

Roadmap for Reevaluating the Programmatic Groundfish Supplemental Environmental Impact Statement

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1	Introduction	1
2	PSEIS Primer	2
	2.1 Structure and Alternatives of the 2004 Groundfish PSEIS	3
	2.2 Summary of findings from 2004 Groundfish PSEIS	5
	2.3 Summary of findings from the 2015 Supplemental Information Report	7
3	Compiling Information Necessary for Reevaluating the PSEIS	9
	3.1 Ongoing initiatives	9
	3.2 Changes in management and environmental conditions since 2015	11
4	Engagement Opportunities	14
	4.1 “Formal” NEPA Scoping for an EIS	14
	4.2 Informal Scoping	15
	4.3 Tribal Engagement Opportunities	15
5	Options for Next Steps and Additional Considerations	16
6	References	19
7	Acronyms	20
Appendix 1	Council October 2022 Motion to Reevaluate the PSEIS	21
Appendix 2	BSAI and GOA Groundfish Management Policy, Goals, and Objectives	22
Appendix 3	2015 SIR assessment of management and status changes, and new information	25
Appendix 4	Groundfish Programmatic Workplan (December 2022)	36

1 Introduction

In October 2022, the North Pacific Fishery Management Council (Council) tasked staff to prepare a discussion paper for a roadmap and timeline for reevaluating the Programmatic Groundfish Supplemental Environmental Impact Statement (Groundfish PSEIS, or PSEIS), in order to better address the impacts of climate change on our marine ecosystems and on the people who are dependent on those ecosystems (full motion in Appendix 1).

The Groundfish PSEIS, finalized in 2004, provided analytical support for amendments to revise the management policy for the Council’s Fishery Management Plans (FMPs) for Groundfish in the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA). The PSEIS analyzed comprehensive alternatives for management of the groundfish fisheries in the BSAI and GOA and provided a broad environmental evaluation to examine the program through future guidance and direction. The intent was for the PSEIS to serve as an environmental baseline to evaluate then-current and alternative management regimes, taking into account the aggregate changes to the fisheries that had occurred since the original FMPs were prepared. It was also designed to anticipate the scope of the Council’s subsequent management actions for the groundfish fisheries, and the need to adapt management to a continually changing environment. The “action” of the PSEIS was the continued, long-term management of the groundfish fisheries in the Exclusive Economic Zone (EEZ) off Alaska.

The Council last reevaluated the Groundfish PSEIS in 2015, through the use of a Supplemental Information Report (SIR). Through that process, the Council reviewed changes to the FMPs since 2004,

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identified new information and new circumstances including changes to groundfish management and environmental conditions, and evaluated whether the conclusions of the 2004 PSEIS regarding impacts of the groundfish fisheries remained valid. At that time, the Council and the National Marine Fisheries Service (NMFS) concluded the information and circumstances obtained through the process of the 2015 SIR were not sufficient to trigger supplementing the 2004 PSEIS. The Council also considered whether changes were needed to the management policy adopted through the PSEIS and determined that the policy was not in need of amendment.

More recently, the Council and stakeholders have cited the unprecedented and increasing rate of change in the North Pacific, the severity of which was not recognized in 2015, as a reason to once again consider reevaluating the Groundfish PSEIS. Stakeholders have noted that the finding of the 2015 SIR, that the PSEIS' analysis of the impacts of the groundfish fisheries on the environment remains valid, may no longer apply under current conditions. As a result, the Council has initiated action to revisit the PSEIS. It is the Council's intent to include robust tribal and stakeholder engagement in the process for reconsideration.

This discussion paper provides context for the Council about the original PSEIS analysis, and factors relevant to how the Council might approach developing a new PSEIS. The following sections will provide a primer on the 2004 PSEIS, findings from previous reviews of the Council's groundfish management program, sources of information and initiatives that may inform the PSEIS reevaluation process, opportunities for stakeholder engagement, and guidance and considerations for next steps.

2 PSEIS Primer

The Council's October 2022 motion (see Appendix 1) included a request for a primer of the 2004 PSEIS with a description of its structure and alternatives and a summary of the findings from previous reviews of the PSEIS. This information is provided in the sections that follow.

What is a programmatic EIS?

NEPA requires that an EIS be prepared on agency recommendations or reports on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment (40 CFR 1502.3). A "major Federal action" means "an activity or decision subject to Federal control and responsibility" and may include "new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by Federal agencies; new or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals," such as adoption of official policy, adoption of formal plans, adoption of programs, and approval of specific projects (40 C.F.R. § 1508.1(q)). When the EIS addresses a policy, plan, or program, it is called a programmatic EIS or PEIS (or in the case of the 2004 Groundfish document, a programmatic supplemental EIS or PSEIS). PEISs should focus on broad Federal proposals and be timed to coincide with meaningful points in planning and decision making. Preparing a PEIS presents an opportunity to evaluate cumulative impacts of past, present, and reasonably foreseeable future actions under the program or within a geographical area. NEPA's legal requirements for a PEIS are the same as those for an EIS.

CEQ regulations recommend a streamlined approach to the NEPA process to avoid repetition through the use of a tiered approach which allows subsequent EAs and EISs to focus on specific proposed federal actions: "Agencies should tier their environmental impact statements and environmental assessments when it would eliminate repetitive discussions of the same issues, focus on the actual issues ripe for decision, and exclude from consideration issues already decided or not yet ripe at each level of environmental review. Tiering may also be appropriate for different stages of actions." 40 C.F.R. § 1501.11(a).

All FMPs, FMP amendments, and regulations implementing FMPs require approval by the Secretary of Commerce. This approval requires compliance with NEPA. The length of time to complete specific management actions within the FMP amendment process varies. While often lengthy, the process can be streamlined through the use of a PEIS when management changes fall within prescribed boundaries.

2.1 Structure and Alternatives of the 2004 Groundfish PSEIS

The 2004 PSEIS serves the Council and NMFS as the overarching Environmental Impact Statement (EIS) in support of Federal authorization of the groundfish fisheries off Alaska. In addition to describing the physical, biological, and human environment, existing fisheries and authorized gear types, and scientific data gaps and research needs, the PSEIS was a comprehensive review of the BSAI and GOA Groundfish fisheries that evaluated cumulative changes in the management of the fisheries since the original groundfish EISs in 1978 (GOA) and 1981 (BSAI). The PSEIS also evaluated four policy-level alternatives, ranging from a more aggressive harvest management policy to a highly precautionary one, as well as a final preferred alternative that was eventually implemented. The alternatives were:

Alternative 1:	Continue under the current risk averse management policy;
Alternative 2:	Adopt a more aggressive harvest management policy;
Alternative 3:	Adopt a more precautionary management policy;
Alternative 4:	Adopt a highly precautionary management policy; and
Preferred Alternative:	Adopt a conservative, precautionary approach to ecosystem-based fisheries management.

Each management policy was illustrated and framed with a range of management measures within which the Council would intend to implement the selected alternative. Each alternative included a management approach statement, accompanying objectives, and example FMPs. The goal of providing example FMPs was to illustrate a combination of management measures that would illustrate the range of how the Council might implement each policy alternative in practice.

The Preferred Alternative included nine management goal statements, each supported by specific objectives (see Appendix 2 for objective language), and illustrated through example FMP bookends:

- Prevent overfishing
- Promote sustainable fisheries and communities
- Preserve food web
- Manage incidental catch and reduce bycatch and waste
- Avoid impacts to seabirds and marine mammals
- Reduce and avoid impacts to habitat
- Promote equitable and efficient use of fishery resources
- Increase Alaska Native consultation
- Improve data quality, monitoring, and enforcement

2004 PSEIS Preferred Alternative:

Adopt a conservative, precautionary approach to ecosystem-based fisheries management.

Example FMP PA.1: Formalize $ABC \geq TAC$ in FMP, use harvest control rules to maintain spawning stock biomass, accelerate efforts to develop ecosystem indicators for use in TAC-setting, develop MPA methodology, consider 0-10% reduction of BSAI PSC limits, establish PSC limits or other measures in GOA for salmon, crab and herring, continue rights-based management as needed, formal procedures to increase Alaska Native participation in management.

Example FMP PA.2: Incorporate uncertainty correction into ABC estimation, periodically review OY caps to determine their relevancy, develop and implement criteria for use of ecosystem indicators in TAC-setting, develop appropriate harvest strategies for rockfish, develop criteria to manage target and non-target species consistently, re-examine existing closures, consider adopting MPAs (0-20% of EEZ to protect full range of habitats, including as AI management area for coral), no bottom trawl for pollock in GOA, reduce existing PSC limits 0-20%, establish PSC limits in GOA for salmon, crab and herring, comprehensive rationalization of all fisheries, increase consultation with and representation of Alaska Natives in fishery management, improve observer coverage on all vessels, mandatory economic data collection.

Note: allowable biological catch (ABC); total allowable catch (TAC); marine protected area (MPA); prohibited species catch (PSC); optimum yield (OY)

The adoption of the Groundfish Management Policy was the immediate outcome of the PSEIS. This policy statement (see Appendix 2) is included within the Groundfish FMPs and communicates the Council’s intent to take a more conservative, precautionary, and ecosystem-based approach to fishery management decision-making when faced with scientific uncertainty. The Council routinely reviews the Groundfish Management Policy goals and objectives when making decisions.

The 2004 PSEIS was the first stage of a two-step process with the intent that over time, the Council would undertake amendments as needed to fully implement the comprehensive management policy. In addition to the revised programmatic management policy, the PSEIS also provided a timeframe and direction for initial actions to further implement the policy along the lines of the Preferred Alternative example FMPs identified in the analysis (see above). Under the second step, each of these potential actions would be specifically analyzed, through focused Environmental Assessments (EAs) or EISs, as appropriate. The Council relied on the programmatic understanding of the groundfish fisheries as articulated in the PSEIS, in conjunction with analysis specific to the scope of specific management measure changes, to implement additional changes.

In the years immediately following 2004, the Council actively used the Programmatic Groundfish Workplan to identify and communicate sequential priorities for potential adjustments to the management of the groundfish fisheries. The Council continues to use the workplan as a concise status tool that presents Council groundfish fishery management actions relative to Policy Objectives, and an update is provided during staff tasking at every Council meeting (Appendix 4). In essence, this document provides an overview of how each Council action fits within the Goals of the Programmatic Groundfish Management Policy. Annual review of the Policy is a requirement of the GOA and BSAI Groundfish FMPs, and the Council fulfills that requirement through the Programmatic Workplan.

Through regular review of the workplan as well as more comprehensive triennial reviews, the Council regularly reconsiders its Groundfish Management Policy. This review includes consideration of whether modifications to the Management Objectives are needed, and consideration of whether additional Council actions are required to better fulfill the Management Policy. The Council conducted its most recent comprehensive review of its Programmatic Groundfish Management Policy at its [February 2022](#) meeting,

highlighting Council activities in calendar years 2019-2021 which continue to fulfill the Priorities and Objectives established in the Policy.

