2026 FISHERIES RESOURCE MONITORING PLAN

OVERVIEW

The mission of the Fisheries Resource Monitoring Program (Monitoring Program) is to identify and provide information needed to sustain subsistence fisheries on Federal public lands for rural Alaskans. This mission is accomplished by funding research and monitoring projects that address the highest priority subsistence fishery information needs. The final list of funded projects is referred to as the Monitoring Plan.

For this funding cycle, 34 investigation plans were received and considered for funding. The investigation plans were reviewed by the Technical Review Committee and commented on by the Regional Advisory Councils. The highest-ranking projects for each region were considered for inclusion in the 2026 Fisheries Resource Monitoring Plan (Monitoring Plan).

The following describes the Monitoring Program's funding and review process and provides information for the submitted investigation plans by region. This information is intended to be used by the Federal Subsistence Board to develop the strongest possible Monitoring Plan across the state.

BACKGROUND

The Monitoring Program is a collaborative, interagency, interdisciplinary approach to enhance fisheries research and data in Alaska and effectively communicate information needed for subsistence fisheries management on Federal public lands. Section 812 of the Alaska National Interest Lands Conservation Act (ANILCA) directs the Departments of Interior and Agriculture to research fish and wildlife and subsistence uses on Federal public lands, and to seek data from, consult with, and make use of, the special knowledge of rural residents engaged in subsistence activities. The Secretaries of the Interior and Agriculture are committed to increasing the quantity and quality of information available to manage subsistence fisheries, increase meaningful involvement by federally recognized tribes and Alaska Native and rural organizations, and improve collaboration among Federal, State, Alaska Native, and rural organizations.

Funding Process

Every two years, the Office of Subsistence Management announces a notice of funding opportunity for investigation plans addressing subsistence fisheries on Federal public lands. The Monitoring Program is administered through regions to align with stock, harvest, and community issues common to a geographic area. There are six distinct Monitoring Program regions, as well as a multi-region category for projects that encompass more than one region (**Figure 1**).

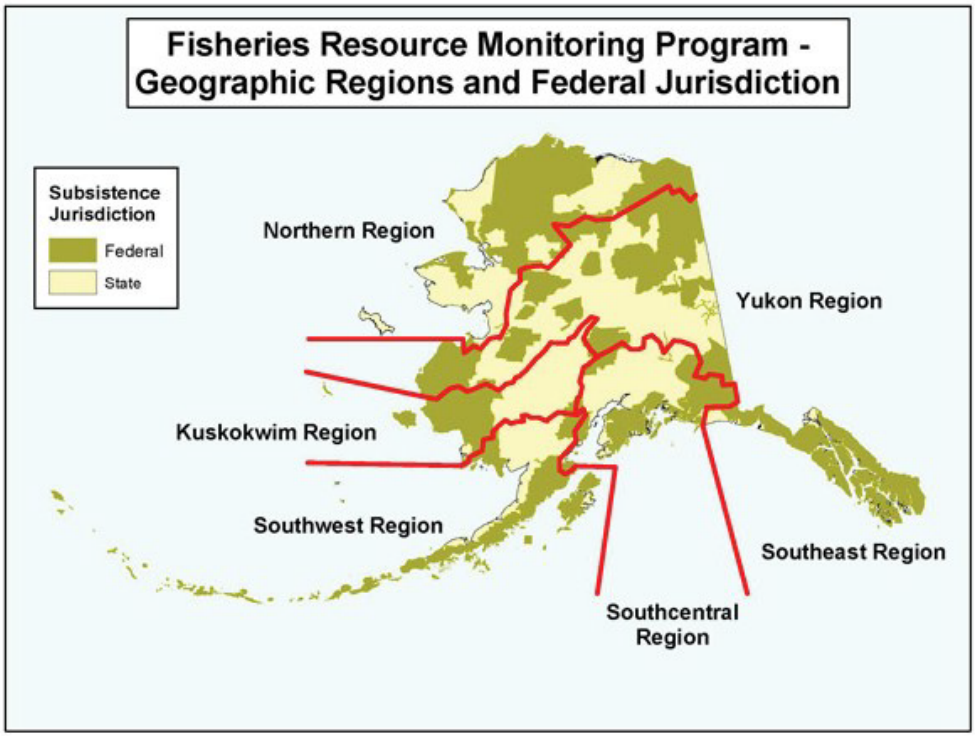

Figure 1. Geographic regions of the Monitoring Program in Alaska.

During each two-year funding cycle, the Monitoring Program funds ongoing projects and solicits new projects. Funding allocation guidelines are established by geographic region (**Table 1**). The regional guidelines were developed using six criteria that included level of risk to species, level of threat to conservation units, amount of subsistence needs not being met, amount of information available to support subsistence management, importance of a species to subsistence harvest, and level of user concerns regarding subsistence harvest. Funding allocation guidelines provide an initial target for planning and are adjusted as needed from cycle to cycle depending on project submissions and funding availability.

Table 1. Regional allocation guideline for Monitoring Program funds.

Region	U.S. Department of the Interior Funds	U.S. Department of Agriculture Funds
Northern Alaska	17%	0%
Yukon Drainage	29%	0%
Kuskokwim Drainage	29%	0%
Southwest Alaska	15%	0%
Southcentral Alaska	5%	33%
Southeast Alaska	0%	67%
Multi-Regional	5%	0%

The Monitoring Program was first implemented in 2000 with an initial allocation of $5 million. Since 2000, a total of $139.9 million has been allocated for the Monitoring Program to fund a total of 524 projects (**Figure 2** and **Figure 3**).

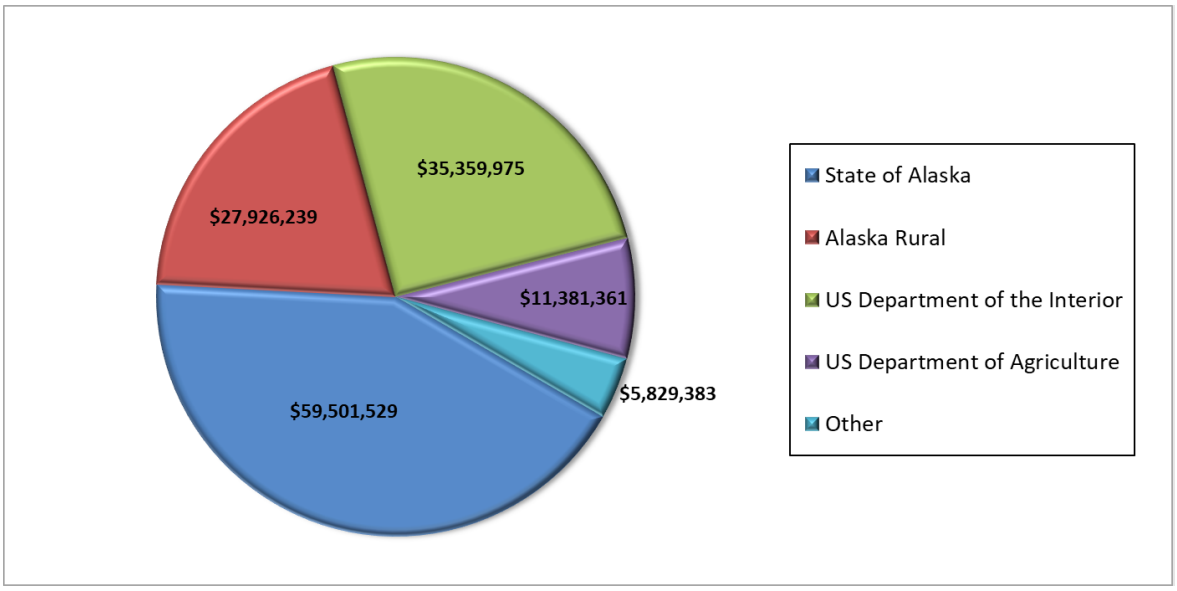

Figure 2. Monitoring Program fund distribution since 2000, identified by primary recipient organization type.

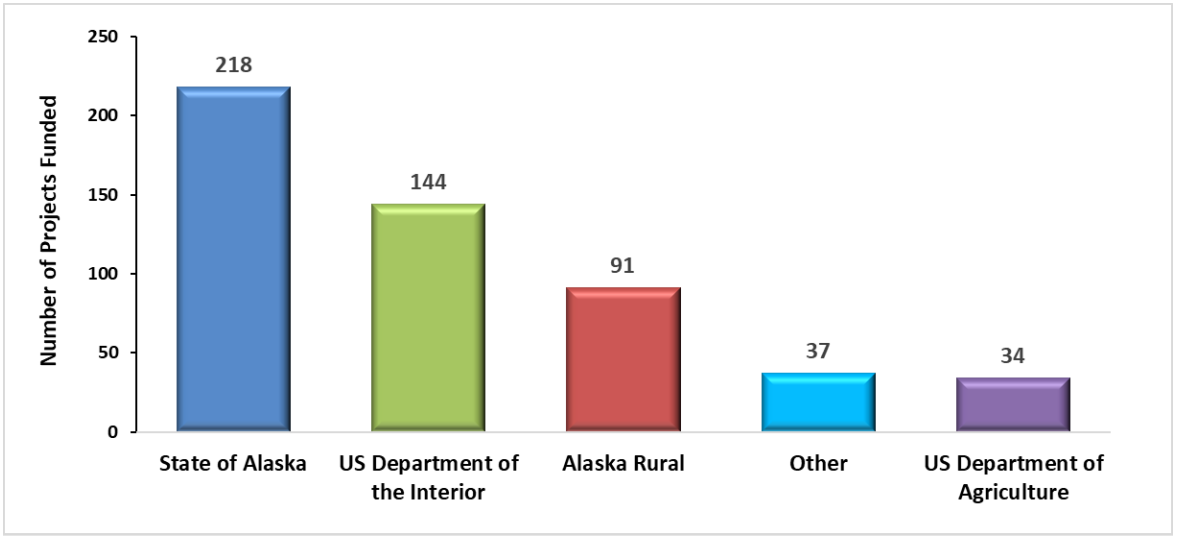

Figure 3. Number of Monitoring Program projects funded since 2000, listed by primary recipient organization type.

The three broad categories of information solicited by the Monitoring Program are (1) harvest monitoring, (2) Traditional Ecological Knowledge, and (3) stock status and trends. Projects that combine these approaches are encouraged.

Harvest monitoring studies provide information on numbers and species of fish harvested, locations of harvests, and gear types used. Methods used to gather information on subsistence harvest patterns may include harvest calendars, mail-in questionnaires, household interviews, subsistence permit reports, and telephone interviews.

Traditional Ecological Knowledge studies are investigations of local knowledge directed at collecting and analyzing information on a variety of topics such as the sociocultural aspects of subsistence, fish ecology, species identification, local names, life histories, taxonomies, seasonal movements, harvests, spawning and rearing areas, population trends, environmental observations, and traditional management systems. Methods used to document Traditional Ecological Knowledge include ethnographic fieldwork, key respondent interviews with local experts, place name mapping, and open-ended surveys.

Stock status and trends studies provide information on abundance and run timings, age-sex-length compositions, migrations and geographic distributions, survival of juveniles or adults, stock productions, genetic stock identifications, and mixed stock analyses. Methods used to gather information on stock status and trends include aerial and ground surveys, test fishing, towers, weirs, sonar, video, genetics, mark-recapture, and telemetry.

Project Evaluation Process

The Monitoring Program prioritizes high quality projects that address critical subsistence and conservation concerns. Projects are selected for funding through an evaluation and review process that is designed to advance projects in line with strategic Priority Information Needs identified by Subsistence Regional Advisory Councils. Furthermore, projects selected for funding must be technically sound, administratively competent, cost effective, and promote partnerships and capacity building. Proposed projects are first evaluated by a merit review panel called the Technical Review Committee. The Technical Review Committee's function is to provide evaluation, technical oversight, and strategic direction to the Monitoring Program. This committee is a standing interagency committee of senior technical experts that review, evaluate, and provide justifications about proposed projects that are consistent with the mission of the Monitoring Program. Justifications from the Technical Review Committee provide the basis for further comments from Subsistence Regional Advisory Councils, the public, and the Federal Subsistence Board, with final approval of the Monitoring Plan by the Director of the Office of Subsistence Management. The final Monitoring Plan is the list of projects selected for funding beginning in 2026.

To be considered for funding under the Monitoring Program, a proposed project must have a strong connection to Federal subsistence fishery management. Proposed projects must have a direct association to a Federal subsistence fishery, and the subsistence fishery or fish stocks in question must occur in, or pass-through, waters within or adjacent to Federal public lands in Alaska (National Wildlife Refuges, National Forests, National Parks and Preserves, National Conservation Areas, National Wild and Scenic

River Systems, National Petroleum Reserves, and National Recreation Areas). A complete project package must be submitted on time and must address the following five specific criteria.

Strategic Priorities. Studies have to be responsive to information needs identified in the 2026 Priority Information Needs available at the Monitoring Program webpage at https://www.doi.gov/subsistence/frmp/funding. All projects must have a direct link to Federal public lands to be eligible for funding under the Monitoring Program. Projects should address the following topics to demonstrate links to strategic priorities:

- Federal jurisdiction. The extent of Federal public waters in the project area or connected to it through patterns of hydrology or fish migration.
- Management applicability. Direct Federal subsistence fisheries management implications.
- Conservation mandate. Threat or risk to conservation of species and populations that support subsistence fisheries.
- Potential impacts on the subsistence priority. Risk that subsistence harvest users' needs will not be met.
- Data gaps. Amount of information available to support subsistence management and how a project answers specific questions related to these gaps.
- Role of the resource. Contribution of a species to a subsistence harvest (number of villages affected, pounds of fish harvested, miles of river) and qualitative significance (cultural value, unique seasonal role).
- Local concern. Level of user concerns over subsistence harvests (upstream vs. downstream allocation, effects of recreational use, changes in fish abundance and population characteristics).

To assist in evaluation of submittals for projects previously funded under the Monitoring Program, investigators must summarize project findings in their investigation plans. This summary must clearly and concisely document project performance, key findings, and uses of collected information for Federal subsistence management. It must also justify the continuation of the project, placing the proposed work in context with the ongoing work being accomplished.

Technical-Scientific Merit. The technical quality of the study design must meet accepted standards for information collection, compilation, analysis, and reporting. To demonstrate technical and scientific merit, applicants have to describe how projects will:

- Advance science
- Answer immediate subsistence management or conservation concerns

- Have rigorous sampling and/or research designs
- Have specific, measurable, realistic, clearly stated, and achievable (attainable within the proposed project period) objectives
- Incorporate traditional knowledge and methods

Data collection, compilation, analysis, and reporting procedures should be clearly stated. Analytical procedures should be understandable to the non-scientific community.

Investigator Ability and Resources. Investigators must show they are capable of successfully completing the proposed project by providing information on the abilities (training, education, experience, and letters of support) and resources (technical and administrative) they possess to conduct the work. Investigators that have received funding in the past, via the Monitoring Program or other sources, are also evaluated and scored on their past performances, including meeting deliverables and financial accountability deadlines. A record of failure to submit reports or delinquent submittal of reports are considered when rating investigator ability and resources.

Partnership and Capacity Building. Investigators must demonstrate that capacity building has already reached the communication or partnership development stage during proposal development and, ideally, include a strategy to develop partnerships and capacity to higher levels, recognizing, however, that in some situations higher level involvement may not be desired or feasible by local organizations.

Investigators are requested to include their strategies for integrating local capacity development in their study plans or research designs. To score well in this category, investigators must inform communities and regional organizations in the area where work is to be conducted about their project plans. They must also consult and communicate with local communities to ensure that local knowledge is used and concerns are addressed. Investigators and their organizations should demonstrate their abilities to maintain effective local relationships and commitments to capacity building. This includes a plan to facilitate and develop partnerships so investigators, communities, and regional organizations can pursue and achieve the most meaningful level of involvement. Proposals demonstrating multiple, highly collaborative efforts with rural community members or Alaska Native Organizations are encouraged.

Successful capacity building requires developing trust and dialogue among investigators, local communities, and regional organizations. Investigators need to be flexible in modifying their work plans in response to local knowledge, issues, and concerns, and must also understand that capacity building is a reciprocal process in which all participants share and gain valuable knowledge. The reciprocal nature of the capacity building component(s) should be clearly demonstrated in proposals. Investigators are encouraged to develop the highest level of community and regional collaboration that is practical, which could include adding local organizations or community members as co-investigators.

Capacity can be built by increasing the technical capabilities of rural communities and Alaska Native organizations. This can be accomplished via several methods, including increased technical experience for individuals and the acquisition of necessary gear and equipment. Partners' technical growth can be

supported through any dimension of project management or implementation such as logistics, financial accountability, implementation, administration, internships, outreach, modeling, sampling design, project specific training, and acquisition of equipment that could be transferred to rural communities and tribal organizations upon the conclusion of the project.

A "meaningful partner" is a partner that is actively engaged in one or more aspects of project design, logistics, implementation, and reporting requirements. Someone who simply agrees with the concept or provides a cursory look at the proposal is not a meaningful partner.

Cost/Benefit. This criterion evaluates the reasonableness (what a prudent person would pay) of the funding requested to provide benefits to the Federal Subsistence Management Program. Benefits could be tangible or intangible. Examples of tangible outcomes include data sets that directly inform management decisions or fill knowledge gaps and opportunities for youth or local resident involvement in monitoring, research, and/or resource management efforts. Examples of intangible goals and objectives include enhanced relationships and communications between managers and communities, partnerships and collaborations on critical resource issues, and potential for increased capacity within both communities and agencies.

Applicants should be aware that the Government shall perform a "best value analysis" and the selection for award shall be made to the applicant whose proposal is most advantageous to the Government. The Office of Subsistence Management strives to maximize program efficiency by encouraging cost sharing, partnerships, and collaboration.

Policy and Funding Guidelines

Several policies have been developed to aid in implementing funding. These policies include:

- Projects of up to four years in duration may be considered.
- Proposals requesting Monitoring Program funding that exceeds $235,000 in any one year are not eligible for funding.
- Studies must not duplicate existing projects.
- Long-term projects will be considered on a case-by-case basis.

Activities that are not eligible for funding include:

- Habitat protection, mitigation, restoration, and enhancement
- Hatchery propagation, restoration, enhancement, and supplementation
- Contaminant assessment, evaluation, and monitoring

- Projects where the primary or only objective is outreach and education (for example, science camps, technician training, and intern programs), rather than information collection

The rationale behind these policy and funding guidelines is to ensure that existing responsibilities and efforts by government agencies are not duplicated under the Monitoring Program. Land management or regulatory agencies already have direct responsibilities, as well as specific programs, to address these activities. However, the Monitoring Program may fund research to determine how these activities affect Federal subsistence fisheries or fishery resources.

The Monitoring Program may fund assessments of key Federal subsistence fishery stocks in decline or that may decline due to climatological, environmental, habitat displacement, or other drivers; however, applicants must show how this knowledge would contribute to Federal subsistence fisheries management. Similarly, the Monitoring Program may legitimately fund projects that assess whether migratory barriers (e.g., falls, beaver dams) significantly affect spawning success or distribution; however, it would be inappropriate to fund projects to build fish passes, remove beaver dams, or otherwise alter or enhance habitat.

2026 Notice of Funding Opportunity

The 2026 Notice of Funding Opportunity focused on priority information needs developed by the Subsistence Regional Advisory Councils with input from subject matter specialists. Investigation plans were due on May 16, 2025. Submitted plans were reviewed and evaluated by the Office of Subsistence Management and U.S. Forest Service staff to ensure completeness and compliance with Monitoring Program guidelines. The Technical Review Committee met on July 21 & 22, 2025 to review and score project proposals. Subsistence Regional Advisory Council input on the proposed projects was obtained during their meetings between September 2025 and January 2026 and is summarized by region in the Monitoring Plan.

Available Funds

Federal Subsistence Management Program guidelines direct initial distribution of funds among regions. While regional budget guidelines provide an initial target for planning, they are not final allocations. The anticipated funding available for the 2026 Monitoring Program that was listed in Notice of Funding Opportunity D25AS00214 was for up to $9 million total for new projects across the four years of the cycle. However, the actual funding for the cycle was considerably lower due to decreased budgets, with the Department of the Interior committing approximately $2.5 million and the U.S. Department of Agriculture committing approximately $2.8 million.

NORTHERN ALASKA REGION

Priority Information Needs

The 2026 Notice of Funding Opportunity for the Northern Alaska Region identified the following 25 priority information needs:

- 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, Kotzebue, 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.

- Study 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 Kotzebue area. 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 of salmon in the Noatak and Kobuk River Drainages 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.

- Document abundance and migration timing, especially of Dolly Varden, Arctic Char, 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.

- Chinook Salmon abundance estimate for the Unalakleet River.

- Changes in Grayling, Dolly Varden and Sheefish populations related to climate change.

- Chinook, Chum and Coho salmon abundance estimates for the Pikmiktalik River, with comparison to historical counts.

- Coho Salmon abundance estimates 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.

- Investigate causes of salmon decline in Norton Sound freshwater drainages.

- Historical analysis of postseason salmon harvest surveys for residents of Unalakleet fishing in the Unalakleet Subdistrict, combined with assessment of causes of low harvest years and overall declines. Investigators must present results to the residents of Unalakleet.

- Using Traditional Ecological Knowledge and/or harvest monitoring, document new fish species and changes in abundance, and size, timing, and distribution of existing fish species.

- Using Traditional Ecological Knowledge and/or harvest monitoring to document the impacts of new or expanding species on other fish that are important to subsistence in the North Slope region.

- Document the effects of climate change including late freeze up on subsistence fishing access, harvest, 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.

- 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 areas.

- Distribution, abundance, and stocks of Broad Whitefish on the Sagavanirktok, Ikpikpuk, Meade, Inaru, Tupaagruk Rivers, and other rivers important to subsistence.

- Seasonal movement and overwintering habitat of whitefish on the Colville Delta.

- Document population structure of abundance and health of Lake Trout and Arctic Grayling in Peters, Schrader, Chandler, Shainin, and other Lakes.

- Health and abundance of Arctic Grayling populations in Anaktuvuk Pass area and Point Hope.

- 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.

- Document and investigate the possible causes of mold, disease, and discoloration on Broad Whitefish and other subsistence species 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 stocks status and trends and Traditional Ecological Knowledge research methods.

Proposals Submitted for the Northern Alaska Region

Six proposals were submitted for funding in the Northern Alaska Region **(Table 2)**.

Table 2 Projects submitted for the Northern Region 2026 Monitoring Plan including project duration and total funds requested.

Project Number	Title	Project Duration (Years)	Total Project Request
26-100	Assessment of life history patterns and hypoxic stress of northwest Alaska whitefish (Coregoninae) and Arctic grayling	3	$242,150
26-101	Beaver expansion into the Arctic: Current impacts and future implications for fishes in Northwest Alaska	4	$938,509
26-102	Selawik Northern Pike population dynamics, movement, and habitat use	3	$402,741
26-103	Kobuk River Sheefish spawning abundance	3	$299,616
26-150	The harvest and use of Sheefish and other nonsalmon fishes in Hotham Inlet, Alaska	4	$615,010
26-151	Kawerak Tribal fisheries stewardship program – Awatipta ecosystem monitoring project	4	$926,317
Total			**$3,424,343**

In addition to these proposed projects, the following two projects are currently being funded by the Monitoring Program in the Northern Alaska Region:

- 22-103 Unalakleet River Chinook Salmon Escapement Assessment
- 22-150 Traditional Ecological Knowledge of Salmon in the River Drainages of Kotzebue Sound

Regional Advisory Council Comments

Seward Peninsula Subsistence Regional Advisory Council

General Comment: The Council was interested to learn about the allocation of funding for the FRMP across regions and what areas are eligible for funding. A discussion ensued regarding the Federal nexus requirements for FRMP projects to be considered and how the Northern Region is allocated based on a recommended guideline, however the final decision of allocation rests with the Director of the Office of Subsistence Management.

Project 26-100: The Council was interested in learning more about otoliths and had some questions about microchemistry and its applications in freshwater and marine residency identification. Council members inquired about using other tissues for contaminant studies, such as a liver.

