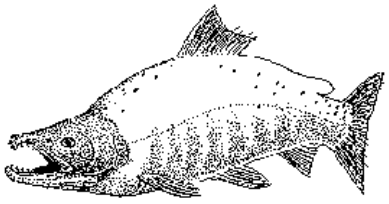
PRIORITY INFORMATION NEEDS

FEDERAL SUBSISTENCE FISHERIES



2024 Fisheries Resource Monitoring Program

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The Office of Subsistence Management (OSM) invites the submission of proposals for subsistence fisheries research to be initiated under the 2024 Fisheries Resource Monitoring Program (Monitoring Program). To be considered for funding under the Monitoring Program, a proposed project must have a linkage to Federal subsistence fishery management. This means that a proposed project must have a direct association to a Federal subsistence fishery, and that either the subsistence fishery or fish stocks in question must occur in or pass through waters within and adjacent to Federal public lands in Alaska. Funding may be requested for projects of up to four years in duration. The Notice of Funding Opportunity is accessible at the Monitoring Program webpage at https://www.doi.gov/subsistence/frmp/funding or by visiting www.grantsolutions.gov or www.grants.gov and searching for *Opportunity Number* **F24AS00004**.

Although all proposals addressing subsistence fisheries on Federal public lands may be considered, the 2024 Notice of Funding Opportunity is focused on priority information needs identified for each of the six Monitoring Program regions: Northern Alaska, Yukon, Kuskokwim, Southwest Alaska, Southcentral Alaska, and Southeast Alaska. Submissions that cover more than one region will also be considered under a multi-regional category. Strategic plans were developed for four of the six regions in 2005 by workgroups of Federal and State fisheries managers, researchers, Regional Advisory Council members, and other stakeholders (accessible at the Monitoring Program webpage at https://www.doi.gov/subsistence/frmp/plans). An independent strategic plan was completed for Kuskokwim Region salmon in 2006, accessible at the Alaska-Yukon-Kuskokwim Sustainable Salmon Initiative website at https://www.aykssi.org/salmon-research-plans/. A strategic plan was also developed specific to Yukon and Kuskokwim Whitefish in 2012, which is also available on the Monitoring Program webpage.

This document summarizes priority information needs for 2024 for all six regions and the multi-regional category. Investigators preparing proposals for the 2024 Monitoring Program should use this document, relevant strategic plans, and the Notice of Funding Opportunity that provides foundational information about the Monitoring Program, to guide proposal development. While Monitoring Program project selections may not be limited to priority information needs identified in this document, proposals addressing other information needs must include compelling justification with respect to strategic importance.

Monitoring Program funding is not intended to duplicate existing programs. Agencies are discouraged from shifting existing projects to the Monitoring Program. When a long-term project can no longer be funded solely by an agency, and the project provides direct information for Federal subsistence fisheries management, a request to the Monitoring Program of up to 50% of the project cost is encouraged. For Monitoring Program projects for which additional years of funding are being requested, investigators should justify continuation by placing the proposed work in context with the ongoing work being accomplished.

Because cumulative effects of climate change may fundamentally affect the availability of subsistence fishery resources, as well as their uses and how they are managed, investigators are encouraged to consider examining or discussing climate change effects as a component of their project.

Projects with an interdisciplinary emphasis are encouraged. The Monitoring Program seeks to combine ethnographic, harvest monitoring, traditional ecological knowledge, and biological data to aid in management. Investigators are encouraged to combine interdisciplinary methods to address information needs and to consider the cultural context of these information needs.

Collaboration and cooperation with rural communities are expected at all stages of research planning and implementation of projects that directly affect those communities. Investigators should consult with local subsistence users and draw on their knowledge, as well as Traditional Ecological Knowledge literature where applicable, in designing and carrying out research. The Notice of Funding Opportunity describes the collaborative process in community-based research and in building partnerships with rural communities.

PRIORITY INFORMATION NEEDS BY REGION

Northern Alaska Region

The Monitoring Plan for the Northern Alaska Region is directed at information needs identified by the three northern Subsistence Regional Advisory Councils (Seward Peninsula, Northwest Arctic, and North Slope). For the Northern Alaska Region, the 2024 Notice of Funding Opportunity is focused on the following priority information needs:

- Chinook, Chum and Coho Salmon abundance estimate for Boston, Fish, Pargon and Wagon Wheel Rivers.
- Summer and Fall Chum Salmon abundance estimates for the Agiapuk River drainage including American River and Igloo Creek.
- Chinook, Chum and Coho abundance estimate for the Pikmiktalik River, with comparison to historical counts.
- Changes in Grayling, Dolly Varden and Sheefish populations related to Climate Change.
- Inventory and baseline data of fish in major rivers tied to subsistence use in Northwest Alaska. Investigators should consult with local subsistence users and draw on Traditional Ecological Knowledge literature in designing and carrying out research. When possible, applicants are encouraged to include fisheries proximal to the communities of Shishmaref, Buckland, Deering, Selawik, Kivalina, Point Hope and villages along the Kobuk and Noatak rivers.
- Evaluate changes in water levels, discoloration and mineral deposits, water temperature, and reduced oxygen in major river systems associated with subsistence fishery resources in the Northwest Arctic Region, and how these changes will affect fish vital for subsistence. Investigators should consult with local subsistence users and draw on their knowledge of historic and recent water conditions in designing and carrying out research.

- The effects of expanding beaver populations and range on subsistence fisheries, including whitefish, in the Northwest Arctic Region. Include effects of dams on fish migration and effects of changes to water quality on fish health. Investigators should consult with local subsistence users and draw on their knowledge of historic and changing beaver impacts in designing and carrying out research. Research should also consider the impacts of these changes on subsistence users themselves.

- Document Herring abundance, seasonal movements, and health and investigate causes of large herring mortality events in the Northwest Arctic. Investigators should consult with local subsistence users and draw on their knowledge in designing and carrying out research.

- Document the effects of changing river and tributary conditions on salmon spawning in the Noatak and Kobuk river drainages, with focus on the potential effects of factors such as erosion, discoloration and mineral deposits, and changing precipitation on spawning viability. Investigators should consult with local subsistence users and draw on their knowledge in designing and carrying out research.

- Document abundance, and migration timing, especially of Dolly Varden, Lake Trout, and whitefish species in the Northwest Arctic, to address changing availability of subsistence fishery resources. Investigators should consult with local subsistence users and draw on their knowledge in designing and carrying out research.

- Identify the spawning areas, critical habitat and range expansion in major rivers tied to subsistence for Whitefish, Northern Pike, salmon, Grayling, and Dolly Varden in the Northwest Alaska Region. Investigators should consult with local subsistence users and draw on their knowledge in designing and carrying out research.

- Using Traditional Ecological Knowledge and harvest monitoring, document new fish species and changes in abundance, size, timing, and distribution of existing fish species, as well as impacts of new or expanding species on other fish that are important to subsistence in the North Slope Region.

- Document and investigate the possible causes of mold, disease, and discoloration on Broad Whitefish in the Colville River in the vicinity of Nuiqsut. Compare environmental conditions in the Colville River—including temperature—with those in the Ikpikpuk River, where whitefish are healthy and mold has not been observed to date. Investigators are encouraged to draw on both stock status and trends and Traditional Ecological Knowledge research methods.

- Document the effects of climate change, including late freeze-up, on subsistence fishing access, harvests, and preservation and the impact of these changes on community-wide harvest levels and food security on the North Slope. Research could investigate adaptations for continuing community-wide harvest levels where traditional preservation methods are impacted. Studies including Ikpikpuk River are of particular interest.

- Baseline fish habitat and water quality monitoring (especially temperature, dissolved oxygen, and silt) on the rivers and tributaries important to subsistence fishing for communities of the North Slope Region. Investigators are encouraged to include overwintering area.
- Distribution, abundance, and health of stocks of Broad whitefish on the Sagavanirktok River.
- Seasonal movement and overwintering habitat of whitefish on the Colville Delta.
- Document population structure, abundance and health of lake trout in Peters, Schrader, Chandler, and Shainin lakes.
- Health and abundance of Arctic Grayling populations in in Anaktuvuk Pass area.
- Evaluate changes in water levels, discoloration and mineral deposits, water temperature, and reduced oxygen in major river systems associated with subsistence fishery resources in the North Slope Region, and how these changes will affect fish vital for subsistence.

Yukon Region

The Monitoring Plan for the Yukon Region is directed at information needs identified by the three Yukon Subsistence Regional Advisory Councils (Yukon-Kuskokwim Delta, Western Interior Alaska, and Eastern Interior Alaska). For the Yukon Region, the 2024 Notice of Funding Opportunity is focused on the following priority information needs:

- Impacts of climate change to harvest and use of fish; and impacts of climate change on fish, for example, impacts to fish migration, spawning, and life cycle.
- Knowledge of population, reproduction, and health of spawning habitat for Bering Cisco and Humpback Whitefish.
- Reliable estimates of Chinook, summer Chum, fall Chum, and Coho salmon escapements and/or harvests, particularly sub-stocks in District 5 that are large contributors to the total run, for example in the Chandalar, Sheenjek, and Porcupine rivers.
- Distribution, abundance, condition, and survival of juvenile and out-migrating salmon in the Yukon River drainage.
- Estimates of "quality of escapement" measures for Chinook Salmon, for example, potential egg deposition, age, sex, and size composition of spawners, percentage of females, percentage of jacks, and spawning habitat utilization, with an emphasis on Canadian-origin stocks.
- Reliable in-season estimates of salmon harvests in the lower, middle, and upper Yukon River subsistence fisheries.
- Reliable estimates of age-sex-length and genetic composition of salmon harvested in the subsistence fishery, with emphasis on Chinook and fall Chum salmon.

