt 1)</i></p> <p>Modification should be scientifically based (e.g. random placement, flexibility, variable rate, and consideration of time versus tonnage). <i>(same as draft Alt 3.1)</i></p> <p>Continue existing programs: a.) OMNI rule b.) ATLAS rule (for trawl CPs and motherships)² <i>(modified from draft Alt 1)</i></p>	<p>Expand/modify observer coverage based on scientific data a compliance needs (applies to all vessels: <60' and >60').³ <i>(modified from draft Alt 3.2)</i></p> <p>Improve species identification for non-target species. <i>(same as draft Alt 3.2)</i></p> <p>Develop uncertainty estimates for target species data. <i>(same as draft Alt 3.1)</i></p>

¹ The wording was modified here to reflect existing observer coverage levels for AFA, non-AFA, CDQ, and non-CDQ fisheries.

² A clarification was added that the ATLAS rule only applied to trawl CPs and motherships. The reference to the conflict of interest (draft Alt 3.1) was deleted as this subject was dropped by the Observer Committee. The reference to the 2003 Regulation package (draft Alt 1) was also deleted as the intent was not clear.

Observer Program (cont.)

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Fee Structure	Industry pays for employment related costs. <i>(same as draft Alt 1)</i>	Develop and implement alternate funding mechanisms. a.) Federal funding b.) Research Plan ¹ <i>(modified draft Alt 3.1)</i>

Data Reporting

ISSUE	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
Reporting Requirements	Maintain current reporting requirements. a.) AFA requirement that all CPs and motherships to weigh all pollock catch on NMFS approved scales. b.) CDQ requirement that all CDQ groundfish catch is to be weighed on NMFS approved scales. <i>(same as draft Alt 1)</i>	Collect and verify aggregate economic data through independent third party (e.g. accounting firm). ² <i>(modified draft Alt 3.1)</i>
VMS	Maintain mandatory VMS requirement for Atka mackerel, p-cod, and pollock fleets. <i>(same as draft Alt 1)</i>	Modify VMS to incorporate new technology and system providers. <i>(same as draft Alt 3.1)</i>

³ This bookend was modified so that vessels of all lengths would be considered in possible expansion or modification of the observer coverage.

¹ The reference of a TAC set aside was deleted from draft Alt 3.1. This topic was considered and rejected by the Observer Committee. The reference to the Research Plan applies to the analytical elements and options currently developed by the Observer Committee. These alternatives apply to vessels currently at 30% or 0% coverage levels.

² The word "aggregate" was added to preserve confidentiality of economic information.

NMFS ACTION PLAN (in bold and italics)

June 14, 2003

Prepared in response to AP recommendations concerning analytical approach assessing the PSEIS alternatives on habitat (based on MCA critique).

The AP notes that the qualitative judgments used to determine the significance of effects of the four alternatives on habitat used the following information (Table 4.10-2 on page 109 of Sec. 4.10):

- 1) bycatch of living habitat derived from the multi-species projection model (Table 4.1-8 & 9);
- 2) the results of a habitat impacts model for estimates of the equilibrium levels of living habitat in fishable and currently fished areas (the Rose/Fujioka model);
- 3) estimates of the amount of area by habitat type and geographic zone closed year round to bottom trawling for all species; and
- 4) evaluation of the spatial distribution of bottom trawl closures relative to fishing intensity and habitat type.

Only the Rose/Fujioka model (item #2) has been reviewed by the public and the SSC. It was the model used to craft the EFH mitigation alternatives and was based on the habitat effect cumulatively and by each fishery on habitat features as a whole. None of the other three evaluation approaches have been reviewed by the public or the SSC or used to develop EFH mitigation measures. Adding these unreviewed evaluation criteria at this point will make the PSEIS and EFH EIS inconsistent. The new approaches taken in the PSEIS also does not include any attempt to assess the impact of habitat change on the productivity of the managed species.

To correct these inconsistencies, we recommend the following:

- 1) Eliminate the new and unreviewed evaluation approaches, specifically items 1, 3, and 4 described above unless or until they are reviewed.