Project 26-101: The Council was interested in learning if Coho Salmon numbers in the area are increasing or possibly benefiting from beaver activity. Although this project was expensive, Council members noted the importance of understanding the effects beaver may have on salmon production.

Project 26-102: Council noted how Northern Pike prey on juvenile salmon and were interested to see if the project had a dietary component to look at the effects of Northern Pike predation on juvenile salmon.

Project 26-103: The Council noted that Sheefish populations are becoming more popular and are being targeted by fishermen. This concern was brought up at the Board of Fish Arctic/Yukon/Kuskokwim meeting.

Project 26-150: The Council noted that Sheefish conservation concerns were brought up at the Board of Fish Arctic/Yukon/Kuskokwim meeting. Outdated data were presented at this meeting; there is a need for more recent and relevant data to support the Hotham Inlet Sheefish fishery.

Project 26-151: The Council noted that Traditional Ecological Knowledge is the best science to use and documenting Indigenous Knowledge will benefit the people who rely on the resource. This knowledge isn't always documented and often thrown to the side. Incorporating this knowledge into management decisions would greatly benefit the region and the State.

Northwest Arctic Alaska Subsistence Regional Advisory Council

Project 26-100: No specific or targeted comment

Project 26-101: The Council supports this project due to growing concerns about beaver expansion, increased damming, and resulting water quality risks including tularemia. Members emphasized that fish impacts are important but secondary to public health and drinking water safety and noted the value of documenting beaver numbers and distribution. The project could also inform community education on trapping and water monitoring and complement studies on species such as Arctic Char and Sheefish.

Project 26-102: The Council views this as an important study and a top knowledge need for the region. Understanding Northern Pike abundance, movement, and habitat use will help clarify their role in local ecosystems and inform management. Members support moving this work forward to strengthen regional decision making.

Project 26-103: The Council considers this project vital because Sheefish are a key subsistence resource and baseline status and trends remain largely unknown. With the state commercial fishery still open, better information on spawning abundance is needed to guide responsible management. The project is seen as timely and essential as communities increasingly rely on fish for food security.

Project 26-150: The Council strongly supports this project to obtain accurate harvest information, improve survey reliability, and inform future regulations. The Council believes the work will encourage community engagement and responsible reporting, addressing concerns about misreported catches. The

Council previously intended to submit a support letter and later voted unanimously to do so at its January 7–8 meeting in Kotzebue; broad public outreach (e.g., radio) is encouraged to share results.

Project 26-151: No specific or targeted comment

North Slope Alaska Subsistence Regional Advisory Council

The Council provided no comment for the Northern Region projects. None of the proposed work is north of the Brooks Range and all occur outside of the Council's geographic representation.

Executive Summaries and Technical Review Committee Justifications

The following executive summaries were written by the principal investigator and submitted to the Office of Subsistence Management as part of a proposal package. They may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. The executive summaries may have been altered for length.

Technical Review Committee justifications are a general description of the committee's assessment of proposals when examining them for strategic priority, technical and scientific merit, investigator ability and resources, partnership and capacity building, and cost/benefit. More in-depth reviews are provided to investigators following project selection.

Project Number: 26-100
Project Title: Assessment of life history patterns and hypoxic stress of northwest Alaska whitefish (Coregoninae) and Arctic grayling

Issue Addressed: Our project will address the whitefish and Arctic grayling-related portions of three Priority Information Needs (PINs) identified by the 2026 Fisheries Resource Monitoring Program through information gathered from Northern Alaska Subsistence Regional Advisory Committees. These PINs are paraphrased to include 1) Identifying the spawning areas, critical habitat and range expansion in major rivers tied to subsistence for whitefish, 2) Documenting abundance and migration timing of whitefish species in the Northwest Arctic, and 3) Evaluating changes in reduced oxygen associated with subsistence fishery resources in the Northwest Arctic Region. The findings from our project will enhance the current information known about whitefish and grayling, allowing federal subsistence managers to make informed decisions in the future based on habitat use and hypoxia stressors on these fish in waterbodies of northwest Alaska.

Objectives:

1. Utilize Strontium (Sr) otolith microchemistry to characterize habitats used (saltwater, brackish, freshwater) throughout the lives of several Coregoninae species collected from lagoons of northwest Alaska
2. Identify common life history patterns based on timing and seasonality of movements between habitats identified from Sr microchemistry to inform habitat priority assessments

3. Characterize the frequency and magnitude that Arctic grayling and Coregoninae species experience hypoxic periods throughout their lives by examining Manganese: Calcium ratios derived from otolith microchemistry.

Methods: To accomplish our goals, we will prepare and analyze 110 sagittal otoliths previously collected from several whitefish species and Arctic grayling in coastal lagoons of northwest Alaska for microchemical analyses, focusing on Sr isotope ratios across fish biochronologies. The data from these analyses will be used to characterize how often fish of each species spend time in freshwater, brackish, or saltwater habitats, and the periodicity of these movements, to better-describe the coastal life histories of Coregoninae, which are largely unknown. Finally, Arctic grayling otoliths collected from the same coastal habitats, as well as a subset of the Coregoninae otoliths used for Sr analyses, will be run to assess Manganese: Calcium ratios across the biochronologies of fish to characterize how often they experience periods of low oxygen throughout their lives. The results of the project will be useful to resource managers for prioritizing critical habitats for whitefish and grayling that may be affected by coastal development or natural processes (i.e., erosion), and to better understand the stressors that fish face during their lives, to ensure that these important subsistence species maintain healthy populations and availability for harvest.

Partnerships and Capacity Building: This project will be a collaborative effort between the Wildlife Conservation Society, the Native Village of Kotzebue, and other scientists involved in fisheries management and research in the region. Collaborating with the Native Village of Kotzebue is paramount to the success of this project, and fostering local and tribal partnerships is principal for all WCS work (both globally and with respect to the Arctic Beringia program). It is essential that this partnership is ongoing and meaningful during each phase of the project, beginning with design. During project implementation, we will fund local consultation and field support to ensure the success of our activities. This will provide opportunities for outreach, synthesis of knowledge, and will cover the cost of any services that local residents may provide during the project duration. Upon completion of the project, we will conduct an outreach meeting in Kotzebue to present findings from the study, modeling this after previous successful fisheries meetings put on by WCS in Kotzebue and Point Hope.

Technical Review Committee Justification: The investigation plan requests three years of funding to characterize habitats, movement patterns, life history, and hypoxia frequency for whitefish and Arctic Grayling in northwest Alaska using otolith microchemistry. This project addresses multiple 2026 Priority Information Needs related to critical habitat and migration timing. While the study employs proven techniques, sample sizes are small, and the sampling design was not described in sufficient detail. The investigator and partners have the experience necessary to complete this project. Capacity will be built primarily through the sharing of research and results. The budget is reasonable, and costs are lower than comparable projects due to the use of pre-collected samples. A letter of support was received from the Native Village of Kotzebue.

Project Number: 26-201
Project Title: Beaver expansion into the Arctic: Current impacts and future implications for fishes in Northwest Alaska.

Issue Addressed: Beavers (*Castor canadensis*) have recently expanded deep into tundra ecosystems of Northwest Alaska, transforming stream ecosystems and raising concerns from local communities about impacts to fish habitat, water quality, and subsistence food security. Although beaver engineering is known to dramatically alter aquatic ecosystems and affect fish, there is limited understanding of their specific effects on Alaskan fishes, especially in the Arctic. This project directly addresses Priority Information Need (PIN) #3 for the Northern Alaska Region: *Study the effects of expanding beaver populations and range on subsistence fisheries*. It also contributes toward additional PINs related to fish distributions, habitat change, and salmon ecology (PIN #1, 2, 5, 6, 7 and 8).

Objectives:

1. Quantify beaver dam impacts on fish occupancy and community composition using fish sampling, eDNA, and habitat surveys across a latitudinal gradient (Nome, Kobuk, Noatak, and Wulik Rivers).

2. Evaluate changes to stream habitat suitability for juvenile salmon and other subsistence fish by modeling how beaver-induced changes to temperature, oxygen, and sediment affect growth and survival (Nome, Kobuk, Noatak, and Wulik Rivers).

3. Determine whether beaver ponds function as refugia or ecological traps for Northern Pike and Whitefish in the Selawik River basin using diet, isotopic, and barrier analysis.

4. Contribute fish and habitat data to statewide databases to improve baseline understanding of Arctic freshwater ecosystems, which will be useful in monitoring future changes.

Methods:

Study Design and Sites

This project will assess beaver impacts on fishes across a latitudinal gradient in Northwest Alaska, from the Seward Peninsula to the Brooks Range. Sampling will occur on the Seward Peninsula and in the Selawik, Kobuk, Noatak, and Wulik River watersheds, using paired treatment (beaver-impacted) and control (non-beaver-impacted) sites to quantify the effects of beavers on fish communities and fish habitat conditions.

Fish and Habitat Sampling

We will characterize fish communities using both non-invasive eDNA sampling and conventional field methods, including baited minnow traps, gillnets, seine nets, angling, and/or electrofishing. Fish will be identified, measured, and weighed, with a subset preserved for stomach content analysis and energetic content (via bomb calorimetry). This will allow us to evaluate species occupancy and distribution, size structure, body condition, and diet in beaver-impacted versus control habitats.

Concurrently, we will collect detailed habitat and water quality data, including stream temperature, dissolved oxygen, turbidity, pH, conductivity, and substrate composition. We will assess beaver dam height, pond depth, and permeability to determine their potential to restrict fish movement. Long-term

monitoring stations will be established at selected sites to log seasonal variation in temperature and water levels, which is critical for understanding habitat accessibility and thermal suitability.

Modeling and Analysis
We will use bioenergetics models that integrate field measurements of water temperature, fish diet, and energetic content to estimate potential growth rates. This will allow us to summarize and predict whether beaver ponds enhance or hinder juvenile Coho, Chinook, and Chum Salmon rearing conditions under current and future conditions, which will be critical for understanding changes in food security and salmon expansion into the Arctic.

In the Selawik Basin, we will assess whether beaver ponds function as refugia or ecological traps for subsistence species like Northern Pike and Whitefish using stable isotope analysis ($\delta^{13}C$, $\delta^{15}N$), stomach contents, and fish passage modeling. Combined with catch-per-unit-effort (CPUE) estimates and dam characteristics, we will evaluate how beavers reshape trophic dynamics and fish movement.

Partnerships and Capacity Building: The project builds on established collaborations through the Arctic Beaver Observation Network (ABON) and other regional partnerships. Community members from Noatak, Selawik, Nome, and other villages will be engaged through:

- Annual community meetings to present findings, gather feedback, and co-develop priorities.
- Temporary employment/contracts for local guides, assistants, and knowledge holders to participate in research activities.
- Co-developed research questions and site selection based on local observations and Traditional Ecological Knowledge (TEK).
- Food sharing by returning fish fillets (when allowed) to elders and communities.
- Capacity-building materials, such as a beaver management strategy resource guide.

This approach builds on our prior collaborative efforts and ensures that the research is grounded in local interests and produces actionable and relevant outcomes to guide future management and conservation. The results of this study will provide the first broad-scale evaluation of beaver impacts on Arctic fishes, directly supporting data-driven management of subsistence resources. By integrating ecological monitoring with community engagement, the project will generate actionable insights for adapting to rapid environmental change in Northwest Alaska.

Technical Review Committee Justification: The investigation plan requests four years of funding to study the effects of expanding beaver populations on subsistence fisheries in the Northern Alaska Region using various techniques, including fish sampling and environmental DNA analysis. The project addresses a 2026 Priority Information Need for the Northern Alaska Region and will contribute information to multiple other priority information needs. However, it is unclear how it will benefit fisheries management in the region. While the study employs sound techniques and is led by experienced

investigators, it requires further development of its study design. Capacity will be built through temporary employment, logistical collaboration, and consultation in research design. Although project costs are high, they are justified by the potential to significantly enhance knowledge of beaver expansion and baseline fish distribution. Eight letters of support were received from various organizations and individuals.

Project Number: 26-102
Project Title: Selawik Northern Pike population dynamics, movement, and habitat use

Issue: Northern pike (*Esox lucius*) are an important subsistence resource in the northwest Arctic. In spite of the prevalence of Federally managed lands in the area and the widespread distribution and subsistence use of pike throughout this area, very little is known about the habitat use requirements, movement by life history, and population structure of pike in the region. This knowledge gap has led to the listing of such pike population structure and movement data as a Priority Information Need (PIN) by the Northwest Arctic Subsistence Regional Advisory Council. Specifically, pike are mentioned in the proposed 2026 PINs within the following category:

"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."

This PIN is of particularly high interest to managers and researchers in Selawik NWR, especially given the reliance on pike by people in the Village of Selawik

This project seeks to provide baseline information about pike movement, habitat use by life history, and identification of potentially discrete sub-populations within Selawik NWR. The proposed project has the support of the refuge, including in particular Refuge Biologist William (Bill) Carter, who is a co-investigator on the project and has been actively involved in its development. No studies, with FRMP funding or otherwise, have been carried out on pike within the refuge. This represents a major data limitation for fisheries and subsistence management on the refuge, but also points to an area of high potential for rapid knowledge generation to greatly benefit managers and subsistence users of pike populations in the Northwest Arctic.

Objectives:
The overarching goal of this project is to determine the life history and movement of pike in Selawik NWR, specifically the Selawik River Delta near the Village of Selawik. Our specific objectives are twofold:

1. To track the movement of pike to discover how pike habitat use varies seasonally and according to pike life history.
2. To identify the extent to which pike in the area exhibit high site fidelity, and thus provide evidence for whether there may be multiple, distinct sub-populations or whether all pike in the area are part of a single, larger population.

Methods: Project objectives will be met principally by a combination of radiotelemetry monitoring and pike cleithra aging. This project will concentrate on the pike in the Selawik River Delta near the Village of Selawik where the majority of the subsistence fishery takes place. Sampling and tracking will particularly emphasize the confluence of the Fish River and the connected lakes north of the village. Through our consultations with local fishers we will determine the most productive and appropriate fishing areas to deploy the radio tags.

Pike movement will be assessed by implanting approximately 100 pike with radio transmitters in summer 2026 and 100 more in late winter/early spring 2027 Pike used in this study will be captured using hook-and-line angling within at least 5-10 known locations of pike abundance based on local knowledge. Pike initial capture and subsequent radiotracking will be accomplished primarily by motorboat, with tracking occurring over two years, with aircraft and snowmachine surveys when conditions require. Pike movements by life history will be assessed additionally with limited used of pike cleithra (membrane bone at the rear of the gill cavity) to determine individual fish age. Habitat conditions will be assessed by deployment of multi-parameter water quality sensors for measuring temperature, dissolved oxygen, and other variables. Collectively, these data will allow pike abundance and movements to be correlated to localized water conditions to understand why pike may be choosing certain habitats.

Partnerships and Capacity Building: Critically for the project and for long-term recruitment of rural residents into science and management of Federal subsistence fisheries, we will actively recruit an ANSEP student, ideally with existing local knowledge of the area, to take on the project as their master's thesis research at UAF. We will also involve local individuals and Alaska Native organizations to the extent feasible, particularly by recruiting project fieldwork assistance from the Native Village of Selawik. A local motorboat, captain, and technician will be recruited and paid to assist with the project for two weeks every year, particularly with angling and radiotelemetry. The angling activities will benefit especially from local knowledge. These activities also represent a fisheries training opportunity for those hired individuals and will promote further interaction between the village and Selawik NWR. We will also involve youth volunteers as a means of outreach, training, and engagement to promote future interest of local individuals in science and working within the refuge. We will recruit older teenagers (2-5 people, ideally) from the refuge's annual Science and Culture camp to join in radiotelemetry and fishing activities. The youth would play a direct role in meaningful sampling and data collection activities and would gain firsthand knowledge that they can "do science", including on the refuge and close to home. We also propose to involve youth in a similar way in the winter, in this case by snowmachine and by foot over Spring Break, to access sites for fishing and tracking pike through the ice.

We will brief village leadership at least yearly be in regular communication with the village and administrators with regards to staffing and youth involvement activities. At least once near project completion, and earlier pending interest, we will facilitate a local presentation about the project and its results, for any interested members of the local public.

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completion, and earlier pending interest, we will facilitate a local presentation about the project and its results, for any interested members of the local public.

Technical Review Committee Justification: The investigation plan requests three years of funding to provide baseline information about Northern Pike in Selawik NWR using radiotelemetry. This project addresses a priority information need while also providing life history information to inform management in the area. The study is technically sound and led by investigators with the experience necessary to ensure project success. Capacity will be built by hiring locals to assist with fieldwork and recruiting an ANSEP student to complete this project as their master's thesis at the University of Alaska Fairbanks. The project would benefit from letters of support, especially from local communities and ANSEP. The budget is well justified, with reasonable costs for the proposed work.

Project Number: 26-103
Project Title: Kobuk River Sheefish Spawning Abundance

Issue: The Kobuk River sheefish or inconnu Stenodus leucichthys population supports substantial inriver subsistence and sport fisheries along with winter subsistence, sport, and commercial fisheries that occur in Hotham Inlet and Selawik Lake (Figure 1). This project primarily addresses the need for baseline population assessment and monitoring of subsistence and sport fisheries. The subsistence and sport fisheries take place throughout Hotham Inlet and Selawik Lake, which are bordered by the Selawik National Wildlife Refuge; near the outlet of the Kobuk River also in the Selawik National Wildlife Refuge; around inriver summer feeding areas in Kobuk Valley National Park; and throughout the spawning grounds in Gates of the Arctic National Park & Preserve. Federal management of these fisheries is mandated through the Alaska National Interest Lands Conservation Act (ANILCA) to conserve sheefish stocks (USFWS 1993). The majority of sheefish harvested in the Selawik National Wildlife Refuge are comprised of the only two known spawning stocks in the region, the Selawik and Kobuk River stocks (Alt 1987, Savereide and Huang 2016, Hander et al. 2017). To effectively manage these fisheries, an understanding of harvest (numbers and composition) and stock abundance is necessary to describe the population dynamics of these stocks and identify sustainable harvest levels. The Alaska Department of Fish and Game (ADF&G) Division of Subsistence is submitting a proposal to OSM titled "The Harvest and Use of Sheefish and other Nonsalmon Fishes in Hotham Inlet, Alaska" to acquire a more recent understanding of sheefish harvest. That proposal pairs well with this proposal to describe the current population dynamics of sheefish in the region. The sheer size of this region coupled with stock differences in seasonal movements and timing (Smith 2013) make deriving estimates of stock abundance from typical mark-recapture experiments unfeasible. It is challenging to obtain estimates of spawning stock abundance because sheefish are iteroparous (spawn more than once) and are known to skip a year or more between spawning events (Nikolskii 1954, Scott and Crossman 1973, Savereide 2014), estimates of spawning frequency would be needed to derive estimates of total mature stock size. Using radiotelemetry, Savereide (2016) derived these estimates of spawning frequency and spawning abundance estimates. However, with an increase in popularity in the winter subsistence fishery, more recent information is required for successful management of both the subsistence and sport fishery. This project will use sonar methodology to enumerate the in-migration of spawning sheefish in the Kobuk River and provide managers with an accurate index of the entire Kobuk River spawning stock.

Objectives: The objective of this project is to enumerate sheefish during migration to the spawning grounds in the Kobuk River using sonar methodology annually (FY2027-2029).

Methods: The objective is to position the sonars so they can record images from the entire river, 24 hours a day, 7 days a week. The Kobuk River is approximately 60 m wide where we would like to set up the sonar station. On low frequency, the sonar can ensonify up to 40 m. A feasibility study has shown that two sonars are needed to ensonify the entire migration area (Matter In prep.). Small weir structures will be deployed to ensure migrating sheefish pass through the sonar beam. The ARIS units will be deployed over the course of the sheefish migration from 15 July to 15 September (Savereide 2014). The ARIS units will be mounted to a portable aluminum stand that is moved manually to adjust for water depth. A small generator will provide the required power to run the sonar equipment. To confirm that no other fish ≥ 675 mm FL are passing the sonar or that sheefish ≤ 675 are not moving upriver to spawn, periodic, beach seine hauls throughout the sheefish migration will be conducted to sample fish near the study area to ensure that assumptions of fish size and species composition are being met. A crew of up to four people with assist with sonar and camp setup, and two technicians will be assigned to enumerate the sheefish migration in the Kobuk River for the duration of the project. The additional biologists will assist with the beach seine hauls and initial ARIS deployments and training. The project will begin during the second week of July and will continue through the end of August each year.

Partnerships/Capacity Building: ADF&G Division of Sport Fish has discussed this sheefish project and previous results with local communities in the Kobuk River drainage and Kotzebue. The boat to be used for this study is stored by a local family in Kobuk that has worked on sheefish projects in the past. The project biologist also contracts the local community occasionally for logistic support such as boat rides and field camp set-up and takedown. All knowledge gathered from this project will be shared with local and agency representatives. ADF&G will provide project updates to the Regional Advisory Council as well as the local communities. ADF&G is actively seeking letters of support from RAC and local community members, but they were unavailable before the deadline. However, they will be submitted to OSM as soon as they become available. In past years ADF&G has found that local knowledge has been invaluable to the success of sheefish projects. ADF&G will also coordinate logistics such as storage, etc. with Kobuk village, ADF&G Kotzebue as well as the Selawik National Wildlife Refuge. The area management biologist has discussed concerns of sheefish overharvest and sustainability with members of the Northwest Regional Advisory Council (NWRAC) in Kotzebue as well as the Kotzebue Fish and Game Advisory Committee in 2024 and 2025. In addition, a lifelong Kotzebue area resident and subsistence fisher has provided a letter of support for this research, as has the NWRAC. The principal investigator plans to work with the school in Kobuk to visit the project site, learn about sonar, and create an independent study project on sheefish life history. All knowledge gathered from this project will be shared with local and agency representatives, and final presentations of this research will be presented at the NWRAC meeting, Kotzebue Fish and Game Advisory Committee meeting, and the Lower and Upper Kobuk Fish and Game Advisory Committee meetings

Technical Review Committee Justification: The investigation plan requests three years of funding to enumerate Sheefish migrating to their spawning grounds in the Kobuk River using sonar techniques. This project aims to provide an index of the Kobuk River spawning stock and addresses priority information

needs important for management of subsistence fisheries. The study is technically sound, using proven methods and is led by the Alaska Department of Fish and Game, which has the resources and experience to ensure project success. However, the project would benefit from stronger community partnerships and capacity building. The budget is reasonable and well-justified. Letters of support were received from the Northwest Arctic Regional Advisory Council and Seth Kantner.

Project Number: 26-150
Project Title: The Harvest and Use of Sheefish and other Nonsalmon Fishes in Hotham Inlet, Alaska

Issue: Issue: Sustainable management of nonsalmon fisheries requires accurate, up-to-date harvest and use information. For rural communities within the Northwest Arctic near Hotham Inlet, this information does not exist or is imprecise, outdated, or unsubstantiated. Managing sheefish and other nonsalmon fish species is not possible without accurate, up-to-date information about annual harvests, changes in abundance, and size, timing, and distribution of new and existing species. Using mixed qualitative and quantitative methods, the proposed research will update harvest estimates of sheefish and other nonsalmon fishes for the communities of Kotzebue and Noorvik to explore shifting patterns of harvest. The ethnographic component of the research will document Local Ecological Knowledge (LEK) and Traditional Ecological Knowledge (TEK) of critical nonsalmon fishes for this region with a focus on local fishers' observations of abundance and distribution.

Objective:

1. Document local and traditional knowledge related to sheefish and other nonsalmon species and sheefish abundance and distribution based on:

    a. traditional and contemporary patterns of nonsalmon fish harvests in Kotzebue and Noorvik, communities who conduct most of their harvest in Hotham Inlet or the Kobuk River;

    b. observational knowledge about fish species new to the area, and changes in abundance, and size, timing, and distribution of existing fish species in the Kobuk River Drainage;

    c. observational knowledge of changes to sheefish and other nonsalmon fish populations, their habitats, or both over time, and any association with changing climate;

    d. observational knowledge of fish ecology, including information about habitat, reproduction, diet, and seasonal movements;

    e. spatial mapping of harvest areas and other significant habitats by species and season.

