PACIFIC FISHERY MANAGEMENT COUNCIL'S
INFLATION REDUCTION ACT PROPOSALS

Below are the Pacific Fishery Management Council's (Council) final Inflation Reduction Act proposals as submitted to the National Marine Fisheries Service in Spring 2024. The expected timeframes associated with each project have shifted since the proposals were submitted; updated project timelines are included in Attachments 2 and 3 under this agenda item.

Innovating the Implementation of Council Actions to Respond to a Dynamic Ocean Environment

Funding Priority: Operationalizing recommendations from climate scenario planning efforts

Objective(s): *State concisely the objective(s) of the proposal, as measurable outcomes where possible. Objective(s) should be clearly described in enough detail to understand what the proposal aims to accomplish.*

This component of our application is broad-based, with the objective of identifying innovations to make review and implementation of management actions more timely, efficient, and responsive to a changing ocean environment. This proposal builds off a priority initiative from the Council's Fishery Ecosystem Plan.

Under this IRA-supported initiative, we aim to identify how Council decision-making can be coupled with NMFS review and regulatory processes to better respond to rapidly changing environmental conditions. Climate change will likely affect the availability and distribution of target, non-target, protected, and unmanaged species in Council-managed fisheries. Shifts in availability and distribution could happen on relatively short time scales, requiring faster management responses. This effort responds to a dominant theme emerging from the Council's Fishery Ecosystem Plan Climate and Communities Initiative (CCI) scenario planning exercise and addresses the corresponding goal to develop and implement strategies for improving the flexibility and responsiveness to near-term climate shift and long-term climate change.

The outcome of this proposal is the development of a streamlined decision-making framework and related implementation process for at least one Council regulatory or fishery management plan amendment proposal. This action would be situated within a framework of continuous

process improvement as applied across a range of proposed actions. Climate change raises issues of stock abundance, stock shifts, greater variability, and new types of uncertainty, each of which raises a certain need for enhanced adaptability. Such adaptation may be triggered by the movement of stocks across different management/political boundaries, necessitating cooperation with adjacent Fishery Management Councils.

Brief Summary of Activities: *Provide a description of tasks or work activities to be completed to achieve the objective(s) and a projected timeline. Proposals should demonstrate a clear link between tasks and deliverables or measurable outcomes. A proposal subdivided into two or more activities must identify each separately.*

Climate variability and change will necessitate a patchwork of traditional, adaptive, and dynamic approaches to adjust to changing species distributions and changing socio-economic conditions. Dynamic ocean management is one concept for innovatively addressing bycatch mitigation. However, a regulatory approach aligned with dynamic ocean management tools (e.g. rapidly changing time-area closures) would be difficult if not impossible to implement under current procedures. In this regard, the existing regulatory process presents challenges to rapid, adaptive management including the application of dynamic ocean management tools. Similar process constraints can also apply to other actions, such as issuance of EFPs (50 CFR 600.745), which can be used to explore climate-ready fishery adaptations.

To begin this effort, Council, NOAA General Counsel, and NMFS staff (along with a contractor to help provide sufficient support for this project) would collaborate on a white paper detailing Council decision making and related Federal regulatory processes necessary to implement Council proposals. The white paper would identify typical choke points that can lengthen these processes. Following preparation of the white paper, the Council may elect to form an ad hoc working group or committee composed of a wider array of experts and stakeholders that would explore existing and potential methods for speeding up the Council process and coupled implementation mechanisms. This may include those applied in other regions/ecosystems and it may include those that are more theoretical. In both instances past Council-initiated regulatory actions and hypothetical, but plausible, management challenges would be used to understand in a practical way constraints and opportunities.

The Council would then apply the lessons learned and reported out by the ad hoc committee to an in-progress management action. This would extend the committee's case study approach to a specific management action or actions the Council will initiate prior to 2026. This will entail close collaboration between the same staff members tapped to prepare the initial white paper described above. Staff will document tools and methods supporting streamlined approaches with the aim of applying them to the implementation of other Council actions. This will be carried out within a framework to further improve streamlining tools and methods.