2.2 Summary of findings from 2004 Groundfish PSEIS

The 2004 PSEIS represents a broad but comprehensive review of the Alaska groundfish fisheries and their likely environmental consequences. Due to its large geographic, biological, and regulatory scope, it is necessarily a large document containing many findings and conclusions on numerous issues. The following provides some of the overarching management program findings included in the 2004 PSEIS.

Cumulative effects of groundfish fishing prior to 2004

The 2004 PSEIS included findings on the cumulative effects of groundfish fishing over 25 years prior to 2004, as shown below.

Over the last 25 years, management of the groundfish fishery has undergone a transition from a primarily foreign fishery, through a brief period of joint venture, to a completely domestic fishery. Areas fished, the nature and efficiency of gear types, utilization of catch, and rates of bycatch have changed significantly. The diversity of groundfish species fished, and the volume of catch increased through the early 1990's and has since remained stable. The value of catch has continued to increase over time. Communities that participate in or support groundfish fishing have experienced cumulative beneficial effects, particularly in proportion to other state and federal fisheries. Alaska Natives that participate in the groundfish fisheries have experienced cumulative beneficial effects for themselves and their communities. There appear to be no adverse cumulative effects of groundfish fishing on target species. Management of the fishery has become more precautionary over time and developed extensive scientific knowledge regarding target species. Human activities over time have resulted in cumulative conditionally adverse effects on various components of the ecosystem including changes in species diversity, such as whales and harbor seals, western Alaska salmon, king and Tanner crab, and some types of benthic habitat. However, there is still uncertainty regarding the contribution of the domestic groundfish fishery to past cumulative effects on the North Pacific ecosystem. As more research has become available on other management issues such as ecosystem effects, fisheries management has incorporated measures to account for them, including temporal and spatial closures, and changes in fishing techniques and gear (NMFS, 2004).

Overarching conclusions from the 2004 PSEIS

Thirteen overall conclusions highlighted in the 2004 PSEIS are listed below.

1. The more precautionary you become, the lower the risk of causing adverse effects on the physical/biological environment. This comes with at least a short-term cost to socioeconomic sectors of the environment including fishermen, processors, and coastal communities, although some of this cost could be offset by long-term sustainability of the ecosystem, albeit at lower harvests than today.
2. As TAC is reduced, other FMP components currently used by the NPFMC and National Oceanographic and Atmospheric Administration (NOAA) Fisheries become less important and may no longer be necessary. For example, at reduced TAC levels, bycatch of prohibited species and non-target species is decreased. Impacts to the benthic habitat are also decreased. Managers may no longer need to specify PSC limits if the measures themselves no longer constrain the groundfish fisheries because the estimated bycatch is now below threshold. Similarly, with reduced TAC levels, it may no longer be necessary to spend time developing a complex web of spatial closures since the impacts of the fisheries on benthic habitat would likely decrease and such spatial closures may be unwarranted. As a result, the corresponding FMP may be very simplistic compared to today's FMPs.

3. At the policy level, all alternatives have been designed to take into account the requirements of applicable laws, including the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Marine Mammal Protection Act (MMPA), and the Endangered Species Act (ESA). Some MSA National Standards for socioeconomic resources could realize increased risk as the policy becomes more precautionary with regard to potential physical and biological impacts. Such costs may not be desirable when there is considerable uncertainty regarding the benefits gained by such policies. Similarly, should the NPFMC recommend a more aggressive harvest policy, the risk of overfishing stocks (especially those where there is very little information) increases even though we choose to remain within the overfishing limit (OFL) of target groundfish species.
4. The realities of conducting fishery research often center around funding. It is usually difficult to obtain research funding when you most need it or for all the topics that warrant study. As a result, fishery research has trade-offs—if you investigate some species, others may not be studied. Even if all the required/requested research was funded, it would be difficult to fully implement a large comprehensive program due to the limited number of fishery scientists currently available to do the work.
5. Considerable uncertainty is associated with management of any fishery and these uncertainties continue under all of the alternatives.
6. Under Alternative 2, most controls over the fishery are removed. As a result, it is difficult to predict how the fishery, stocks, and other resources will react to such a shift in management policies. Risk to the human environment increases as a result of uncertainty.
7. Adaptive management often results in unexpected consequences (e.g., the “bulge theory” when you change the fishery in one way to address a specific problem, another problem often develops somewhere else).
8. A large biomass or increased biomass does not necessarily translate to a stable or increased level of sustainability. Spawner recruit relationships and other features of the population suggest that sustainability of a resource (and a fishery dependent on that resource) is dependent on more variables than just size of the population.
9. The “race-for-fish” is less than optimal in terms of the allocation of fishery resources. Lessons learned from past experience has proven that a rationalized fishery provides greater benefits to the nation than an open access fishery.
10. Currently, questions exist on whether fishermen can achieve their TACs when displaced from traditional fishing grounds. This is an area of great uncertainty and it means that predictions of future catches under different closed area scenarios may be incorrect.
11. Closed areas designed as no-take reserves or a form of marine protected area (MPA) should be based on the best available science and the NPFMC and NOAA Fisheries should work closely with public stakeholders and coastal communities in seeking the best areas for protection that provide the greatest benefits to habitat while minimizing adverse social and economic consequences.
12. Careful placement of small closures within heavily fished areas can potentially mitigate some habitat impacts and help avoid unintended consequences of displaced effort. The size of the closures, if closures are determined to be necessary, will depend on a number of factors including the distribution of the valued habitat-type, frequency and intensity of impacts, research needs, and enforcement considerations. Such closures could promote scientific understanding of the effects of fishing on habitat and help determine the efficacy of MPAs.

13. A policy is a statement of goals and objectives that provides direction based on values of the people. It should be referred to frequently to ensure that decisions are consistent with the policy. Periodic review and, if necessary, revision of the policy is prudent.

Environmental risk and uncertainty

Additionally, the 2004 PSEIS highlighted issues that overlay all the environmental issues analyzed in the PSEIS, which still remain subject to dispute and imprecision in terms of implementation. One of these centers on the concept of environmental risk and uncertainty. How should managers respond to situations where the environmental impact of a proposed action is not known and where there is a great deal of uncertainty, both in the data collected as well as in our ability to predict future outcomes? How should managers apply the precautionary principle when making management decisions? The 2004 PSEIS noted that the Preferred Alternative would reduce the risk of environmental harm by adopting measures that would mitigate against adverse impacts. Such measures would be monitored and if new data indicate they are not working as intended, the NPFMC and NMFS would adapt the management regime accordingly. Controversy among various stakeholders was, and is still, anticipated over the measures to be employed. The authors of the 2004 PSEIS expected that the analysis of proposed measures would be thorough and based on the best scientific information available, and it was doubtful that a broad consensus among stakeholders could be reached on this issue until more environmental data are available.

Ecosystem-based management

A second unresolved issue from the 2004 PSEIS focused on the term ecosystem-based management, which was and still is receiving national attention and scientific debate. What does this mean in practical application? How should resource managers apply ecosystem-based management principles? The 2004 PSEIS attempted to inform the public on this subject, and anticipated that over the next few years, the American public would come to understand this concept more fully and that the NPFMC would begin to find ways to incorporate this concept into its fishery management plans. The 2004 Preferred Alternative set the stage for this debate and committed to its implementation as it continues to be better defined and analyzed. The 2004 PSEIS noted that “Ecosystem-based Fisheries Management (EBFM) was integrated to require managers to consider all interactions that a target fish stock has with predators, competitors, and prey species; the effects of weather and climate on fisheries biology and ecology; the complex interactions between fishes and their habitat; and the effects of fishing on fish stocks and their habitat”. The Council and NMFS continue to identify and implement ways to apply EBFM principles in management.

2.3 Summary of findings from the 2015 Supplemental Information Report

A SIR is a tool to evaluate the need to prepare a new environmental impact statement to supplement a previous EIS. The National Environmental Policy Act (NEPA) requires agencies to prepare a supplemental EIS to either draft or final EISs if the agency (1) makes substantial changes in the proposed action that are relevant to environmental concerns; or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts (40 CFR 1502.9(c)). In order to address these questions, the SIR evaluated the degree to which the management of the groundfish fisheries (the proposed action evaluated in the PSEIS) had changed since 2004, and information on groundfish and environmental conditions during that time, compared to what was considered in the 2004 PSEIS.

Based on the evaluation of the 2015 SIR, the agency determined that groundfish fishery management changes since 2004 did not constitute a substantial change in the action analyzed in the 2004 PSEIS, as the 2004 preferred alternative recognized dynamic and adaptive fishery management. The current status of resources was also considered to be within the range of variability as analyzed in the PSEIS.

Finally, although new information was identified regarding the impacts of the groundfish fisheries on resources, the information and new research did not suggest a substantial change in the understanding of the impacts of the groundfish fisheries on resources in the BSAI and GOA. **As a result, a supplemental EIS was not required as the 2004 PSEIS continued to provide NEPA compliance for the groundfish FMPs, and the Council determined not to reinstate a new PSEIS.**

The following section provides an overview information that guided that conclusion. Additionally, Tables 1-4, found in Appendix 3, provide a summary of the management changes, status changes, new information to assess impacts, and new methods to assess impacts for target groundfish species, ecosystem component, marine mammals and seabirds, and habitat, socioeconomics, and ecosystem.

Changes in management of the groundfish fisheries, 2004-2015

Between 2004 and 2015, many changes were made which affected the management of the groundfish fisheries, the Council's policy goal statements, and changes in groundfish population status and in environmental conditions. Fifty-seven total actions, all subject to NEPA analysis, occurred related to changes in the management of the fisheries, resulting in a total of 72 amendments to the BSAI and/or GOA groundfish FMPs recommended by the Council between the completion of the 2004 PSEIS and the 2015 PSEIS SIR. These actions encompassed changes to the harvest specifications process, bycatch restrictions, marine mammal and seabird avoidance, habitat protection measures, sector allocations, gear changes, community provisions, and observer program adjustments. Many were undertaken in order to fully implement the Council's revised management policy.

Despite these changes in management, the Council determined that changes made in the management of the groundfish fisheries did not warrant initiating a supplemental EIS. The management program remained consistent with the 2004 PSEIS preferred alternative, and often advanced one or more of the Council's policy objectives, and the management changes were not identified as substantial changes relevant to environmental concerns.

Changes in groundfish and environmental conditions, 2004-2015

The 2015 SIR included a comprehensive overview of the new circumstances and information relevant to environmental concerns and bearing on the management of the groundfish fisheries and their impacts.

A combination of expert reviewers and resources was used to evaluate the effect of new information on the conclusions of the 2004 PSEIS. The groundfish Stock Assessment and Fishery Evaluation (SAFE) reports, ecosystem assessments, Essential Fish Habitat (EFH) reviews, and ecosystem plans all contributed data for the consideration of environmental conditions relevant to the PSEIS from 2004-2015, described below, as well as the information in Appendix 3.