Information sources #1 (bycatch model estimates) and #3 (amount of area) were peripheral to the analysis. *We will clarify this point in revisions to the document.* In discussions with industry representatives, Item #1 as presented to the Advisory Panel referred to a table that provided some example data used as input into the multispecies projection model. This model was used by PSEIS analysts as a tool to determine impacts of the alternatives in future years. These data were obtained from the NMFS observer program. For the most part we found that future projections of living habitat bycatch using these data and multispecies model results did not prove useful in analyzing habitat impacts as compared to target species and other fish species impacts. Item #3 above refers to some simple calculations of the amount of area closed to bottom trawling. While we present this data in the PSEIS for information purposes, for the most part this information was used sparingly to rate the alternatives in terms of habitat impacts. Our habitat impacts analysis relied

most heavily on Items #2 and 4. *We intend to clarify this point in the methods section (Sec. 4.1).*

The qualitative approach referred to as item #4 relied on a comparison of maps of fishing intensity [presented by C. Rose (2002) at the Effects of Fishing Symposium] and closure area illustrations developed by the project team. The qualitative use of #4 was an important part of the PSEIS analysis. We would have liked to have conducted a more quantitative analysis of the spatial distribution of proposed closures relative to fishing intensity; however, we had time to apply the data quantitatively only to the status quo FMPs (e.g. example FMP 1) by the PSEIS deadline, relying on our qualitative judgment in evaluating the other alternatives. Since then, quantitative analyses corroborate our qualitative judgments that closing significant proportions of heavily fished areas would likely require increased fishing effort to maintain current harvest levels and would therefore result in little decrease, if any, in overall impact levels. (Alternatives that close only unfished or lightly fished areas reduce impact levels but do not address the concern about impacts in the heavily fished areas.)

With reference to Item #2, there is acceptance of the habitat impacts model as an analytical tool, and it is being used by analysts working on both the PSEIS and the EFH EIS. The original application of the Fujioka (2002) model was by the EFH Committee to develop EFH mitigation measures for analysis. It was presumed by the developers of the model that this particular application would only be used as an example of one way to apply the model. Using only impact levels averaged over large areas can obscure potential impacts that may be of concern. For the PSEIS, we further developed the model application so that it could be applied to specific geographic areas. Applying it in this way enabled us to show substantial areas of intense fishing where biostructure is potentially adversely impacted.

Evaluating habitat impacts in marine fisheries is not a well developed field. We are aware of few, if any, applicable analytical methods and have had to develop methods ourselves as we prepared the PSEIS. It didn't seem reasonable then to rely on a single analytical tool (the multi species model, or the Fujioka habitat impacts model) when such tools are still being refined. Based on the concerns that have been raised about the methods used, NMFS will focus an internal technical review of the analytical methods used in the PSEIS and EFH EIS projects, and reconcile any potential inconsistencies in their application.

2) Replace the Habitat Section of the Table 4.11-2 (aka redlight/greenlight table) with the following question:

“What is the impact on productivity of managed species caused by changes to habitat as a result of fishing?”

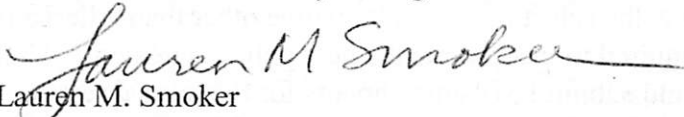
We are not aware of any information that proves or disproves this linkage. We could develop some hypotheses of such linkages, but have no data on which to base such hypotheses. Therefore we recommend no changes to this table. However, this point will be made in the appropriate sections of the PSEIS.



C-2
UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of General Counsel
P.O. Box 21109
Juneau, Alaska 99802-1109

June 9, 2003

MEMORANDUM FOR: The North Pacific Fishery Management Council

FROM: 
Lauren M. Smoker
Attorney, NOAA Office of General Counsel, Alaska Region

SUBJECT: Request for legal guidance on the Alaska Groundfish PSEIS and the possible effects of the timeline

This memorandum has been prepared at the request of the North Pacific Fishery Management Council (Council). You have asked for legal guidance on two specific questions concerning the Alaska Groundfish Programmatic Supplemental Environmental Impact Statement (PSEIS):

1. What are the possible legal vulnerabilities if the Council is unable to make a recommendation on a particular action by the estimated date for action in the timeline?
2. Can the Council deviate from the selected policy and/or FMP framework?

In order to answer these questions, this memorandum first describes the actions before the Council and NOAA Fisheries in finalizing the PSEIS and the nature of the timeline and its relationship to the PSEIS.

Description of Actions before the Council and NOAA Fisheries

Through the PSEIS, the North Pacific Fishery Management Council (Council) and NOAA Fisheries are analyzing the impacts associated with the continuing authorization and management of the Alaska groundfish fisheries under the current FMP policy statements, as well as the impacts that would result under alternative FMP policy statements. This is a programmatic evaluation of the groundfish fisheries and as such contains alternatives that examine fishery management from different policy approaches. Each alternative contains a policy statement, comprised of an overall management approach and specific management objectives. In order to illustrate a range of potential actions and a range of environmental consequences associated with the policy statement, each alternative also contains an FMP framework. With the exception of Alternative 1, each FMP framework contains two example FMPs that represent the range, or "bookends," of management measures that would be employed to meet the policy statement. For



this PSEIS, both the revised Draft PSEIS and the Final PSEIS will identify a preferred alternative. The preferred alternative will contain the policy statement and FMP framework that represent the policy direction that the Council and NOAA Fisheries wish to pursue. When NOAA Fisheries issues the Record of Decision (ROD) for the PSEIS, the ROD will identify the selected policy statement and the FMP framework.