Project timeline:

Activity	Expected Timeframe
Preparation of White Paper	April – October 2024
Working group/ad hoc committee formed and tasked with developing recommendations	November 2024 – September 2025

Finalize and report out committee recommendations	September – November 2025
Apply committee recommendations to a Council a Council action and related implementation process within a continuous improvement framework	November 2025 – November 2026

Considering the effects of Council managementactions on human well-being in vulnerable fishing communities impacted by a changing marine ecosystem

Funding Priority: Operationalizing recommendations from climate scenario planning efforts; developing and implementing management changes or processes that address climate vulnerability or improve climate resiliency of fisheries (e.g., potential revisions to harvest control rules to account for changes in ecosystems related to climate change), including those that are important to underserved communities.

Objective(s): *State concisely the objective(s) of the proposal, as measurable outcomes where possible. Objective(s) should be clearly described in enough detail to understand what the proposal aims to accomplish.*

This component of our application addresses a goal the Council's Fishery Ecosystem Plan Climate and Communities Initiative, which involved a broad-based scenario planning exercise to consider tools, products, and processes necessary to react to potential future ecosystem states resulting from climate variability and climate change. Part of this initiative goal is to "develop strategies for increasing the resiliency of our managed stocks and fisheries" in the face of near-term climate shifts and long-term climate change. The Council has prioritized developing specific measures to address this goal through its Fishery Ecosystem Plan process.[1]

The objective of this portion of our IRA-funded work is to develop tools and a decision framework to allow the Council to more explicitly consider how specific management proposals affect vulnerable West Coast fishing communities.

The characterization of fishing communities has often been a component of analyses supporting Council decision making in the past. This reflects the importance of considering impacts to fishing communities highlighted in Magnuson-Stevens Act National Standard 8 (16 U.S.C. 1851(8)). For example, to comprehensively consider the effects of stock rebuilding as part of setting harvest specifications for the 2007-2008 biennial period, the characteristics of fishing communities and groundfish fisheries they depend on were compiled to characterize community vulnerability and resilience in relation to the proposed action. Researchers at the NMFS Northwest Fisheries Science Center subsequently developed and regularly update indicators of West Coast fishing community vulnerability based on demographic and fishery information.[2] A selection of these data is presented in the California Current Ecosystem Status Report presented to the Council annually.

---

[1] This proposal also supports Goal 3 in the Fishery Ecosystem Plan: Implement fisheries management that ensures continued ecosystem services for the well-being of West Coast communities and the nation.

[2] https://www.fisheries.noaa.gov/west-coast/socioeconomics/community-social-vulnerability-indicators-california-current

This Report also presents a variety of other indicators to characterize West Coast fisheries and fishing communities.[3]

With IRA funding, we aim to leverage these efforts to use them more comprehensively and better integrate the information into Council decision processes.

Brief Summary of Activities: *Provide a description of tasks or work activities to be completed to achieve the objective(s) and a projected timeline. Proposals should demonstrate a clear link between tasks and deliverables or measurable outcomes. A proposal subdivided into two or more activities must identify each separately.*

The work under this part of our application component has three parts. First, Council staff will work with NMFS social scientists, the PSMFC, and contractors to build a dashboard. This dashboard would integrate economic, demographic, and fisheries data at the fishing community level in an online platform. This would initially involve an assessment of the current state of knowledge about available indices of fishing community well-being, vulnerability and resilience to changes in availability of fishery resources. To start, existing data products hosted by PSMFC and/or developed by NOAA Fisheries – such as the Fisheries Economics Explorer, the Social Indicators for Coastal Communities, and the Pacific Fishery Effort Model (PacFEM) – would be assessed with an eye to building on these platforms. Based on that research, we plan to build an online dashboard to integrate relevant economic, demographic, and fishery related data. We plan to work with the PSMFC Pacific Fishery Information System (PacFIN), which houses West Coast fishery landings and logbook data.