2. Document subsistence harvest levels as follows:

    a. Estimate subsistence harvest levels and percentages of Kotzebue and Noorvik households that use, harvest, give away, and receive sheefish and other nonsalmon fish species, for the calendar years 2026 and 2027 This data set will also include basic demographic

information, households' assessment of harvests and use compared to recent years, and questions tracking the seasonality/location of harvests and gear types used.

b. Spatially map harvest areas and significant habitats by species and season as well as traditional camps and other locations of importance.

Methods: Methods for this project include both qualitative and quantitative methods of data collection. Alaska Department of Fish and Game (ADF&G) researchers will work with the tribal councils in Kotzebue and Noorvik to identify local research assistants (LRAs) to hire and help with Traditional Ecological Knowledge interviews and household surveys.

The ethnographic research for this project will include anthropological methods of participant observation and semi-structured interviews. Specific participant-observation may include talking to community members about the research, assisting community members to set or check nets, helping distribute the harvest to others, assisting with processing, or visiting households to learn about kinship relationships or fishing groups in the community. Field trips will last approximately 5–13 days, and all time in the field will generally be spent either conducting interviews, surveys, or in participant observation. Semi-structured interviews will be conducted with long-time residents in both communities who have a history of fishing for sheefish and other nonsalmon fish in Hotham Inlet and the Kobuk River watershed. Interview data will be downloaded into ATLAS.ti,1 a qualitative data analysis software, coded, and analyzed. Coding of transcribed interviews will be accomplished using an inductive process that allows for the development and refinement of codes based on emergent themes and relationships present in the interview data rather than a predetermined code list.

The primary harvest data collection method will be systematic household surveys, which will document harvest for each community over a 12-month period. The research will document two years of harvests to mitigate against the potential of a single year of data collection during an anomalous year. Harvest data will be collected face-to-face using a standardized survey form and will last approximately 15 minutes, depending on the nature of each household's experience with subsistence fishing-related activities. In spring 2027 and 2028, researchers will administer a nonsalmon fish harvest survey to a random sample of households in Kotzebue (25% sample) and Noorvik (75% sample). The survey will document species harvested, the amounts, timing of harvest, gear types used, and harvest location. The Division of Subsistence Information Management Section will set up database structures within a Microsoft SQL Server to hold the survey data, which will be backed up nightly. Once survey data are entered into the database and confirmed, information will be processed with the use of R statistical software.

During interviews and surveys, maps of Hotham Inlet and the Kobuk River and nearby surrounding areas will be used as a visual reference. Fishing sites, observations of nonsalmon species, and other relevant information related to the topics of interest will all be mapped using the ESRI Collector application on iPads, or on paper and then transferred to the iPad afterward, to produce maps that will accompany the analysis by providing visual records of harvest areas and any other important spatial data captured in the interviews.

Partnerships/Capacity Building: A primary goal of this project is to engage residents of the study communities throughout the research project to build capacity for fisheries research and to facilitate information sharing between local residents and resource management agencies. This mutual sharing of information is critical for informing regulatory changes to nonsalmon fish resource harvests and potential implications on subsistence practices. Local research assistants will be trained in social science research methods and will help with data collection for surveys, mapping and ethnographic interviews. Working with locally hired team members to collect data allows researchers to better understand local issues, and it can also help local residents further understand scientific research activities as well as management issues. Community residents will have the opportunity to share their knowledge of nonsalmon fish in the Hotham Inlet area with researchers, and in return project staff will share what they learn through ethnographic and harvest-based research with the community. The research seeks to facilitate the two-way exchange of information which can enhance the relationship between the communities and ADF&G and foster additional partnerships in the future.

Technical Review Committee Justification: This project updates harvest estimates and documents local and Traditional Ecological Knowledge of sheefish and other nonsalmon fishes in Hotham Inlet for Kotzebue and Noorvik. Declines in caribou and other resources in the region suggest that federally qualified subsistence users may be increasing their dependence on nonsalmon fish. The investigators will apply mixed qualitative and quantitative methods to document harvests as well as changes in abundance, size, migration timing, and distribution of new and existing nonsalmon fish species in order to inform sustainable management of the fishery in the context of a changing climate. The project addresses four 2026 Priority Information Needs. Subsistence surveys provide one of the only ways to assess changes in harvest and dependence on this fishery for management purposes, and they have not been conducted in these communities for over ten years.

The investigators are extremely well qualified to conduct this work, and they would bring the substantial institutional knowledge and administrative resources of ADF&G Division of Subsistence to the project. The investigators propose to conduct surveys and interviews for two consecutive years. This is a new approach, which may improve the quality and usefulness of results. However, this is a trade-off, as these funds could otherwise have been directed towards including additional communities in the study.

Letters of support were included from Noorvik Native Community (Noorvik) and the Native Village of Kotzebue (Kotzebue). Additionally, the Northwest Arctic Regional Advisory Council authored a letter of support. The Tribal Councils will be invited to provide input into the project design, and will be consulted to help interpret the preliminary results. Local research assistants will be hired and will have an extensive role in the work. Overall, the cost appears reasonable for the work proposed, but is higher than typical due to the inclusion of two study years.

Project Number: 26-151
Project Title: Kawerak Tribal Fisheries Stewardship Program: Awatipta Ecosystem Monitoring Program

Issue: Issue: Financial and logistical constraints have limited scientific monitoring efforts of salmon and habitat in Northern Alaska Region. Trained community based observers or Sentinels will integrate Traditional Knowledge with standardized monitoring methodologies to collect robust watershed level ecological data on salmon and habitat. These data will inform salmon management and policy and

increase capacity for Tribal participation in salmon recovery and conservation planning. Ultimately, this initiative will enhance Indigenous stewardship, fill critical knowledge gaps, and support the sustainability of salmon populations for future generations of subsistence harvesters.

Objective:

1. Hiring and training Sentinels in salmon ecosystem monitoring using both Western scientific protocols and Traditional Knowledge approaches.
2. Establishing a Traditional Knowledge Expert Group (TKEG) to interpret monitoring results and provide culturally grounded insights.
3. Utilizing the Indigenous Sentinels Network (ISN) for real-time data collection, quality control, and secure data storage.
4. Developing regional and community-specific monitoring priorities in consultation with Tribal Councils.
5. Engaging with Tribal, state, and federal agencies to integrate findings into adaptive salmon conservation and subsistence management.
6. Sharing results through reports, presentations, and peer-reviewed publications co-produced with Tribal partners.

Methods: This project utilizes trained local residents, or Sentinels, with strong subsistence experience to collect observational data on ecological and fisheries-related indicators. In Year 1, Sentinels will participate in multi-day trainings in Nome to align on regional research priorities and standardized data collection protocols co-developed with Kawerak staff, Tribal Knowledge holders, and the Tribal Knowledge and Ecological Governance (TKEG) group.

Data Collection
Sentinels will monitor environmental conditions using tools like Hobo Pendants (for water temperature and dissolved oxygen), turbidity tubes, and Secchi plates. Monitoring sites and sampling frequencies will be guided by Traditional Knowledge, logistics, and input from fisheries biologists. Post-harvest biological samples (e.g., fish scales, otoliths, DNA, and parasites) will be collected, documented, and sent to the Kawerak office for further analysis or storage.

Quality Control
All data is entered through the Indigenous Sentinels Network (ISN) platform, which includes built-in quality control. Sentinels pre-review their entries, which are then independently reviewed by staff or senior Sentinels. Only complete, validated data is accepted for analysis or reporting. Data collection protocols will be refined over time based on TKEG feedback and annual review findings.

Data Analysis
While ISN does not conduct in-platform analyses, data can be exported and analyzed using tools like R or Python. Analyses are conducted annually by Kawerak staff to detect trends, assess ecological changes,

and refine sampling methods. Preliminary results are shared with Tribes, Sentinels, and TKEG for validation and feedback.

Data Sovereignty and Use
All data remains under Tribal ownership, and sharing decisions are made by participating Tribes in collaboration with program staff. ISN's flexible sharing permissions protect Tribal sovereignty while enabling data use in broader conservation and management planning. Results may be disseminated in peer-reviewed publications, reports, or other formats guided by Tribal input.

Framework and Best Practices
The project follows best practices in co-production of knowledge (CPK), guided by Arctic Indigenous-centered models and Kawerak's Tribal research protocols.

Partnerships/Capacity Building: By building an Indigenous-led, watershed-level monitoring network, Kawerak seeks to generate critical ecological data, integrate Traditional Knowledge, and expand Tribal capacity to engage in salmon conservation, federal subsistence management, and policy decision-making.

A central goal of the Awatipta Program is to build capacity within Indigenous communities by training local Sentinels to collect ecological data and conduct watershed monitoring. This work empowers Tribes to actively contribute to salmon management, restoration, and policy development using both Traditional Knowledge and scientific methods.

Locally collected data will strengthen Tribal engagement in adaptive management and foster collaboration with the broader scientific community. The program also supports development of research partnerships beyond basic monitoring, including sample collection for salmon body condition analysis and genetic diversity studies using tools like eDNA. Funding is included for shipping and preliminary testing of samples to support these partnerships.

Federal and regional partners (e.g., USFWS, USGS, NOAA, ADFG, NSEDC) may assist in refining methodologies in alignment with Tribal priorities throughout the project.

Technical Review Committee Justification: This project would use a co-production of knowledge framework to implement an Indigenous Sentinel monitoring program for salmon and their habitat in the Seward Peninsula region. The project would generally address the following 2026 Priority Information Need for the Northern region: *Investigate causes of salmon decline in Norton Sound freshwater drainages.* Some aspects to be monitored include in-river turbidity, water temperature, and precipitation. The project would use an existing data reporting platform created by the Indigenous Sentinels Network. The investigators indicate that additional monitoring parameters and monitoring sites could not be determined prior to in-depth consultation with relevant tribes, which is contingent on funding. However, it is difficult to fully evaluate the proposal without these details. The proposal could be improved by including information on the location of existing and proposed monitoring activity, so the linkage to Federal public waters could be determined.

Deliverables would include the network of trained Sentinels, environmental data sets, reports from the Traditional Ecological Knowledge Expert Group reports, and a final technical report. Dr. Raymond-Yakoubian and Kawerak would bring substantial resources and experience to this effort. Ms. Scofield appears qualified, but is new to the Monitoring Program. The proposal would be improved by inclusion of information about the Kawerak fisheries biologist. The proposal excels in the dimension of capacity building, contributing to the development of a trained and experienced local Sentinel network and a Traditional Knowledge Expert Group. The cost of the project is high for the work being proposed, but this is difficult to evaluate without the inclusion of additional details on the proposed work.

YUKON REGION

Priority Information Needs

The 2026 Notice of Funding Opportunity identified the following 14 priority information needs in the Yukon Region:

- Impacts of climate change on 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.
- Estimates of Chinook, summer Chum, fall Chum, and Coho salmon escapements and/or harvests with an emphasis on discrete stocks for Chum Salmon.
- Distribution, abundance, condition, and survival of juvenile and out-migrating salmon in the Yukon River drainage.
- Increase understanding of the abundance, distribution, migration patterns, and spawning locations of Chinook and Chum salmon in the Innoko River.
- Non-lethal estimates of "quality of escapement" for Chinook Salmon, for example, potential egg deposition, age, sex, and size composition of spawners, weight and girth of spawners, percentage of females, percentage of jacks, and spawning habitat usage, with an emphasis on Canadian-origin stocks.
- Community-based monitoring of salmon and resident species' presence, abundance, life history patterns, harvests, genetics and age-sex-length composition, incidental and delayed mortality from entanglements and drop-outs, habitat restoration needs, and/or environmental variables in tributaries to better understand fish and keep users engaged during years of limited fishing opportunities.
- In-season estimates of genetic stock composition of Chinook, summer Chum, and fall Chum salmon runs.
- Traditional Ecological Knowledge of fishes, for example, to identify salmon spawning and/or rearing locations and expand the Anadromous Waters Catalog.
- 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 at the tributary level.

- Funding to facilitate interagency, Tribal, and stakeholder forums for gathering and sharing input on fishery management issues, including cross-jurisdictional and co-management of salmon.

- 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, reduction in marine-derived nutrients) and marine (e.g., environmental conditions, bycatch, interception, migration routes, hatchery production and competition) factors in causing declines of Yukon River Chinook and Chum salmon and/or resident species to present at relevant Regional Advisory Council meetings.

- Effects of inriver predation on salmon as they migrate upriver.

Proposals Submitted for the Yukon Region

Five proposals were submitted for funding in the Yukon Region **(Table 3)**.

Table 3. Projects submitted for the Yukon Region, 2026 Monitoring Plan, including project duration in years and total funds requested.

Project Number	Title	Project Duration (Years)	Total Project Request
26-200	Chena River Chinook and Summer Chum salmon enumeration	4	$467,664
26-201	Application of mixed-stock analysis for Yukon River Chum Salmon	4	$319,288
26-202	Feasibility of sonar estimation of adult salmon passage in the Middle Yukon River near Ruby Alaska	3	$690,310
26-250	Traditional Ecological Knowledge and life histories of salmon in tributaries of the Yukon Coastal District	3	$341,477
26-252	In-season Yukon River subsistence salmon survey program	4	$377,385
Total			**$2,196,124**

There are no projects currently being funded by the Monitoring Program in the Yukon Region

Regional Advisory Council Comments

Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

General Comment: The Council expressed strong overall support for all proposed projects, emphasizing their importance to Yukon River salmon management and decision making.

Project 26-200: Members noted the value of this project in providing usable data for Chinook and summer Chum salmon, especially given recent sonar outages. One member questioned project costs and allocation of funding to a non-rural study area.

Project 26-201: The Council viewed this project as critical for understanding mixed-stock dynamics and improving holistic assessments of Yukon River salmon runs.

Project 26-202: The Council highlighted this project as essential for adding a sonar count in the middle Yukon River.

Project 26-250: Council members provided enthusiastic support for documenting Traditional Ecological Knowledge, which members stressed is vital for informed regulation setting and has long been requested by communities.

Project 26-252: The Council viewed this as a very important and necessary information source for subsistence harvest monitoring, filling gaps where escapement data is inconsistent.

Western & Eastern Interior Alaska Subsistence Regional Advisory Council

On December 17, 2025, the Western and Eastern Interior Regional Advisory Councils held a joint meeting to provide feedback on Fisheries Resource Monitoring Program projects. The comments below reflect shared input on Yukon projects identified in **Table 3**.

General Comment: The Councils felt that all the projects appeared to be strongly linked to research needs for the region and would be important for fisheries management.

Project 26-200: The Councils agreed that age composition and spawning success have important implications for the management of Chinook and Summer Chum in the Chena River. The Chena River provides important salmon spawning habitat that is critical to Yukon River drainage salmon populations. The Councils acknowledged that this research is very important for rebuilding stocks and signaled this project as a high priority for the region. Adding an additional sonar site between the existing sites at Pilot Station and Eagle would enhance resolution and understanding of mid-river fish movements. This addition would substantially increase data available to in-season managers and help better inform management decisions. The Councils were especially supportive of Tanana Chiefs Conference being the primary investigators and hope to see an increase in Tribal capacity through their role with the project.

Project 26-201: No directed comment (see general comment above).

Project 26-202: The Council acknowledged this research is very important for rebuilding stocks in the Yukon and knowing what's going on in the mid-river, Tanana River, and a good tool for managers. The Council is supportive of this project noting its Tanana Chiefs Conference Investigators Tribal capacity and role with the project and signaled this project as a real high priority for the region. The Council identified this project as having the highest priority of all projects in the region and unanimously provided strong support for funding.

Project 26-250: The Councils considered this to be a good project if the scope is extended to both middle and upper Yukon River regions. The Council noted there are a lot of elders who have life experiences with salmon. Due to current status of Chinook and Chum salmon declines, young fishermen are losing out on opportunities to learn, and elders could help capture this knowledge and help those younger fishermen.

Project 26-252: No directed comment (see general comment above).

Executive Summaries and Technical Review Committee Justifications

The following executive summaries were written by the principal investigators and submitted to the Office of Subsistence Management as part of a proposal package. They may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. The executive summaries may have been altered for length.

Technical Review Committee justifications are a general description of the committee's assessment of proposals when examining them for strategic priority, technical and scientific merit, investigator ability and resources, partnership and capacity building, and cost/benefit. More in-depth reviews are provided to investigators following project selection.

Project Number: 26-200
Project Title: Chena River Chinook and Summer Chum salmon enumeration

Issue: The Yukon River is 1 of 12 indicator stocks chosen by ADF&G in the Chinook Salmon Stock Assessment and Research Plan (ADF&G Chinook Research Team 2013) as a stock for which additional information on stock productivity is desired. In addition, since 2000, the Yukon River Chinook salmon stock has been designated as a stock of yield concern by the Board of Fisheries (BOF) in Alaska. This determination was based on the inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above the stock's escapement needs and the anticipated low future harvest levels. The current Amount Necessary for Subsistence (ANS) of Chinook salmon in the Alaskan Yukon River drainage was designated by the BOF in January 2013 to be 45,500–66,704 Chinook salmon. Since 2011, salmon harvests have been below the ANS except for 2019. Reported 2017–2021 harvest values ranged from 21,531 to 48,379 (Ransbury et al. 2022). In 2022 and 2023, subsistence fishing for Chinook salmon was closed for the entire run and preliminary harvest (incidental) estimates were 1,827 and 1,630, respectively (JTC 2023–2024). The Tanana stock accounts for 19.3–24.3% of the Yukon Chinook salmon stocks, and on average from 2002–2004, the Chena River represented 22% of all Tanana River escapement (Eiler et al. 2014). For this reason, the Alaska Department of Fish & Game (ADF&G) have recognized the importance of enumerating the escapement of the Chena River to ensure sustainable lower Yukon and Tanana subsistence and sport fisheries. Moreover, the Chena River has an established escapement goal that managers use to ensure sustainability and the only way to assess whether the escapement goal was met is to enumerate the escapement. Escapements in the Chena River have been monitored annually since 1986 making it, along with the Salcha River, the longest continuous Chinook salmon escapement data set in the Yukon River drainage.

Objective: The objectives of this project will be to annually (FY2027-2030):

1. estimate the total escapement of Chinook salmon in the Chena River using tower counting techniques such that the estimates will be within 15% of the true values 95% of the time and the potential for bias will be minimized; and,

2. estimate age, sex, and length compositions of the escapement of Chinook salmon in the Chena River such that estimated proportions will be within 6 percentage points of the true proportions 95% of the time.

3. estimate the total escapement of chum salmon in the Chena River using tower-counting techniques such that the estimates will be within 15% of the true values 95% of the time and the potential for bias will be minimized.

Methods: Five technicians will be assigned to enumerate the salmon escapement in the Salcha River. Each day will be divided into three 8.0-h shifts. Shift I begins at 0000 hour (midnight) and ends at 0759

hour; Shift II begins at 0800 hour and ends at 1559 hour; Shift III begins at 1600 hour and ends at 2359 hour. Salmon will be counted for 20 min every hour. The start time for all counts will be at the top of the our. Daily escapements of Chinook and chum salmon will be estimated by expansion of timed visual counts of fish as they pass over white fabric panels located on the river bottom, on the Salcha River approximately 1 km upriver of the Richardson Highway bridge (Figure 1). Personnel will stand on the deck of a scaffolding tower and count all salmon passing upstream and downstream for 20-min intervals every hour over the course of the run. Lights will be suspended over the panels to provide illumination during periods of low ambient light and will stay on for the duration of the Chinook salmon run. Counting will begin on or about 1 July and will continue until the end of the run as determined by 3 continuous days with no net upstream passage of Chinook salmon (typically around 5 August). The majority (>95%) of Chinook salmon spawning occurs upstream of this site and no harvest of salmon is allowed, making the final estimates representative of total escapement. The numbers of upstream and downstream migrating Chinook and chum salmon and water clarity rating (Table 1) will be recorded on field forms at the end of each 20 min count. Only counts with a water clarity rating of 3 or higher will be used in the estimate of escapement. Counts with a rating of 4 or 5 will not be used to estimate escapement even if some Chinook or chum salmon are seen. In addition to the tower counts, ASL composition of the salmon escapements (only SL for chum salmon) will be estimated by sampling carcasses of spawned-out carcasses at the end of the run. Ages will be determined from Chinook scale patterns as described by Mosher (1969). Four scales will be removed from the left side of the fish approximately 2 rows above the lateral line along a diagonal line downward from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin (Welander 1940). If no scales are present in the preferred area due to decomposition, scales will be removed from the same area on the right side of the fish or, if necessary, from any location where there are any scales remaining other than along the lateral line. Sex will be determined from external characteristics when obvious, and from examination of gonads when sex is uncertain. Length will be measured from mid-eye to fork of the tail (MEF). Objective criteria for ASL compositions were established to maintain the integrity of the spawner-recruit data used to set the BEGs. To estimate age compositions with the desired level of precision, a minimum of 416 Chinook salmon carcasses will be sampled for scales assuming a 15% data loss due to unreadable scales (Thompson 1987).

Partnerships/Collaboration: ADF&G, Division of Sport Fish-Region III will employ 4 tech staff to assist with this project. These staff will gain valuable fisheries experience that can help develop individuals into future fisheries biologists. This project has been operating annually since 1986. Data gets sent to stakeholders and interested parties daily in season. The area management biologist will provide project updates to the Regional Advisory Council as well as the local communities. He is actively seeking letters of support from RAC and local community members, but they were unavailable before the deadline. However, they will be submitted to OSM as soon as they become available.

Technical Review Committee Justification: The investigation plan requests four years of funding to estimate Chinook and Chum salmon escapement and escapement quality in the Chena River using counting-tower techniques. The project addresses a 2026 Priority Information Need for the Yukon Region and has important management applications. The proposed study is a continuation of a long-term monitoring project that is technically sound. The Alaska Department of Fish and Game possesses the

necessary experience, personnel, and resources for project success. The project does not build any meaningful capacity and could be strengthened by adding partnerships. Project costs are justified and lower than many similar projects due to proximity near Fairbanks. No letters of support were received.

Project Number: 26-201
Project Title: Application of mixed-stock analysis for Yukon River chum salmon

Issue: This project relates to the following priority information need identified in the 2026 Office of Subsistence Management (OSM) Request for Proposals: inseason estimates of genetic stock composition of Chinook, summer Chum, and fall Chum salmon runs. This proposal is a continuation of Fisheries Resource Monitoring Program (FRMP) projects 04-228, 06-205, 10-205, 14-207, and 20-201, which have provided in-season stock composition estimates of chum salmon to fishery managers within 24 to 48 hours of receiving samples from the Pilot Station sonar test fishery. The disparate strength of individual stocks within and among years makes it clear that in-season stock return data assists management to meet escapement. It provides a real-time tool that allows for informed decisions on regulating fisheries to meet escapement and harvest allocations.

Objective: The goal is to provide fishery managers with data that will assist them in meeting escapement, passage, and harvest allocations to ensure that the fishery is managed in a sustainable and equitable manner. The following objective will be executed to achieve this goal:

1. Estimate the stock compositions of summer and fall chum salmon sampled from the Pilot Station test fishery each year (June 1 – September

Methods: Genetic samples will be collected from every chum salmon caught in the Pilot Station sonar test fishery from June 1 – September 7, and sent to the CGL every week and at the conclusion of each run pulse. Samples will be stratified by time period or run pulse and a subsample of size 288, selected so that daily sample size is proportional to the daily sonar passage estimate within a stratum, will be genotyped for each stratum of the run. Stock composition will be estimated using Bayesian mixture modeling and reported to fishery managers as soon as practicable. Stock abundance estimates will be derived by combining the sonar passage estimates with the stock composition estimates.

Partnerships/Collaboration: We have worked with ADFG biologists to coordinate sample collection. We have contracted with the Association of Village Council Presidents (AVCP) to hire a local to collect the genetic samples. We completed the baseline in partnership with the DFOC. We have consulted, with ADFG, USFWS, and DFOC managers.

Technical Review Committee Justification: The investigation plan requests four years of funding to continue estimating in-season stock composition of Yukon River summer and fall Chum salmon. The Federal linkage is strong, and this project addresses a 2026 Priority Information Need for the Yukon Region. The data collected by this study are critical for informing in-season management of Chum Salmon and the project is technically sound. The investigators have the experience necessary to complete this project. A limited partnership with the Alaska Department of Fish and Game is described, but very little detail about consultations with communities or other agencies is provided. The project does not

build any meaningful capacity but does propose to hire a local to lead sample collection. Project costs are reasonable for the proposed work and are lower than previous cycles. No letters of support were received.