If a decision is made to continue managing the Alaska groundfish fisheries under the current policy statements (Alternative 1(a)), then no further action is required by the Council or NOAA Fisheries. If a decision is made to manage the Alaska groundfish fisheries under a new policy statement (*i.e.* the selection of an alternative other than Alternative 1(a)), then FMP amendments would be required to incorporate the new policy statement.¹ Under this second scenario, the Council would submit FMP amendments for Secretarial review under section 304(a) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) that would incorporate the new policy statements into the BSAI and GOA FMPs. The FMP amendments would include only the policy statement identified in the ROD.² The selected policy will be implemented upon Secretarial approval of the Council FMP amendment in that the Council and NOAA Fisheries will begin immediately to apply the new fisheries management policy to all actions currently under Council and agency consideration as well as future actions contemplated by the Council and NOAA Fisheries. The Council and NOAA Fisheries will move in the management direction proscribed by the selected policy statement upon Secretarial approval of the FMP amendments. If the FMPs do not currently contain management measures consistent with the selected policy statement, the FMPs will ultimately be amended to contain the specific management measures that conform to the policy statement.

Description and Nature of the Timeline

During the development of the revised alternatives, it was suggested that a timeline be developed. The timeline will contain estimates as to when the Council intends to initiate analysis on various actions and when the Council would likely be able to take final action on those analyses, thus providing estimates as to the entire length of time needed from Secretarial approval of the policy statement to a Council recommendation on current and future actions. The suggestion of a timeline was made in recognition of the fact that the Council and NOAA Fisheries cannot consider all actions simultaneously. The Council and NOAA Fisheries can

¹Alternative 1(a) contains the policy statements explicitly stated within the BSAI and GOA FMPs. Alternative 1(b) is an updated policy statement that represents the current policies of the Council and NOAA Fisheries whether explicitly stated within the FMPs or as evidenced by the management measures that have been adopted by the Council and NOAA Fisheries since the FMP policy statements were included in the FMPs. While the selection of Alternative 1(b) would require an FMP amendment to update the policies currently contained in the FMPs, Alternative 1(b) does not represent a change to the Council's and NOAA Fisheries' current policies.

²The FMP amendments would not include the FMP framework identified in the ROD because the FMP framework illustrates the range of management measures that meet the stated management approach and objectives rather than the specific management measures that the Council and NOAA Fisheries will use to apply its policy statement to the management of the Alaska groundfish fisheries.

examine only a finite number of actions at one time and some actions will take longer than others to develop and analyze. The Council intends to develop this timeline at its June 2003 meeting, to make the timeline available for public review and comment, to revise the timeline at its April 2004 meeting, and to periodically update the timeline thereafter.

None of the alternatives contain a range of potential dates for Council action on the various management measures and the PSEIS does not contain any analysis of the impacts that may result from differing dates for Council action. This is because the length of time that will be needed for the Council to analyze, take public comment, and develop recommendations on various actions under the policy statement is outside the scope of the purpose of and need for the PSEIS. As discussed earlier, the purpose of the PSEIS is to determine an appropriate fisheries management policy for the Alaska groundfish fisheries. The Council can recommend and NOAA Fisheries can select a fisheries management policy without the timeline. All aspects of the policy statement may not be effective immediately but the policy itself will be applied to all Council and NOAA Fisheries actions upon issuance of the ROD (if Alternative 1 is selected) or FMP approval (if an alternative other than Alternative 1 is selected). The policies embodied within the policy statement will be followed by the Council and NOAA Fisheries unless there is a decision to deviate from some aspect of the policy or the policy in its entirety (see later discussion on what happens if a different policy direction is considered by the Council and NOAA Fisheries). While NOAA Fisheries intends to acknowledge the Council's timeline in the ROD, the timeline is not part of the selected policy and will not be part of an FMP amendment implementing the selected policy.

Because the alternatives do not need a timeline in order to meet the requirements of the stated purpose and need, the National Environmental Policy Act (NEPA) does not require its inclusion and examination in each alternative. Additionally, NEPA does not contain a general requirement that a timeline be included in a ROD.³ Under the Magnuson-Stevens Act, FMP amendments that are approved or partially approved by NOAA Fisheries must be implemented by the agency. As discussed earlier, the selected policy will be implemented upon issuance of the ROD or Secretarial approval of the Council FMP amendment as the Council and NOAA Fisheries will begin to apply the new fisheries management policy to all actions currently under Council and agency consideration as well as future actions contemplated by the Council and NOAA Fisheries.