- The groundfish SAFE reports during this time indicated that no groundfish species were then, nor had been, overfished or subject to overfishing. Each SAFE report includes an Ecosystem Considerations appendix (now the Ecosystem Status Report, or ESR) that provides a comprehensive overview of environmental conditions in the BSAI and GOA on an annual basis. These include abbreviated report cards and an executive summary of recent trends for the regions. During this time, the reports indicated climate indices in the North Pacific, including the Pacific Decadal and Arctic Oscillations, and eastern Bering Sea ice retreat and cold pool volume to be within one standard deviation of the historical mean for the data set. The report also indicated ecosystem indices for the groundfish fishery regions and fishery indices for the Bering Sea, Gulf of Alaska, and Aleutian Islands to have a 5-year mean that was generally within one standard deviation of the historic mean during that time period.

- The EFH 5-year review (NPFMC and NMFS 2010) evaluated changes in fishing impacts on habitat from the period analyzed in the EFH EIS (1998-2002) and the subsequent five-year period (2003-2007). The report indicated that total trawl fishing effort decreased in all regions for pelagic and non-pelagic trawling during the time period included in the analysis. Regions within the Bering Sea trawl area showed various changes in intensity with moderate decreases in some areas and increased intensity in others (see the Alaska Groundfish Fisheries 2015 PSEIS SIR for details). The Aleutian Island also had mixed trends with both increases and decreases in bottom trawl intensities and decreases in pelagic trawling. Similarly, the Gulf of Alaska had mixed trends with moderate decreases in non-pelagic trawl intensity and both moderate increases and decreases in the pelagic trawling sector.
- The Aleutian Islands Fishery Ecosystem Plan (FEP) was created in 2007 to evaluate physical, biological, and socioeconomic relationships among ecosystem components to identify areas of uncertainty and associated risks.

While some expert responses during the 2015 analysis indicated that additional information may allow for further refinement of the conclusions in the 2004 PSEIS for specific resource components (see Section 8 of the SIR), no information indicated that the new analysis would conclude there is now a significant impact where the 2004 PSEIS concludes that the impact was insignificant. Additionally, most of the new information has been analyzed in subsequent NEPA or ESA analysis.

3 Compiling Information Necessary for Reevaluating the PSEIS

The Council requested an outline of the type of information necessary to be able to understand the impacts of the groundfish fisheries on the environment, as required for a PSEIS and existing Council initiatives and related efforts that may inform the reevaluation of the PSEIS. Understanding the scope of information that needs to be prepared is useful for assessing the extent of staff and agency resources that are necessary to work on this project, as well as the optimal timeline for developing the project in relation to the availability of information from other projects.

3.1 Ongoing initiatives

Several Council- and NMFS-led initiatives and ongoing efforts by partners and advisory bodies are tackling large-scale policy-oriented questions that could inform the reevaluation of the PSEIS, either with respect to the framing and development of alternatives, or the assessment of groundfish fishery impacts on the environment and resources, especially in the light of changing environmental conditions. This section describes those initiatives, associated timelines where known, and possible ways in which they may be able to inform the PSEIS and/or the reevaluation process.

The report from the [7th National Scientific Coordination Subcommittee \(SCS7\), “Adapting Fisheries Management to a Changing Ecosystem”](#) will be available in Spring 2023. This meeting was held in Sitka in August 2022. Draft summary points from this meeting can be found [here](#). The meeting report may be informative for developing methods and tools that can be used to better understand the impacts of environmental change on fishery management in Alaska, as well as potential alternatives that should be considered in a revised PSEIS.

The [Science and Statistical Committee’s \(SSCs\) February 2023 Workshop “Rapid change in the northern Bering and southern Chukchi Seas”](#) will aim to identify ecosystem responses and effects on Federal fishery management. The workshop will include an exploration of proactive approaches for achieving management goals in a changing environment, and an assessment of how existing frameworks may or may not be able to address ecosystem variability. Recommendations coming out of this workshop will be presented to the Council at a future meeting (tentatively April 2023). This workshop may be useful to the Council as an Alaska-focused extension of the discussions from SCS7.

[The Alaska Climate Integrated Modeling project \(ACLIM\)](#) is a comprehensive effort between NOAA Fisheries and multiple partners to describe and project responses of the physical environment and human communities of the Bering Sea ecosystem to varying climate conditions. It strives to connect research on global climate and socioeconomic projections to regional circulation, climate enhanced biological models, and socioeconomic and harvest scenarios. ACLIM 2.0 is intended to enable the evaluation of a range of adaptation strategies and management scenarios. The goal is to provide decision-makers with information on how different fisheries management strategies interact with environmental changes and whether there are management changes that would improve the projected future health and productivity of the North Pacific. The information could be used to provide guidance on the management of groundfish (and other) fisheries managed by the NPFMC. ACLIM 2.0 next directions also include expanded protected species analyses which could provide information on impacts to resource components that would be considered in a reevaluation of the PSEIS. The timeframe is not currently clear, however, for when work products from ACLIM will be available to the Council, as a funding proposal has recently been submitted to extend this work.

Similarly, [GOA CLIM](#) uses an integrated modeling approach to identify factors affecting present and future ecosystem-level productivity and to assess the economic and social impacts of a changing climate on Gulf of Alaska fishing communities. One element of the proposed research is to conduct management strategy evaluations of alternative NPFMC harvest control rules under climate change using an ensemble of ecosystem models to represent multiple biological and economic processes in the GOA. Harvest control rules tested will be consistent with those being evaluated as part of ACLIM phase 2 to provide unified results to the NPFMC. GOA CLIM is currently funded through September 2023 and a proposal for extension of this research has been submitted. This work would help to inform the climate assessment component of the PSEIS, as well as potentially providing input relevant to the development of alternatives.

Under the Council’s Bering Sea Fishery Ecosystem Plan (FEP), two initiatives are underway that are also of relevance. [The Climate Change Taskforce \(CCTF\)](#) has the ability to serve as a source of knowledge and information regarding relevant information of climate change-focused impacts in the Bering Sea. The incorporation of additional knowledge sources, case study development, scenario planning workshops, scoping resources, climate briefings and reports, and climate readiness reports will all serve as sources of relevant information. A draft of this synthesis was presented at the October 2022 Council meeting. This serves as a starting point for the Council to assess the climate readiness of the current management systems, including management tools, assessments, and other information. However, it is important to note that this synthesis does not aim to evaluate management effectiveness. The revised report will be presented to the SSC in February 2023, and recommendations from the Taskforce about next steps will follow at a subsequent meeting. Additionally, the results of a CCTF-led scenario-planning workshop, focused on building out adaptive and resilient management measures, could contribute to PSEIS “scoping” and alternative development, as noted by the Ecosystem Committee in October 2022 . A suggested timeline for CCTF priority actions is included [here](#).

Under another Bering Sea FEP initiative, the Local Knowledge, Traditional Knowledge, and Subsistence (LKTKS) Taskforce has developed a draft protocol containing guidance and best practices for identifying and analyzing LK, TK, and subsistence information, as well as draft onramp recommendations for incorporating these knowledge systems into the Council’s decision-making process. The Taskforce intends to present the final LKTKS Protocol and onramp recommendations to the Council at its April 2023 meeting. Should the Council choose to adopt the protocol to inform its decision-making process and work in the Bering Sea region, it could inform the PSEIS by providing guidance for appropriate engagement with LK and TK holders and subsistence gatherers throughout the PSEIS scoping process as well as in an analytical capacity as the entire document would exist as an overarching reference tool that would be available to the Council, staff, and the public.

The Endangered Species Act (ESA) Section 7 consultation to evaluate the effects of the fisheries managed under the groundfish FMPs on ESA-listed species and designated critical habitats, which NMFS reinitiated in late 2022, will presumably provide a body of information about the impacts of the fisheries on ESA-listed species that could usefully be included in a programmatic evaluation. An initial estimate is that the results of the consultation are expected within 1-2 years.

In November and December 2022, the Joint Groundfish Plan Teams and the SSC identified a need for a workgroup to address the current policies for the application of harvest control rules for groundfish, and new approaches for accounting for changes in ecosystems related to climate change. While both the Plan Teams and the SSC identified several topics of interest related to this general topic, the recommendation was to allow the February 2023 SSC workshop to inform the specific scope and focus of a potential workgroup. Action on this initiative could dovetail with the reevaluation of the PSEIS as different approaches to harvest control rules and conservative management were included in the example FMPs that illustrated different management policies in the 2004 PSEIS, and the outcome of this work might be informative to the framing of new alternatives.

3.2 Changes in management and environmental conditions since 2015

For initial preparation with respect to reevaluating the PSEIS, it is also useful to build on the approach employed for the 2015 SIR, by cataloging management and environmental changes that have occurred since the last comprehensive programmatic evaluation in 2004. The SIR covered changes from 2004 to 2015; the following sections begin to extend the discussion of changes that have occurred in the groundfish fisheries and the environmental and ecosystem changes since the 2015 PSEIS SIR.

Changes in management of the groundfish fisheries since 2015

Since the 2015 SIR, the Council continues to make changes to its groundfish management program. The changes that have occurred to date can be witnessed in the FMP and regulatory amendments that have been implemented over this time period. Table 1 lists the groundfish FMP amendments that have been implemented from 2015 to 2022, as well as those for which the Council has taken final action, but regulations are still being developed. Since the beginning of 2015, the GOA Groundfish FMP has been amended 13 times and the BSAI Groundfish FMP has been amended 15 times. This does not include regulations that implement FMP amendments or those that are temporary, interim, corrections, or clarifications. Several of the major amendments included comprehensive EISs.

Another significant change occurred in 2018, when the Council adopted the Bering Sea FEP. The “Core” document will be updated over time and used to guide policy options and associated opportunities, risks, and tradeoffs affecting FMP species and the broader Bering Sea ecosystem in a systematic manner. It also documents current procedures and best practices for EBFM, provides brief, targeted, and evolving descriptions of the interconnected physical, biological, and human/institutional Bering Sea ecosystem and through ecosystem thresholds and targets, and directs how that information can be used to guide fishery

management options. Through the Bering Sea FEP, two action modules, one on LKTKS and one on CCTF have been initiated and are underway, while several others have not yet been initiated by the Council.

An EFH 5-year review occurred in 2017, with the most recent review underway in 2023. These reviews include an assessment of fishing impacts to habitat. Tools such as the fishing effects model, Species Distribution Model (SDM) Ensemble EFH maps, and the discussion paper on Advancing EFH Descriptions and Maps were brought forth through the 5-year review process and provide insight into species-specific core EFH areas, and stock author reviews of model outputs and analysis (agenda item D8 at the October 2022 NPFMC meeting). In October 2022, the SSC found that the 2022 fishing effects evaluation incorporated newly available information and supported the continued conclusion that adverse effects of fishing activity on EFH are minimal and temporary in nature for all species.