Project Number: 26-202
Project Title: Feasibility of Sonar Estimation of Adult Salmon Passage in the Middle Yukon River Near Ruby Alaska

Issue: Chinook and chum salmon returns to the Yukon River have declined since the late 1990s, triggering harvest restrictions, closures, and severe hardships for subsistence-dependent communities. The Chinook stock is classified as a stock of yield concern. A seven-year agreement between the United States and Canada is currently in place to protect Chinook salmon from harvest. Two sonar sites at Pilot Station and Eagle are used to monitor escapements; however, these sites are over 1,000 river miles apart. Run size estimates between the Pilot Station and Eagle sonars have led to data discrepancies in some years, leading to late-season management decisions and inequitable subsistence opportunities for upriver communities. To address this critical data gap, Tanana Chiefs Conference (TCC) initiated the Middle Yukon River Sonar Feasibility Project. The goal is to establish a mid-river sonar site to improve in-season management, conservation outcomes, and equitable access to salmon for Interior Alaska Tribes. The project will also enhance Tribal scientific capacity and provide essential data for co-management of Yukon River fisheries.

Objectives:

1. Select a sonar site along the Middle Yukon River following feasibility assessments (2023-2025).
2. Install and operate sonar to enumerate daily and seasonal passage of Chinook and summer chum salmon (2026–2028).
3. Collect biological data from test fishing (species, sex, length).
4. Generate post-season estimates to eventually help support management decisions and link with Pilot Station and Eagle sonar data.
5. Provide detailed bottom profiles and monitor riverbed changes for optimal sonar deployment.
6. Build Tribal and local capacity for sonar operations and fisheries management.

Methods: Following site selection in 2025, sonar enumeration operations would begin in 2026. The project will deploy split-beam and imaging sonars at the selected site. A standardized drift gillnetting program will be used to apportion sonar counts to species. Sonar will operate continuously during the Chinook and summer chum runs, expected to occur from June 15 to July 31. The methodologies of this project will be modeled closely to both the Pilot Station and Eagle enumeration and species apportionment procedures. Captured fish will be identified, measured, and released. Sonar and test fishing data will be analyzed post season to produce daily passage estimates and seasonal escapement summaries. Weekly bottom profiling will ensure consistent detection capabilities. Data will be reviewed by observers

to reduce counting bias. Results will be used to assess run timing, species composition, and eventually support in-season management. All data will be archived and shared with Federal and State managers.

Partnerships/Collaboration: TCC will lead the project with support from the U.S. Fish and Wildlife Service (equipment loan and technical input). Tribal Councils from Ruby, Galena, and Tanana are engaged in the planning process. Seasonal technicians will be hired from local communities to operate sonar and conduct test fishing. These positions will provide employment, skills training, and build regional fisheries monitoring capacity. Involvement of Indigenous technicians and knowledge holders will foster co-management and ensure local perspectives are integrated into research and management decisions. TCC will also share project results at annual Regional Advisory Council meetings and other public forums, promoting transparency and information-sharing across the Yukon River region.

Technical Review Committee Justification: The investigation plan requests three years of funding to develop a Middle Yukon River sonar to improve in-season management and ensure escapement goals are met. The project addresses 2026 Priority Information Needs for the Yukon Region, focusing on Chinook and summer Chum salmon stocks that are culturally significant and harvested by federally qualified subsistence users. While the project does not occur on federal public land, it has a clear connection to federal conservation units where these stocks migrate and spawn. The project aims to fill a critical data gap and provide salmon abundance estimates between the Pilot Station and Eagle sonar sites. The study plan is technically sound, but some methods require further development, including site selection and data analysis. The project's success is supported by the Tanana Chiefs Conference, though enhancing partnerships would strengthen the project. The budget is well-documented and appears reasonable for the proposed work. No letters of support were received.

Project Number: 26-250
Project Title: Traditional Ecological Knowledge and Life Histories of Salmon in Tributaries of the Yukon Coastal District

Issue: Sustainable management of salmon fisheries requires accurate data about stock status and harvest. For several coastal systems located in the Yukon Delta National Wildlife Refuge, this information does not exist or is imprecise, outdated, or unsubstantiated. Managing these systems in season to conserve Chinook and chum salmon while providing opportunity for more abundant salmon species and nonsalmon fish species is not possible without accurate, up-to-date information about salmon life histories, run timing, and stock-of-origin. To address these information gaps, this study will combine biological observations with Traditional Ecological Knowledge and stream-specific harvest information for the Kun and Kashunuk rivers in the Coastal District of the Yukon Management Area.

Objectives:

1. Document Traditional Ecological Knowledge held by Scammon Bay and Chevak residents about
    a. the life histories of salmon in the Kun and Kashunuk rivers, respectively; and
    b. the historical and contemporary uses of these river systems for subsistence fishing.

2. Document subsistence fish harvests and the locations of harvest in the Kun and Kashunuk rivers during the 2026 fishing season to build an understanding of patterns of harvest specific to these rivers, distinct from the total harvest within the Coastal District of the Yukon River.

3. Describe salmon life history patterns and stock-of-origin information for salmon species in the Kun and Kashunuk rivers. Specifically,
    a. identify salmon and life stages present, with a focus on identifying adult spawning salmon and distributions throughout both rivers of adult spawning and juvenile rearing;
    b. document run timing;
    c. through genetic sampling, determine if stocks identify with Yukon River or other major stocks;
    d. submit detailed nominations to the ADF&G Anadromous Waters Catalog for waterbodies supporting anadromous species, including seasonal efforts that document the fish assemblages present, including life stages of certain species;
    e. share results publicly through the online ADF&G Alaska Freshwater Fish Inventory mapper

Methods: ADF&G researchers will work with the tribal councils in Chevak and Scammon Bay to identify local research assistants (LRAs) to help with Traditional Ecological Knowledge interviews and household surveys. Semi-structured interviews will be conducted with long-time residents in Chevak and Scammon Bay who have a history of fishing in the Kun and Kashunuk rivers, respectively. In 2026–2027, researchers will administer a short salmon harvest survey to households who fished for subsistence in the Kun or Kashunuk rivers. The survey will document what species were harvested, the amounts, timing of harvest, gear types used, and location of harvest. These data will be the first attempt to quantify subsistence harvest information specific to these rivers. During interviews and surveys, maps of the Kun and Kashunuk rivers and nearby surrounding areas will be used as a visual reference. Fishing sites, observations of salmon and nonsalmon species, and other relevant information related to the topics of interest will be noted on the maps. Map data will later be digitized and formatted using ESRI ArcMap GIS software.

For biological data collection, ADF&G staff will also utilize the expertise of an LRA and local boat driver in each community. Staff and LRAs will reach sampling sites by boat and helicopter, conducting biological sampling throughout each drainage. Primary fish capture methods proposed to be used throughout the duration of field work include active sampling with electrofishing in upper segments of the rivers and more passive sampling using gillnets in downstream reaches of each river. In each river, two 100′ gillnets with stretched mesh of 5.5″ (for chum and pink salmon) and 7″ (Chinook and chum salmon) will be fished perpendicular to streambanks and set overnight and checked each day throughout the duration of the project. Researchers will also seek to rent fishing nets from local fishers to increase the mesh selectivity. Fishers in this area tend to use 6″ or 7.5″ stretched mesh to catch salmon. Opportunistic sampling methods include minnow trapping, aerial observations, and angling. Minnow traps will be set opportunistically by boat or raft-electrofishing crews in habitats able to support juvenile salmon. Trapped juveniles will be visually identified, measured to fork length (mm), and will provide verification of rearing habitat. Aerial surveys will be performed opportunistically during helicopter travel to, from, and

at raft-electrofishing sites with any observations georeferenced on a handheld GPS. If salmon are observed to be abundant, angling will be used as an alternative method of capture to reduce salmon mortality during sampling. Fish will be handled to minimize incidental mortality and will be released when alive. Direct and indirect genetic sampling will be performed and then analyzed by the ADF&G Gene Conservation Laboratory and Jonah Ventures in Boulder, CO. Captured fishes from any method will be identified, measured to fork length, photographed when necessary (such as to document identity for verification of species), and recorded. Sex will be recorded for adult salmon. Any remarkable or informative notes (e.g., sex, spawning condition, disease) for other species will be noted. In addition, researchers will collect 3 water samples from 6 locations in each river for environmental DNA (eDNA) analysis, which will provide evidence of potential presence or absence of various salmon species to be detected. All captured adult salmon will be tissue sampled via clipping the axillary process, which will be saved for genetic analysis, and which will help determine if they are a unique stock from other Yukon River salmon. For observations of anadromous fishes, staff will generate nominations for the AWC.

Partnerships/Collaboration: One of the objectives of this project is to facilitate information sharing between local residents and fisheries management agencies. Residents will have the opportunity to share their knowledge of salmon in their local rivers with researchers, and project staff will share with the community what they learn through biological sampling. This two-way information exchange will help build a relationship between the community and managers to strengthen additional partnerships in the future.

Additionally, project staff will work with the tribal councils to hire LRAs, to select key respondents, and to facilitate community meetings. The LRAs will be trained in anthropological and biological sampling methods. This increases coordination between agencies, tribal entities, and community members: working together in data collection increases communication and leads to better understanding of local issues and local understanding of science and management issues

Technical Review Committee Justification: The investigators propose to address critical management information gaps about salmon in the Kun and Kashunuk rivers in the Coastal District of the Yukon Management Area through an interdisciplinary approach, combining Traditional Ecological Knowledge, harvest monitoring, and documentation of salmon life history patterns and stock-of-origin. This proposal would address four Priority Information Needs for the Yukon region. Federal nexus is clear: the project area is within the Yukon Delta National Wildlife Refuge. Objectives are clearly stated. The investigators will collaborate with communities in the development of the semi-structured interview and survey protocols. Local Research Assistants will be involved in all aspects of the research. The proposal would be improved by inclusion of mapping methodology. Findings from the ethnographic portion of the research will inform the biological investigation. Because Chinook runs are low, the investigators may consider using selective gear to capture Chinook, rather than gillnets. Alternatively, eDNA may be sufficient. Investigators are qualified to do the work, and the budget and timeline are reasonable for the work being proposed. By gaining a better understanding of salmon stocks in coastal systems, Federal and State managers may be able to offer targeted fishing opportunities for more abundant fish species that help remove pressure from mainstem, Canadian-origin Chinook Salmon stocks and Chum Salmon.

Project Number: 26-252
Project Title: In-season Yukon River Subsistence Salmon Survey Program

Issue: This project addresses the need for inclusive in-season management for Chinook salmon fisheries on the Yukon River and the need for updated surveying methods amidst the ongoing Chinook and chum salmon population collapse on the Yukon River, where in-season monitoring and surveying for both harvest data and Traditional Ecological Knowledge is essential. Salmon are a critical resource for subsistence and commercial users in this region, which includes 14 Federal conservation units, and fisheries managers must have a means to gather input, assess harvests, and share information with stakeholders throughout the fishing season. This project also addresses the need expressed by community members of expanding traditional ecological indicators and knowledge into management and reporting during salmon harvest closures. Fishers report Traditional Ecological Knowledge, fishery success, observations, and concerns to a locally hired surveyor weekly, during the Chinook salmon run in their community. This information is shared anonymously by village with state and federal managers in preparation for the weekly in-season management teleconference.

Objective:

1. Hire 10 local surveyors in 10 Yukon River drainage villages to work in-season to conduct interviews on an annual basis;

2. Build capacity of local surveyors in 10 Yukon River villages to participate in in-season fisheries management;

3. Conduct annual reviews pre-season and post-season to evaluate survey program and design for next season to maximize effectiveness of program.

Methods: Methods for this project include communication, outreach, survey technology, data analysis, and annual evaluations. Participating communities are selected based on suggestions, needs, and goals of the managers as well as the interest of the communities. The interview methodology follows the National Academy of Science's Principles for Conduct of Research in the Arctic and will include informed consent for participants, to be conducted prior to the first interview. Privacy and confidentiality will be protected in the reporting. The in-season subsistence salmon survey methodology focuses on interviewing fishers weekly to collect qualitative information to provide managers with a real time assessment of the run and ecological indicators. In addition to collecting information from fishers, surveyors disseminate relevant information to fishers. For the data analysis, at the end of the season the PI will review all the survey forms and the compiled MS Excel spreadsheet and produce summary narrative reports.

Partnerships/Collaboration: This project will build the capability and expertise of rural, locally hired surveyors by providing an opportunity to learn about Yukon River fisheries management, participate in local reporting and build their skills through focused annual trainings on communication with local fishers, river-wide fishers, and managers. Surveyors also attend the annual pre-season fisheries preparation meeting, increasing their fisheries knowledge and enhancing their ability to participate in the

management of Federal subsistence fisheries. Surveyors will have an opportunity to interact with the Indigenous Sentinels Network at the pre-season fisheries preparation meeting. Partnerships will continue

with the state and federal managers, village Tribal Councils, and individuals working as a part of the Project.

Technical Review Committee Justification: The investigation plan requests four years of funding to conduct in-season surveys on Chinook Salmon harvest and harvest of other fish species, record local observations of ecological conditions, and document Traditional Ecological Knowledge that can inform fisheries management along the Yukon River. This project aims to support effective in-season monitoring and to maximize subsistence salmon opportunities for Yukon River communities. This is a long-term project led by the Yukon River Drainage Fisheries Association. The project has a well-established record of success, and the principal investigator and co-principal investigator are well equipped to lead the project. The methods are technically sound, and the project is structured around supporting strong partnerships between rural communities and State and Federal fisheries managers. The budget is reasonable and well-justified. Letters of support were received from the Alaska Department of Fish and Game and the Huslia Village Council.

KUSKOKWIM REGION

Priority Information Needs

The 2026 Notice of Funding Opportunity identified the following eight priority information needs for the Kuskokwim Region:

- Drivers of Chinook, Chum, Coho, and Sockeye salmon population decline in the Kuskokwim River drainage including Kuskokwim Bay tributaries.

- Chinook, Chum, Coho, Pink, and Sockeye salmon inter- and intraspecies specific competition for resources in freshwater and marine environments.

- Northern Pike distribution, abundance, habitat preferences, and predation patterns upon juvenile salmon and other fishes in the Kuskokwim River watershed including Kuskokwim Bay tributaries (e.g. Kanektok River).

- Establish, develop, maintain, and collect long-term data sets of watershed-scale environmental variables to better understand their effects upon Chinook, Chum, and Coho salmon productivity within the Kuskokwim River watershed including Kuskokwim Bay tributaries.

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

- Explore 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 Chinook, Chum, Coho, and Sockeye salmon in the Kuskokwim River drainage.

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

Proposals Submitted for the Kuskokwim Region

Eight proposals were submitted for funding in the Kuskokwim Region, seven of which were found to be eligible for consideration under the FY26 FRMP notice of funding opportunity **(Table 4)**.

Table 4. Projects submitted for the Kuskokwim Region 2026 Monitoring Plan including project duration in years and total funds requested.

Project Number	Title	Project Duration (Years)	Total Project Request
26-300	Goodnews River salmon escapement monitoring	4	$628,886
26-301	Kuskokwim River Whitefish and Coho sonar	4	$622,727
26-302	Salmon River of the Pitka Fork Chinook Salmon escapement monitoring	4	$431,960
26-303	Implementing artificial intelligence for rural Alaskan salmon counts	4	$770,087
26-304	George River salmon weir	4	$867,884
26-350	Bethel subsistence harvest surveys	4	$605,959
26-351	Kuskokwim Management Area post season subsistence salmon harvest survey	4	$938,557
26-352	Local and Indigenous Knowledge of nonsalmon fisheries Including Whitefishes, Sheefish, and Northern Pike in a changing climate, Kuskokwim River	4	$581,834
Total			**$5,447,894**

In addition to the above proposed projects, the following eight projects are currently being funded by the Monitoring Program in the Kuskokwim Region:

- 22-300 Takotna River Weir Salmon Run Timing and Abundance
- 22-301 Kuskokwim River Broad Whitefish Subsistence Harvest and Spawning Abundance
- 22-304 George River Salmon Weir
- 22-351 Kuskokwim Management Area Postseason Subsistence Salmon Harvest Survey
- 22-354 Community-Based Harvest Monitoring Network for Kuskokwim River Chinook Salmon

Regional Advisory Council Comments

Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

General Comment: The Council expressed strong overall support for all Kuskokwim Region projects, emphasizing their importance for subsistence management and the need for harvest and escapement data throughout the area.

Project 26-300: The Council agreed it is a good project but noted it may be lower priority compared to the study of other rivers such as the Kanektok.

Project 26-301: The Council expressed support for expanding monitoring to Coho Salmon and whitefish,

Project 26-302: See General Comment.

Project 26-303: The Council praised and expressed very strong support for this project noting its innovative use of artificial intelligence and its role in advancing local data collection and technology applications. They acknowledged the strong partnerships and capacity building within the Village of Quinhagak and leadership by an Alaska Native Principal Investigator.

Project 26-304: The Council considered the project critical for understanding salmon movement in the George River, described as a "mystery spot" with limited Kuskokwim River fisheries data.

Project 26-350: The Council strongly supports all subsistence salmon/ fish harvest survey projects which provide essential subsistence harvest data and build community relationships, resulting in improved management decisions. Similar support was expressed for Project 26-351.

Project 26-351: The Council strongly supports all subsistence salmon/ fish harvest survey projects which provide essential subsistence harvest data and build community relationships, resulting in improved management decisions. Similar support was expressed for Project 26-350.

Project 26-352: The Council highlighted this project for its focus on non-salmon species and Traditional Ecological Knowledge, which members view as increasingly important given declining salmon stocks. The Council supports all projects with a strong Traditional Ecological Knowledge component and would like to see more of these in the future.

<u>Western Interior Alaska Subsistence Regional Advisory Council</u>

General Comment: The Council felt that all of the projects appeared to be sound of method and important for regional management.

Project 26-300: No directed comment (see general comment above).

Project 26-301: No directed comment (see general comment above)

Project 26-302: No directed comment (see general comment above).

Project 26-303: The Council acknowledged this project as highly promising and very useful for work in remote areas where traditional monitoring can be challenging. While the project is expensive, the Council noted that it is likely to pay off in the long run by improving efficiency. The Council also recognized that similar approaches using Artificial Intelligence and video monitoring for fish identification and counting are already being applied in other projects, such as weirs, and sees this as an important step forward for modernizing salmon enumeration in rural Alaska.

Project 26-304: No directed comment (see general comment above).

Project 26-350: No directed comment (see general comment above).

Project 26-351: No directed comment (see general comment above).

Project 26-352: No directed comment (see general comment above).

Executive Summaries and Technical Review Committee Justifications

The following executive summaries were written by the principal investigators and submitted to the Office of Subsistence Management as part of a proposal package. They may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. The executive summaries may have been altered for length.

Technical Review Committee justifications are a general description of the committee's assessment of proposals when examining them for strategic priority, technical and scientific merit, investigator ability and resources, partnership and capacity building, and cost/benefit. More in-depth reviews are provided to investigators following project selection.

Project Number: 26-300

Project Title: Goodnews River Salmon Escapement Monitoring

Issue: We propose to restore operations of a weir on the Middle Fork Goodnews River to index Chinook (Oncorhynchus tshawytscha), chum (O. keta), and sockeye salmon (O. nerka) escapement to the Goodnews River drainage, while also conducting a school outreach program to build local capacity and interest in fisheries. Our proposal is in response to the priority information needs identified in the 2024 FRMP request for proposals to obtain reliable quantitative and/or qualitative estimates of salmon run size, escapement, and harvest in the entire Kuskokwim River watershed including Kuskokwim Bay tributaries. This proposal would reinstate a 27-year dataset used to evaluate the size, composition and trends of Chinook, chum, and sockeye salmon to a tributary of the Goodnews River. Additionally, this proposal would also include a community outreach program with the Rocky Mountain School in the community of Goodnews Bay, AK, thus fostering community awareness, understating, interest, and involvement of students in the fisheries monitoring program on the Goodnews River.

Objectives: The goal is to resume operations of a ground-based monitoring project that will adequately index escapement to the Goodnews River. The following objectives will be executed to achieve this goal.

1. Estimate the daily and total annual Chinook, sockeye, and chum salmon escapements from 25 June to 15 August, annually from 2026–2029.

2. Collect age, sex, and length (ASL) data from Chinook, sockeye, chum, and coho salmon using weir traps, such that the number of samples collected will allow for future estimates of age composition with 95% confidence intervals no wider than ±10% (a=0.05, d=0.10).

3. Foster local interest in natural resource management, field biology, and expose students to employment and post-secondary education possibilities.

Methods: We propose to restore operations of a weir on the Middle Fork Goodnews River to index Chinook (Oncorhynchus tshawytscha), chum (O. keta), and sockeye (O. nerka) escapement to the Goodnews River drainage from 25 June – 15 August (2026, 2027, 2028, and 2029). Fish will be counted throughout the daytime by trained technicians. Visual counts will take place through a clear plastic viewing window placed on the stream surface. Age, sex, and length data will be collected in proportion to run timing using live fish trap that is integrated into the weir design. The crew will record daily fish passage numbers of each salmon species in field logs and report the information to ADF&G staff. Data will be made publicly available each day through the Arctic Yukon Kuskokwim Database Management System (AYKDBMS), and inseason data summaries will be provided to ADF&G, U.S. Fish and Wildlife Service (USFWS), and stakeholder fishery management advisory groups. We will estimate any missed escapement of salmon that occurs within the target operational period (generally due to high water or scouring) using hierarchical Bayesian estimation techniques. ADF&G staff will be responsible for maintaining the information physically and electronically in tabular and graphical formats for the use of various managers and advisory groups engaged in inseason management.

Partnerships/Collaboration: The Middle Fork Goodnews River weir project will be operated cooperatively by ADF&G and the USFWS Togiak National Wildlife Refuge (TNWR). The project will be staffed by two ADF&G Fish and Wildlife Technicians and one local hire USFWS Fisheries Technician throughout project operations. ADF&G is responsible for all aspects of weir operations, including staff support, logistical support, data processing, data analysis, and reporting. TNWR is responsible for providing staff to assist inseason at the project, logistical guidance and insight, and assist with community outreach. Working in collaboration will provide an avenue to improve community outreach and further engage Goodnews Bay communities. Planned outreach includes presentations on the purpose and operation of the weir at the Rocky Mountain School in Goodnews Bay, AK. In addition, an ADF&G biologist will present a hands-on exercise that walks students through the salmon life cycle. These presentations were first implemented in the winter of 2018-19 in the headwaters communities of the Kuskokwim River with funding from OSM FRMP project 20-302 and thus far has been very successful, in the opinion of the weir technicians, educators, and students that participated.

Technical Review Justification: This project resurrects the Goodnews River weir project that has not operated since 2019. Operation of the weir will benefit management of salmon on the Goodnews River and serve as a regional monitoring site at a time of highly variable salmon returns along Western Alaska. This long-term weir operation will assess run strength and escapement monitoring that have proven challenging or unattainable under the current aerial assessments. This project will also collect age, sex, and length data with the intent to further estimate future estimates of age compositions. This project directly addresses a priority information need listed in the 2026 Notice of Funding Opportunity for the Kuskokwim Region. The investigators have the necessary background and experience operating weirs. A local hire will assist with the project on daily weir operation, as well as assist with educational and outreach efforts at the Rocky Mountain School. Letters of support from surrounding stakeholders

indicated high support for the project. The cost of the project is reasonable considering the remoteness of the work to be conducted and staffing needed.

