



North Pacific Fishery Management Council

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SCIENTIFIC AND STATISTICAL COMMITTEE FINAL REPORT TO THE NORTH PACIFIC FISHERY MANAGEMENT COUNCIL April 5th – 8th, 2021

EXCERPT – EMPHASIS ADDED FOR RELEVANCE TO BS FEP TEAM, MAY 2021

D-7 Research Priorities

Jim Armstrong (NPFMC) and Dana Hanselman (SSC member, NOAA-AFSC) led the discussion on reviewing and updating the NPFMC research priorities for 2022 – 2024. Public testimony was provided by Megan Williams (Ocean Conservancy) and both public testimony and written testimony were received from Lauren Divine (Ecosystem Conservation Office, Aleut Community of St. Paul Island) and Julie Raymond-Yakoubian (Kawerak Inc.). Public testimony provided support for the importance of Council research priorities and ensuring the process was transparent and formalized. Additionally, there was testimony on the need for documentation of the process with clear on-ramps for stakeholders to submit and/or comment on research priorities.

First and foremost, the SSC would like to express appreciation for the work done by the PTs and NPFMC staff to review the database and to develop their priority lists. The input provided by the PTs is critical to the research priorities process.

In 2011, the SSC and Council established procedures for conducting “multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes” in accordance with the Magnuson-Stevens Act. At that time, the NPFMC determined that research priorities were to be reviewed annually at the Council’s June meeting. Prior to Council review, the Council’s PTs (GOA and BSAI Groundfish, Crab, and Scallop) would review existing research priorities and make recommendations for modifications or additions to the list, as needed. From 2011 to 2018, the Council updated research priorities annually at their June meeting. In 2018, a new process for review of the research priorities was executed. This change stemmed from a proposal from a working group of SSC and Council members that was reviewed by the SSC in April 2018. In this proposal, the annual curation of the database would be conducted as normal, with consideration given to the PTs suggested changes. The proposal also indicated that the Council would include a paragraph indicating that continuation of *Critical Ongoing Monitoring* projects should continue as the highest priority. In addition, the subgroup requested that the SSC develop a top ten list of research priorities for 2018 from the priorities identified as Urgent or Important. This top priority list would be developed from a combination of sources. First, the PTs would identify three to five top priorities relevant to their particular team that would be candidates for the top priority list. Second, the SSC would additionally consider any priorities not reviewed by any PT, including those relevant to halibut, marine mammals, seabirds, and social science topics. The intent of this top priority list was to both reduce the review burden on the Council and to improve communication of these highly relevant priorities to external funding sources and the general public. In February 2019, the Council moved review of research priorities from an annual to triennial schedule. This change recognized that the MSA does not require annual review and reflected the Council’s desire to streamline the overall review process.

The Council’s research priorities consist of a wide range of science-based needs and interests that support

or improve the Council's ability to provide stewardship over marine resources offshore Alaska and help provide for the sustained participation of fishing communities. Specific research topics are organized online through a publicly accessible database that can be queried for changes in research status. It can also be downloaded in its entirety for ease of access to detailed information about all of the Council's research needs. Research topics are ranked through four priority categories: *Critical ongoing monitoring*, *Urgent*, *Important (near term)*, and *Strategic (long-term future needs)*. These priority categories have specific definitions that emphasize correspondence of research to the Council's time horizon of management concerns.

Under the revised triennial schedule, the SSC and Council were tasked to review proposed research and develop a "top ten" list of research priorities that highlight relevance to Council needs. The SSC was also tasked with completing a thorough vetting of *Critical Ongoing Monitoring* needs and longer-term *Strategic* research needs.

In February 2020, the SSC held a workshop to discuss research priorities. This workshop specifically focused on *Critical Ongoing Monitoring* and *Strategic* research. While a thorough vetting of *Critical Ongoing Monitoring* research priorities was completed at this meeting, there was not time to review all *Strategic* priorities and review of these priorities was postponed and will be completed at the June 2021 meeting. After the February 2020 workshop, it became clear that the existing collection of research topics contained in the database ranged widely in the level of detail and specificity, and a subcommittee was formed to address potential streamlining of the process.