Second, potentially as part of this platform, we will develop tools that make it easier to assess how particular kinds of fishery-specific management actions affect these fishing communities. To do this we will determine which fishing communities are most closely tied to which fisheries, and whether and how those communities are affected by particular classes of fishery management actions.

Third, Council staff will develop procedures to foreground this information and related analyses in Council decision making. This would involve consulting Council advisory bodies to identify those Council decision processes that may discernibly impact community resilience. Advisory body members are also likely to be consumers of these products and tools to support analyses they present to the Council.

Implementing the initiative will include: (i) review and adoption of a set of attributes to use for understanding vulnerability and assessing human well-being in and resilience of fishing communities, and a baseline assessment of resilience for specific communities; (ii) development of conceptual models for how Council actions have affected or may affect these attributes, aligned with current or possible future Council actions under consideration; (iii) identification of current or potential future management processes, and analysis of their impacts on community resilience

[3] See, for example, section 5 (and related appendices) in the 2022-2023 California Current Ecosystem Status Report, https://www.pcouncil.org/documents/2023/02/h-1-a-cciea-team-report-1-electronic-only-2022-2023-california-current-ecosystem-status-report-and-appendices.pdf/.

under climate change;[4] (iv) determination of actions that could be taken to bolster community resilience, with a clear delineation between those that are either within or beyond the Council's authorities. The outputs from (iii) and (iv) could be used alongside other, conventional outputs to inform Council processes.

Once the tools and procedures are developed and implemented, they will be applied to at least one Council action during the grant period.

Project timeline:

Activity	**Expected Timeframe**
Survey available data products relevant to fishing community vulnerability and resilience	April – July 2024
Build fishing community dashboard	August 2024 – June 2025
Identify and categorize fishery management actions and linkages to specific fishing communities	July 2025 – January 2026
Develop and implement Council processes to foreground the impact of management actions on the management action under consideration	February 2026 – June 2026
Apply tools and procedures to one or more Council actions	June 2026 – November 2026

[4] The climate scenarios developed for the Climate and Communities Initiative could be a starting point for this analysis.

Developing climate-ready fishing methods that mitigate bycatch of non-target, associated species in a changing ecosystem

Funding Priority: Developing and implementing management changes or processes that address climate vulnerability or improve climate resiliency of fisheries (e.g., potential revisions to harvest control rules to account for changes in ecosystems related to climate change), including those that are important to underserved communities.

Objective(s): *State concisely the objective(s) of the proposal, as measurable outcomes where possible. Objective(s) should be clearly described in enough detail to understand what the proposal aims to accomplish.*

Under this component of our application, we will explore ways to mitigate bycatch – especially protected species such as marine mammals, sea turtles, and seabirds – through the development of climate-ready fishing methods.[5]. These bycatch species present management challenges in several Council-managed fisheries related to statutory protections beyond those in the Magnuson-Stevens Act.[6] These challenges will only increase in a changing marine ecosystem.

5. Brief Summary of Activities: *Provide a description of tasks or work activities to be completed to achieve the objective(s) and a projected timeline. Proposals should demonstrate a clear link between tasks and deliverables or measurable outcomes. A proposal subdivided into two or more activities must identify each separately.*

Council efforts to reduce bycatch of associated species have featured prominently in the fisheries it manages. For example, the Council endeavored to implement measures to cap marine mammal and sea turtle bycatch in the California large mesh drift gillnet fishery but abandoned this effort upon enactment of the Driftnet Modernization and Bycatch Act, which prohibits use of the gear after a five-year phase out period. However, the Council has promoted alternative low bycatch methods, such as deep-set buoy gear and other hook-and-line techniques, through solicitation and review of EFP proposals. (The Council also developed a regulatory framework to authorize deep-set buoy gear under its Highly Migratory Species [HMS] Fishery Management Plan [FMP]).