Project Number: 26-301
Project Title: Kuskokwim Whitefish and Coho Sonar

Issue: We propose to continue using sonar and drift gillnet apportionment methods to estimate daily abundance of upriver migrating coho salmon (Oncorhynchus kisutch) and whitefish species (Coregonus spp.) in the Kuskokwim River during the month of August. In addition, we propose continuing drift gillnet apportionment operations through mid-September to estimate the proportion of the coho salmon and whitefish run that passes through the lower river after sonar operations end. Coho salmon have suffered poor returns in 5 of the last 7 years with drainage subsistence harvest falling short of amounts reasonably necessary for subsistence in 2018, 2021, and 2022. Furthermore, 2022 marked one of the lowest coho salmon runs on record and triggered the first full river closure in August. Our proposal addresses multiple priority information needs identified for the Kuskokwim Region by providing reliable quantitative estimates of salmon run size and escapements and abundance estimates of whitefish species for the mainstem Kuskokwim River and is consistent with ADF&G's strategic plan towards integrating a sonar-based assessment program within the current suite of Kuskokwim River assessment projects. Toward that goal, ADF&G has secured long-term funding for sonar operations, but the existing budget is only adequate to operate the project through the overlapping Chinook (O. tshawytscha), chum (O. keta), and sockeye (O. nerka) salmon runs in June and July. Coho salmon enter the Kuskokwim River beginning in late July, after the migration of other salmon species has all but ended. By the end of July, only a small portion of the coho salmon run has passed through the lower river, where most harvest occurs. Whitefish species including least cisco (Coregonus sardinella), Bering cisco (C. laurettae), humpback whitefish (C. pidschian), broad whitefish (C. nasus), and inconnu (sheefish) navigate the mainstem from mid-May to late September. This project was previously awarded a 4-year grant to conduct August sonar operations beginning in 2020. During this time, it was clear an unknown portion of coho salmon returned after the August 26 operational end date. To address the issue, ADF&G considered multiple scenarios and determined extending apportionment fishing to provide context for total run estimates was the most thorough method to describe coho salmon and whitefish species runs while remaining cost-effective and safe. Our request would continue annual sonar operation through August 26 to enumerate the coho salmon and whitefish run through most of August, then continue the apportionment fishery through September 14 annually to provide context for total run estimates and identify the full extent of the coho salmon and whitefish runs through the lower river. Coho salmon escapement through August 26 is easily obtained by incorporating existing harvest estimate programs with sonar-based estimates of abundance.

Objectives:

1. Estimate the daily and total passage of Kuskokwim River coho salmon and whitefish species at rkm 130 between July 27 and August 26, 2026, 2027, 2028, and 2029 using sonar and an apportionment fishery.

2. Determine the proportion of coho salmon and whitefish species CPUE between August 27 and September 14, 2026, 2027, 2028, and 2029 using the apportionment fishery.

Methods: We propose to use sonar and drift gillnet apportionment methods on the mainstem Kuskokwim River just upriver from Bethel to estimate the daily number of adult coho salmon and whitefish species through August 26, then continue drift gillnet apportionment through September 14 to contextualize total passage estimates in 2026, 2027, 2028, and 2029. Sonar data files will be processed using software developed by ADF&G. A drift gillnet test fishery that overlaps the ensonified areas will be used to apportion abundance estimates to species and provide ongoing CPUE estimates at the site. ADF&G Division of Commercial Fisheries staff will maintain all physical and electronic data to produce tabular and graphical summaries for use by State managers and the Kuskokwim River Salmon Management Working Group. Abundance estimates will be updated daily in the publicly accessible Arctic Yukon Kuskokwim Database Management System.

Partnerships/Capacity Building: Staff from ADF&G and ONC will conduct this project in partnership. ADF&G is responsible for staff support, logistical support, data processing, reporting, and assisting with outreach opportunities. ONC is responsible for providing staff to assist inseason at the project, logistical insight, and assist with community outreach. Working in collaboration will provide an avenue to improve community outreach and further engage Kuskokwim River communities in Kuskokwim Area salmon research and management issues. This proposal seeks salary funds to facilitate this capacity building effort. From 2020–2023, outreach efforts were hampered by COVID-19, ONC technician availability due to school obligations, and ONC Partners Biologist availability. Despite these challenges, ONC technicians

were able to present at 2 KRSMWG meetings and 1 Regional Advisory Council meeting. In an attempt to improve ONC technician participation and presentation consistency, ONC technicians will be trained by ADF&G staff starting July 1 each year. ONC technicians will spend several days under the supervision of the PI or co-PI crew lead and joining ADF&G technicians to learn drift gillnet fishing, fish sampling, and sonar enumeration specific to this site. Once their training is complete, they will be incorporated into daily technician shifts to directly contribute to salmon and whitefish estimates of abundance. During the season, ADF&G staff will assist ONC technicians in adapting a sonar presentation to summarize their efforts for local stakeholder meetings. ONC will coordinate outreach opportunities and assist the technician to deliver a presentation. Fish harvested in the sonar apportionment fishery will be donated to local communities. From 2017–2024, ADF&G coordinated directly with community members near the test fish site and in the communities of Kwethluk and Bethel to distribute approximately 2,000 fish in June and July annually. As a result of the previous OSM funding cycle, approximately 450 fish were distributed each August in 2020–2023.Volunteers from local communities, enforcement officers, cooperative agencies, and the ADF&G Subsistence Division have delivered fish as far upriver as Tuluksak and as far downriver as Atmauhluak, but distant deliveries are extremely expensive and logistically difficult.

Partnerships/Capacity Building: Staff from ADF&G and MTNT will conduct this project in partnership. ADF&G will be responsible for staff support, logistical support, data processing, reporting, and assisting with outreach opportunities. MTNT will be responsible for providing staff to assist inseason

at the project, logistical guidance and insight, and assist with community outreach. Working in collaboration will provide an avenue to improve community outreach and further engage headwaters communities of McGrath, Takotna, and Nikolai in Kuskokwim Area salmon research and management issues. Planned outreach includes presentations on the purpose and operation of the weir to the schools in McGrath, Nikolai, and Takotna. In addition, the weir crew presents a hands-on exercise that walks students through the salmon life cycle. These presentations were first implemented in the winter of 2018-19 and thus far has been very successful, in the opinion of the weir technicians, educators, and students.

Technical Review Justification: Four years of funding are requested to continue operating the Kuskokwim River sonar project to provide a more complete assessment of Coho Salmon and whitefish in the drainage. Previous years of Monitoring Program funded sonar-based assessments have indicated the need for more coverage of the fall migrations of Coho Salmon and whitefish. This project extends the netting and apportionment methods beyond the time that the sonar is removed to provide a relative index of catch-per-unit-effort as well as run timing. This project directly addresses one Priority Information Needs listed in the 2026 Notice of Funding Opportunity for the Kuskokwim Region and is consistent with Alaska Department of Fish and Game's strategic plan towards integrating a sonar-based assessment program on the Kuskokwim River. The investigators have the necessary background, resources, and experience to successfully run and complete this project. Capacity is built through partnering with Orutsararmiut Native Council, who will provide a field technician to assist with daily sonar operation and gillnet apportionment. Project costs are considerable given the short duration of the field season. This project received letters of support from the Bethel Fish & Game Advisory Committee and Yukon Delta National Wildlife Refuge.

Project Number: 26-302
Project Title: Salmon River of the Pitka Fork Chinook Salmon Escapement Monitoring

Issue: We propose to continue operations of a weir on the Salmon River of the Pitka Fork, hereafter referred to as Salmon (Pitka Fork) River, to index Chinook salmon (Oncorhynchus tshawytscha) escapement to the headwaters of the Kuskokwim River, upriver from McGrath. Our proposal is in response to the priority information needs identified in the 2026 FRMP request for proposals to obtain reliable quantitative and/or qualitative estimates of salmon run size, escapement and harvest in the entire Kuskokwim River watershed including Kuskokwim Bay tributaries. The Salmon (Pitka Fork) River weir is currently the only ground-based salmon assessment project operated in the Kuskokwim River that indexes genetically distinct headwaters Chinook salmon.

Objectives: The goal of the project is to estimate daily and total annual Chinook salmon escapement to the Salmon (Pitka Fork) River using a fixed picket fish weir from 20 June – 15 August. Objectives are to:

1. Collect age, sex, length (ASL) data from 250 Chinook salmon in proportion to abundance.

2. Coordinate with local schools in the communities of McGrath, Takotna and Nikolai to introduce salmon ecology concepts to rural students in grades K-12.

Methods: We propose to operate a weir on the Salmon River of the Pitka Fork to index Chinook salmon escapement to the headwaters of the Kuskokwim River from 20 June – 15 August (2026, 2027, 2028, and 2029). Fish will be counted throughout the daytime by trained technicians. Visual counts will take place through a clear plastic viewing window placed on the stream surface. Age, sex, and length data will be collected in proportion to run timing using live fish trap that is integrated into the weir design. The crew will record daily fish passage numbers of each salmon species in field logs and report the information to ADF&G staff in Bethel or Anchorage. We will estimate any missed escapement of Chinook salmon that occurs within the target operational period (generally due to high water or scouring) using hierarchical Bayesian estimation technique. ADF&G staff will be responsible for maintaining the information physically and electronically in tabular and graphical formats for the use of various managers and advisory groups engaged in inseason management. In addition, escapement counts and estimates will be updated daily in the Arctic Yukon Kuskokwim Database Management System and ADF&G Fish Counts Page.

Partnerships/Capacity Building: Staff from ADF&G and MTNT will conduct this project in partnership. ADF&G will be responsible for staff support, logistical support, data processing, reporting, and assisting with outreach opportunities. MTNT will be responsible for providing staff to assist inseason at the project, logistical guidance and insight, and assist with community outreach. Working in collaboration will provide an avenue to improve community outreach and further engage headwaters communities of McGrath, Takotna, and Nikolai in Kuskokwim Area salmon research and management issues. Planned outreach includes presentations on the purpose and operation of the weir to the schools in McGrath, Nikolai, and Takotna. In addition, the weir crew presents a hands-on exercise that walks students through the salmon life cycle. These presentations were first implemented in the winter of 2018-19 and thus far has been very successful, in the opinion of the weir technicians, educators, and students.

Technical Review Justification: Four years of funding are requested to continue operating the Pitka Fork weir to index Chinook Salmon escapement to the upper Kuskokwim River drainage. The Federal nexus is clear, and the project addresses a 2026 Priority Information Need for the Kuskokwim Region. The weir monitors the most abundant headwater stock of Chinook Salmon, making it an important component of the tributary escapement monitoring program. Project data are not currently used in the run-reconstruction model but may be in the future if more years of data are collected. The project objectives are clear, measurable, and achievable, and the study design is technically sound. The investigators have the experience necessary to complete this project. Capacity will be built by hiring a local to help operate the weir and present about the project and salmon ecology to schools in McGrath, Nikolai, and Takotna. Project costs are reasonable for the proposed work. This project included letters of support from the Yukon Delta National Wildlife Refuge, Native Village of Napaimute, and Iditarod Area School District but are dated for the 2024 Monitoring Program cycle.

Project Number: 26-303
Project Title: Implementing Artificial Intelligence for Rural Alaskan Salmon Counts

Issue: The widely dispersed and remote locations of salmon habitats in Alaska make fisheries monitoring a difficult and costly undertaking. Required resource surveys can be prohibitive due to logistics, weather,

and time constraints. This lack of timely and accurate data often leaves rural Indigenous communities outside of routine management frameworks, resulting in misallocated quotas and threatening their ability to harvest salmon for subsistence, income, and cultural continuity. Surveys of the local salmon population are generally performed through surveys, interviews, and varying monitoring programs but due to lack of funding, aerial surveys are rarely completed. By combining Indigenous knowledge of the local tributaries, using unmanned aerial vehicles (UAV or drones), and capturing video and still images for analysis, neXus Data Solutions, LLC (neXus) will develop an open-source software (OSS) Artificial Intelligence (AI) toolchain to detect and classify salmon. AI-driven software development, and unmanned aerial vehicles (UAV or drones), this project aims to increase the collaborative monitoring capacity to supplement traditional surveys and reduce sampling costs for fisheries management.

Objectives: The goal of the year-one pilot project is to work collaboratively with the community of Quinhagak and the Alaskan Native-owned ANCSA 14(h) Qanirtuuq Incorporated subsidiary Nalaquq, LLC to provide knowledge workers with Indigenous subject matter experts (SME) in observing and annotating images. These images will be consumed by the neXus-developed toolchain to produce reports of estimated salmon counts by species. Deliverables for this project include:

1. AI-driven toolchain that makes use of computer vision models to detect and classify objects that produce salmon counts.

2. Metrics on model effectiveness (e.g. Accuracy, F1, confusion matrix, etc.).

3. Metadata documentation of training datasets.

4. GitHub repository containing the open-source models and toolchain.

5. Detailed reports that summarize salmon counts and species composition collected at each survey site during the salmon run period, validated in collaboration with fisheries SMEs.

6. A prototype user-facing web application showcasing the software suite, designed for future expansion and broader community use.

Imagery, geospatial data, and knowledge pertaining to fishing grounds will remain the intellectual property of the local tribal organization and treated with confidentiality.

Methods: neXus Data Solutions, LLC data scientists work with our research partners and subcontractors at Nalaquq, LLC to develop an open-source AI software toolchain, leveraging computer vision (CV) models for object detection, tracking, and species identification. This software will consume existing still images of salmon tributaries to solidify a computer-vision model that detects the existence of salmon and classifies these into Chinook or sockeye species. This open-source modelling software will provide opportunities for Nalaquq, LLC's local knowledge experts to annotate and support model training to provide the very best results for object identification and classification.

Once the CV initial model is built, our subject matter experts (SME), with knowledge of the local geography and tributaries, will identify key observation sites along the Kanektok and Arolik rivers to locate commonly known resting areas for Chinook, sockeye, and chum salmon. The Nalaquq, LLC team will provide observers, who have the most intimate knowledge of the resource, to employ a hardware suite of UAV/drones, laptops, and StarLink mobile devices to capture still images of salmon. These images will then be uploaded to a Cloud-based location from which the neXus team may download, process, and potentially retrain the CV models to produce reports of salmon counts by location. Initial engagement with community members and fishers will map the local geography of the salmon environment and identify the start of key fishery runs by species.

A continuous feedback loop will be established where model outputs guide the local team's data collection and annotation efforts, which are then used to retrain and refine the CV models for improved accuracy and applicability.

Partnerships/Capacity Building: This project will empower the rural and Indigenous communities, like those of Quinhagak, to take an active role in monitoring and managing their salmon fisheries, while establishing an adaptable framework for computer vision enhanced fisheries monitoring. The methods, tools, and processes developed will provide a foundation for ongoing data collection, capacity building, and expanded research into other subsistence fisheries and remote regions of Alaska opening up opportunities to work with and empower other Indigenous communities in our state.

Technical Review Justification: The investigation plan requests four years of funding to count salmon species occurring within tributaries of the Kanektok and Arolik rivers using unmanned aerial vehicles and artificial intelligence software. The Federal nexus is clear, and the project addresses a 2026 Priority Information Need for the Kuskokwim Region. Currently, aerial survey monitoring efforts within the Kanektok River target Chinook and Sockeye salmon within mainstem areas only and do not survey tributary areas. Data collected from this project could contribute to monitoring Chinook and Sockeye salmon escapement within the region and if successful, could enhance collaborative monitoring capacity, supplement traditional survey techniques, and reduce costs associated with aspects of fisheries management. The project includes a partnership with Nalaquq, LLC., and relies heavily upon local knowledge to identify survey areas. Project costs are high relative to the described work and the proposal lacks clarity and detail that warrant consideration. The absence of a detailed work plan, clear deliverables timeline, and performance metrics raises concerns about project execution. Overall, the project could have long-term potential to contribute to salmon monitoring and management in the region.

Project Number: 26-304
Project Title: George River Salmon Weir

Issue: We propose to continue operations of a weir on the George River to index Chinook (Oncorhynchus tshawytscha), chum (O. keta), and coho (O. kisutch) salmon escapement to the middle portion of the Kuskokwim River drainage, as well as conduct a high school internship program as part of our long-term efforts to build local capacity. Our proposal is in response to the priority information needs identified in the 2026 FRMP request for proposals to obtain reliable quantitative and/or qualitative estimates of salmon

run size, escapement, and harvest in the Kuskokwim River drainage, including Kuskokwim Bay tributaries. This proposal would continue a 30-year dataset used to evaluate the size and composition of Chinook, chum, and coho salmon escapements to the middle Kuskokwim River. Annual monitoring is needed to evaluate if escapements are within the bounds of the established Chinook salmon escapement goal on the George River. In addition, escapement at the George River weir is used to inform a model that estimates total annual abundance and escapement for Kuskokwim River Chinook salmon. The success of the George River weir has made it an integral component of the broader salmon escapement monitoring program on the Kuskokwim River. Apart from its utility to the management of the Kuskokwim River subsistence fishery, the George River weir has been important in fostering community awareness, understanding, and direct involvement in fisheries assessment. Since 2005, the George River weir has been the site of high school mentorship and college internship programs sponsoring hundreds of high school age students and multiple college interns from throughout the Kuskokwim Region. The internship program has proven to be highly successful. In recent years, many of the fisheries technicians and crew leaders working on Kuskokwim River weir projects are past graduates of the high school and college internship programs. Several are currently pursuing degrees in fisheries science.

Objectives: Our overall project goals are to index escapement of Chinook, chum, and coho salmon to the middle portion of the Kuskokwim River drainage and provide capacity building and education opportunities for local stakeholders.
Specific objectives of this project are to:

1. Estimate the daily and total annual Chinook, chum, and coho salmon escapements from 15 June to 20 September.

2. Collect age, sex, and length (ASL) data from Chinook, chum, and coho salmon using weir traps, such that the number of samples collected will allow for future estimates of age composition with 95% confidence intervals no wider than ±10% (a=0.05, d=0.10).

3. Operate a high school internship program for 10 students for 8 days to foster local interest in natural resource management and field biology and expose high school students to employment and post-secondary education possibilities.

Methods: We will conduct daily visual counts of salmon escapement to the George River from 15 June to 20 September (2026, 2027, 2028, and 2029) and collect ASL samples from 230 Chinook salmon, 400 chum salmon, and 400 coho salmon throughout the run, in proportion to run abundance. All data will be uploaded to a publicly accessible database and made available weekly at inseason meetings to inform fisheries management decisions. Final results will be published in the ADF&G Fishery Data Series. An 8-day internship will be provided for up to 10 students.

Partnerships/Capacity Building: Staff from ADF&G and NVN will conduct this project in partnership. Of particular interest is the internship program which provides students from communities in the area with the opportunity to interact with biologists, ADF&G staff, and professional educators acting as mentors. Throughout this project, ADF&G and NVN will work together to disseminate project results and

related fisheries management issues to middle river communities during quarterly stakeholder newsletters and community meetings in the middle river.

Technical Review Justification: This project proposes a novel approach to cross-validating sonar estimates using genetic mark-recapture and mixed stock analysis and directly addresses a priority information need identified by the Council. This project will benefit in-season management of Sockeye Salmon in the Kuskokwim drainage and is cost-effective because required Sockeye Salmon tissue samples are already collected and archived. The requested funding is for one year of work, however, yields four years of comparative results. The investigators and the Gene Conservation Lab have an extensive history of successfully completing Monitoring Program projects. The Gene Conservation Lab is well suited to administer this project which could provide additional assurance to in-season management as to the estimates derived from the sonar. While the project does list an Alaska Native Science and Engineering Student to assist with the lab work, the project could benefit by engaging with a rural partner or organization to broaden its partnerships and capacity.

Project Number: 26-350
Project Title: Bethel Subsistence Harvest Surveys

Issue: The proposed project would collect detailed quantitative and qualitative subsistence harvest and age-sex-length (ASL) information in the Bethel area to quantify subsistence harvest effort and catch composition during the Chinook salmon (Oncorhynchus tshawytscha), chum salmon (O. keta), and sockeye salmon (O. nerka) runs. Data collected in this project addresses the 2026 priority information needs by 1) providing reliable quantitative and qualitative estimates of salmon harvests by conducting inseason harvest surveys in the Bethel area from late-May through mid-July and producing inseason harvest estimates and 2) sharing information between stakeholders and agencies concerning salmon conservation via various outreach methods. This project will also collect Chinook salmon ASL data to measure the composition of the harvest for which the state and Federal agencies can utilize for management of the subsistence fishery.

The overarching goal of this project is to provide state and Federal managers and stakeholders with relevant subsistence harvest effort, catch, and composition information collected from a representative subset of families who harvest salmon for subsistence purposes in the Bethel area. Continuous contact with subsistence fishing work groups during the fishing season provides a meaningful opportunity for subsistence users to share their perspectives on the annual salmon runs, harvest needs, and personal impacts of management decisions. This time also allows ONC staff to provide a communication channel between subsistence users and fishery management agencies, by sharing information about management decisions, conservation efforts, and other relevant information. Inseason subsistence harvest data that's collected will be utilized to inform inseason harvest models and decisions while also serving as a time-series that provide insight into trends in gear usage, fishing effort and subsistence fleet timing. These long-term datasets can ultimately improve our understanding of Chinook salmon subsistence harvest patterns and the resulting impact on escapement and run dynamics. All goals and outcomes will be achieved through a collaborative effort between Orutsararmiut Native Council (ONC) and Alaska Department of Fish & Game (ADF&G) to collect, process, and analyze all data.

Objectives:

1. Determine Bethel area subsistence users' relative change in salmon harvest goals for Chinook, chum, and sockeye salmon compared to the prior year, and monitor weekly progress towards achieving annual salmon harvest goals.

2. Document subsistence fishing activity in the Bethel area, including when families begin subsistence fishing, weekly participation, catch per unit effort by gear type, catch composition to provide reliable quantitative estimates of salmon harvests and utilize this data collected to produce inseason harvest estimates in collaboration with Kuskokwim River Intertribal Fish Commission (KRITFC).

3. Estimate the annual ASL composition of Chinook salmon harvested in the Bethel area subsistence fishery.

4. Improve information sharing between stakeholders and agencies concerning salmon conservation in the Kuskokwim River drainage.

Methods: Subsistence harvest information and comments made upon salmon conservation and/or management from fishers will be collected through weekly visits to surrounding Bethel fish camps and opportunistic encounters at the Bethel boat harbor in the months of June and July by trained ONC Fisheries Technicians. ONC Fisheries Technicians will also provide information updates from fisheries managers and an informational flyer to the fishers they survey to ensure there is two-way information sharing. The harvest data collected will be utilized to produce inseason harvest estimates in collaboration with KRITFC. Harvest data collected each week by ONC technicians in addition to any comments from fishers regarding conservation or management will be composed into weekly reports and presented at weekly Kuskokwim River Salmon Management Working Group (Working Group) meetings to promote information sharing between stakeholder and agencies. ASL information will be obtained through concerted recruitment efforts of fishers in the Bethel area that will voluntarily sample their Chinook salmon harvest and be compensated for their efforts. ADF&G and ONC will host preseason ASL training and train interested samplers in properly collecting samples.

Partnerships/Capacity Building: This project demonstrates capacity building and new leadership taken on by ONC, a tribal government organization. ADF&G and ONC have been partnering for over 20 years to conduct inseason harvest surveys, but it was not until 2018 that ONC became the principal investigator on this project. ONC has built the capacity to have the necessary equipment and staff to lead this project with support from ADF&G as the critical co-PI. ONC has increased capacity through developing professional staff to run the project, developing and educating local youth to move into leadership roles in fisheries management, and training local students with hands-on biological experience at the high school and university levels. ADF&G has the capacity and will continue to archive physical ASL data collected through this project and make the data publicly available via the Arctic Yukon Kuskokwim Database Management System.

In addition to the capacity that ONC has built, ONC and ADF&G collaborate with the KRITFC, Bering Sea Fishermen's Association (BSFA), and the Yukon Delta National Wildlife Refuge (YDNWR) to collect

subsistence harvest data to produce inseason harvest estimates. Since the 2021 season, ONC and KRITFC have been expanding their collective capacity and leadership by having their biologists learn and utilize a new model with the program R, designed by a KRITFC contractor, to produce the inseason harvest estimates that were previously produced by staff at YDNWR. These harvest estimate models directly contribute to inseason fisheries management and are critically important as credible, near real-time indexes of fish harvests. This demonstrates strong tribal leadership in fisheries management and encourages ongoing capacity building.