The SSC subcommittee provided a number of recommendations during this April 2021 meeting in a draft document to improve the research priorities review process. **This draft document will continue to be refined with new input from this meeting and will be reviewed and finalized at the June 2021 meeting.** The initial recommendations of the subgroup and SSC responses follow.

Critical Ongoing Monitoring research

Research priorities designated as *Critical Ongoing Monitoring* are of the highest priority level for the NPFMC. These monitoring activities create and maintain indispensable data that substantially contribute to the understanding and management of fish populations, fisheries, and the communities dependent upon those fisheries. Discontinuation or diminishment of the research that provides these datasets would leave a significant gap in the science needed to support sustainable and successful fisheries management in the North Pacific. The NPFMC and the SSC continue to provide the utmost support for these priorities.

Going forward, the **SSC recommends not highlighting and reviewing individual *Critical Ongoing Monitoring* research unless there is a proposal to move a research priority into this category or to remove research from this category.** The SSC views these priorities as the most important science products produced by the various agencies and partners for scientific management of fisheries. The SSC expects these research needs to persist indefinitely. **The SSC requests an opportunity to comment if any of these activities were to be discontinued.** An inclusive narrative of the scope of this category will be included in the June report.

Top 10 Research priorities

A primary purpose of the NPFMC research priorities is identifying to agencies and funding partners which projects are considered to be most needed to inform the NPFMC management process. The SSC believes an effective way to highlight future research priorities is to produce a "top 10" list. Since the PTs and SSC have already reviewed all of the projects in the database, the subcommittee recommended that the SSC should focus on what has been previously identified as *Urgent* (2-3 year time frame). This list should consist of research identified by the PTs and SSC as *Urgent*, but has yet to become *underway*. The SSC agreed that this approach was a good idea, but in practice many of the projects in this category appeared to be out-dated

or too narrow in focus for the top ten. **The SSC recommended that, at a minimum, projects in the “partially underway” category also be considered as these may represent projects that got started (e.g., a pilot project) but are in need of further funding to fully execute. The SSC recommends that the starting point of the top 10 should be the previous top 10 list and the SSC should evaluate whether they are still the most relevant or should be replaced by either new projects proposed by the PTs or other existing research priorities.**

SSPT research priorities

Thus far, the SSPT has not been recommending new research priorities separately. The SSC discussed the role of the SSPT and whether they should also be one of the proposing and vetting bodies that contribute to the process. The SSPT originally did not wish to be part of the research priorities process as they wished to focus on identifying data gaps and developing their mission and vision. **However, as the SSPT matures and data gaps are identified, the SSC recommends that the SSPT review and forward research priorities related to socioeconomic and human dimensions research for the next triennial review.**

FEP research priorities

The Bering Sea Fishery Ecosystem Plan (FEP) has its own list of research priorities and the SSC will review and categorize them, add them to the database, and consider them for the Top 10 list. The SSC reviewed the current list of FEP priorities and noted that they were long-term, strategic priorities. **The SSC recommends that the currently identified FEP priorities be added to the database as *Strategic*.**

Strategic research

The SSC subcommittee did not address the process for reviewing *Strategic* research. It was discussed that *Strategic* research, since it is longer term, would rarely appear on the top ten list, and needs less frequent review. **The SSC recommends that a high-level narrative that captures the priorities contained in this category be developed for the June 2021 document similar to that developed for *Critical Ongoing Monitoring*.**

New research priorities

The SSC reviewed five proposed new research priorities, of which two were identified as *Urgent* by the GPTs, two were recommended as *Important*, and one was listed as Pending. The SSC supported the PTs’ recommendations, and also flagged #712 regarding biological collections and the expansion of electronic monitoring (EM) as having potential for the top 10 list. Project #651 (thermally marked chinook otoliths) remained in pending status as the SSC did not feel they had enough information to make a recommendation for changing the status.