³CEQ regulations require a ROD to: (1) state what the decision was; (2) identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable; (3) identify and discuss all such factors including any essential considerations of national policy which were balanced by the agency in making its decision and state how those considerations entered into its decision; (4) state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not; and (5) adopt and summarize a monitoring and enforcement program where applicable for any mitigation. 40 C.F.R. 1505.2 and NAO216-6 sec. 4.01t.

What are the possible legal vulnerabilities if the Council is unable to make a recommendation on a particular action by the estimated date for action in the timeline?

The Council has asked what would happen if it failed to meet a date for a particular action within the timeline. Under this hypothetical, the Council would have discovered that the time estimated for completion of a particular action was underestimated and despite the Council's best efforts, more time is needed before the Council can take final action.

In this hypothetical situation, it is unlikely that a violation of NEPA could be alleged as the timeline is not within the scope of the purpose and need for the action and NEPA does not require the inclusion of a timeline in a ROD. The Administrative Procedure Act (APA) provides that a reviewing court can compel agency action unlawfully withheld or unreasonably delayed. 5 U.S.C. section 706(1). Also, the Magnuson-Stevens Act at section 304(c)(1)(A) states that "The Secretary may prepare a fishery management plan, with respect to any fishery, or any amendment to any such plan, in accordance with the national standards, the other provisions of this Act, and any other applicable law, if the appropriate Council fails to develop and submit to the Secretary, after a reasonable period of time, a fishery management plan for such fishery, or any necessary amendment to such a plan, if such fishery requires conservation and management." 16 U.S.C. 1854(c)(1)(A). If the Council fails to meet a deadline within the timeline for a particular action or amends the timeline to extend the amount of time needed to complete a particular action, a legal challenge may be brought against NOAA Fisheries under the APA or the Magnuson-Stevens Act, alleging that there has been an unreasonable delay in addressing an identified conservation and management need, and asking the court to compel agency action.

If such a challenge is brought, the timeline and its attendant explanation as to why the Council developed the schedule as it did will provide a basis for demonstrating that the Council and NOAA Fisheries are acting in a reasonable period of time and are not unreasonably delaying action.⁴ The timeline will provide further evidence that the Council is following the selected policy and is not delaying action unreasonably or failing to act altogether. As such, it would be prudent for the Council to review the timeline periodically to ensure that the Council's actions are proceeding according to schedule. If it appears that the Council will be unable to finish its review and make a recommendation on a particular action within the estimated time, then, in advance of the original estimated completion date, the Council should amend the timeline to reflect the new estimated completion date.

⁴See *Conservation Law Foundation of New England, Inc. v. Franklin*, 989 F.2d 54, 60 (1st Cir. 1993) (finding Magnuson Act unequivocally vests Secretary with discretion to determine whether Council's progress on conservation and management is reasonable); see also *American Oceans Campaign v. Daley*, 183 F.Supp. 2d 1, 14 (D.D.C. 2000) (stating what constitutes "reasonable" amount of time within which council may revise its FMP amendment is solely within Secretary's discretion given absence of any statutory deadline).

Can the Council deviate from the selected policy and/or FMP framework?

After NOAA Fisheries has issued a ROD on the PSEIS, and, if necessary, approved an FMP amendment, the Council may determine that a different policy or aspect of the adopted policy is more appropriate than that contained within the FMP. If this determination is made, the Council and NOAA Fisheries can examine and ultimately adopt a new policy. Likewise, if the Council determines that management measures outside of the range of measures contained in the ROD's FMP framework are more appropriate, the Council and NOAA Fisheries can examine and ultimately adopt those management measures.⁵

If either of these situations occur, the Council and NOAA Fisheries will have to determine the appropriate scope of the analysis given the contemplated changes and whether the action has significant impacts on the human environment such that a supplemental EIS is warranted. Not every change will require a supplemental EIS or an FMP-level programmatic analysis. The change would have to be "significant" within the meaning of NEPA and the CEQ regulations in order to warrant preparation of a supplemental EIS. The Council and NOAA Fisheries may prepare an EA, and if it is determined that the change is environmentally insignificant, NOAA Fisheries may issue a finding of no significant impact.

⁵The movement away from the management measures contained in the adopted FMP framework will likely necessitate an examination of whether a new policy is also under consideration.

PUBLIC TESTIMONY SIGN-UP SHEET FOR AGENDA ITEM C-2 DPSEIS

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LINES LEFT BLANK WILL BE DELETED.