This project has been well received by local residents in the past and is viewed as an important project supporting management by providing fundamental insights into issues such as the achievement of subsistence needs and the timing of subsistence activities. ONC has long standing ties with fish camp families in conducting the inseason subsistence harvest surveys. The survey instrument utilized in this project ensures protection of privacy, dignity, and confidentiality by all respondents. This project values and acknowledges local contributions in which all results are conveyed back to participants of the project on a weekly basis. Furthermore, local participation in ASL sampling provides an opportunity for education and outreach on salmon biology and management issues. These interactions are two-way; project participants receive timely fishery updates from agency staff and agency staff receive weekly reports on fishing activities and perspectives on the social effects of management decisions.

Technical Review Justification: This four-year project will rely on subsistence salmon fishers in the Bethel area to share reliable monitoring data on two components of the lower Kuskokwim subsistence fishery: (1) in-season subsistence harvest estimates for salmon and (2) Chinook Salmon age-sex-length sampling. This information is critical to achieve drainage and tributary escapement goals while also providing limited harvest opportunities. Since 2010, Chinook Salmon runs have been some of the lowest on record and unprecedented harvest restrictions have resulted. Recently, Chum Salmon runs have also declined. Funding would continue work that began in the 1990s; similar research has been funded by the Monitoring Program since 2001. The proposal addresses a Priority Information Need in the Kuskokwim Region identified in the 2026 Notice of Funding. There is a clear Federal nexus as the research takes place in the Yukon Delta National Wildlife Refuge. Salmon is critical for food security and cultural continuity in this region. This project has successfully adapted to changes in the environment and comments received from the Technical Review Committee. The project makes near real-time harvest estimates for the Bethel area available to Federal and State fishery managers, contributing to better in-season management of the Chinook and Chum salmon runs. It facilitates the intricate and effective partnership between ONC, ADF&G, KRITFC, YKDNWR and KRSMWG.

Project Number: 26-351
Project Title: Kuskokwim Management Area Post-season Subsistence Salmon Harvest Survey

Issue: Residents of the Kuskokwim Management Area (KMA) harvest 5 species of salmon in addition to many other species of freshwater and marine fishes, for subsistence uses within the boundaries of the Yukon Delta and the Togiak National Wildlife Refuges and surrounding areas. The KMA subsistence salmon fishery is one of the largest in the state in terms of user participation and amounts harvested. Currently there are no annually required subsistence harvest permits or reporting requirements for salmon

harvest in either federal conservation unit. This project provides the only estimate of the total subsistence salmon harvest in these areas. Since 1988 ADF&G has monitored subsistence salmon harvests, primarily through household surveys and to a lesser extent harvest calendars and postcard surveys. Beginning in 1999, ADF&G has partnered with Orutsararmiut Native Council (ONC) to provide this information. This project allows for the development of productivity models of salmon species that are then used in every aspect of salmon resource management, including preseason forecasting, inseason management, postseason assessment, and the definition of escapement goals.

Objectives:

1. Annually administer harvest surveys to 15% of Bethel households to estimate the number of Chinook, chum, sockeye, coho, and pink salmon harvested for subsistence by residents of Bethel.

2. Administer harvest surveys to estimate the number of Chinook, chum, sockeye, coho, and pink salmon harvested for subsistence by residents of at least 27 remaining KMA communities by sampling the top third of harvesting communities annually and sampling the remaining communities on a rotational schedule (every other year).

3. Analyze harvest data to produce community estimates of salmon harvest by species.

Methods: The project area will be defined in 2 distinct segments: 1) the community of Bethel and 2) the remaining 27 communities of the Kuskokwim River drainage, including the 3 villages of South Kuskokwim Bay. Bethel and the top third of harvesting communities will be sampled annually, while the remaining KMA communities will be sampled on a rotational schedule (every other year). ADF&G will administer surveys to those communities selected as part of the annual rotation within each of the 4 KMA regions (South Kuskokwim Bay, the lower, middle and upper portions of the river). To accommodate increasing project costs without compromising the viability of annual sampling estimates, a review of subsistence salmon harvest trends and variability among all 28 participating communities was conducted. Each schedule is anticipated to cover 80–85% of expected harvests within the sample. Households in the sample are selected from ADF&G's Kuskokwim community household lists which are maintained and updated yearly by using previous years' survey information.

The Division of Subsistence will utilize a consistent harvest estimation methodology for all communities except Bethel. The survey design in each community will be either census (100% survey) or stratified sampling design, depending on community size. When the total number of households in a community is less than or equal to 40, all households in the community will be surveyed and the survey method will become a census (100% surveyed). In this stratified random survey method, households will be stratified by five user-types: "High Harvester," "Medium Harvester," "Low Harvester," "usually do not fish," and "unknown." From each stratum, survey households will be selected randomly in the following percentages: Heavy Harvester—100%; Medium Harvester—100%; Light Harvester—50%; usually do not fish—30%; unknown—100%. When the number of households in each stratum is fewer than five households, all households in the stratum will be surveyed. Prior to survey season, each household will be re-classified based on past 3 years of harvests, and survey sampling households will be randomly selected. Subsistence harvest of Bethel residents will be estimated by employing a simple random sample

harvest survey method. Surveys will begin in mid-September and conclude by late November of each year of the study to ensure that the majority of the subsistence salmon harvest has been completed by the time of the survey. Survey crews will contact community officials prior to arriving in the community to conduct surveys.

In all study communities, surveys will be reviewed for consistency, missing data will be coded, and complex situations will be addressed. On completion of fieldwork, surveys will be transported to Fairbanks with the field crew and delivered to Anchorage for final processing. Subsistence salmon harvest reported by sampled households will be expanded to estimate community harvest for each species using a stratified random sampling expansion technique except in Bethel where a simple random sample will be used. The stratified expansion procedure will be performed for a community only if a sufficient number of households were sampled. For communities not selected for survey as well as instances when minimum sample requirements are not met for individual communities, statistical expansion will not be performed. Instead, community based harvest will be estimated using Bayesian methods.

Partnerships/Capacity Building: ADF&G and ONC will partner to complete the Bethel portion of the project. This relationship represents close collaboration as principal investigators and has been in place since 1999. ADF&G and ONC staff will continue to collaborate frequently on project planning, inseason project support, staff selection, staff performance and scheduling, data interpretation, and in discussion of fishery management implications. ADF&G and ONC staff have built a mutually productive partnership grounded in trust, dialogue, and collaboration that benefits each organization and the public. Formal and informal discussions between project staff and associated communities have helped to create public awareness about salmon management and subsistence harvests. Through operation of this project and sharing of the resulting information at management and research forums, ONC and the community of Bethel have gained ownership and meaningful involvement in terms of their participation in management decision making processes as they relate to the subsistence salmon fishery.

Technical Review Justification: The purpose of this project is to provide the subsistence salmon harvest estimates of 27 communities within the Kuskokwim Management Area to Federal and State fishery managers so they can manage the fisheries to ensure their continuation for future subsistence harvests. This project represents a twenty-year partnership between ADF&G and ONC. Hiring local researchers to conduct harvest surveys provides a unique capacity building opportunity for community outreach and engaging subsistence fishers in understanding why data is collected, where it will go and what it means for them. The Federal nexus and strategic priority are clear. The investigation plan is straightforward, and investigators have the experience and training to conduct the research. Project costs are reasonable for the work proposed. This partnership ensures that the people of the region, who depend on salmon for food and cultural continuity, have an active voice in Federal subsistence fisheries management equation of Kuskokwim salmon.

Project Number: 26-352
Project Title: Local and Traditional Ecological Knowledge of Nonsalmon Fisheries Including Whitefishes, Sheefish, and Northern Pipe in a Changing Climate in the Kuskokwim River

Issue: The 2026 Fisheries Monitoring Program request for proposal priority information needs include examination of "the impacts of environmental change in continued harvest and use of fish and impacts of climate change on fish, for example fish migration, spawning, and life cycle, and abundance." Public comments provided at Yukon-Kuskokwim Subsistence Regional Advisory Council (RAC) and Arctic-Yukon-Kuskokwim Board of Fisheries (BOF) meetings and from Kuskokwim Management Area (KMA) subsistence users, identify a suite of environmental changes attributed to changing climate that impact nonsalmon fish, nonsalmon fish habitats, and fishing activitiesrelated to nonsalmon species. In recent years, members of the Yukon-Kuskokwim Subsistence RAC and the public have expressed concern regarding the effects of changing climate on the fish and wildlife populations throughout the Yukon-Kuskokwim Delta that they rely on for subsistence harvests and cultural connection. Changing climate effects can impact subsistence in many ways, including the ability to access, harvest, and properly preserve harvested meat and fish for the winter. Yukon-Kuskokwim Delta Subsistence RAC members have shared observations of dead whitefish and smolt that they attributed to the warm and low water levels in 2019. Whitefishes and other nonsalmon fishes such as northern pike are extremely important in subsistence fisheries throughout the Kuskokwim River drainage. The Alaska Board of Fisheries has determined that finfish, including northern pike, sheefish and whitefishes in the Kuskokwim River are customary and traditionally used in the Kuskokwim Area (5 AAC 01.286(a)(2)). Despite their prolific subsistence use, there is limited information about their stock statuses, life histories, and annual subsistence harvests. This lack of information makes managing nonsalmon fisheries extremely difficult for both federal and state managers. Arctic freshwater ecosystems are characterized by delicately balanced relationships between temperature, precipitation, and permafrost that are particularly sensitive to changes in climate. A directed, systematic, drainagewide effort to collect information is needed to better understand changes occurring and their effects on nonsalmon fish resources in the KMA.

Objectives:

1. Document local and traditional knowledge related to whitefishes, sheefish, and northern pike abundance and distribution by conducting in-depth ethnographic interviews, spatial mapping, and participant observation with local residents from Quinhagak, Aniak, and McGrath

2. Document subsistence harvest levels as follows: a. Estimate subsistence harvest levels of whitefish species, sheefish, and northern pike for the calendar years 2026 and 2027 by species and season by Quinhagak, Aniak, and McGrath.

3. Describe how observations of environmental change may relate to or inform management priorities or actions.

4. Contribute to local capacity building by utilizing a framework of community involvement in research.

Methods: This project will combine quantitative and qualitative research methods, including household surveys, semi-structured interviews, and participant observation. The documentation of Traditional Ecological Knowledge (TEK) and harvest data collection will occur in two phases: the first phase will occur between January and April 2027, and a second follow-up set of interviews and harvest data

collection will occur between January 2028 and April 2028 to address questions about TEK information gathered or questions raised during the harvest survey. Individuals will be interviewed using a semi-structured interview format outlining identified areas of information and developed in advance by the Alaska Department of Fish and Game (ADF&G) and tribal personnel. All interviews will be audio-recorded. Interview data will be downloaded into a qualitative data analysis software, coded, and analyzed. During interviews, photographs and maps will be used as prompts and relevant information (e.g., significant habitats, traditional harvesting areas) will be mapped using the ESRI Collector application on iPads or on paper and then transferred to the iPad afterward. Harvest data will be collected during face-to-face interviews using a standardized survey form and will last approximately 15 minutes. Respondents will be asked to provide specific information on numbers and species harvested during the calendar year prior to the date of the survey. Household surveys will be administered by teams of two including one ADF&G researcher and a local research assistant (LRA). Prior to data collection, project staff will train the LRAs, familiarizing them with the project and methodological protocols. Local research assistants will be compensated for each completed survey form. Confidentiality of harvest data will be maintained by using identification codes instead of residents' names or addresses; the codes will be assigned before surveys begin.

Partnerships/Capacity Building: The principal investigator (PI) received letters of support from all three communities for this proposal, which includes the Kwinhagak (Quinhagak) Tribal Council, the Aniak Tribal Council, and the McGrath Native Village Council. This work will build on earlier research efforts to contribute capacity building in the study communities through research partnerships with local tribal or village councils and will seek to hire LRAs to help select key respondents, assist in all aspects of fieldwork, and administer the mapping protocol.

Technical Review Justification: This project is strategically important because as salmon populations decline (at least partially due to climate change), federally qualified subsistence users are turning to non-salmon fish to meet their subsistence needs. Rural residents anticipate the need for increased management of non-salmon fish so that they are not depleted. This project will expand, and update baseline data collected by ADF&G almost twenty years ago. This data will provide Federal and State managers with data they need to steward non-salmon subsistence fisheries to ensure their continuation for future subsistence harvests. Both the Kuskokwim and Yukon Councils have expressed concerns about increasing non-salmon fish harvests and the three survey communities in this proposal have already provided letters of support for the project.

SOUTHWEST ALASKA REGION

Priority Information Needs

The 2026 Notice of Funding Opportunity for the Southwest Alaska Region identified the following ten priority information needs:

- Reliable estimates of the abundance of salmon populations in the Kodiak Archipelago and Aleutian Island areas important for subsistence use and assessment of changes in these populations. Specific areas of concern include McLees Lake, Mortenson'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 impact growth and survival of Chinook and Sockeye salmon within their range and habitats. The Kodiak/Aleutian drainages of particular concern include: (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.

- Reliable estimates of Chinook Salmon escapement are needed, along with evaluation of escapement quality and harvest monitoring in the Alagnak River, Big Creek, Chignik River, Naknek tributaries, and Togiak River. This includes assessing egg deposition, sex and size composition of spawners, and spawning habitat quality and utilization to determine the reproductive potential of spawning stocks. Harvest monitoring is encouraged by user groups in the region, with particular emphasis on those within the Naknek drainage.

- 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 are needed for 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.

- 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, which incorporates 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 and documenting subsistence sharing networks of fish throughout the Bristol Bay region and the importance of resource networks.

- Harvest use survey of Buskin River subsistence and how subsistence practices have changed in recent history during closures or reductions in harvest. Address how subsistence harvest has changed as access and harvest opportunity within the Buskin River has changed.

Proposals Submitted for the Southwest Alaska Region

Five proposals were submitted for funding in the Southwest Alaska Region **(Table 5)**.

Table 5. Projects submitted for the Southwest Alaska Region 2026 Monitoring Plan including project duration and total funds requested.

Project Number	Title	Project Duration (Years)	Total Project Request
26-400	Buskin River Sockeye Salmon stock assessment and monitoring	4	$564,877
26-401	Chignik River in-season subsistence harvest surveys	4	$228,870
26-402	Estimation of sockeye salmon escapement into McLees Lake	4	$938,223
26-403	Addressing priority subsistence salmon concerns in the Buskin Watershed to enhance ecological strength and food security of Kodiak	4	$699,332
26-451	Understanding the importance of resource networks in Alaska: documenting subsistence fish sharing networks in select Bristol Bay communities	3	$435,624
Total			**$2,866,926**

In addition to this proposed project, the following three projects are currently being funded by the Monitoring Program in the Southwest Alaska Region:

- 22-400 Buskin River Sockeye Salmon Stock Assessment and Monitoring
- 22-401 Chignik River Subsistence Harvest Surveys and Escapement Indexing
- 22-452 False Pass and Nelson Lagoon Subsistence Harvest Monitoring and Traditional Ecological Knowledge (TEK) Investigation

Regional Advisory Council Comments

Kodiak Aleutians Subsistence Regional Advisory Council

Project 26-400: The Council emphasized the importance of the Buskin River and McLees Lake as high-priority systems for the region. Members encouraged applicants to strengthen their proposal through partnerships with local Tribes, noting that this would enhance both community involvement and scientific value. The project's outreach and mentoring components were recognized as highly successful in building regional capacity and recruiting local talent. One member recused themself from discussion due to a potential conflict of interest.

Project 26-401: The Council supported this proposal as providing meaningful, in-season data important for management of the Chignik fishery. The Council highlighted this project's strong local partnership (Chignik Intertribal Coalition) and cost effectiveness. They also noted the continuation of a long-standing dataset and emphasized the importance of maintaining consistent monitoring for the region.

Project 26-402: The Council expressed support for the Qawalangin Tribe taking the lead on this project, having expanded their capacity and built upon previous partnership experience. Despite some concerns regarding capacity within the Tribe to fully execute the work, council members stressed the importance of this project and these data to support regional subsistence management. This project has also been discussed in past meetings and continues to be an information need.

Project 26-403: The Council described this as a strong project that complements state stock assessment programs and should be considered among the highest priorities. Members stressed the value of documenting limnological conditions and subsistence practices. However, they cautioned that the proposal may be overly ambitious and could benefit from narrowing its scope. They recommended reconsidering or removing objectives outside the program's core intent, such as crayfish suppression, to strengthen the focus.

Project 26-451: The Council agreed this project provides important regional information. Members recommended prioritizing funding for weir projects first, followed by subsistence harvest survey efforts. This sequencing was seen as the most effective way to maximize value for regional management needs.

Bristol Bay Alaska Subsistence Regional Advisory Council

General Comment on all projects submitted for the Southwest Alaska Region: The Council also suggested additional attention and research needs for the Bristol Bay region, including studies on Chinook Salmon in the Alagnak and Big Creek. Council members also suggested that more research is needed surrounding regulatory changes and how these policy decisions impact the resource.

Project 26-451: Council members noted the importance of Fisheries Resource Monitoring Projects, particularly information regarding research sharing networks and how subsistence foods are exchanged across communities and throughout the region. The project was seen as crucial for understanding and preserving the cultural and subsistence practices that are vital to their communities. Sharing networks play a significant role in ensuring food security and maintaining cultural traditions. The Council believes that documenting and analyzing these networks will provide valuable insight into the subsistence lifestyle and help sustain practices for future generations.

Executive Summary and Technical Review Committee Justification

The following executive summary was written by the principal investigator and submitted to the Office of Subsistence Management as part of a proposal package. It may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. The executive summary may have been altered for length.

Technical Review Committee justifications are a general description of the committee's assessment of proposals when examining them for strategic priority, technical and scientific merit, investigator ability and resources, partnership and capacity building, and cost/benefit. More in-depth reviews are provided to investigators following project selection.

Project Number: 26-400
Project Title: Buskin River Sockeye Salmon Stock Assessment and Monitoring Kodiak

Issue: This proposal seeks funding to operate a fish enumeration weir on the Buskin River in Kodiak, Alaska. The Buskin River supports a federal subsistence fishery occurring within the Alaska Maritime National Wildlife Refuge which annually harvests relatively large numbers of sockeye salmon during June and July. Salmon from the Buskin River drainage have been identified by the Federal Subsistence Board as a resource important for customary and traditional use by the residents of Kodiak. Annual operation of a salmon escapement weir at the Buskin Lake outlet will ensure that maximum harvest opportunities for federal subsistence users are sustained.

Objective:

1. Census the sockeye salmon escapement into Buskin Lake from approximately May 15 to July 31.

2. Estimate the age composition of the sockeye salmon run to Buskin Lake such that the estimates are within 7.5 percentage points of the true value 95% of the time.

3. Measure sockeye salmon scales for freshwater and saltwater growth phases.

4. Update the Buskin River brood table and reevaluate the sockeye salmon BEG.

5. Provide education and career development opportunity for Alaska Natives and federally qualified subsistence users

Methods: Sockeye salmon escapement will be enumerated annually through a weir at the outlet of Buskin Lake from May 15 through July 31. Fishery management actions taken inseason affecting subsistence, sport, and commercial fisheries will be based on comparison of cumulative weir counts to historical time of entry in order to project run strength and total escapement. Additionally, sockeye salmon will be sampled for age, sex and length (ASL), providing estimates of return by age for the Buskin River drainage. Analyses of the return and age data collected since 1993 have allowed development of a brood table with estimates of total return having a relative precision of about 10%. Continued collection of age data at this level of sampling will allow for continuation of the brood table and future re-evaluation of the BEG. Scales will be measured as a surrogate for fish growth during different life phases and measurements will be correlated with environmental indices and improved forecasting resolution will be explored.

Partnerships/Collaboration: During each year of the project ADF&G will continue a high school student internship program established in 2003 to provide education and career development opportunity for federally qualified subsistence users. Student interns recruited locally for the project will gain knowledge important to their academic and career development by learning the principles involved in fisheries management and research and obtaining hands-on experience in fisheries data collection methods and techniques. The ADF&G and Kodiak National Wildlife Refuge office of the U.S. Fish and Wildlife Service (USFWS) have established a cooperative agreement to utilize the Buskin River weir as

an educational tool for the service's ‘Summer Science and Salmon Camp’ program, which provides a science-based venue for local youths to learn the importance of salmon for subsistence and other uses comprising an integral part of the Kodiak lifestyle.

Technical Review Committee Justification: This project addresses two Priority Information Needs for the Southwest Region 2026 funding opportunity. Ongoing since 2000, it enumerates adult Sockeye Salmon escapement into the Buskin River using a tripod picket weir. This run supports the largest subsistence fishery in the Kodiak Management Area. ADF&G’s Kodiak office has a strong track record of successfully conducting this work. Data from the weir informs spawning goals, improves run forecasts, and supports effective subsistence harvest management.

The project includes a youth internship component with Kodiak High School. While the budget appears reasonable, its location near the Kodiak office and road system should allow for greater efficiency. Combining the Sockeye and Coho weirs or adding an underwater video system could reduce future costs and allow nighttime passage. Partnering with local tribes could further strengthen project delivery and build tribal capacity.

Project Number: 26-401
Project Title: Chignik River In-Season Subsistence Harvest Surveys

Issue: This project focuses on the following identified priority information need for the Southwest Region of the 2026 Fisheries Resource Monitoring Plan Priority Information Needs:

1. Reliable estimates of Chinook Salmon escapement demographics are needed, along with evaluation of escapement quality and harvest monitoring in the Alagnak River, Big Creek, Chignik River, Naknek tributaries, and Togiak River. This includes assessing egg deposition, sex and size composition of spawners, and spawning habitat quality and utilization to determine the reproductive potential of spawning stocks. Harvest monitoring is encouraged by user groups in the region, with particular emphasis on those within the Naknek drainage

Objectives: The overall goal of this project is to obtain timely subsistence harvest information for sockeye and Chinook salmon from Federally Qualified Subsistence Users (FQSU) fishing in federal waters of the Chignik area. These are primarily residents of Chignik Lake, Chignik Lagoon, Chignik Bay, Ivanof Bay, and Perryville. The specific objectives are:

1. Collect in-season federal subsistence harvest data from FQSU in the Chignik area between June and November.

2. Build capacity within the Chignik Intertribal Coalition to ultimately lead and expand future harvest monitoring projects.

Methods: Project Area: The Chignik River watershed, which resides within the Chignik Management Area (CMA) and Alaska Peninsula Wildlife Refuge, consists of two major rivers, two lakes and a lagoon

(Figure 1). The headwaters of this system originate at black lake, which flows south into Chignik lake, continues into Chignik lagoon, and finally drains seaward into Chignik Bay.

Project Design: The first objective, collection of harvest data, will be completed by a CIC employee. The employee of Chignik Intertribal Coalition will attempt to contact every household in Chignik Lake, Chignik Lagoon, and Chignik Bay to ask for volunteers to partake in the subsistence survey. Once volunteers have been identified, they will be split into 2 groups. Each group will be contacted once every two weeks in an alternating fashion. Group one will be contacted the first week and group two will be contacted the second week. The alternating schedule will be done to avoid survey fatigue. The harvest and effort information will be used to generate a minimum harvest estimate for all permit holders in the area. Additionally, in-season harvest information will provide a more accurate representation of escapement to managers, which will support the goal of this project to provide reliable estimates of escapement. Participation will be voluntary.

The second objective—building the Chignik Intertribal Coalition's (CIC) capacity—will be met through collaboration with the U.S. Fish and Wildlife Service (USFWS). They will train local individuals for on-the-ground surveys, a process already started in phase one. CIC and USFWS will also work together to improve CIC's ability to generate and report bi-weekly harvest estimates. To support this, USFWS staff will visit Chignik to provide additional survey training, engage the community, and assist with statistical software use.

Data Collection and Reduction: USFWS will summarize and enter weekly harvest data into excel spreadsheets to develop both a minimum weekly and total harvest estimate for permit holders. This estimate will be subtracted from the weir counts to give managers an estimated escapement for that reporting period. This data is particularly important due to the difficulty meeting escapement goals for sockeye and Chinook salmon in recent years.

Data collection and analysis will be shared by USFWS and CIC. The CIC technician will enter data into a spreadsheet and summarize it weekly. These data, combined with in-season counts from the Chignik River weir, will improve escapement estimates. Since most subsistence fishing occurs upstream of the weir, estimating the number of fish harvested there helps managers more accurately assess escapement.