Development of the 2022-2024 Top 10 list

The SSC subcommittee process for the development of the list was relatively unstructured in a deliberate attempt to conduct the selection with the participation of the full SSC. The subcommittee had recommended that a top 10 list be developed that included only *Urgent* priorities that had a “No action” status. After considering this list and much discussion, the SSC reverted to using the previous top 10 list as a starting point, and suggested additions, revisions and omissions. Although the SSC has challenges keeping the list at or near 10 priorities, the SSC recognizes that keeping the list constrained is important. **The SSC also suggests that an “year-added” field be added to the top 10 list so that it is known how long a priority has remained on the list if there is rollover from year to year.**

The SSC recommended a new top 10 for the next 3 year cycle (Table 1). Four priorities from the last

cycle were retained that were still listed in the CPT and GPTs top priorities (148, 163, 189, and 592). The SSC omitted two priorities from the list (179 and 182) because they appear to be already well underway in current Council processes (e.g., periodic reviews of programs and halibut ABM) and are now fairly dated. Priority 491 was also omitted as halibut ABM appears to be nearing final action and other research on halibut actions can be subsumed by Priority 431. Priority 365 was also merged into Project 431. The SSC retained the only priority that related to protected resources (246), which was supported in public comment. Four new projects were added to the top 10 list. One was a new project proposed by the SSC which is to initiate an integrated Norton Sound red king crab project that is to combine communities, management, and assessment dimensions, informed by LKTKS and Climate Change taskforce input. The need for this research has frequently been discussed at SSC meetings, both among SSC members and with the public. A new project proposed by the PTs (712) was also recommended for the top 10 as an *Urgent* priority by the SSC. This priority is to examine further the impacts of the loss of biological data on assessment and management from the expansion of EM. Two human dimensions projects were added to the top 10 that emphasize and expand the collection of socio-economic data (611) and better develop the framework for economic data collection and use (178). Priority 611 is the only priority on the top 10 that is also in the *Critical Ongoing Monitoring* category. The SSC does not feel that this priority is actually underway and recommends highlighting as one of the top 10. For further rationale on the top 10 priorities, see Table 1.

Process

The move to a triennial review has relieved some of the burden of research priority review, but while progress was made by reducing frequency, the SSC has been unable to streamline and improve the process as much as hoped. While the SSC noted the progress at this meeting, members also noted that the complete list of research priorities changes relatively little from year to year. It would be useful to identify some of the oldest priorities to determine if they are still relevant, and it would be helpful to solicit new priorities from stakeholders, SSC minutes, or other sources beyond the PTs. The SSC believes that the process is important (and required) and that with continued development, it can continue to provide tactical and strategic science vision for the North Pacific. **The SSC reviewed a preliminary proposal from the subcommittee on how the process could be improved for the next cycle and recommended this be detailed in the June SSC report.**

Additional recommendations

- **Council staff provide the SSC with a broad 3-year outlook of emerging management issues to help the SSC assess the relevance of research projects.**
- **Improve the priority database by including a “project added date” field and a point of contact for both the Council/SSC and other researchers to find out about progress of a priority.**
- **Council staff consider which non-Plan Team on-ramps could be used or developed to include research ideas for topics from other stakeholders (e.g., marine mammals, seabirds, salmon, communities).**
- **Council staff continue to work on the info-graphic presented at this meeting to show a simplified process and where there are on-ramps for the public.**
- **While the PTs and the SSC could request to add or modify a research project at any time, the SSC recommends the PTs not be requested to review priorities annually but instead synchronize efforts with the SSC triennial schedule.**

Table 1. Top 10 recommended research priorities for 2022-2024.