	NAME	AFFILIATION
1.	Ron Clarke, Donna Parker	MCA
2.	Terry Leitzell	Teicle Seafoods
3.	John Geurin	Groundfish Forum
4.	Ed Richardson	PCC
5.	Gerry Merrigan	Prowler
6.	Thorn Smith	NPLA
7.	Julie Bonney	Groundfish Data Bank
8.	Heather McCarty	CBSFA
9.	Ben Enticknap	Amce
10.	Josh Sladek & Nowliss	Alaska Oceans Network
11.	James Seales	Oceana
12.	Whit Sheard	Hair Club for Men
13.	Dave Arson	HSCC
14.	BRENT PAINK	UCB
15.	Art Nelson Simon Kinman	APA / NSCIDC
16.	Paul MacGryen	ASP
17.	Paul MacGryen	United States, Seismic Commission
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01110 2-3

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C-2
John Gauvin

Groundfish Forum's comments on the PSEIS habitat effects methodology and recommendations for management approaches

John Gauvin 06/13/03

The PSEIS' determination that Alternatives 1-3 have a "conditionally significant adverse" effect on habitat implies that the draft PSEIS has concluded that status quo and Alternative 3 habitat protections are deemed (in whole and in part) inadequate. Specific conclusions on habitat effects under the proposed habitat protections in Alternatives 1-3 are that such alternatives "could" (and hence can be expected to) reduce benthic invertebrate populations and benthic community structure/diversity to low levels, perhaps negatively affect the sustainability of FMP stocks. By this determination, the PSEIS is implicitly recommending habitat management measures such as those in Alternatives 4.1 and 4.2. These entail very expansive closures to on-bottom trawling and fixed gear fishing as described in examples of FMP alternatives provided in the PSEIS charts.

The specific recommendations of the habitat methodology section are that additional year round closures in two forms are needed. The first recommended closure type is for areas fished at low intensities and the second type is for selected portions of heavily fished areas (High CPUE areas), specifically those areas containing gradients of fishing intensity and a variety of habitat types. These two new recommended closures would apply in all cases to on-bottom trawling and in many cases to all bottom contact fishing. The inclusion of fixed gear is based on the PSEIS' methodology section's conclusions that although there is little scientific information about fixed gear effects, fixed gear effects on biostructure can be expected to be similar to mobile gear effects.

This policy direction recommendation is based on four pieces of information identified in the PSEIS methods chapter:

- 1) Data on bycatch of living habitat (i.e. observer data on invertebrate bycatch rates as reported in Tables 4.1-8&9) and effort as predicted by the multi-species effort model.
- 2) Rose/Fujioka model to estimate effects on biostructure
- 3) Estimates of the area and habitat types closed to bottom trawling
- 4) Evaluation of spatial distribution of bottom trawl closures relative to fishing intensity and habitat types.

We believe that the way these four pieces of information are used and the attendant findings of the PSEIS on habitat issues needs careful review by the SSC before the analysis is sent out for public review and before a preliminary preferred alternative is selected by the NPFMC. Based on our initial review of the habitat methodology section, we have identified the following four issues which we feel the SSC should consider:

- 1) Invertebrate bycatch data: 1999-2001. These data reported in Tables 4.1-8&9. The units applying to reported bycatch rate are unclear. More importantly, the relative magnitude of invertebrate bycatch rates is very different from the data used in the earlier draft PSEIS. These new data effectively rank such fisheries as yellowfin sole and rocksole fisheries with the highest coral and sponge bycatch rates, in some cases more

than three times higher than rates in the Aleutian Islands fisheries for cod and Atka mackerel identified earlier. These data likely incorporate the lack of resolution between bryozoans, soft corals and the high profile, fragile and long-lived stalked corals such as those found in the Aleutian Islands— the invertebrates that prompted the initial consideration of coral management in the Aleutian Islands. We believe these data and their use in the analysis need careful review.

2) New application of the Rose/Fujioka model. The PSEIS now applies a close version of the Rose Fujioka model to selected portions of habitat features as identified earlier for the development of EFH EIS alternatives. Recall that the earlier application of the model was across the entire extent of features. This alternative application drives the high intensity findings for a portion of the mud/sand feature in the BS, which is used as an example in the document (see Figure 4.1-10 on page 4.1-97 and Table 4.1-6-2). The new calculations of relatively high effort intensity ($F=1$ or greater) for the subset of the sand/mud feature in the Central Bering Sea are referred to as one of the potentially problematic aspects of baseline and Alternative 3 habitat effects prompting the “adverse” determinations. This is an important difference in the PSEIS and EFH processes because for the development of EFH EIS alternatives, the model was used to create ordinal rankings of fisheries and management area effect levels based on effect levels calculated over the entire habitat feature. It is very possible that the ordinal ranking of fisheries used to prioritize the EFH alternatives would have been quite different had the model been applied to the EFH process as it is being applied in the PSEIS. If this new approach is carried over to the EFH process, it could create a major disconnect between the objectives, suite of alternatives, and rankings of fishery effects for mitigation. Additionally, the EFH process was careful to delineate between level of “effect” on one hand and the actual lack of scientific information about the meaning of that effect in terms of the habitat function. In our opinion, the PSEIS methods section lacks does not sufficiently stress that distinction. If there is new information to demonstrate that habitat in the relatively intensively fished areas in the North Pacific, such as the Central Bering Sea shelf area used as an example in the PSEIS example, is of reduced function to managed species, then such information should be cited in the PSEIS.