- In-season estimates of genetic stock composition of Chinook, summer Chum, and fall Chum salmon runs and harvests.
- Reliable methods of forecasting Chinook, summer Chum, fall Chum, and Coho salmon run abundance.
- Assessment of incidental mortality with gillnets, dip nets, and seines, with particular consideration for delayed mortality from entanglement, drop-outs, and live release of Chinook Salmon (for example, loss of Chinook Salmon from 6-inch mesh nets during Chum Salmon fisheries and the live release of Chinook Salmon from dip nets and seines).
- Traditional ecological knowledge of fishes.
- Advance genetic baselines for Chinook, summer Chum, fall Chum, and Coho salmon by screening additional populations and novel genetic markers to improve the accuracy, precision, and scale of stock composition estimates to inform stock assessment for Yukon River fisheries.
- Life-history patterns of resident species such as Sheefish, Northern Pike, and Arctic Grayling in relation to geographic distribution and seasonal migration.
- Funding to facilitate interagency and stakeholder forums for gathering and sharing input on fishery management issues.
- Community-based monitoring of fish presence and/or environmental variables in tributaries to better understand fish distribution.
- Seasonal salmon life-stage usage of tidal tributaries draining the Yukon Coastal District through an interdisciplinary approach documenting traditional ecological knowledge and biological surveys in order to update the Anadromous Waters Catalog and improve management's understanding of salmon in these streams.
- Meta-analysis of existing information and research examining the relative importance of freshwater (e.g., predation, stranding, heat stress) and marine (e.g., environmental conditions, bycatch, interception, competition) factors in causing declines of Yukon River Chinook and Chum salmon to present at relevant Regional Advisory Council meetings.

Kuskokwim Region

The Monitoring Plan for the Kuskokwim Region is directed at information needs identified by the two Kuskokwim Subsistence Regional Advisory Councils (Yukon-Kuskokwim Delta and Western Interior Alaska). For the Kuskokwim Region, the 2024 Notice of Funding Opportunity is focused on the following priority information needs:

- Impacts of climate change to harvest and use of fish and impacts of climate change on fish, for example migration, spawning, life cycle, and abundance.

- Knowledge of Whitefish and Sheefish population abundance and distribution within the Kuskokwim River watershed (including in-season harvest and monitoring).

- Reliable quantitative and/or qualitative estimates of salmon run size, escapement, and harvest in the entire Kuskokwim River watershed including Kuskokwim Bay tributaries.

- New and cost-effective methods for conducting in-season salmon run and harvest assessments in the Kuskokwim River drainage, with an emphasis on community-based monitoring.

- Distribution, abundance, condition, and survival of juvenile and out-migrating salmon in the Kuskokwim River drainage.

Southwest Alaska Region

The Monitoring Plan for the Southwest Alaska Region is directed at information needs identified by the two Southwest Regional Advisory Councils (Bristol Bay and Kodiak/Aleutians). For the Southwest Alaska Region, the 2024 Notice of Funding Opportunity is focused on the following priority information needs:

- Reliable estimates of Chinook Salmon escapement, evaluation of quality of escapement and harvest monitoring in Alagnak River, Big Creek, Meshik River, Naknek River, and Togiak River, including egg deposition, sex and size composition of spawners, and spawning habitat quality and utilization for determining the reproductive potential of spawning stocks. Harvest monitoring by user groups for the region is also encouraged.

- Comparative ecological evaluation of lake rearing habitats of Sockeye Salmon stocks in southwest Kodiak Island, including Olga Lakes and Akalura Lake watersheds, and the assessment of (1) declines of salmon stocks and associated subsistence harvest opportunities, and (2) effects of climate change on salmon production in these lake systems.

- Annual estimates of Sockeye Salmon escapement in the Lake Clark watershed.

- Evaluation of Chinook and Sockeye salmon populations in the Chignik River area to understand the decline in salmon stocks and associated subsistence harvest opportunities, such as reliable estimates of escapement, quality of escapement, and environmental impacts.