Table 1 BSAI and GOA Groundfish FMP amendments since 2015

BSAI amd	GOA amd	Action	Date of Council action	Year of implementation
	101	Authorize GOA sablefish longline pots	2015	2017
112	102	Observer coverage for small catcher processors	2015	2016
	103	GOA Chinook PSC reapportionment	2015	2016
113		Aleutian Islands Pacific cod harvest set-aside	2015	2016
114	104	Electronic monitoring integration	2016	2017
115	105	EFH omnibus amendments	2017	2018
116		Limit access for catcher vessels in the Trawl Limited Access Sector (TLAS) fishery	2017	2018
117	106	Reclassify squid to the non-target ecosystem component category	2017	2018
118		Authorize retention of halibut in pot gear	2018	2020
119	107	Full retention of rockfish for fixed gear catcher vessels	2019	2020
120	108	Catcher/processor mothership restrictions when taking directed Non-Community Development Quota (CDQ) Pacific cod deliveries from trawl catcher vessels	2019	2020
	109	Modify seasons and seasonal allocation of pollock and Pacific cod	2019	2021
121	110	Reclassify sculpins to the non-target ecosystem component category	2019	2022
	111	Reauthorize Central Gulf of Alaska Rockfish Program	2020	2021
122		Pacific Cod Trawl Cooperative Program	2021	
123		Halibut abundance-based management of A80 PSC Limit	2021	
124	112	Individual Fishing Quota (IFQ) Omnibus Amendments	2022	
126	114	Trawl electronic monitoring	2022	
125		Pacific cod small boat access	2022	
	113	Rockfish Program adjustments	2022	

Changes in groundfish and environmental conditions since 2015

The following is a brief summary of changes in groundfish and environmental conditions since 2015, described in Council documents.

Similar to their use in developing the 2015 SIR, the groundfish SAFE reports, ESRs, Ecosystem and Socioeconomic Profiles (ESPs), and EFH reviews all contribute data for the consideration of environmental conditions relevant to the PSEIS for groundfish from 2015-present.

The Council's annual Groundfish SAFE reports provide a detailed analysis of the status of groundfish stocks each year. No groundfish species is currently, nor has been, overfished or subject to overfishing, since the analysis that was conducted in the 2004 PSEIS.

The ESRs provide a comprehensive overview of environmental conditions in the BSAI and GOA on an annual basis. The ESRs include assessments based on ecosystem indicators that reflect status and trends of ecosystem components, which range from physical oceanography to biology and human dimensions. They often address hot topics such as temperature anomalies and the corresponding biological and ecosystem-level responses. ESRs also provide updates of current conditions of the ecosystem with information on seabirds, primary and secondary productivity, groundfish condition, groundfish community responses, and climate projections. The most recent report is available through the December 2022 Council Meeting [eAgenda](#), under item C4.

From approximately 2014 and through early 2021, the Eastern Bering Sea (EBS) entered a warm phase of unprecedented duration, with impacts seen in a variety of ecosystem indicators described in the ESR (Siddon, 2022). Sea ice extent in the western and EBS has been one standard deviation below the 2018-2022 mean, though shows an increasing trend from 2018-2022. The spatial extent of the cold pool dropped below the time series average beginning in 2014; and years 2018, 2019, and 2021 (no survey in 2020) were the lowest cold pool extents in the time series. Recruitment events, such as the sudden transition of sablefish to a high-recruitment regime while at historically low spawning stock biomass levels, may be environmentally driven (Goethel et al 2022; NMFS 2022).

In the Aleutian Islands, persistent warm conditions from surface to bottom waters have remained above the long term mean since 2013. These conditions, along with increasing pink salmon abundance, and increasing Pacific Ocean perch abundance may jointly indicate a transition of the ecosystem to a new state (Ortiz & Zador, 2022).

Marine heatwaves in the GOA were observed in 2014-2016 and 2019 and resulted in significant changes in recruitment, size shifts, and fish condition for some stocks. For example, the Pacific cod stock in the GOA has experienced poor recruitment and increased mortality during these heatwaves. The GOA marine community is still in ongoing transition from that period to one potentially characterized by cooler temperatures (Ferriss & Zador, 2022).

The Council is addressing some responses to environmental change through actions that address groundfish fishery interactions with bycatch species. These include groundfish fishery contributions to snow crab and Bristol Bay red king crab populations status, and groundfish fishery interactions with Chinook and chum salmon, as these populations are all experiencing large-scale changes in the Eastern Bering Sea.

Additional sources of information for such complex, dynamic, and often challenging questions about the impacts of climate change can be found in existing peer-reviewed journal articles, through collaborations between agencies, colleges and universities, research organizations (NGO's, etc.), and through utilization of stakeholder knowledge and local and traditional knowledge. A substantial amount of information will be available through the ongoing work of the Council and partners such as those described in section 3.1.

There are numerous peer-reviewed journal articles that have explored how climate change may impact groundfish species, their prey and predators, environmental conditions, and other aspects of the ecosystem. While the list of concerns is lengthy and not all concerns may be known at this time, some worth noting include: changing ocean physical and chemical conditions, warming trends, food web changes, fish stock changes or collapses (such as Pacific cod, crab, salmon, etc.), and potential mismatches between environmental conditions and biological needs. While this list represents a suite of complex concerns, it is important to note that this is not comprehensive. Additionally, it would be beneficial to explore whether any status changes have occurred for species of concern, similar to the exploration of the 2015 PSEIS SIR.

Additionally, climate change aspects that may warrant consideration include those that the fishery itself contributes including, but not limited to, fuel use, marine debris, and other forms of pollution.

4 Engagement Opportunities

The goal of public engagement in next or the upcoming stages of a PSEIS reevaluation would likely be to frame the types of alternatives the Council could or should consider in its reevaluation of the PSEIS, and different adjustments the Council might make to achieve its objectives. There are several avenues for stakeholder and tribal engagement in this process, described below.

4.1 “Formal” NEPA Scoping for an EIS

The Council on Environmental Quality (CEQ) regulations provide procedures that agencies must follow when preparing an EIS (40 CFR §1501.9 Scoping, up to date as of 25 Nov 2022). This includes scoping, an early and open process agencies must use to determine the scope of issues for analysis in an EIS. Scoping allows the likely affected public, governmental agencies (local, State, Tribal, and Federal), and other interested persons to provide information and advice on issues that may be associated with the proposed project. It can also lead to the identification of new alternatives. Scoping begins **after the proposal for action is sufficiently developed for agency consideration**. The Notice of Intent, which begins the scoping public comment period, must include both a preliminary description of the proposed action and alternatives the environmental impact statement will consider, and a brief summary of expected impacts. The lead agency can then decide whether and how to address the information brought forth through the scoping process. Scoping requires the publication of a notice of intent to prepare an EIS, but can also involve outreach through written communications, scoping meeting(s), statements at public meetings, and consultation with agency officials and interested individuals, organizations, and groups. Scoping can be a lengthy process, involving numerous public hearings, or brief, involving no hearings with only a brief public comment period. At a minimum, the public comment period on the scope of issues to be addressed in analysis should be 30 days (NOAA NEPA Companion Manual, Section 8).

The Council process itself provides much of the same opportunity that is afforded other Federal agencies through the NEPA scoping process. As a result, public input on the development of alternatives and the key elements of the purpose and need for the analysis is likely to be received as much during Council agenda items as during formal scoping hearings. Because the formal scoping process begins once there is a sufficiently developed proposal for action, the Council will need to specify initial parameters for the scope of the PSEIS before NMFS is able to issue a formal Notice of Intent. Some of the questions for the Council to consider are included in Section 5 of this paper.

4.2 Informal Scoping

As alluded to above, additional opportunities for engagement occur as part of the Council process. This document refers to these opportunities as “informal” scoping as they do not occur as part of the formal NEPA procedures required for an EIS. However, because of the public nature of the Council process, these opportunities can also allow for considerable public input to the Council as it begins to identify an initial framing of the proposed action, alternatives, and expected impacts. At each Council or advisory body meeting at which discussion of this issue is scheduled, there are opportunities to engage through providing written comments and during public testimony at Council or advisory body meetings.² To provide additional opportunities for engagement, the Council could consider hosting workshops, visiting remote communities to increase the accessibility of engagement opportunities, or convening the Council’s Community Engagement Committee to brainstorm or refine ideas for specific opportunities.

4.3 Tribal Engagement Opportunities

The Council’s open and public decision-making process provides multiple opportunities for Tribes or Tribal Consortia and other fishery stakeholders to engage with the Council and its advisory bodies (e.g., written and oral public comments). The Council could hold additional engagement sessions, since NEPA implementing regulations require early engagement with appropriate Tribal governments at a level on par with State and local governments and with interested private persons and organizations when their involvement is reasonably foreseeable (40 CFR §1501.2(b)(4)(ii)).

In addition, NMFS conducts Tribal Consultations and engagement sessions directly with Tribes and Tribal Consortia and their representatives, consistent with Executive Order (EO) 13175 and the NOAA Handbook on Procedures for Government-to-Government Consultation with Federally Recognized Indian Tribal Governments. EO 13175 indicates NMFS must have an accountable process to ensure meaningful and timely input by tribal officials in the development of regulatory policies with Tribal implications. Regulations have Tribal implications when they would have “substantial direct effects on one or more Indian Tribes, on the relationship between the Federal government and Indian Tribes, or on the distribution of power and responsibilities between the Federal government and Indian Tribes.”

If the Council moves forward with initiating action on the PSEIS, the Council may anticipate that NMFS would invite interested Tribes to engage in Tribal Consultations under EO 13175 and the regulations implementing NEPA. The substantive dialogue and outcomes of these Tribal Consultations would be included in the Council’s decision-making process related to the PSEIS.

As mentioned above, the Council may be interested in consulting its Community Engagement Committee to receive advice on how to prioritize engagement opportunities on this project among other Council priorities.

²Please see <https://www.npfmc.org/public-comment-policy/> for details on the NPFMC’s public comment policy.

5 Options for Next Steps and Additional Considerations

The action for the Council is to provide further clarification and guidance on the goals and scope of the PSEIS reevaluation. There are several questions that need to be answered prior to determining a specific roadmap for how to move forward. The foremost of these is to articulate what is the Council's purpose for initiating action to reevaluate the PSEIS.

Identifying the purpose to the PSEIS reevaluation

Typically, Council actions begin with a problem to be solved, or a purpose & need statement. First articulating **why (what is the purpose)** the PSEIS should be reevaluated allows the Council and staff to determine **how** this should be done.