Also, the discussion of the finding that a subsection of a Bering Sea shelf habitat feature is subjected to a relatively high intensity of fishing should be balanced by the mention that this means that other parts of the shelf feature are by necessity subjected to a lower level of effect relative to the average effect rating used in the EFH process. In the case of the example of the Central Bering Sea area in the PSEIS, the new focus on a subset of the area with the higher rate of effect should be tempered by pointing out that that the relatively high-intensity blocks are only 12% of the overall area.

Lastly, despite the analytical convention used to assign fishing effort to statistical blocks based on recorded haul back position, effort patterns within those blocks are in actuality very patchy as per the work Dr. Rose has done to compare VMS data on fishing effort patterns to the methods used in the EIS to assign effort to statistical blocks in the EFH EIS. This means there are likely extensive areas that are not fished at all within the Central Bering Sea high intensity fishing area depicted in Figure 4.1-10.

3) Assumptions made in estimates of the existing areas closed to bottom trawling and other fishing gears need to be reviewed. The document concludes that only year round closures to all bottom trawling and all bottom contact fishing provide protections from adverse effects. Some sea lion rookeries for example are open to fisheries other than pollock, cod, and Atka mackerel but the areas and depth strata fished by those other fisheries (such as POP) are not the same ones fished for cod, pollock, or Atka mackerel. Hence there are *de facto* habitat protections in many sea lion closed areas. Likewise, measures such as the Bogoslof “no fishing zones” are part of sea lion measures and likely provide extensive habitat protections despite the fact that the measures was not intended to protect benthic invertebrates.

4) The PSEIS’ evaluation of spatial distribution of bottom trawl closures relative to fishing intensity and habitat types is internally inconsistent. The authors at one point underscore the conclusions of a new scientific paper by Duplisea et al. (2002) that management of fishing effects should avoid disrupting fishing from its inherent nested and patchy distribution because this could lead to a net increase in fishing effects in previously undisturbed areas where lower target fish catch rates would necessitate more fishing time to catch the same amount of fish. Although the PSEIS cites the paper in its management approaches section, the PSEIS’ proposed management direction actually contradicts the management approaches recommended in the Duplisea paper. Specifically, the PSEIS authors also recommend selected closures in high CPUE areas to accomplish protections along gradients of habitat effects of fishing and habitat types. It is somewhat ambiguous in the PSEIS whether the reference to Duplisea et al.’s finding is being used to cover and support the habitat gradient closure idea (see page 4.1-10), but we can find no recommendation for that approach in the referenced paper. In any case, the scientific basis for the importance of protecting gradients of effects needs to be demonstrated as no references are offered. Likewise, the PSEIS’ claim that existing closures affect only one or a small number of specific habitat types is unsupported by data and actually contradicts the PSEIS’ earlier admission that there is a lack of available data for Alaska on habitat types and functions.

Lastly, in the Central Bering Sea, the intensity of fishing in the area between the Pribilof closure and the Red King Crab Savings Area is in part due to the efforts of fishermen to compensate for the effects of earlier closures on the affected fisheries. The PSEIS ignores this in favor of a persistent approach that more closure areas are needed. Under what seems to be a “no win” scenario, these new additional closures would likely spur the need for another set of additional closures as fishing intensity would surely increase in the now even smaller open area.

C-2
Ed Richardson

Richardson — C-2 Programmatic SEIS

June 16, 2003

Good Morning Mr. Chairman and Members of the Council,

My name is Ed Richardson and I'm here to testify on behalf of the Pollock Conservation Cooperative, a group of seafood companies that catch and process about forty-five percent of the Bering Sea pollock allocation.

Mr. Chairman, the members of the Pollock Conservation Cooperative recommend that the Council adopt the Marine Conservation Alliance-modified Alternative Three as its preliminary preferred alternative for analysis in the programmatic SEIS. The MCA approach has been endorsed by the AP, and we believe that the policy statement, objectives, and framework-FMP-bookends included in the MCA's adaptive-precautionary management approach will result in sound, ecosystem-based conservation of living marine resources while at the same time allow the industry to maintain economically viable fisheries and fishing communities.