---

[5] These fishing methods should also help to meet critical domestic nutritional needs and support jobs, the economy, and the competitiveness of the U.S. seafood sector NOAA's National Seafood Strategy.

[6] MSA National Standard 9 requires Councils to consider the bycatch effects of existing and planned conservation and management measures (50 CFR 600.350(b)) and the definition of "fish" in MSA covers "… all … forms of marine animal and plant life other than marine mammals and birds" (§3(12)). However, guidelines state "Other applicable laws, such as the MMPA, the ESA, and the Migratory Bird Treaty Act, require that Councils consider the impact of conservation and management measures on living marine resources other than fish; i.e., marine mammals and birds" (50 CFR 600.350(e)). For the discussion here the term "bycatch" is used in this broader context.

The Pacific whiting fishery operates under limits on Chinook salmon bycatch pursuant to ESA Section 7 consultations. The Council has been closely involved in the consultation process and the resulting implementation of mitigation measures. The Council developed requirements for groundfish bottom longline vessels to deploy bird scaring devices ("streamer lines") in response to a Section 7 consultation for short-tailed albatross. Most recently the Council has begun participating in the MMPA take reduction process to address large whale entanglements in groundfish fixed gear (bottom longline and pots) buoy lines. The Council is also developing requirements to mark such gear so that entanglements can be more easily attributed to specific fisheries, aiding mitigation efforts. These examples reflect the commitment of the Council to implement actions across its FMPs that reduce non-target and protected species bycatch.

Mitigating non-target and protected species bycatch can be difficult both because these species are usually relatively less abundant and highly mobile. This can make it difficult to predict where and when bycatch will occur. As climate change is expected to result in more extensive changes in the distribution and occurrence of marine species, including non-target and protected species, bycatch mitigation will likely be more challenging if traditional management interventions, such as static time/area closures become less effective.

Dynamic ocean management, "management that changes in space and time in response to the shifting nature of the ocean and its users based on the integration of new biological, oceanographic, social, or economic data," could offer methods to respond to climate change driven changes in species distributions.[7] Three examples from the West Coast are offered. EcoCast, developed by scientists at the NOAA Southwest Fisheries Science Center, produces a daily map product predicting where large mesh driftnet fishing effort can be directed to optimize the catch of target species (swordfish) while minimizing non-target and associated species bycatch (blue sharks, leatherback sea turtles, sea lions). Sea State, Inc. is a private, third-party catch monitoring firm used by several fishery cooperatives in West Coast and Alaska groundfish fisheries. It collates and analyzes observer data to provide reports to fishery participants on a real-time basis about target and incidental catch to identify areas member vessels must avoid. WhaleWatch 2.0 uses movement data from blue whales to predict their habitat for use in ship-strike risk avoidance primarily, but also to inform the risk assessment and mitigation program (RAMP) for Dungeness crab. These three examples demonstrate that dynamic ocean management tools are in use on the west coast and may offer promise as part of the bycatch mitigation tool kit. One key aspect of these tools as they relate to climate change concerns predictive capacity and the use of a forward-looking approach that anticipates the probability of bycatch events.

The first component of this part of our application is the development of the Council's HMS Roadmap, a framework to explore alternative, climate resilient methods for targeting HMS along the U.S. West Coast. Planning for the road map contemplates two factors that are critical to bycatch reduction in the face of climate change. One factor concerns the deployment and use of

[7] Rebecca Lewison, Alistair J. Hobday, Sara Maxwell, Elliott Hazen, Jason R. Hartog, Daniel C. Dunn, Dana Briscoe, Sabrina Fossette, Catherine E. O'Keefe, Michele Barnes, Melanie Abecassis, Steven Bograd, N. David Bethoney, Helen Bailey, David Wiley, Samantha Andrews, Lucie Hazen, Larry B. Crowder, Dynamic Ocean Management: Identifying the Critical Ingredients of Dynamic Approaches to Ocean Resource Management, *BioScience*, Volume 65, Issue 5, May 2015, Pages 486–498, https://doi.org/10.1093/biosci/biv018.