One reason to reevaluate the 2004 PSEIS is to ensure that the action that the analysis supported, the ongoing management of the groundfish fisheries off Alaska as authorized under the Groundfish FMPs, continues to be compliant with NEPA. A supplement to an EIS is needed only if the new information is sufficient to show a proposed or continuing action will affect the quality of the human environment in a significant manner or to a significant extent not already considered. As stated in Sections 1 and 2.1, the Groundfish PSEIS was designed to anticipate the need to adapt ongoing management to a continually changing environment. The purpose of the PSEIS structure and the example FMP "bookends" was to characterize a dynamic range of likely future management measures in that environment. Additionally, all subsequent changes to the groundfish management program have been analyzed with project-specific NEPA documents. When conditions and information are significantly different in degree or in kind from the impacts considered in the existing PSEIS, the Council and the Agency must prepare a supplement to the PSEIS. However, the Council and NMFS may choose to supplement the 2004 PSEIS at any time for a variety of reasons. The Council's October 2022 motion indicates Council interest in moving forward with reevaluating the PSEIS at this time, regardless of first assessing whether a new NEPA document is required to ensure ongoing NEPA compliance of the groundfish fisheries, which in the past has been accomplished through a SIR. As a result, it does not appear that NEPA compliance is the primary reason that the Council is interested in reevaluating the PSEIS, and the Council clearly signaled that this effort will be led proactively by the Council rather reacting to direction from the agency.

During the triennial review of the groundfish management policy in February 2022, the Council indicated that it continues to approve the substance of the management policy and objectives as written, although noting that some of the language is dated. In the October 2022 discussion, the Council acknowledged that the North Pacific is undergoing rapid ecosystem level changes that requires a deeper understanding of potential impacts to the fishery. In speaking to the motion, the Council noted its intent to set the stage for developing a contemporary vision for the groundfish fisheries in the North Pacific that is proactive, incorporates adaptive processes of ecosystem-based fishery management, and is reflective of current conditions.

In order to frame an appropriate scope for the PSEIS reevaluation, it would be helpful for the Council to articulate its purpose and need for revisiting this analysis. Staff have provided some seed questions to stimulate discussion. Council consideration of these questions, and their variations, will be helpful to allow the Council to frame its purpose for the analysis, and how alternatives might be developed to respond to that purpose and need.

- As in 2004, is a purpose to provide a comprehensive analysis of the cumulative impact of the groundfish fisheries given specific management changes that have occurred since the last review in 2004? Are we trying to reestablish the environmental baseline for assessment of the impacts of the fisheries, given how conditions have changed? This might renew our ability to 'tier' off the PSEIS for ongoing management actions.

- Is the intent rather to focus specifically on achieving a better understanding of the impact of changing climate conditions and what they mean for managing the groundfish fisheries, and affirm whether the current management is durable in changing conditions or whether there is a cumulative effect or unintended consequences of the fisheries that is being missed as a result of the increased rate of change? For example, such a climate-focused analysis could provide a more robust impact reference document for ongoing management actions.
- Is the Council intending primarily to evaluate whether its current understanding of the impacts of the fisheries continues to be accurate, or does the Council already anticipate, through this document, an intent to shift its management policy, for example to develop a more adaptive program?
- Even without a prior intent to substantially shift policy, does the Council view this as an opportunity to refresh dated management policy objectives, or remove objectives that are no longer relevant? If so, is the Council ready to articulate any of these specifically?
- In addition to a programmatic view, are there specific areas of the management program that the Council identifies as a priority for policy adjustment, and which might be a focus of this evaluation? These might include the robustness of the groundfish harvest control rules, groundfish interactions with other ecosystem resources through bycatch of other target fishery resources or prey species, or habitat disturbance, or equitable access to resources given changing distributions and environmental impacts.

What is the appropriate scope and analytical vehicle for implementing the Council's purpose

Once the Council has honed in on its purpose for the action, the next step will be to consider how best to achieve that purpose. The Council is not bound by the structure of the 2004 Groundfish PSEIS in its reevaluation of the groundfish fisheries. In 2004, the analysis considered a range of management policies from more to less conservative, with each management policy supported by example FMP bookends to express the range of possible implementation of the policy. The Council does not need to follow the same format unless it finds it useful to do so. Instead, the Council may be driven by a particular management priority to focus the range of alternatives in other ways. It is difficult to speculate what may be most appropriate without understanding the Council's purpose.

As well, we have so far been referring to this action as a reevaluation of the 2004 Groundfish PSEIS, and in fact, a new programmatic supplement to the groundfish FMP EISs may be the eventual document that is developed. Based on the Council's yet-to-be identified purpose, however, there may be other ways to frame this analysis. For example, if the Council's primary interest is to develop an in-depth climate assessment and determine whether the Council's management policy is robust to changing environmental conditions, the Council should consider whether it makes sense to focus the action exclusively on the groundfish fisheries and their interactions with the environment, or expand the scope more broadly to look at the Council's management philosophy more generally with respect to climate. In the latter instance, the Council might develop a climate-sensitive management policy that applies across all FMP fisheries and management of halibut allocations, and then amend individual FMPs to implement that management policy broadly. A cumulative, cross-FMP assessment may be more in keeping with the principles of ecosystem-based management; however, the document would need to be carefully structured in order to keep clear what action is being supported.

Expectations with respect to timeline

Assuming that the Council continues to proceed with the development of some kind of programmatic EIS, it will be necessary to develop a sufficient scope of the purpose and potential alternatives so that NMFS can issue a Notice of Intent to begin the formal NEPA scoping process. As described above, however, stakeholder, tribal, and public input may be provided through the Council process beginning at this meeting and any future meetings where this issue is discussed. Additionally, the formal agency

procedure will provide stakeholders with information to have a better understanding on how and when they can provide further input.

As described in Section 3.1, there are also several ongoing Council initiatives with various timelines that might help inform the development of a new PSEIS. Several initiatives deal directly with the impacts of climate change and specifically implications for harvest control rules and other fishery management concerns (national and NPFMC SSC workshops in early 2023, Bering Sea FEP Climate Change Taskforce report and next steps in the first half of 2023, SSC/Plan Team workgroup beginning harvest control rule considerations in 2023, ACLIM and GOA CLIM projects with uncertain timeframes for results). The BS FEP LKTKS Taskforce draft protocol is due to be presented in April 2023, which may provide insight both on engagement onramps as well as how to bring other ways of knowing into a PSEIS analysis. The ongoing Section 7 reconsultation for the groundfish FMPs, results of which will likely not be available before 2024, should provide useful information for a PSEIS impacts analysis with respect to protected species.

Under any scenario, however, it is important to note that any programmatic EIS process is lengthy and will take multiple years to complete. For reference, the 2004 PSEIS was not adopted until five years after the Notice of Intent was issued, which was also several years after the Council first began incorporating agenda item discussions that fed into the ultimate purpose and need and structure of the alternatives. While there were extenuating circumstances for the 2004 PSEIS in that it was also a product of litigation, the Council should not expect this to be a “quick” action process.

6 References

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7 Acronyms

Acronym	Meaning	Acronym	Meaning
A80	Amendment 80	LOA	Length Overall
ABC	Allowable Biological Catch	MPA	Marine Protected Area
ACLIM	Alaska Climate Integrated Modeling	NEPA	National Environmental Policy Act
AFA	American Fisheries Act	NFS	Northern Fur Seal
AFSC	Alaska Fisheries Science Center	NMFS	National Marine Fisheries Service
BSAI	Bering Sea and Aleutian Islands	NOAA	National Oceanographic and Atmospheric Administration
CCTF	Climate Change Task Force	NOI	Notice of Intent
CDQ	Community Development Quota	NPFMC	North Pacific Fishery Management Council
CEQ	Council on Environmental Quality	NPGOP	North Pacific Groundfish Observer Program
EA	Environmental Assessment	NPRB	North Pacific Research Board
EBS	Eastern Bering Sea	OFL	Overfishing Limit
EEZ	Exclusive Economic Zone	OY	Optimum Yield
EFH	Essential Fish Habitat	PA	Preferred Alternative
EIS	Environmental Impact Statement	PSC	Prohibited Species Catch
ESA	Endangered Species Act	PSEIS	Programmatic Supplemental Environmental Impact Statement
ESP	Ecological and Socioeconomic Profile	ROD	Record of Decision
FMP	Fishery Management Plan	SAFE	Stock Assessment and Fishery Evaluation
GOA	Gulf of Alaska	SEIS	Supplemental Environmental Impact Statement
HAPC	Habitat Areas of Particular Concern	SIR	Supplemental Information Report
IFQ	Individual Fishing Quota	SSC	Scientific and Statistical Committee
IPCC	Intergovernmental Panel on Climate Change	SSL	Steller Sea Lion
IPHC	International Pacific Halibut Commission	TAC	Total Allowable Catch
IRIU	Improved Retention/Improved Utilization	TLAS	Trawl Limited Access Sector
LKTKS	Local Knowledge, Traditional Knowledge, and Subsistence	VMS	Vessel Monitoring System
LLP	License Limitation Program		

Appendix 1 Council October 2022 Motion to Reevaluate the PSEIS

North Pacific Fishery Management Council Motion E Staff Tasking - PSEIS October 11, 2022

The Council initiates a discussion paper for a roadmap and timeline for reevaluating the Programmatic Groundfish SEIS, in order to better address the impacts of climate change on our marine ecosystems and on the people who are dependent on those ecosystems. The discussion paper should include the following:

- Outline of the information relevant to understanding the impacts of groundfish fisheries that will be necessary for revising the PSEIS, such as a compilation of new assessments of the impacts of climate change.
- Assessment of how existing Council initiatives as well as other related efforts such as the ACLIM project will inform Council reevaluation of the PSEIS (e.g. Climate Change Taskforce work, SSC workshops)
- Primer on the 2004 PSEIS, its structure and alternatives; a summary of the findings from periodic reviews of the PSEIS; and guidelines for what would be required in a new evaluation
- Discussion of available and new opportunities to ensure robust tribal and stakeholder engagement in Council consideration of alternatives for a revised PSEIS
- A timeline for how to framework ongoing initiatives, staff work, and public input opportunities

Appendix 2 BSAI and GOA Groundfish Management Policy, Goals, and Objectives

The Council’s policy is to apply judicious and responsible fisheries management practices, based on sound scientific research and analysis, proactively rather than reactively, to ensure the sustainability of fishery resources and associated ecosystems for the benefit of the future, as well as current generations.

The productivity of the North Pacific ecosystem is acknowledged to be among the highest in the world. For the past 25 years, the Council management approach has incorporated forward-looking conservation measures that address different levels of uncertainty. This management approach has in recent years been labeled the precautionary approach. Recognizing that potential changes in productivity may be caused by fluctuations in natural oceanographic conditions, fisheries, and other, non-fishing activities, the Council intends to continue to take appropriate measures to ensure the continued sustainability of the managed species. It will carry out this objective by considering reasonable, adaptive management measures, as described in the Magnuson-Stevens Act and in conformance with the National Standards, the Endangered Species Act, the National Environmental Policy Act, and other applicable law. This management approach takes into account the National Academy of Science’s recommendations on Sustainable Fisheries Policy.