ID	Title	Rationale for Elevation to Top Ten	SSC Priority
148	Spatial distribution and movement of crabs relative to life history events and fishing	Environmental conditions are changing rapidly in the eastern Bering Sea, driving related changes in the distribution of commercial crab stocks. Fishing behavior and life history timing (e.g., reproduction, growth) may subsequently be influenced by changes in crab distribution. The CPT discussed collection of data on distribution and movement relative to oceanographic conditions as critical for the development of the complex models needed to predict future stock abundance, stock boundaries, stock production, and management strategies.	Urgent
163	Conduct routine fish, crab, and oceanographic surveys in the Arctic Ocean	Although fishing is currently prohibited in Alaska’s Arctic waters, the region is changing rapidly and fish or crab populations may expand into or increase locally in the Arctic. Therefore, it is important to conduct routine surveys to monitor changes in Arctic waters.	Important
178	Develop a framework and collect economic information	Addresses the need for a framework for collection of economic information on commercial, recreational, and charter fishing, as well as fish processing, to meet the requirements of the MSFCMA sections 303(a)(5, 9, 13), 303(b)(6), and 303A.	Urgent
189	Develop stock-specific ecosystem indicators and incorporate into stock assessments	To support an ecosystem approach to management in the context of single- (or multi-) species assessments, there is a continued need to develop indicators that link ecosystem variability and changes to variability in growth, survival and recruitment of fish stocks as illustrated by the recent dramatic downturn in Pacific cod. This provides an important avenue for linking ecosystem changes directly to management-relevant reference points such as OFL and ABC.	Urgent

246	Cooperative research efforts to supplement existing at-sea surveys that provide seasonal, species-specific information on upper trophic levels	The pelagic distributions and abundances of top predators (seabirds and marine mammals) provide indicators of the availability of prey, many of which are commercially important species such as pollock or Pacific cod. Thus, knowledge of seabird and marine mammal distributions and abundances can be useful as indicators of ecosystem "health". Also, in some instances, these top predators are inadvertently impacted by fisheries. Thus, knowledge of their distributions can be important for fisheries where impacts may occur.	Important
431	Develop tools for analyzing coastal community vulnerability to fisheries management changes	Predictive accuracy of pre-implementation economic and social impact assessments of proposed fishery management changes (e.g., halibut ABM) would be improved through better understanding of how various dimensions of community vulnerability and resilience can be effectively analyzed and, ultimately, how identified and measured vulnerabilities are likely to interact with the nature, direction, and magnitude of proposed changes to the fishery. An example is the application of genetic tools for tracing the linkages between federal commercial fisheries PSC catch of Chinook salmon and impacts on the use of the salmon resource by communities in western coastal Alaska.	Important
592	Maturity estimates for Bering Sea and Aleutian Island crab stocks	The availability of maturity data from male and female crab is insufficient for use in stock assessment models. Key parameters defining size at maturity, proportion mature at size, and the potential for biennial reproductive cycles are currently uncertain for many stocks. Methods for determining spatial and temporal variability of these quantities are needed to adequately characterize mature biomass.	Urgent
611	Collection of socio-economic information	Collect socio-economic information on commercial, recreational, and charter fishing, as well as fish processing, to meet the requirements of the MSFCMA sections 303(a)(5, 9, 13), 303(b)(6), and 303A.	Critical Ongoing Monitoring

712	Gap Analyses on loss of biological samples due to implementation of EM	Research to determine the effects of loss of biological data collections due to the introduction of Electronic Monitoring (EM). As the use of EM increases in different fisheries, fewer at-sea observer observations and collections are being made which reduces haul-specific data collections. Evaluations of the effects of this on catch accounting estimates and stock assessment are needed.	Urgent
New	Norton Sound Red King Crab case study	Needed to help understand and address urgent stock assessment and management challenges in the NSRKC fishery, including the efficacy of previously instituted community protection management measures through the collaborative involvement of the LKTKS taskforce and the Climate Change taskforce. This research could provide a better understanding of the amount of predation by groundfish on juvenile crab in nearshore areas and other population bottlenecks, and inform management to improve stock condition. What is happening in this fishery involves cross-jurisdictional considerations, points to the need to work with multiple knowledge systems, highlights the intertwined nature of human dimensions and fishery changes (e.g. the effect of climate changes on species distribution and harvest capabilities), and is an urgent matter given the gravity of the changes occurring with the crab population and commercial and subsistence harvests.	Urgent