Data Analysis: Weekly harvest estimates will be based on calls to participating households. Data are grouped by time, area, and species. Each group's total includes reported harvests from respondents and estimated harvests from non-respondents, calculated using the number of households, activity rate, non-response rate, and average harvest. Summing these components gives the total harvest per group, and totals across groups are combined for an overall estimate.

Partnerships/Collaboration: Chignik Intertribal Coalition, and the United States Fish and Wildlife Service are committed to the project to develop a robust partnership with goals to continue to provide real time data to the Federal in-season manager. This project promotes partnership and capacity building in two ways:

1. Direct employment and training opportunities for rural Alaskans working on fisheries harvest surveys with potential to branch into monitoring and assessment projects.

2. Providing valuable in-season Federal subsistence harvest data from willing participants.

The employee hired for this position will be trained by the USFWS in data collection, data entry, and creel survey methods. USFWS and CIC will jointly develop a harvest monitoring sampling plan that respects local subsistence practices and meets stakeholder needs. CIC's local knowledge and community ties are essential to the project's success, enabling timely and accurate harvest data collection. Their technician's connections will support regular data gathering. This project will also strengthen CIC's capacity in staff management and coordination, preparing them for future leadership roles.

Technical Review Committee Justification: This is partial continuation proposal from the previously funded Monitoring Program 22-401 (Chignik River Subsistence Harvest Surveys and Escapement Indexing) to conduct harvest monitoring of salmon in the five village of the Chignik area. This project partially addresses one of the Priority Information Needs for the region and provides training for a local hire to conduct formal harvest surveys on a weekly basis over a 6-month period, which would provide critical information of harvests of Sockeye, Chinook, and redfish in the fall. The project continues to expand the technical capacity of Chignik Intertribal Coalition for this type of work. The Chignik Intertribal Coalition does provide substantial contributions to the project such as use of their boat for surveys. The cost of the proposed work is nearly equally split between a Federal agency and a tribal organization to pay for a part-time local to perform the surveys.

Project Number: 26-402
Project Title: Estimation of Sockeye Salmon Escapement into McLees Lake

Issue: This project directly addresses two priority information needs identified by the Federal Subsistence Regional Advisory Council 1) to provide reliable abundance estimates of the McLees Lake sockeye salmon Oncorhynchus nerka population and 2) use scale analyses of fresh and saltwater growth patterns over multiple years to examine how recent changes in the ocean affect growth and survival of sockeye salmon in the McLees Lake drainage. McLees Lake, located on Unalaska Island within the Alaska Maritime National Wildlife Refuge, supports a run of sockeye salmon that is classified as a managed stock under federal subsistence regulations. Due to its cultural and nutritional significance, this stock plays a vital role in sustaining the food security and traditional practices of Unalaska residents. However, concerns persist at the local, state, and federal levels that the lack of consistent escapement and harvest monitoring could jeopardize the long-term health of this population and the subsistence opportunities it provides.

Objectives:

1. Enumerate the daily passage of sockeye salmon through the weir;

2. Describe the run timing, or proportional daily passage, of sockeye salmon through the weir;

3. Estimate age composition of sockeye salmon such that estimates are within 7.5 percentage points of the true value 95% of the time;

4. Estimate the mean length of sockeye salmon by sex and age;

5. Estimate the production thresholds for rearing juvenile sockeye salmon; and

6. Use scale analyses of fresh and saltwater growth patterns to examine growth and survival of sockeye salmon

Methods: McLees Lake is located northwest of Unalaska village within the Alaska Maritime Wildlife Refuge and empties into the Bering Sea at Reese Bay. A rigid picket weir is operated during each summer of the project. The weir and sampling trap is inspected daily and maintained to ensure integrity. Fish are passed and enumerated. Daily escapement counts are relayed to ADF&G, allowing project data to be used in making in-season management decisions for the Reese Bay subsistence fishery.

Data on sockeye salmon age, sex, and length (ASL) are collected using a temporally stratified sampling design. Fish ages are assigned by ADF&G fish biologists. Image measurement software will be used to evaluate the relative growth of fish by measuring freshwater and saltwater annuli. The growth measurement data will be explored to evaluate the relative health of the freshwater residence time, growth relationships to climate indices and the utility of using saltwater growth measurements to predict future runs.

Limnological sampling will continue to be done to assess habitat quality, zooplankton productivity, and estimate the capacity of McLees Lake to rear juvenile sockeye salmon and support adult escapement.

Partnerships/Collaboration: This project will continue the development of partnerships between the U.S. Fish and Wildlife Service, the Qawalangin Tribe of Unalaska, and ADF&G. McLees Lake sockeye salmon is heavily harvested by Unalaska subsistence users and are vital to the Qawalangin Tribe's culture and food security. The Qawalangin Tribe will maintain a biologist to further develop a Fisheries Science, Research, and Development Program, funded by the Partners for Fisheries Monitoring Program. Through a Partners biologist, the Qawalangin Tribe will be able to assess and understand local fisheries management by performing weir operations, facilitating logistical needs, and assisting with data management. By developing technical fisheries expertise, the Partners biologist will increase the tribe's involvement in the meaningful support of this important salmon resource. This collaboration will empower the Qawalangin Tribe's ability to continue weir operations in future years.

Additional capacity building will occur with the Qawalangin Tribe by their direct participation in the hiring of the field technicians and ongoing consultation to develop educational opportunities. For this proposal period, ADF&G will hire two field technicians, and the Qawalangin Tribe will hire one technician through the Partners for Fisheries Monitoring Program. The Partner technician will be a local hire, or an Alaska Native Science and Engineering Program (ANSEP) student. ADF&G will hire the two field technicians with recommendation and consultation from the Qawalangin Tribe to provide emphasis on a local applicant pool. The ADF&G project and crew leader will act as mentors with the purpose of training the technicians to advance their careers and knowledge in fisheries management. The Qawalangin Tribe and ADF&G will present results of the project at Kodiak/Aleutians Regional Advisory Council meetings.

Technical Review Committee Justification: This project directly addresses two of the Priority Information Needs for the Southwest Region 2026 Notice of Funding Opportunity. This project would use a fixed-picket weir to count adult Sockeye Salmon in McLees Lake. McLees Lake, which is within Federal subsistence jurisdiction, is closed to the harvesting of salmon, but there is an important State fishery that occurs at the outlet of the lake in nearby Reese Bay. While this project has had intermittent Monitoring Program funding to Federal and State entities through the years, this proposal marks a change with Qawalangin Tribe taking the lead. This project intends to add additional components to this project, including studies of juvenile Sockeye Salmon, studies of lake rearing thresholds, as well as a scale analyses of freshwater and saltwater growth to make inference of varying conditions and how that impacts future recruitments. The cost of this project appears to be high. It is unclear from the proposal package if the Qawalangin Tribe could successfully run this project if they are not also successful in their proposal to the Partners for Fisheries Monitoring Program.

Project Number: 26-403
Project Title: Addressing Priority Subsistence Salmon Concerns in the Buskin Watershed to Enhance Ecological Strength and Food Security of Kodiak

Issue: For the past decade, Sun'aq Tribe of Kodiak (Sun'aq) has become increasingly concerned about the presence of signal crayfish in the Buskin Watershed of Kodiak Island, particularly how this invasive species is impacting wild salmon stocks vital to the subsistence culture and lifestyle of Sun'aq Tribal Citizens as well as non-Tribal members of the Kodiak community. At its Spring 2025 meeting, the Federal Subsistence Board (FSB) acknowledged priority subsistence information needs outlined by the statewide regions, including the Kodiak/Aleutians Subsistence Regional Advisory Council (Kodiak/Aleutians RAC). The following needs which were prioritized for southwest Alaska have also been identified as being of specific importance for Sun'aq, and within our Tribal capacities to assist managers and user groups with data collection and protection of subsistence resources to enhance ecological strength and food security:

1. Reliable estimates of the abundance of salmon populations in the Kodiak Archipelago and Aleutian Island areas important for subsistence use and assessment of changes in these populations;

2. Comparative ecological evaluation of lake rearing habitats of sockeye salmon stocks; including the assessment of declining salmon stocks and associated subsistence harvest opportunities, and impacts of environmental factors on salmon production in these watersheds;

3. Enumeration of salmon smolt outmigration in the Buskin Watershed;

4. Harvest use survey of Buskin River subsistence and how subsistence practices have changed in recent history during closures or reductions in harvest; and,

5. Evaluate effects on subsistence users in the Southwest Alaska region from changes in fish populations, including biological considerations of run timing, run quality, sex ratios, and age composition, which incorporates 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.

Furthermore, an additional regional-specific need identified by the Kodiak/Aleutians RAC in its 2024 Annual Report is "Eradication of Signal Crayfish in Buskin River System in Kodiak."

The Buskin system has been frequently stated in multiple fora to be the most important sockeye salmon subsistence fishery per capita in the Kodiak/Aleutians Region, but runs have been exceptionally variable over the last 20 years. Signal crayfish were not previously found in Alaska until the first records were reported in the upper Buskin River in 2002, and since these initial reports they have subsequently invaded Buskin Lake and areas throughout the Buskin River. Along with direct impacts through predation, freshwater ecosystems and the human communities and subsistence resources that depend on them are at risk due to the introduction and proliferation of this species. This project will quantify the importance of the Buskin's subsistence fishery, as well as addressing fishing use of other systems (and resulting changes in pressure) at other subsistence fisheries in times of run failures leading to closures of the Buskin. Additionally, we will maintain our long-term effort of invasive signal crayfish suppression in the Buskin Watershed, and collect critical limnological and habitat assessment data for researchers and managers to use in assessing sockeye health and rearing.

Objectives: This project has four objectives:

2. Continue active suppression of invasive signal crayfish in the Buskin Watershed;

3. Assess potential ecosystem factors negatively impacting subsistence salmon runs and harvest practices in the Kodiak/Aleutians Region due to freshwater conditions and changing environmental factors;

4. Quantify fishing behaviors and adaptation strategies that subsistence fishers employ when salmon harvest opportunities are limited at the Buskin Watershed; and,

5. Document local and traditional knowledge about the Buskin Watershed.

Methods: Objective 1: Once an invasive species becomes established, especially crayfish, they can be difficult (if not impossible) to eradicate. Traditional methods of crayfish eradication (poison and lake draining) are not options in the Buskin Watershed due to the subsistence sockeye salmon run, the presence of other anadromous species, as well as supplying drinking water for USCG Base Kodiak. Our ongoing work has demonstrated a multi-faceted approach is most effective at continued suppression and containment efforts: 1) SCUBA diving, snorkeling, wading, and trapping to directly remove crayfish from the ecosystem; 2) developing and sharing trapping techniques with the public to support community involvement with crayfish suppression; 3)"crayfishing derbies," sponsored by local businesses in partnership with Sun'aq, to increase our education and public outreach of the threats of this invasive species, remove as many crayfish as possible, and create a large morphometric and population abundance dataset; and, 4) using these data to inform crayfish management strategies to target areas for population suppression. Objective 2: Currently water temperature is only collected in one area of Buskin Lake, and

continuous monitoring of temperature and dissolved oxygen at multiple sites in the Buskin Watershed is critical to begin collecting comprehensive data for assessing smolt health and rearing conditions. These data would complement the ongoing work of ADF&G Division of Sport Fish with FRMP 22-400, and be vital for informing future forecasting and stock assessments of sockeye runs to the Buskin Watershed. There will be a total of nine limnological assessment stations placed in the Buskin Watershed; five in the lake, one in a tributary stream, and three in Buskin River. Continuous temperature and DO will be collected at all sites. Monthly macroinvertebrate surveys will be conducted at two lake sites and all three Buskin River sites. Two of the lake sites will also have limnological samples (biological, physical, and chemical) and data collected monthly. Measuring this suite of sites will greatly increase our understanding of the interconnected links present in the Buskin essential for sockeye salmon survival and runs meeting Biological Escapement Goals. Objective 3: The ADF&G Division of Subsistence will be contracted to conduct subsistence fishing behavior surveys to quantify fishing behaviors and adaptation strategies that subsistence fishers employ when salmon harvest opportunities are limited in the Buskin Watershed. Adaptation strategies for accessing wild foods during times of low resource abundance or high transportation costs often include changing to more efficient modes of transportation and sharing fuel costs with other households. The beginning of the survey will outline project objectives and expected uses of collected information. Objective 4: As with Objective 3, ADF&G Division of Subsistence will be contracted to conduct up to 15 key respondent interviews to document local and traditional knowledge about the Buskin Watershed. Interview topics will include life histories of fishing the Buskin system, knowledge and perceptions of signal crayfish, observations of environmental changes to the Buskin, and fishing adaptation measures when salmon abundance is low.

Partnerships/Collaboration: Sun'aq and the ADF&G Division of Subsistence are partnering on this project as co-PIs to create a synergy of decades of field biology and research with human dimensions, resource use documentation, and Traditional Ecological Knowledge. The Tribe and ADF&G collaborating on all aspects of this project will build the capacity and expertise of rural Alaska Tribal Members, while aiding greater direct participation in meaningful management of Federal subsistence fisheries. Data collected during this project will be of immense importance to inform State and Federal management decisions and run forecasting, as well as proving information to local and regional councils regarding subsistence practices and options/strategies to enhance ecological strength and increase food security in these challenging times of environmental perturbations. Local research assistants for this project will be trained in ethnographic interviewing, the roles of Sun'aq, ADF&G, and the USFWS in managing land and natural resources, as well as navigating the different Advisory Council and Board roles in promulgating fisheries management regulations. Through the education and training of these local research assistants, we will enhance and promote interaction amongst Agency personnel and rural residents and facilitate communication and understanding across a broad (and sometimes disparate) spectrum of user groups.

Technical Review Committee Justification: This ambitious 4-year project intends to do three multiple fronts of research: 1) suppress invasive Signal Crayfish in the Buskin River watershed; 2) quantify potential ecosystem factors that are negatively impacting salmon stocks; 3) document local and traditional knowledge through key-respondent interviews and mailings to understand local fishing behaviors and adaptations to changes in run abundance of salmon. The Sun'aq Tribe of Kodiak is taking the lead on this

project and would sub-award the Alaska Department of Fish and Game for portions of the study to conduct the harvest and Traditional Ecological Knowledge surveys. While the technical and scientific merit of the proposal is considerable, the proposal could be further strengthened by honing the objectives to the listed Priority Information Needs. Furthermore, the proposal lacks details on how much of the results from this project would better inform the management of salmon in the region. The overall cost of the project is considerable given its scope; however, a considerable portion of the funding is for the suppression of invasive Signal Crayfish which might be outside the scope of the Monitoring Program.

Project Number: 26-451
Project Title: Understanding the Importance of Resource Networks in Alaska: Documenting Subsistence Fish Sharing Networks in Select Bristol Bay Communities

Issue: This project will document and analyze subsistence sharing networks in 4 Bristol Bay communities—Togiak, Koliganek, Levelock, and Iliamna—which are dependent upon salmon and have high rates of sharing wild resources. The goal of this project is to build on previous documentation of fish harvests and use, as well as sharing networks, in the region. Additionally, the proposed research will provide new information on how social networks function in the allocation and management of subsistence resources and how this information can be utilized in state and federal subsistence management.

Salmon return to Bristol Bay each summer in the millions, returning to their spawning grounds in several federal conservation system units, including the Alagnak Wild River, Lake Clark National Park and Preserve, Katmai National Park and Preserve, Togiak National Wildlife Refuge, and Becharof National Wildlife Refuge. Salmon and nonsalmon fish compose large percentages of overall subsistence harvests of Bristol Bay. Subsistence is a key component of local community economies, and this includes harvesting, processing, consuming, and exchanging subsistence foods. Resource exchanges can take several forms, including barter (exchanging one resource for another), sharing (giving of resources with no expectation for reciprocity), and customary trade (exchanging resources for limited amounts of cash). These activities are economic transactions, but they are also social activities and expressions of cultural values. The exchange of resources is part of long-standing subsistence traditions throughout Alaska.

Previous research on social networks in the Bristol Bay region revealed that each study community had unique structural features potentially indicating unique social dynamics underlying subsistence salmon harvesting activities. In the years following previous division research in the Bristol Bay region, there have been community concerns about declining whitefish populations, declines in salmon harvests, and the loss of the Mulchatna caribou herd from much of its historic range. Changes in resource abundance have been shown to influence sharing patterns so revisiting communities earlier studied by division researchers is warranted and would provide information about subsistence practices in these changing environments.

The proposed research will expand on earlier subsistence research in Bristol Bay by updating existing subsistence harvest information and identifying and analyzing the social networks underlying the exchange of salmon within these study communities as well as within the broader Bristol Bay area and beyond. Expanding the number of communities with documented social networks in an area as vast and

diverse as Bristol Bay would bolster a region-wide perspective. Detailing sharing networks provides information necessary to evaluate the size of subsistence harvests, individual and household harvest levels and limits, and the potential effects of proposed regulations on subsistence users. Therefore, understanding the dynamics of sharing networks is critical for managing entities, such as the Alaska Board of Fisheries, Alaska Department of Fish and Game (ADF&G) fisheries managers, the federal Bristol Bay Regional Advisory Council, state fish and game advisory committees, and the Federal Subsistence Board (FSB), to develop more comprehensive management approaches.

Objectives:

1. Produce reliable estimates of the harvests and uses of salmon and nonsalmon fish for calendar year 2026 by residents of Togiak, Koliganek, Levelock, and Iliamna.

2. Record the geographic extent of search and harvest areas for salmon and nonsalmon fish by residents of Togiak, Koliganek, Levelock, and Iliamna.

3. Quantitatively describe the scope and characteristics of salmon and nonsalmon fish exchange in 4 Bristol Bay communities, illustrating the sharing networks both within each community, across the broader region, and throughout Alaska and beyond.

4. Document qualitative information about salmon and nonsalmon exchange practices, including decision making factors that structure sharing and exchange, the cultural context of exchange, and perception of change in exchange practices.

Methods: At the outset of the project in the fall of 2026, the principal investigator will hold scoping meetings in each of the proposed study communities to discuss the project's goals, objectives, methods, and how the collected data can be used. Researchers will conduct survey field work in spring 2027 and 2028, employing two integrated social science data gathering methods, discussed in detail below. These are 1) household harvest surveys and 2) key respondent interviews.

Researchers will use voluntary household harvest surveys with a mapping component to address objectives 1, 2, 3 and part of objective 4. The Division of Subsistence has used harvest surveys for over 40 years to collect information about the use and harvest of resources by Alaska residents. This has been the foundation of accurate subsistence harvest data useful to the Alaska Board of Fisheries and the Federal Subsistence Board. Survey administration will occur in the spring of 2027 with data entry and analysis occurring over the summer and preliminary data review in the fall. The results of the survey module will inform the design of key respondent interviews. The principal investigator will use ethnographic key respondent interviews to address objective 4. Key respondent interviewing provides an avenue to collect narrative data from individuals with unique personal knowledge that will provide important context for analyzing the quantitative data collected through the household survey and gathering additional information about sharing networks within communities. Interviews will occur in the late winter and early spring of 2028. Once all the quantitative and qualitative data are analyzed, researchers will bring draft results back to the communities to present for feedback at a community

meeting. A draft of the final report will be shared with the communities for an opportunity to review before publication.

Partnerships/Collaboration: Individuals, communities, and local and regional councils can use information collected through this project to advocate for community needs before the FSB and the Alaska boards of Fisheries and Game. Partnerships with Bristol Bay Native Association will be strengthened through collaboration over the lifespan of the project. During the planning and implementation phase of the project, researchers will stay in contact with local government councils, asking for assistance with survey development, interview protocols, and logistics. Local research assistants (LRAs) will be hired in each community. Researchers will train the LRAs in survey administration and mapping. The PI will identify key respondents in consultation with the local government and residents. During the project, if researchers become aware of issues in any of the communities that could be addressed through the state or federal regulatory processes, researchers can assist the local tribal council, Subsistence Regional Advisory Councils and ADF&G Fish and Game Advisory Committees, and residents in navigating that process. PIs will share examples of subsistence harvest data being used by communities to improve regulations. The regulatory process can be a confusing and difficult one to navigate; partnerships developed through intensive survey efforts in communities have proven to be beneficial to all parties involved, both during the survey but also years after, through increased communication and collaboration.

Technical Review Committee Justification: The proposed project would examine the social networks that facilitate exchanges of salmon and non-salmon fish among and between individuals, households, and communities within the Bristol Bay region. Gaining a better understanding of these networks will help managers and policymakers account for how they contribute to the maintenance of community well-being in the face of ongoing economic and environmental changes. Detailing different forms of exchange and the circumstances that affect how and when they occur will provide information to better evaluate the size of community subsistence harvests, individual and household harvest levels and limits, and the potential effects of proposed regulations that may facilitate or limit ongoing exchange practices. In the process, the project will also provide updated household survey data on salmon and non-salmon harvests and record the geographic extent of household salmon and non-salmon search and harvest areas. The project would fulfill a priority information need articulated for the Southwest Region, and it should enhance partnerships with Tribal organizations and local governments. However, considering the programmatic constraints associated with resource harvest limits, it is somewhat unclear how data on the social networks of exchange might promote functional policy change that better recognizes the importance of these practices.

SOUTHCENTRAL ALASKA REGION

Priority Information Needs

The 2026 Notice of Funding Opportunity for the Southcentral Alaska Region identified the following six priority information needs:

- 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).

- Collect baseline information of juvenile Chinook, Coho, and Sockeye salmon outmigration including abundance, and/or timing, condition, and mortality across the unique sub-watersheds of the Copper River and the Kenai Peninsula drainages.

- Understand food web dynamics and factors affecting early marine survival rates of southcentral origin wild Chinook and Coho salmon stocks including variables such as primary food resources and prey availability, competition with hatchery produced salmon, and prey buffering during periods of high/low abundance.

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

- Estimate measures of abundance, and/or run timing, spawning site fidelity, fecundity, age, sex, and length composition for Chinook, Coho, and Sockeye salmon in the Copper River or Kenai Peninsula drainages.

- Identify and understand sources of inriver mortality (e.g. predation) on adult Chinook and Sockeye salmon as they migrate upstream within the Copper River drainage.

Proposals Submitted for the Southcentral Alaska Region

Three proposals were submitted for funding in the Southcentral Alaska Region **(Table 6)**.

Table 6. Projects submitted for Southcentral Alaska Region 2026 Monitoring Plan including project duration in years and total funds requested.

Project Number	Title	Project Duration (Years)	Total Project Request
26-501	Klutina River Salmon Monitoring Program: Estimating spawning escapement on a major salmon producing drainage of the Copper River	4	$824,991
26-502	Abundance and run timing of adult salmon in Tanada Creek	4	475,278
26-504	Inriver abundance of Copper River Chinook Salmon	4	940,000
Total			**$2,240,269**

In addition to the above proposed project, one project is currently being funded by the Monitoring Program in the Southcentral Alaska Region:

- 22-504 Copper River Chinook Salmon In-river Abundance

Regional Advisory Council Comments

Southcentral Alaska Subsistence Regional Advisory Council

Project 26-501: The Council strongly supports this project, emphasizing its critical importance for conservation and management. Klutina River is a major salmon producing drainage, yet escapement numbers are unknown. Monitoring is essential given heavy sport fishing pressure and declining Chinook Salmon populations.

Project 26-502: The Council views this project as important for continuing and developing monitoring efforts to support sustainable management of salmon resources and address gaps in state data, which is vital for understanding fish movement and supporting local subsistence needs.

Project 26-504: The Council considers this project important for understanding Chinook Salmon abundance and ensuring informed management decisions for subsistence and conservation.

Executive Summary and Technical Review Committee Justification

The following executive summary was written by the principal investigator and submitted to the Office of Subsistence Management as part of a proposal package. It may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. The executive summary may have been altered for length.

Technical Review Committee justifications are a general description of the committee's assessment of proposals when examining them for strategic priority, technical and scientific merit, investigator ability

and resources, partnership and capacity building, and cost/benefit. More in-depth reviews are provided to investigators following project selection.

Project Number: 26-501
Project Title: Klutina River Sonar

Issue: A decrease in Copper River salmon productivity and altered spawner-recruit relationships are a cause for concern. Sustained low salmon returns, despite achieving in-river goals in most years, and poor performance of forecast models, have resulted in an increasingly precautionary approach to Copper River fishery management.