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

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

Goals & Objectives of BSAI and GOA Fishery Management Plans, as adopted through the 2004 PSEIS

Goal Statement	Objectives
Prevent Overfishing	1. Adopt conservative harvest levels for multi-species and single species fisheries and specify optimum yield.
	2. Continue to use the optimum yield caps for the BSAI and GOA groundfish fisheries.
	3. Provide for adaptive management by continuing to specify optimum yield as a range.
	4. Provide for periodic reviews of the adequacy of F40 and adopt improvements, as appropriate.
	5. Continue to improve the management of species through species categories.
Promote Sustainable Fisheries and Communities	6. Promote conservation while providing for optimum yield in terms of the greatest overall benefit to the nation with particular reference to food production, and sustainable opportunities for recreational, subsistence, and commercial fishing participants and fishing communities.
	7. Promote management measures that, while meeting conservation objectives, are also designed to avoid significant disruption of existing social and economic structures
	8. Promote fair and equitable allocation of identified available resources in a manner such that no particular sector, group or entity acquires an excessive share of the privileges.
	9. Promote increased safety at sea.

Goal Statement	Objectives
Preserve Food Web	<ul style="list-style-type: none"> 10. Develop indices of ecosystem health as targets for management. 11. Improve the procedure to adjust acceptable biological catch levels as necessary to account for uncertainty and ecosystem factors. 12. Continue to protect the integrity of the food web through limits on harvest of forage species. 13. Incorporate ecosystem-based considerations into fishery management decisions, as appropriate.
Manage Incidental Catch and Reduce Bycatch and Waste	<ul style="list-style-type: none"> 14. Continue and improve current incidental catch and bycatch management program. 15. Develop incentive programs for bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, vessel bycatch allowances, or other bycatch incentive systems. 16. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits, as information becomes available. 17. Continue program to reduce discards by developing management measures that encourage the use of gear and fishing techniques that reduce bycatch which includes economic discards. 18. Continue to manage incidental catch and bycatch through seasonal distribution of total allowable catch and geographical gear restrictions. 19. Continue to account for bycatch mortality in total allowable catch accounting and improve the accuracy of mortality assessments for target, prohibited species catch, and noncommercial species. 20. Control the bycatch of prohibited species through prohibited species catch limits or other appropriate measures. 21. Reduce waste to biologically and socially acceptable levels.
Reduce and Avoid Impacts to Seabirds and Marine Mammals	<ul style="list-style-type: none"> 22. Continue to cooperate with U.S. Fish and Wildlife Service (USFWS) to protect ESA-listed species, and if appropriate and practicable, other seabird species. 23. Maintain or adjust current protection measures as appropriate to avoid jeopardy of extinction or adverse modification to critical habitat for ESA-listed Steller sea lions. 24. Encourage programs to review status of endangered or threatened marine mammal stocks and fishing interactions and develop fishery management measures as appropriate. 25. Continue to cooperate with NMFS and USFWS to protect ESA-listed marine mammal species, and if appropriate and practicable, other marine mammal species.
Reduce and Avoid Impacts to Habitat	<ul style="list-style-type: none"> 26. Review and evaluate efficacy of existing habitat protection measures for managed species. 27. Identify and designate essential fish habitat and habitat areas of particular concern pursuant to Magnuson-Stevens Act rules, and mitigate fishery impacts as necessary and practicable to continue the sustainability of managed species. 28. Develop a Marine Protected Area policy in coordination with national and state policies. 29. Encourage development of a research program to identify regional baseline habitat information and mapping, subject to funding and staff availability. 30. Develop goals, objectives and criteria to evaluate the efficacy and suitable design of marine protected areas and no-take marine reserves as tools to maintain abundance, diversity, and productivity. Implement marine protected areas if and where appropriate.
Promote Equitable and Efficient Use of Fishery Resources	<ul style="list-style-type: none"> 31. Provide economic and community stability to harvesting and processing sectors through fair allocation of fishery resources. 32. Maintain the license limitation program, modified as necessary, and further decrease excess fishing capacity and overcapitalization by eliminating latent licenses and extending programs such as community or rights-based management to some or all groundfish fisheries. 33. Provide for adaptive management by periodically evaluating the effectiveness of rationalization programs and the allocation of access rights based on performance. 34. Develop management measures that, when practicable, consider the efficient use of fishery resources taking into account the interest of harvesters, processors, and communities.

Goal Statement	Objectives
<p>Increase Alaska Native & Community Consultation</p>	<p>35. Continue to incorporate local and traditional knowledge in fishery management.</p> <p>36. Consider ways to enhance collection of local and traditional knowledge from communities, and incorporate such knowledge in fishery management where appropriate.</p> <p>37. Increase Alaska Native participation and consultation in fishery management.</p>
<p>Improve Data Quality, Monitoring and Enforcement</p>	<p>38. Increase the utility of groundfish fishery observer data for the conservation and management of living marine resources.</p> <p>39. Develop funding mechanisms that achieve equitable costs to the industry for implementation of the North Pacific Groundfish Observer Program.</p> <p>40. Improve community and regional economic impact costs and benefits through increased data reporting requirements.</p> <p>41. Increase the quality of monitoring and enforcement data through improved technology.</p> <p>42. Encourage a coordinated, long-term ecosystem monitoring program to collect baseline information and compile existing information from a variety of ongoing research initiatives, subject to funding and staff availability.</p> <p>43. Cooperate with research institutions such as the North Pacific Research Board in identifying research needs to address pressing fishery issues.</p> <p>44. Promote enhanced enforceability.</p> <p>45. Continue to cooperate and coordinate management and enforcement programs with the Alaska Board of Fish, Alaska Department of Fish and Game, and Alaska Fish and Wildlife Protection, the U.S. Coast Guard, NMFS Enforcement, International Pacific Halibut Commission, Federal agencies, and other organizations to meet conservation requirements; promote economically healthy and sustainable fisheries and fishing communities; and maximize efficiencies in management and enforcement programs through continued consultation, coordination, and cooperation.</p>

Appendix 3 2015 SIR assessment of management and status changes, and new information

This section contains the summary of findings from the 2015 SIR in tables for target groundfish species; ecosystem components; marine mammals and seabirds; habitat, socioeconomics, and ecosystem.

Table 1: Target Groundfish Species

Pollock, Pacific cod, Sablefish, Atka mackerel	
Management changes	No changes were made to the harvest control rules for the stocks but some other management changes were made that affected the timing and/or distribution of the fisheries including Chinook PSC limits for pollock fisheries, cod sector allocations, and Steller sea lion harvest restrictions.
Status changes	Stocks were found to be within the range of variability.
New information on impacts	There were changes in observer coverage requirements resulting from the salmon bycatch measures in the Bering Sea and observer restructuring. Added acoustic survey years provided additional information.
New methods to assess impacts	Methods are being developed to explore the implications of incorporating stock-specific uncertainty buffers to establish ABCs.
Flatfish	
Management changes	Implementation of A80 in the BSAI significantly changed the timing and utilization of flatfish fisheries.
Status changes	Stocks were found to be within the range of variability with the exception of BSAI flathead sole which had a larger biomass than previously estimated. The Greenland turbot stock assessment was revised in 2012.
New information on impacts	Trawl sweep modifications in the BS and GOA reduced the fishery impact on the seafloor and unobserved mortality of shellfish. Observer restructuring resulted in new observer information, particularly on small boats in the GOA.
New methods to assess impacts	Some stocks changed to being assessed in a higher tier, resulting in differences in the way the productivity of the stock and risk are incorporated into the ABC calculation.
Rockfish	
Management changes	Implementation of A80 in the BSAI and rockfish programs in Central GOA have extended the timing of some rockfish fisheries.
Status changes	Stocks were found to be within the range of variability with the exception of BSAI Pacific ocean perch for which the estimated biomass had doubled since 2004.

New information on impacts	New information on the spatial structure for some rockfish species was found. The use of pelagic trawl gear in the GOA rockfish fishery was found to have increased, reducing the impacts of the fishery on habitat. Bycatch estimates decreased for the majority of species in the Central GOA following the implementation of the rockfish program.
New methods to assess impacts	Some stocks changed to being assessed in a higher tier, resulting in differences in the way the status relative to stock size reference points was determined. A template was developed for evaluating the types of information that should be considered when defining the spatial bounds of stocks and was applied to many rockfish species.

Squid, octopus, sharks, sculpins, and skates

Management changes	These species were separated into target species assemblages, rather than their previous “other species” group.
Status changes	The status was determined to remain unknown for most of the stocks within the complexes. Where more was known, no significant changes were found in the estimates since 2004.
New information on impacts	Species-level identification within the complexes and recording of other biological information was found to have improved. For octopi, discard mortality information suggested that the impacts of the fishery on the resource had been overestimated. Observer restructuring resulted in improved coverage of fisheries that encounter some of these species.
New methods to assess impacts	Assessments were developed for some species with the complex. Development of ecosystem models allowed for greater exploration of how various ecosystem impacts may affect stocks and their predators.

Table 2: Ecosystem Component

Pacific Halibut

Management changes	PSC limits for halibut in the GOA groundfish fisheries were reduced over the 2014 to 2016 period. PSC limits for halibut in the BSAI longline and trawl groundfish fisheries were planned to be reduced with approval and implementation of the BSAI FMP Amendment 111 in 2016. A limited access program for the charter fishery and a catch sharing plan between the commercial and guided recreational harvesters was implemented in southeast and southcentral Alaska in 2014.
Status changes	The status was found to be within the range of historic assessments and near the long-term average abundance for the stock but had shown declines from the historic high levels in the late 1990s.

Pacific Halibut

New information on impacts	Impacts of groundfish fisheries on the halibut resource were believed to decrease since 2004 due to reductions in estimated halibut mortality in the groundfish trawl fisheries, particularly in the BSAI A80 fleet.
New methods to assess impacts	The IPHC conducted additional analyses of the impacts of trawl bycatch mortality on lost yield and spawning biomass for the halibut stock. The information was included in the NEPA analysis accompanying GOA FMP Amendment 95 and the accompanying BSAI Amendment 111. Starting in 2013, observers were deployed in small boat groundfish and halibut fisheries to assess halibut mortality and discards.

Pacific Salmon or Steelhead Trout

Management changes	Council and NMFS implemented new Chinook salmon PSC limits in the Bering Sea and GOA and requirements for incentive plan agreements to reduce Chinook and Chum salmon encounters for Bering Sea pollock fishery participants.
Status changes	Various Alaska Chinook salmon stocks were found to have declined since 2004. Annual run size of Chum salmon indicator species was found to have varied significantly since 2004 but was generally trending towards 2004 levels as of the 2015 review.
New information on impacts	Genetic stock composition analyses became available for the bycatch of Bering Sea Chinook and Chum salmon, and GOA Chinook salmon. More robust sampling protocols were implemented.
New methods to assess impacts	The impacts of Bering Sea Chinook and Chum salmon bycatch relative to escapement and maturity were completed and reported in the Chinook EIS and EA for Chinook and Chum salmon PSC limit measures.