Mr. Chairman, the Programmatic SEIS policy analysis now under development at the NMFS Alaska Region office has been in the making for several years, and there is little doubt that it will be a high-quality document. However, its important to remember that the primary purpose of the document is to support, and in effect catalyze, a Council decision as regards future policy direction. As a means to accomplish this objective, the document develops and evaluates several alternative policy frameworks across a broad spectrum of fishery

governance issues. For some of these issues, the knowledge base available to advance the policy evaluations is wide and deep, but for others it is thin and shallow. In the former case, evaluations can be based on real data and presented in at least qualitative terms. In the latter case, evaluations are necessarily driven by assumptions and simulated data, and thus may reflect little more than the value judgments of the authors involved.

Mr. Chairman, perhaps the best example of a policy evaluation that is completely determined by assumptions is that for the "impacts" of the policy alternatives on protecting marine habitat. And what this means is that the habitat impacts evaluations are not really science-based, and further, really don't necessarily represent anything real. Mr. Chairman, what we have in the programmatic SEIS are only ILLUSTRATIVE habitat impacts that are created and evaluated by assumption to achieve the objective of choosing a future policy direction.

To provide an example of what I'm trying to draw the Council's and the public's attention to, consider the Significance Criteria for Habitat on page 4.1-59, and in particular the third criteria, which is called "Geographic Diversity of Impacts." The existence of such a criteria was never even mentioned, let alone considered, in the development of the Council EFH mitigation alternatives. We are also not sure if this criteria has ever been seen, let alone reviewed or evaluated, by the Council's SSC. If you analyze the criteria, it says that, compared to a baseline, less geographic diversity of impacts is a negative. Said

another way, the criteria says that keeping habitat impacts confined, or concentrated is a negative!

Mr. Chairman, in trying to chase down the rationale for this criteria, I found in the analysis the following statement:

“One may theorize that vast expanses of contiguous fishing effort or impact levels should be avoided.”

Well that’s great, but with an extremely information-poor situation, its also possible to theorize that expanses of contiguous intense fishing effort would serve to minimize the impacts of fishing on habitat, especially if one considers the amount of habitat available at the scale of the eastern Bering Sea, Aleutian Islands, or Gulf of Alaska management areas. And in fact this alternative theory is also documented in several places in the analysis, and further, this latter theory — that stopping the spreading out of impacts is likely beneficial — has been “operational” in the development of the EFH mitigation alternatives. Clearly, Mr. Chairman, we are dealing here with an analysis of possible habitat benefits that is largely subjective and critically dependent on matters of scale and degree. Evidently such is the nature of the beast when one considers issues of geographic diversity. But the analysis is of concern because the Council and the public could rightly be lead to believe that the scale and degree of current fishing activities are damaging habitat to an unacceptable degree or on an unacceptable scale, and this is simply not known (even though the analysis may result a red light).

Mr. Chairman, further along in the analysis I found these statements:

Knowledge about habitat value as EFH and its distribution is of low resolution based on gross bathymetric information, such as shelf, slope, gullies, or large scale geographic or oceanographic features and we assume that such features capture EFH. In addition clusters of fishing intensity represent an area of unique habitat, perhaps defined only in part by benthic habitat.

Well Mr. Chairman, its difficult to parse out exactly the meaning here, but evidently there is now a new habitat type, which is areas of high fishing intensity. So on the Bering Sea shelf, if we have an area of mud-sand bottom where there is a lot of fishing effort, then its now a different flavor of mud-sand than that which is assumed to cover the bottom where there is less fishing. Mr. Chairman, I believe some meetings ago you indicated that you know something about different flavors of sand and mud, and I think Dr. Balsiger indicated he also has some experience in this regard, but right now the companies that I work for don't accept this new method of habitat classification. In prior decades, the areas of intense fishing were in other locations, and so we are not sure that any analysis like this would provide internally consistent evaluations of the flavors of mud on the EBS shelf — its too dependent on matters of scale and time, and it also depends on the fact that we really have only begun to assess the composition of the biostructure at a very few locations in the BSAI and GOA.

Mr. Chairman, about the only thing we find the Geographic Diversity of Impacts criteria to accomplish is it constructs an analytical framework which can be used to deny the industry its traditional fishing grounds. Here are the operational sentences:

“Geographic diversity of impacts and protection is obtained by having a consistent pattern of varying levels of impact within a habitat type. This would be achieved most simply by establishing long term closure areas over a portion of each habitat type within fished areas.”

Mr. Chairman, the MCA and the Pollock Conservation Cooperative support an adaptive-precautionary approach when it comes to habitat protection, and we especially support the gathering of more information to determine actual habitat impacts and their linkage, or lack thereof, to the productivity of the FMP-managed species. But Mr. Chairman, we can achieve these outcomes without a new designed-by-assumption habitat impact criteria whose simple intent is to put traditional fishing grounds off limits.