gears or other fishing methods which are less prone to bycatch events within the context of the California Current Ecosystem. This approach would utilize the EFP process to test methods that are not currently authorized. As indicated above, a major constraint to expansion of HMS fisheries, especially targeting the abundant North Pacific swordfish stock, has been the Council's reluctance to permit the use of the principal gear type, pelagic longline, due to bycatch concerns. The second aspect of this application is the use of forward-looking tools that anticipate bycatch probabilities based on changing conditions. These conditions may involve oceanographic conditions, changes in predator-prey dynamics, or other factors influenced by climate change. By coupling an exploration of innovative fishing methods with climate-informed forecasting, the Council will be in a position to develop techniques which anticipate bycatch events in a future altered by climate change, and to develop fishing methods which contemplate this future view. To further this effort the Council has been planning a workshop that would bring together members of its HMS advisory bodies, other experts, and stakeholders to brainstorm how this program could work and a pathway to authorizing successful methods. Such a program could also support transition of current participants in the California large-mesh drift gillnet fishery to climate-ready, low bycatch methods. Pursuant to the Driftnet Modernization and Bycatch Reduction Act this gear type will be prohibited no later than December 2027.[8]

The second component is support for a workshop to brainstorm dynamic ocean management (DOM) methods as part of a broad-based bycatch mitigation program. This would naturally complement the focus of the first workshop outlined above (and the use of EFPs could be a way to test DOM deployment). But this workshop would aim for a broader scope to explore how DOM tools could be used beyond the other contexts described above. As discussed elsewhere in our application, one challenge in using DOM tools is developing both a Council process and associated implementation framework that would allow responses on the relatively short timeframes that these tools operate at. A workshop could also explore matching specific DOM tools and implementation frameworks.

These workshops will employ a facilitator to assist with design and execution. *Design thinking* could be an effective approach to conducting these workshops. This approach is human-centered and employs various techniques for ideation leading to innovation. Design thinking is especially appropriate in addressing *wicked problems*.[9]

These workshops would be results oriented so that outcomes lead directly to management actions to mitigate non-target and protected species bycatch. As noted, an objective of the HMS Roadmap is development of a framework to develop alternative, low bycatch HMS fishing techniques resulting in better adaptability to climate change. DOM tools could be employed as part of bycatch

[8] The Act directs NMFS to implement a transition program to phase out use of the gear and compensate fishery participants for the cost of fishery-related permits, gear forfeiture, and purchase of alternative gear with minimal incidental catch of living marine resources. Congress directed NMFS to consult with the Pacific Fishery Management Council (Council) on a strategy for such a transition program.

[9] "As distinguished from problems in the natural sciences, which are documentable and separable and may have solutions that are findable, the problems of governmental planning – and especially those of social or policy planning – are ill-defined; and they rely upon elusive political judgment for resolution." Rittel, H.W.J., Webber, M.M. Dilemmas in a general theory of planning. *Policy Sci* 4, 155–169 (1973). https://doi.org/10.1007/BF01405730.

mitigation proposed actions, recognizing that this is an issue that crops up across the range of Council-managed fisheries.

Project timeline:

Activity	Expected Timeframe
Plan HMS Roadmap and DOM tools workshops	April 2024 – November 2024
Conduct HMS Roadmap workshop	June 2024
Conduct DOM tools workshop	February 2025
Finalize and implement HMS EFP framework based on workshop outcomes	September - November 2024
Identify one or more applications for DOM tools among Council bycatch mitigation actions	March – September 2025
Initiate Council bycatch mitigation action involving the use of DOM tools	November 2025 – September 2026