BSAI King Crab

Management changes	Management was essentially unchanged, however the implementation of BSAI A80 changed the fishing patterns and partitioned the red king crab PSC limit among fishery cooperatives. A trawl sweep modification requirement was implemented in the Bering Sea flatfish fishery in 2011 and research has shown that this reduced unobserved mortality of crab. New overfishing definitions and total catch accounting was implemented for the BSAI crab stocks in 2008 and annual catch limits were set since 2011.
Status changes	The abundance of king crabs has varied annually, but the status of the stocks relative to the status determination criteria were found not to have changed.
New information on impacts	Implementation of A80 reduced the rate of bycatch per target catch metric ton. The Council evaluated the historical bycatch of crab stocks by groundfish fisheries.
New methods to	Improvements were made to stock assessment models and crab bycatch was

Pacific Halibut

assess impacts	accounted for in the estimate of total catch used in stock assessment models.
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BSAI Snow Crab

Management changes	Management was essentially unchanged, however the implementation of A80 reduced the rate of snow crab bycatch per target catch metric ton.
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Status changes	The 2015 PSEIS SIR found that since 2004, the snow crab stock had been declared rebuilt based on the new assessment model.
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New information on impacts	A trawl sweep modification requirement was implemented in the Bering Sea flatfish fishery in 2011 and research has shown that this reduced unobserved mortality of crab.
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New methods to assess impacts	Improvements were made to stock assessment models and crab bycatch was accounted for in the estimate of total catch used in stock assessment models.
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BSAI Tanner Crab

Management changes	Management was essentially unchanged, however the implementation of A80 reduced the rate of Tanner crab bycatch per target catch metric ton.
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Status changes	The effective status remained unchanged, however the stock was found to no longer be overfished. It was determined that it remained at relatively low abundance compared to historic levels.
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New information on impacts	A trawl sweep modification requirement was implemented in the Bering Sea flatfish fishery in 2011 and research has shown that this reduced unobserved mortality of crab.
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New methods to assess impacts	Improvements were made to stock assessment models and crab bycatch was accounted for in the estimate of total catch used in stock assessment models
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GOA Crab

Management changes	Management was essentially unchanged, however the Council closed Marmot Bay to protect Tanner crab.
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Status changes	GOA red king crab was found to have remained at historically low levels and the Tanner crab stock continued to show high variability in recruitment. Little was known about golden or blue king crab. Prevailing conditions identified in the 2004 PSEIS that were determined to likely drive these trends were found to remain unchanged.
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New information on impacts	Council analyzed impacts of the GOA groundfish fisheries on Tanner crab in two NEPA analyses, instituted a trawl-gear closure and a trawl sweep modification requirement in the GOA flatfish fishery and research has shown that this reduced unobserved mortality of crab. Changes to observer coverage requirements were aimed at providing more information on the groundfish
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Pacific Halibut

	fishery interactions with crab in the future.
New methods to assess impacts	There were no changes to the state assessment methodology and no regulatory changes to the harvest strategy or management structure.

Pacific Herring

Management changes	Management of Pacific herring under the groundfish FMPs had not changed since 2004.
Status changes	Reduced funding for herring surveys and difficulties of surveying the region resulted in very little being known about the status of Bering Sea herring populations other than the Togiak stock. Climate change and regime shifts were expected to have direct effects on herring habitat, mortality, and prey, but the magnitude of these effects unknown.
New information on impacts	Impacts of groundfish fisheries on the herring resource were determined to be similar to what was analyzed in 2014. Most herring bycatch was found to be associated with the Bering Sea pollock fishery.
New methods to assess impacts	No new methods were developed for evaluating the impacts of the groundfish fishery on herring.

Forage Fish

Management changes	There were no changes, however forage fish were listed as part of the ecosystem component in the FMP.
Status changes	There was little information found to be available on the status of forage fishes and no reliable estimates of forage fish abundance.
New information on impacts	It was determined that more information be provided on a biennial basis as an appendix to the SAFE reports, including information on the state-waters removals and species vulnerability in the Pacific Northwest.
New methods to assess impacts	No new methods were developed for evaluating the impacts of the groundfish fishery on forage fish.

Grenadiers

Management changes	Unofficial assessment reports were prepared for grenadiers since 2006 and the FMPs were amended in 2014 to include grenadiers as an ecosystem component prompting increased data collection on grenadier catch in the groundfish fisheries.
Status changes	The status of non-specified species was unknown in the 2004 PSEIS. As of the 2015 report, assessment reports tracking indices of abundance indicated the population trends were stable.

Pacific Halibut

New information on impacts	A disproportionate catch of females in surveys and the fishery was noted however, all data was determined to indicate that catch of grenadier had not affected the stock status. The impacts of groundfish fisheries were found to have decreased in years prior to 2015 since grenadiers are primarily caught in the sablefish longline fishery and ABCs and TACs for sablefish had decreased.
New methods to assess impacts	Tracking of catch, biomass, fishery and survey length frequencies, and indices of abundance started being tracked in assessment reports with the 2015 review.

Table 3: Marine Mammals and Seabirds

Stellar Sea Lions

Management changes	Closures and restrictions on Atka mackerel, Pacific cod, and pollock fisheries in the Aleutian Islands resulted from the 2014 Biological Opinion (NMFS 2014a) and 2014 SSL EIS (NMFS 2014b)
Status changes	As of the 2015 review, abundance of SSLs had increased and regional population trends changed. New information became available regarding dietary habits, abundance, foraging behavior, contaminants, and vital rates. The eastern distinct population segment of SSL was delisted.
New information on impacts	2014 Biological Opinion and 2014 EIS update included changes in the impacts of groundfish fisheries on SSLs, especially in the AI.
New methods to assess impacts	No new methodologies but recent analyses using conventional methods were undertaken.

Northern Fur Seals

Management changes	There were no management changes.
Status changes	Significant declines on both Pribilof Islands were noted in the 15 years preceding the 2015 review, at just under 5% annually; partially offset by an increase in abundance on Bogoslof Island where the population of pups exceeded that of St. George Island.
New information on impacts	It was unknown if the fisheries were affecting NFS but published research indicated similar habitat and prey use by both consumers.
New methods to assess impacts	No new methodologies but recent analyses using conventional methods were undertaken.

Harbor Seals

Management changes	No changes.
Status changes	Three previously recognized stocks of harbor seals were subdivided into 12 stocks. Harbor seals in Lake Iliamna were petitioned for listing under the ESA. Harbor seals in the Aleutian Islands declined substantially since the early 1980s, especially in the western Aleutians following a similar geographic pattern as SSLs.
New information on impacts	Splitting into 12 stocks led to individual stocks with lower abundance and the potential for groundfish fisheries to have significant impacts on individual stocks, but there was no new information.
New methods to assess impacts	No new methods.

Ice-associated Seals

Management changes	No changes.
Status changes	In response to a petition for listing all four species under the ESA, NMFS listed ringed and bearded seals as threatened. NMFS was also considering critical habitat designations.
New information on impacts	The ESA status reviews identified food habit studies indicating that various species of groundfish are important to ribbon and bearded seals in some areas/seasons/years.
New methods to assess impacts	No new methods.

Northern Elephant Seals

Management changes	No changes.
Status changes	The California breeding population appeared to be continuing to increase.
New information on impacts	As of the 2015 review, unchanged since 2004 with no recent reports of takes in Alaska fisheries.
New methods to assess impacts	No new methods.

Pacific Walrus

Management changes	There were no adverse changes. New protection areas at Round Island and Cape Pierce were implemented to minimize levels of disturbance from Federal vessels.
Status changes	Walrus remains a candidate species for listing under the ESA. Uncertainty about the population estimates is high.
New information on impacts	As of the 2015 review, unchanged since 2004. Estimated take of walrus in the Alaskan fisheries is considered insignificant.
New methods to assess impacts	No new methods.

Whales: Killer whale, other toothed whales, Baleen whales

Management changes	No changes.
Status changes	<p>Killer whales: new information on transient killer whale counts was available. Resident stock continued to increase with the exception of a few pods.</p> <p>Toothed whales: Cook Inlet beluga continued to decline and were listed under the ESA in 2008 (73 FR 62919) with critical habitat designated through much of Cook Inlet. Bristol Bay beluga population continued to increase, as of the 2015 review. No other new information was available as of the 2015 review.</p> <p>Baleen whales: North Pacific Right whales were relisted under the ESA and critical habitat was designated. Western Arctic Bowhead population was found to be increasing (as of the 2015 review). A large-scale study of humpback whales was being evaluated. The eastern North Pacific Gray whale status remained constant however, the western North Pacific population, thought to be extinct, reemerged. No new information was found at the time of the 2015 review for other baleen whales.</p>
New information on impacts	More specific information was available on which target fisheries were impacting particular killer whale stocks. As of the 2015 review, one observed mortality of a harbor porpoise and one injury of a sperm whale occurred due to groundfish fishery interactions. The estimate of fisheries-related mortality to humpback whales was found to be insignificant. No other serious injuries or mortalities were reported for other toothed or baleen whales, although information is lacking for beluga and western gray whales.
New methods to assess impacts	No new methods.

Sea Otters

Management changes	The southwest distinct population segment of the northern sea otter was listed as threatened under the ESA in 2005. Critical habitat was designated in nearshore marine waters.
Status changes	Despite the listing of sea otters under the ESA, population abundance and trends generally have shown no notable change since the early 2000s (as of the 2015 review).
New information on impacts	A 2006 ESA consultation concluded that groundfish fisheries are not likely to adversely affect sea otters. The consultation was initiated with the same conclusion in 2013 (NMFS 2013).
New methods to assess impacts	No new methods.

Seabirds

Management changes	Measures to manage seabird interactions with the fisheries were unchanged. The 2013 implementation of the restructured observer program aims to provide better evaluation of total fishery impacts in the future.
Status changes	The status of various seabird species groups remained unchanged.
New information on impacts	Impacts reduced in the demersal longline fisheries. Bycatch from trawl vessels were higher than reported with estimates under evaluation but less than the reduced impact in the longline fisheries. The impact from vessels under 60ft LOA were being evaluated with observer data beginning in 2013.
New methods to assess impacts	Annual estimates of seabird bycatch from observer species composition was generated through the Catch Accounting System for longline vessels and estimates were being developed for similar procedure trawl vessels.

Table 4: Habitat, Socioeconomics, Ecosystem

Habitat	
Management changes	Substantial changes to management included implementation of regulations to protect habitat that provides structural relief, and gear modifications to limit adverse impacts of trawling on the seafloor.
Status changes	The status of habitat was the same as in the 2004 PSEIS as long-lived, slow growing species have likely not recovered from the impacts of historical fishing, and impacts continue in areas that are open to bottom trawling. In 2012, NMFS received a petition to list 44 species of cold water corals off Alaska as threatened or endangered in response to changing environmental conditions, the presence of commercial fisheries, and other factors. Based on the scientific information available, NMFS determined that such a designation was not warranted. NMFS analyzed whether threats are impeding the survival and recovery of coral species and warrant their protection under the ESA, including ocean warming, ocean acidification, commercial fishing, and oil spills (78 FR 10601, February 14, 2013). Coral species in Alaska are non-reef building and are less susceptible to the effects of ocean acidification as other organisms, and scientists noted that fishing closures in certain areas in the BSAI and GOA provide substantial protection for corals and cold water coral habitat.
New information on impacts	There was additional research on the habitat requirements of different species, on trawl gear modifications to reduce habitat effects, and some limited research on the recovery of habitat in the eastern GOA that was damaged with trawl gear. There was improved resolution of data on the distribution of fishing effort due to broader implementation of VMS. There was also additional information on the distribution of habitat types and features, through better technology and habitat mapping.
New methods to assess impacts	The EFH EIS (NMFS 2005) used a different methodology than the PSEIS to assess the effects of fishing on habitat from the perspective of managed species that are dependent on habitat features. The 2005 EFH EIS fishing effects methodology was also being updated for the 2015 EFH 5-year review, which was under development during the 2015 review.
Socioeconomics	
Management changes	The PSEIS referred to several fisheries that had since been rationalized, and there were also management changes resulting from Chinook salmon bycatch avoidance and Steller sea lion protection measures.
Status changes	The PSEIS projected many then-recent trends in species biomass, and the impacts of climate change, which have since changed (as of the 2015 review).