Mr. Chairman, we request that the Council accept the preliminary preferred alternative adopted by the AP as its preferred alternative. We also ask that the Council endeavor to find a way for the SSC to conduct an evaluation of the Geographic Diversity of Impacts criteria before the Geographic Diversity of Impacts becomes part of the habitat impacts landscape. Because the habitat impact evaluations based on this criteria are so dependent on matters of scale and interpretation and assumption, we suspect the criteria will simply confuse the public and complicate the EFH SEIS development process.

MCA Bookends

Corrections:

- Page 2. Issue: ABC & OFL. Revised Bookend 3.1 & 3.2. Source should be "Same as draft Alt. 4.2".
- Page 2. Issue: TAC. Revised Bookend 3.2. Source should be "Same as draft Alt. 3.2".
- Page 3. Issue: Forage Fish. Revised Bookends 3.1 & 3.2. Source should be "Same as draft Alt. 4.2".
- Page 5. Issue: Target Species Closures. Revised Bookends 3.1 & 3.2. Source should be "Same as draft Alt. 4.1".
- ~~Page 13. Issue: Coverage and Monitoring. Revised Bookend 3.2. Insert "and" between "data" and "compliance".~~
- Page 13. Footnote 3 wandered around the corner to the bottom of page 14.

Scorecard:

	REVISED BOOKEND 3.1	REVISED BOOKEND 3.2
From Alternative 1	17	0
From Alternative 3	16	31
From Alternative 4	3	4
New	5	3

New Issues:

- Addition of "Spawning Stock Biomass" to "MSST" issue.
- MPA definitions to "MPA Process".
- Seabird interactions with trawl gear.
- Buybacks for all overcapitalized groundfish fisheries in "Overcapacity".

Issues Deleted:

- B20 Rule: Deleted from "SSL Measures" as this issue also occurs under "TAC Setting Process".
- Precautionary Approach: Deleted from "TAC Setting Process" but incorporated implicitly into "ABC Tier System" in the same section.
- Sitka Pinnacles: Deleted from "MPAs and EFH" but included under "Closures" in the same section.

"Just the facts, ma'am, just the facts." - Joe Friday -

"Theory helps us in the absence of facts." - George Santayana -



Alaska Marine Conservation Council

Box 101145 • Anchorage, Alaska 99510
(907) 277-5357 • (fax) 277-5975
amcc@akmarine.org • www.akmarine.org

C-2

Date: June 12, 2003
To: North Pacific Fishery Management Council
From: Ben Enticknap, Fishery Project Coordinator

RE: Agenda Item C-2: Draft PSEIS – preliminary preferred alternative

In the selection of a preferred alternative for the DPSEIS, the Alaska Marine Conservation Council recommends that the NPFMC select the following management objectives to reduce and avoid bycatch, reduce and avoid impacts to habitat and to promote the equitable and efficient use of fishery resources.

We have noted which alternatives the selected language comes from. Words in italics indicate new language and stricken language indicates changes from original.

Reduce and Avoid Bycatch:

1. Include bycatch mortality in TAC accounting and improve the accuracy of mortality assessments for target, PSC bycatch, *and non-commercial species*, including unobserved mortality. (Alternative 4)
2. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits as information becomes available. (Alternative 3)
3. Develop incentive programs for incidental catch and bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, VBAs, or other bycatch incentive programs with the goal of reducing bycatch, incidental catch, and PSC limits (e.g. by 10% for five years). (Combination of alternative 3 and 4)
4. Phase out fisheries with >25% incidental catch and bycatch rates. (Alternative 4)
5. Establish PSC limits for salmon, crab and herring in the Gulf of Alaska. (Alternative 4)

Reduce and Avoid Impacts To Habitat:

1. To protect habitat and reduce bycatch, ~~prohibit transition bottom~~ trawling to more selective gear types in fisheries that can be prosecuted with alternative gear ~~and establish trawl closure areas~~. (Alternative 4)
2. 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 of marine ~~organisms- ecosystems~~. ~~Consider implementation of~~ *Implement MPAs and marine reserves if and where*

(over)

- appropriate, giving due consideration to areas already closed to various types of fishing operations. (Alternative 3)
3. Identify, designate and protect marine habitats *using the appropriate regulatory frameworks*, including EFH, HAPC and ESA-designated critical habitats. (Combination of alternatives 3 and 4)
 4. Commit to funding a comprehensive research plan in order to provide a baseline habitat atlas. (Alternative 4)

Promote Equitable and Efficient Use of Fishery Resources (Allocation Issues):

1. Provide for adaptive management by periodically evaluating the effectiveness of ~~rationalization programs and the allocation of property rights based on performance-~~ *quota systems based on the achievement of economic and conservation performance.* (Alternative 3)