- Reliable estimates of abundance of salmon populations in the Kodiak Archipelago and Aleutian Islands areas important for subsistence use and assessment of changes in these populations. Specific areas of concern are McLees Lake, Mortensen's Lagoon, Unalaska Lake and Kodiak Archipelago stocks.

- Using scale analyses of fresh and saltwater growth patterns over multiple years, examine how recent changes in the ocean affect growth and survival of Chinook and Sockeye salmon within their range and habitats of the Kodiak/Aleutian drainages of particular concern include the following drainages (Buskin, Karluk, Ayakulik, McClees drainages) and/or the Bristol

Bay/Alaska Peninsula drainages (Chignik, Nushagak, Big Creek, Alagnak, Meshik, and Togiak drainages). The Chignik drainage is of particular concern.

- Evaluate effects on subsistence users in the Southwest Alaska region resulting from changes in fish populations, including biological considerations of run timing, run quality, sex ratios, and age composition, and incorporating local observations and knowledge. Research should include a multi-disciplinary approach and include elements of Traditional Ecological Knowledge as well as Stock Status and Trends.

- Enumeration of salmon smolt outmigration in the Buskin River system.

- Understanding subsistence sharing networks of fish throughout the Bristol Bay region and the importance of resource networks.

Southcentral Alaska Region

The Monitoring Plan for the Southcentral Alaska Region is directed at information needs identified by the Southcentral Alaska Subsistence Regional Advisory Council. For the Southcentral Alaska Region, the 2024 Notice of Funding Opportunity is focused on the following priority information needs:

- Estimate abundance, run timing, spawning site fidelity, and age, sex, and length composition for Chinook and Coho salmon that stage or spawn in waters of Kenai Peninsula drainages under Federal subsistence fishery jurisdiction.

- Estimate Chinook, Coho, and Sockeye salmon escapements into the Copper River drainage and delta systems with a high degree of certainty (for example projects utilizing weir, sonar, and/or mark-recapture methods).

- Develop, test, and implement methods for monitoring escapement and/or mortality of Sockeye Salmon in the Copper River drainage and delta systems, including assessment of predation.

- Estimate "quality of escapement" measures such as fecundity, age, sex, and size to help inform salmon management in the Copper River and Kenai Peninsula drainages.

- Understand effects of environmental and/or climate change on stock specific migration timing and abundance of adult salmon, as well as the implications for harvest management, in the Copper River and Kenai Peninsula drainages using sonars and tagging.

- Collect baseline information on juvenile Sockeye Salmon outmigration, timing, abundance, condition, and mortality across the unique sub-watersheds of the Copper River and the Kenai Peninsula drainages.

Southeast Alaska Region

The Monitoring Program for the Southeast Alaska Region is directed at information needs identified by the Southeast Alaska Subsistence Regional Advisory Council. For the Southeast Alaska Region, the 2024 Notice of Funding Opportunity is focused on the following priority information needs:

- Reliable estimates of Sockeye Salmon escapement and in-season harvest and estimates of stream discharge in the following systems: Kanalku, Klawock, Hetta, Falls, Sarkar, Kook, Neva, Karta, Hatchery, Eek, Kah Sheets, Klag, Gut, Kutlaku, Salmon Bay, Sitkoh, Hoktaheen, Alecks Creek, Lake Eva and Lake Leo.
- Reliable estimates of salmon escapement and in-season harvest of subsistence salmon systems.
- Escapement indices or population estimates for Eulachon at the Unuk River and Yakutat Forelands.
- Population assessment for Eulachon for northern Southeast Alaska.
- Traditional ecological knowledge of how each community distributes harvest between Sockeye Salmon systems available to them.
- Reliable estimates of salmon populations and harvests in the sport and subsistence fisheries at Kah Sheets and Alecks Creek.
- Ethnographic study of the Yakutat subsistence salmon fishery.
- Reliable estimates of subsistence Sockeye Salmon harvest in the Klawock River drainage.
- Develop escapement goals for Sockeye Salmon systems with long term escapement data sets
- Incorporate the use of indigenous co-management to develop escapement goals for Sockeye Salmon systems with long term escapement data sets.
- Assessment of Makhnati Island herring stock.
- Update community household fish harvest surveys.

Multi-Regional

The Multi-regional category is for projects that are applicable in more than one region. For the Multi-Regional category, the 2024 Notice of Funding Opportunity is focused on the following priority information needs:

- Gain a better understanding of ecosystem factors negatively impacting subsistence salmon runs and harvest practices in Alaska, including ocean conditions, freshwater conditions, and changing climate conditions.

- Changes in relative abundance and species composition of salmon species, and expansion of salmon species into new waters.
- The impact of changing weather on traditional fish processing practices and food security.
- Effects of fluctuating water levels on salmon spawning viability.