Habitat

New information on impacts	Information was available on impacts in fisheries that had rationalized since the PSEIS, or been subject to other management changes (e.g., salmon or SSL closures). There were some impacts that the PSEIS did not address, but which had become issues of concern for the public and the Council, for example, the impacts of rationalization on crew members.
New methods to assess impacts	A new economic impact model was developed as part of the analysis of Steller sea lion closures, and several papers were authored on the impacts of rationalization programs.

Ecosystem

Management changes	Management changes to protect ecosystem components were referenced in the sections above. The Council adopted an ecosystem vision statement as a Council policy, and established guidelines for including ecosystem considerations in stock assessment reports and analytical documents.
Status changes	While there had been short-term changes in some ecosystem indicators, there was no evidence that these variations were outside short- or medium-term (3 to 5 year) range of natural variability, as measured over the last 30 years (preceding 2015).
New information on impacts	There were substantial new world-wide research on energy flow within ecosystems; however, this information did not suggest that impacts of the groundfish fisheries on Alaska ecosystems had significantly changed.
New methods to assess impacts	Significant improvements were made in monitoring critical aspects of the ecosystem, through the development of annual Ecosystem Assessments and Report Cards, and management strategy evaluations on different ecosystem aspects. Ecosystems research at the AFSC was being developed as an Integrated Ecosystem Assessment program to provide a formal method for evaluating climate impacts on Alaska's large marine ecosystems.

Appendix 4 Groundfish Programmatic Workplan (December 2022)

The table below provides a two-meeting (previous and current) snapshot of the Programmatic Workplan, listing only Council actions relate to the Groundfish FMPs and indicating their correspondence to Programmatic Management Objectives. Those Management Objectives were intended to support decision-making under the Groundfish FMPs. Although the Policy’s EBFM approach is reflected in actions outside of the Groundfish FMPs, these other actions are not included in the table. The tabular presentation of the Programmatic Workplan below as well as prior versions of the table are available on the Council eAgendas: (<https://meetings.npfmc.org/>).

Goal	Management Objective	Council actions	
		October 2022	December 2022
1. Prevent Overfishing <i>Maintain Sustainable Harvest</i>	1. Adopt conservative harvest levels for multi-species and single species fisheries and specify optimum yield.	<ul style="list-style-type: none"> • Groundfish proposed specifications • Stock prioritization review and considerations 	<ul style="list-style-type: none"> • Groundfish final specifications
	2. Continue to use the optimum yield caps for the BSAI and GOA groundfish fisheries.		
	3. Provide for adaptive management by continuing to specify optimum yield as a range.		
	4. Provide for periodic reviews of the adequacy of F40 and adopt improvements, as appropriate.		
	5. Continue to improve the management of species through species categories.		
2. Promote Sustainable Fisheries and Communities	6. Promote conservation while providing for optimum yield in terms of the greatest overall benefit to the nation with particular reference to food production, and sustainable opportunities for recreational, subsistence, and commercial fishing participants and fishing communities.	<p>These considerations are applied in all Council management recommendations.</p> <p>See specific actions also under Goals 1,7 and 8.</p> <ul style="list-style-type: none"> • USCG Reports • NIOSH Report 	
	7. Promote management measures that, while meeting conservation objectives, are also designed to avoid significant disruption of existing social and economic structures		
	8. Promote fair and equitable allocation of identified available resources in a manner such that no particular sector, group or entity acquires an excessive share of the privileges.		
	9. Promote increased safety at sea.		
3. Preserve Food Web <i>Ecosystem-based Fishery Management</i>	10. Develop indices of ecosystem health as targets for management.	<ul style="list-style-type: none"> • Ecosystem Status Report preview • IPCC update • BS FEP Climate Resiliency Synthesis 	<ul style="list-style-type: none"> • Ecosystem Status Reports • ESPs and risk tables in groundfish specifications
	11. Improve the procedure to adjust acceptable biological catch levels as necessary to account for uncertainty and ecosystem factors.		
	12. Continue to protect the integrity of the food web through limits on harvest of forage species.		
	13. Incorporate ecosystem-based considerations into fishery management decisions, as appropriate.		
4. Manage Incidental Catch and Reduce Bycatch and Waste	14. Continue and improve current incidental catch and bycatch management program.	<ul style="list-style-type: none"> • Trawl EM final action • BBRKC Information paper • Greenland turbot in longline pots initial review 	<ul style="list-style-type: none"> • RKCSA emergency rule analysis • Crab conservation workplan • Salmon bycatch chum paper, committee report
	15. Develop incentive programs for bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, vessel bycatch allowances, or other bycatch incentive systems.		
	16. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits, as information becomes available.		
	17. Continue program to reduce discards by developing management measures that encourage the use of gear and fishing techniques that reduce bycatch which includes economic discards.		
	18. Continue to manage incidental catch and bycatch through seasonal distribution of total allowable catch and geographical gear restrictions.		

Goal	Management Objective	Council actions	
		October 2022	December 2022
	<p>19. Continue to account for bycatch mortality in total allowable catch accounting and improve the accuracy of mortality assessments for target, prohibited species catch, and noncommercial species.</p> <p>20. Control the bycatch of prohibited species through prohibited species catch limits or other appropriate measures.</p> <p>21. Reduce waste to biologically and socially acceptable levels.</p>		
5. Reduce and Avoid Impacts to Seabirds and Marine Mammals	<p>22. Continue to cooperate with U.S. Fish and Wildlife Service (USFWS) to protect ESA-listed species, and if appropriate and practicable, other seabird species.</p> <p>23. Maintain or adjust current protection measures as appropriate to avoid jeopardy of extinction or adverse modification to critical habitat for ESA-listed Steller sea lions.</p> <p>24. Encourage programs to review status of endangered or threatened marine mammal stocks and fishing interactions and develop fishery management measures as appropriate.</p> <p>25. Continue to cooperate with NMFS and USFWS to protect ESA-listed marine mammal species, and if appropriate and practicable, other marine mammal species.</p>	<ul style="list-style-type: none"> Greenland turbot in longline pots initial review 	<ul style="list-style-type: none"> NMFS reinitiation of biological opinions for the groundfish FMPs
6. Reduce and Avoid Impacts to Habitat	<p>26. Review and evaluate efficacy of existing habitat protection measures for managed species.</p> <p>27. Identify and designate essential fish habitat and habitat areas of particular concern pursuant to Magnuson-Stevens Act rules, and mitigate fishery impacts as necessary and practicable to continue the sustainability of managed species.</p> <p>28. Develop a Marine Protected Area policy in coordination with national and state policies.</p> <p>29. Encourage development of a research program to identify regional baseline habitat information and mapping, subject to funding and staff availability.</p> <p>30. Develop goals, objectives and criteria to evaluate the efficacy and suitable design of marine protected areas and no-take marine reserves as tools to maintain abundance, diversity, and productivity. Implement marine protected areas if and where appropriate.</p>	<ul style="list-style-type: none"> Review of preliminary EFH 5-year review components 	
7. Promote Equitable and Efficient Use of Fishery Resources	<p>31. Provide economic and community stability to harvesting and processing sectors through fair allocation of fishery resources.</p> <p>32. Maintain the license limitation program, modified as necessary, and further decrease excess fishing capacity and overcapitalization by eliminating latent licenses and extending programs such as community or rights-based management to some or all groundfish fisheries.</p> <p>33. Provide for adaptive management by periodically evaluating the effectiveness of rationalization programs and the allocation of access rights based on performance.</p> <p>34. Develop management measures that, when practicable, consider the efficient use of fishery resources taking into account the interest of harvesters, processors, and communities.</p>	<ul style="list-style-type: none"> Greenland turbot in longline pots analysis BSAI Pcod small boat analysis Amendment 80 program and allocation review workplan 	<ul style="list-style-type: none"> RKCSA emergency rule analysis Chum salmon discussion paper
8. Increase Alaska Native & Community Consultation	<p>35. Continue to incorporate local and traditional knowledge in fishery management.</p> <p>36. Consider ways to enhance collection of local and traditional knowledge from communities, and incorporate such knowledge in fishery management where appropriate.</p> <p>37. Increase Alaska Native participation and consultation in fishery management.</p>	<ul style="list-style-type: none"> Remote accessibility options 	<ul style="list-style-type: none"> Ecosystem Status Reports

Goal	Management Objective	Council actions	
		October 2022	December 2022
9. Improve Data Quality, Monitoring and Enforcement	38. Increase the utility of groundfish fishery observer data for the conservation and management of living marine resources.	<ul style="list-style-type: none"> • Trawl EM final action • Observer cost efficiency discussions (PCFMAC report) • Universal data collection paper • EDR adjustments report 	<ul style="list-style-type: none"> • NMFS inseason management reports • Final Observer Annual Deployment Plan
	39. Develop funding mechanisms that achieve equitable costs to the industry for implementation of the North Pacific Groundfish Observer Program.		
	40. Improve community and regional economic impact costs and benefits through increased data reporting requirements.		
	41. Increase the quality of monitoring and enforcement data through improved technology.		
	42. Encourage a coordinated, long-term ecosystem monitoring program to collect baseline information and compile existing information from a variety of ongoing research initiatives, subject to funding and staff availability.	<ul style="list-style-type: none"> • (Ongoing) research priorities • Letters of support for national initiatives 	
	43. Cooperate with research institutions such as the North Pacific Research Board in identifying research needs to address pressing fishery issues.		
44. Promote enhanced enforceability.	<ul style="list-style-type: none"> • Enforcement precepts (ongoing) 		
45. Continue to cooperate and coordinate management and enforcement programs with the Alaska Board of Fish, Alaska Department of Fish and Game, and Alaska Fish and Wildlife Protection, the U.S. Coast Guard, NMFS Enforcement, International Pacific Halibut Commission, Federal agencies, and other organizations to meet conservation requirements; promote economically healthy and sustainable fisheries and fishing communities; and maximize efficiencies in management and enforcement programs through continued consultation, coordination, and cooperation.	<ul style="list-style-type: none"> • Agency reports 		