The authors of this proposal intend to increase the quality and quantity of data available for Copper River fisheries management by assessing annual spawning escapement on one of the six major salmon producing tributaries of the Copper River. The utility of tributary-based salmon monitoring data is dependent upon; 1) the potential productivity and related proportions of system-wide abundance capable returning to the area of study, and 2) the effectiveness of the monitoring effort to provide a reliable escapement estimate that is comparable across study years. These contingencies can be addressed through careful site selection and study design.

The Investigators' previous Klutina River Sonar Pilot Study (FRMP #20-510) assessed site locations and validated high-resolution multi-beam sonar as a suitable method for monitoring salmon spawning escapement on the Klutina River (Piché and Gorze 2023). Sonar operations occurred in 2022 from 16-June through 11-August and in 2023 from 4-June through 26 August at a location approximately 9.4 river kilometers (rkm) from the confluence with the Copper River. Salmon spawning within the Klutina River occurs above this sonar study site. Sonar downtime was limited to 1.3% of total operating hours in 2022 and 1.2% in 2023. A total of 85,092 salmon were estimated migrating within range of the single ARIS sonar on the north bank of the Klutina River in 2022 and 100,212 in 2023. Large Chinook salmon apportionment of the passage data is ongoing. Expansion of sonar operations are proposed within this funding request to include the addition of a sonar on the south bank of the Klutina River. Feasibility data supports project development beyond the pilot study phase with full-scale high-resolution sonar operations on both banks of the Klutina River to estimate the entirety of the Klutina Sockeye Salmon and Chinook Salmon runs. This project will provide annual spawning escapement and run timing of Klutina River Sockeye Salmon and Chinook Salmon, establishing a tool for stock assessment and management. As the dataset grows, stock-specific spawner-recruit models will be developed, providing additional opportunities to assess variables critical to Copper River salmon productivity that are inherently difficult to assess at the system-wide level due to climate related dampening effects of the system-wide habitat mosaic. Population status of Klutina River salmon will be assessed while tracking changes over time to enhance our understanding of how Copper River salmon will fare in the future, particularly on similar drainage types such as the neighboring Tonsina and Tazlina drainages. Additionally, Klutina River salmon abundance combined with mixed-stock abundance at Miles Lake Sonar and Baird Canyon Mark-recapture projects will provide data on stock contribution to the overall Copper River salmon run. Lastly, this data provides the ability to assess feasibility of tributary specific escapement goals on the Copper River.

Objectives: 1.) To estimate Klutina River spawning escapement of Sockeye Salmon and Chinook Salmon such that the estimate is within 10% of the true value 95% of the time, **2.)** determine Sockeye Salmon and Chinook Salmon run timing on the lower Klutina River.

Methods: High-resolution imaging sonars will be placed on opposite banks of the Klutina River pointing toward the thalweg at a location 9.4 river kilometers (rkm) upriver from the Klutina River's confluence with the Copper River. No Klutina River salmon have been documented spawning below this point, therefore the entirety of the Klutina salmon run will be available to count as they migrate past this location. Sonar operations will begin in early June to ensure the start of the salmon run is represented. Run timing will continue to be assessed during pilot project operations in 2023. Sonar operations will continue until passage slows and daily counts represent less than 1% of the total count for at least seven consecutive days. This is a necessary shift in protocol resulting from knowledge gained in the pilot study, when in 2023, 33% of the estimated fish passage occurred after protocols would have dictated ceasing operations as more than *three* (five) consecutive days of less than 1% total count were observed. This roughly 90-day timeframe is expected to cover the duration of the Sockeye Salmon and Chinook Salmon run. Each sonar transducer lens will be pointing toward the center of the river and angled down to ensure a viewing profile maximizing riverbed contact to ensure all fish that pass will be seen. Sonar software (ARIScope version 2.8) will be used to record data. Each recording will be sampled every hour in 10-minute increments. The 10-minute increments allow for a systematic sampling method for analysis while minimizing the data file size in the event of a corrupt file or data loss. Pilot study data indicated a 10-minute per hour subsample of each non-overlapping recording range will accurately estimate salmon escapement. This assumption will continue to be tested. Computer software (ARISFish version 2.8) will be used to analyze data. The net upriver movement of fish will be tallied during a 10-minute period per hour, and the hour-long total estimated passage will be this number expanded by a factor of six. Daily passage will be an estimate of the totaled 24-hour periods (00:00 – 23:59). Weekly passage (00:00 Sunday through Saturday 23:59) will be the combined daily passage estimates for that week. Net movement is defined as the sum of positive upstream and negative downstream fish movements. Net movement can easily be obtained given the capabilities of the multi-beam sonar. If overall passage rates are lower than anticipated, it may be statistically necessary to expand the hourly passage count from 10-minutes to 20-minutes or more. The proposed study design accounts for this uncertainty in density dependent variability in our expansion estimates. The opportunity to adjust fish passage counts from 10 to 60-minutes per hour can be calculated at any point throughout the study. This will ensure project objectives are met regardless of run strength.

Partnerships/Collaboration: Over the past eighteen years Native Village of Eyak's Department of the Environment and Natural Resources (NVE-DENR) has pioneered a successful capacity building model utilizing consultations and partnerships between Alaska Native Organizations, Tribal Governments, ANCSA Corporations and State and Federal Agencies to conduct high quality research culminating in the development of the joint pilot study proposal between Ahtna Intertribal Resource Commission (AITRC) and NVE. NVE and AITRC have decided together that AITRC has gained the capacity and knowledge necessary for the success of this project through the mentorship of the pilot study, and that AITRC should assume the role of P.I. for this project. Our combined long-term goal is to develop methods to economically monitor spawning escapement on all major Copper River tributaries. This project is an important first step.

Technical Review Committee Justification: The investigation plan requests four years of funding to assess annual salmon spawner escapement on the Klutina River using high-resolution imaging sonars. The Federal linkage is clear, and this project addresses a 2026 Priority Information Need for the Southcentral Region. The data collected for this study will provide annual spawning escapement and run timing of Klutina River Chinook and Sockeye Salmon, establishing a tool for stock assessment and management. The investigators have the necessary experience to complete this project, and the project is technically sound. The project builds meaningful capacity within Ahtna Intertribal Resource Commission and strengthens its partnership with the Native Village of Eyak. The investigation plan includes both a local hire and ANSEP intern. The project received letters of support from the Alaska Department of Fish and Game and Wrangell-St. Elias National Park.

Project Number: 26-502
Project Title: Abundance and Run Timing of Adult Salmon in Tanada Creek

Issue: Sockeye Salmon (*Oncorhynchus nerka*) returning to Tanada Lake provide Federal subsistence harvest opportunity throughout the Upper Copper River District, the Lower Copper River area, and in the vicinity of Batzulnetas along Tanada Creek, a tributary located upriver of the district (Figure 1). These salmon stocks are targeted and exposed to much higher levels of harvest from State commercial fisheries in marine waters near the mouth of the Copper River and additional inriver State fisheries. Sockeye Salmon populations of the uppermost tributaries are of particular importance to the Federally qualified subsistence users who traditionally fish in upper areas of the Upper Copper River District. Tanada Lake stocks are of the uppermost runs of Sockeye Salmon in the Copper River and support additional Federal subsistence harvest in the vicinity of Batzulnetas near the mouth of Tanada Creek.

Recent concerns of inadequate numbers of salmon reaching the spawning grounds for sustaining this fishery resource have been expressed by stake holders to in-season managers. The Ahtna Intertribal Resource Commission (AITRC) in partnership with Wrangell-St. Elias intends to continue the long-term data set of Tanada Creek salmon escapement and run timing to help inform responsible management.

Objectives:

1. Estimate by day, the number of adult Sockeye Salmon and Chinook Salmon migrating past a weir operated in Tanada Creek during the period of mid-June through mid-September; and
2. Incorporate annual monitoring data into a data set that can serve as a basis for evaluating long-term patterns in salmon escapement in relation to long-term data for environmental drivers and downstream fisheries management, and thereby aid in determining whether current management strategies are adequate for ensuring the conservation and continued viability of this important index stock.
3. Explore the viability of the use of artificial intelligence software to accurately identify and quantify salmon passage in a precipitation-driven stream in remote Alaska.

Pending air charter availability, a supplemental objective is to:

1. Estimate the age composition of Tanada Lake Sockeye Salmon escapement through the interpretation of otolith growth characteristics, with a desired sample size capable of providing estimates that are within 10% of the true proportion 90% of the time.

Methods: In late May through June of each year, investigators will install a floating resistance board weir near the mouth of Tanada Creek. An underwater video camera will be installed directly on a fish passage chute connected to the weir. A gate on the chute will be left open to allow fish passage throughout the day and night. The fish passage chute is designed to force fish passing the weir to swim within a few inches of the glass surface of the camera housing. This ensures that, even during periods of moderate turbidity, all fish swimming past the camera are recorded and can be identified. Camara footage will then be reviewed and counts made.

If an air charter service can be secured in September of each year (which is not always the case as pilots are switching from floats in anticipation of winter), then as a means of estimating the age, sex, and length composition of Sockeye Salmon in the spawning escapement, we will collect otoliths, identify sex, and measure length from carcasses collected in spawning areas of Tanada Lake and its outlet area. We will access the lake by air charter for one sampling event annually, once carcasses are observed or reported in the lake. Based on past work at this site, we anticipate having up to four total-age groups and attempt to obtain a total of 121 readable otoliths so that age composition estimates may be within 10% of the actual proportion 90% of the time.

A new component of this study will be to explore the use of the artificial intelligence (AI) software "Salmon Vision" created by the Wild Salmon Center, to identify salmon species and quantify passage. AI counts will be paired against human counts. If statistically accurate, the PI intends to expand the use of this technology to other streams in the Copper River Basin as a low-cost, low-demand alternative to traditional methods. Efforts will begin with Copper Lake outlet, where it has been theorized observed to be the spawning destination for Tanada Creek salmon in times when Tanada Creek stream flows are extremely low or extremely high making it impassable.

Partnerships/Collaboration: The P.I. of this proposal has assisted and learned from the WRST Fisheries Biologist, installation, day to day operations, camara footage review, analysis strategies, and deconstruction since 2023. AITRC now has the capacity to administer and run this program while maintaining the partnership with WRST.

Technical Review Committee Justification: The investigator for this proposal requests funds to operate a resistance board weir at Tanada Creek to estimate Sockeye and Chinook salmon escapement. In addition, otolith age data will be collected, and video technology will be used at the weir to ensure 24-hour escapement enumeration. The project monitors Sockeye and Chinook salmon stocks within the upper Copper River watershed and addresses a Priority Information Need for the region. The project has a history of success with the Monitoring Program and weir counts are used to assess the effectiveness of management decision of early season Sockeye returns. The project has reached a high level of capacity building in that Ahtna Intertribal Resource Commission has assumed the primary role as Principal Investigator and will lead the day-to-day operations of the project. Three seasonal full-time local hire

employees will be hired for the project. The cost of the proposed project is reasonable, and the agency match is equivalent to approximately 33% of the total amount requested from the Monitoring Program.

Project Number: 26-504
Project Title: Inriver Abundance of Copper River Chinook Salmon

Issue: Since 2003, the Native Village of Eyak's (NVE) Department of the Environment and Natural Resources (DENR) has used research fishwheels and mark-recapture techniques to estimate the annual inriver abundance of adult Chinook Salmon (*Oncorhynchus tshawytscha*) through Baird Canyon on the lower Copper River, prior to any mainstem emigration. This previously funded FRMP study (2003-2025) qualifies for continued funding because; 1) the inriver abundance estimate is necessary for effective management of the six unique federal and state managed subsistence fisheries of the Copper River, as demonstrated through strong letters of support from the Federally Delegated Fisheries Manager as well as the ADF&G Sport Fish and Commercial Fisheries Division Directors, who are all responsible for ensuring sound fisheries management of the Copper River; 2) this project continues an uninterrupted long-term population stock status and trend monitoring program (1999-2029); 3) it directly address the 2026 Southcentral Alaska Priority Information Need "Reliable estimates of Chinook Salmon escapements into the Copper River drainage and delta systems" and; 4) in addition to a period of low abundance (2008-2024) transitioning into a period of missed escapements (2020, 2021, 2024), researchers continue to observe a trend in age truncation, and a decline in size at age, for Copper River Chinook Salmon (Lewis et al. 2015; Somerville and Hansen 2023; Piche et al. 2024).

Since 2003, Copper River Chinook Salmon run size has been measured by combining the inriver abundance estimate with federal and state harvest from fisheries occurring below the project marking site (Figure 1; Botz et al. 2021; Botz and Somerville 2017, 2021; Somerville and Hansen 2023). Returning run size data allows state and federal fishery managers to establish early-season harvest management strategies by forecasting run strength and potential for harvest (Morella and Olson, 2024). An equally important metric is system-wide spawning escapement. Since 2003, Copper River Chinook Salmon spawning escapement has been measured by subtracting harvest occurring upriver of this project's recapture site from the inriver abundance estimate (Somerville and Botz 2017; Somerville and Hansen 2023; Botz et al. 2024). Spawning escapement data is used to assess and develop interannual harvest management strategies, monitor population status, and provide data for fisheries regulatory decisions.

Additionally, comparing Chinook Salmon population data with cumulative harvest data provides the public, managers, and regulatory boards with the necessary information to assess user group harvest in proportion to run size. This is critical for maintaining federal and state-mandated subsistence priority on a Chinook Salmon population that is considered a fully allocated resource (Botz and Somerville 2017, 2024; Somerville and Hansen 2023). Lastly, due to the longevity and consistency of the mark-recapture dataset, it has become an inseason index used by Copper River fisheries managers (Somerville 2021). Inseason data produced by this project represents one of four indices, along with inseason harvest data of the fisheries, Gulkana River tower counts, and aerial index counts. Fishery managers use these to monitor the progression of the run and issue harvest announcements and emergency orders/closures for subsistence, personal use, commercial, and sport fisheries, thus ensuring subsistence allocation preference can be maintained inseason (Somerville and Maclean 2014; Somerville and Hansen 2023).

Objectives: To estimate the annual in-river abundance of adult Chinook Salmon in the Copper River from 2026 to 2029 such that the estimates are within 25% of the true value 95% of the time.

Methods: This study will produce an abundance estimate of Copper River Chinook Salmon at Baird Canyon (rkm 66) using established (Link et al. 2001; Smith 2004; Piche´ et al. 2018-2024) and independently verified (Evenson et al. 2002; Savereide 2005) two-sample mark-recapture methods (Ricker 1975; Seber 1982). Similar fishwheel mark-recapture studies have successfully generated system-wide salmon abundance estimates (Meehan 1961; Donaldson and Cramer 1971; Johnson et al. 1992; Link et al.1996; Cappiello and Bromaghin 1997; Gordon et al.1998; Link and Nass 1999; Sturhahn and Nagtegaal 1999). A total of four live-capture fishwheels will be operated continuously in the Copper River from May through July each year. Two fishwheels will operate in Baird Canyon, and Chinook Salmon will be tagged (dorsal TBA-PIT tag & right operculum hole punch) and released. Before any emigration or significant harvest, a recapture effort will occur with two fishwheels operated near Canyon Creek (rkm 157), just below the lower boundary of the Upper Copper River District. Chinook Salmon will be inspected for a tag and an operculum hole punch. Inspected fish will receive a left operculum hole punch and be released. Chinook Salmon will be measured for length, and a subset will be sampled for genetics, age, and sex. Sample locations have been consistent since 2003. Standard mark-recapture assumption tests will indicate the presence or absence of bias and stratification needs for analysis. In-season project data is a management tool and will be posted daily to the project website. Fishery managers have full access to the RAW, real-time dataset, inseason and post-season datasets after clearing QC protocols. The public can view RAW inseason summary data online, a final report will be published each year with the Office of Subsistence Management detailing all objectives, methods, analyses, results, and discussion (Piché et al. 2018-2024).

Partnerships/Collaboration: Several concurrent studies benefit greatly from the Chinook Salmon monitoring program, which provides a well-established remote research facility and an in-river, staffed sampling platform for Copper River salmon research. This adds to the program's value and increases the positive impact of NVE's efforts and the Fisheries Resource Monitoring Program. Furthermore, the addition of these studies has provided NVE with experience in new sampling techniques while establishing working relationships with researchers from around the state. NVE and ADF&G are using the mark-recapture platform in an ongoing study to assess stock-specific run timing, distribution, and migratory survival of Sockeye Salmon (*Oncohynchus nerka*; 2024-2026; AKSSF-56015). The objectives of this side study are also a 2026 Priority Information Need, resulting in the fulfillment of two PINS during the proposed period of performance. Approximately 1100 Sockeye Salmon are being tagged annually with VHF transmitters and tracked through the watershed to spawning ground via 13 radio towers (seven mainstem, six tributaries) with over 60 hours of aerial telemetry surveys each year. This study provides distribution data across the six major spawning drainages, precise spawning locations, and stock-specific run timing past Baird Canyon. NVE leveraged FRMP funding to execute a similar study on Chinook Salmon from 2019 to 2021 (Schwanke and Piché 2023). In addition, a coded-wire tagging program led by the ADF&G Division of Sportfish utilized the NVE fishwheels and staff (2017-2024) to inspect returning adult Chinook Salmon for coded wire tags, this eight year effort aims to address a third 2026 PIN for Southcentral by producing an estimate of juvenile parr to smolt outmigration survival and smolt to returning adult ocean survival for Copper River Chinook Salmon (Savereide *in prep*). Since 2018, the Prince William Sound Science Center (PWSSC) has utilized the NVE fishwheel sampling platform for Sockeye Salmon capture and tagging to investigate the presence of pathogens and the

impacts of a reduction in body size on migratory success. We are actively continuing this work with the PWSSC through 2026 with funding from AKSSF.

NVE's highly successful and long-term monitoring program has provided the opportunity for NVE to continue an integral role in Copper River salmon research and management data collection, while building capacity through collaboration and partnerships with other researchers to answer critical questions on the salmon our Tribal Members depend upon. The Copper River Chinook Salmon has been utilized by the dAXunhyuu (Eyak people), since time immemorial. Ensuring healthy, robust salmon populations thrive in the Copper River is an honor and a responsibility we share.

Technical Review Committee Justification: The Native Village of Eyak requests funding for continuation of project 22-504, which provides the only available statistically valid estimate of Copper River Chinook Salmon and builds upon a 23-year data set of in-river abundance. Chinook Salmon abundance estimates produced from the mark-recapture project provide information that Federal and State managers use to make decisions regarding the fishery. This project addresses the immediate subsistence concern of declining Chinook Salmon returns to the Copper River. The Native Village of Eyak has a strong history of completing Monitoring Program projects. Letters of support were submitted by the Alaska Department of Fish and Game and the Wrangell-St. Elias National Park and Preserve. The total Monitoring Program funding requested is $940,000, which covers roughly half of the total needed for the project. Multiple sources of funding have been used successfully in the past, and if again successful, would allow the continuation of the project. This is an expensive project to run, and the proponents have cut as many costs as possible while trying to maintain the same level of data quality.

SOUTHEAST ALASKA REGION

Priority Information Needs

The 2026 Notice of Funding Opportunity for the Southeast Alaska Region identified the following 13 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, Lake Leo, and Redoubt Lake.
- 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, Lisianski River.
- 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.
- Use of DNA to determine the contribution of Sockeye in the mixed stock fishery in Southeast Alaska.

Proposals Submitted for the Southeast Alaska Region

Seven proposals were submitted for funding in the Southeast Alaska Region **(Table 7)**.

Table 7. Projects submitted for the Southeast Region 2026 Monitoring Plan including project duration in years and total funds requested.

Project Number	Title	Project Duration (Years)	Total Project Request
26-600	Advancing eDNA for northern Southeast Alaska Eulachon population monitoring	4	$735,012
26-601	Hoktaheen Sockeye Salmon stock assessment	4	$488,624
26-602	Redoubt Bay Sockeye Salmon stock assessment	4	$717,732
26-607	Neva Lake Sockeye Salmon stock assessment	4	$408,790
26-610	Klag Bay Sockeye Salmon stock assessment	4	$907,259
26-650	Documenting salmon and nonsalmon fish harvest and use patterns in four Central Prince of Wales Island communities	3	$357,776
26-651	Understanding Sockeye Salmon harvest locations through Traditional Ecological Knowledge	4	$475,828
Total			**$4,091,021**

In addition to the above proposed projects, the following seven projects are currently being funded by the Monitoring Program in the Southeast Alaska Region:

- 22-604 Hetta Lake Sockeye Salmon Stock Assessment
- 22-607 Neva Lake Sockeye Salmon Stock Assessment
- 22-609 Sitkoh Lake Sockeye Salmon Stock Assessment
- 22-610 Klag Lake Sockeye Salmon Stock Assessment
- 22-612 Northern Southeast Alaska Eulachon Population Dynamics Monitoring
- 22-650 Updating Icy Straight Community Household Subsistence Harvest Surveys and Documenting Subsistence Harvest Patterns
- 22-651 Estimating Inseason Harvest of Klawock River Salmon Subsistence Fishery

Regional Advisory Council Comments

Southeast Alaska Subsistence Regional Advisory Council

General Comment: The Council expressed strong interest in incorporating genetic components into all proposed projects to enhance data quality and management applications. Members also discussed the use of video monitoring for salmon escapement and sought clarification on whether this represents a broader trend in project methodologies.

26-651: The Wrangell-St. Elias Subsistence Resource Commission provided a letter to the Southeast Council in support of this proposal utilizing Traditional Ecological Knowledge to further understand important salmon harvest locations.

Executive Summaries and Technical Review Committee Justifications

The following executive summaries were written by the principal investigators and submitted to the Office of Subsistence Management as part of a proposal package. They may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. The executive summaries may have been altered for length.

Technical Review Committee justifications are a general description of the committee's assessment of proposals when examining them for strategic priority, technical and scientific merit, investigator ability and resources, partnership and capacity building, and cost/benefit. More in-depth reviews are provided to

Project Number: 26-400
Project Title: Advancing eDNA for Northern Southeast Alaska Eulachon Population Monitoring

Issue: A subsistence lifestyle is the backbone of Alaskan Native culture. A key component of that subsistence lifestyle for many coastal tribes has been the eulachon (Saak in Tlingit, Oolichan, candle fish, savior fish, Thaleichthys pacificus). The majority of eulachon populations throughout the Pacific have been declining since the 1990s (Hay & McCarter, 2000). In 2010 the National Marine Fisheries Service (NMFS) listed the southern distinct population segment (DPS) in Washington, Oregon, and California as threatened under the Endangered Species Act (NOAA, 2010). The lack of eulachon population data available for northern Southeast Alaska rivers motivated for the Chilkoot Indian Association (CIA) to begin a eulachon (Saak) monitoring program in 2010 using mark-recapture methods at the Chilkoot River. In 2014, through a partnership with Dr. Taal Levi at Oregon State University (OSU), the use of environmental DNA (eDNA), a novel approach of detecting species DNA from the environment, was implemented at the Chilkoot River to compare eulachon eDNA concentrations with the mark-recapture population estimate. The eDNA concentration and mark-recapture estimate were found to be highly correlated, proving eDNA can be a reliable method for determine species abundance (Pochardt et al., 2020).

Objectives: Through this Fisheries Resource Monitoring initiative, CIA will continue to build capacity for rural and Alaska Native organizations to more meaningfully participate in management of Federal subsistence fisheries through the use of eDNA to assess eulachon populations in northern Southeast Alaska. This will be accomplished through the following objectives: (1) Establish CIA's eDNA laboratory and eulachon eDNA analysis capacity, (2) determine eulachon spatial and temporal dynamics and relative abundance at 9 rivers in northern SE AK, (3) continue coordination of and collaboration with regional eulachon monitoring efforts, and (4) engage local communities in eulachon monitoring efforts. These proposed objectives directly build-upon progress already established by CIA through its current FRMP award (23-AN-11100500-017).

Methods: The use of eDNA allows for the detection of organisms without requiring sampling of living organisms themselves. Instead, DNA shed from the organism is detected through environmental samples (air, soil, or water in our case). Through the eulachon population monitoring work, CIA has become a regional leader in implementing eDNA studies and has recently secured initial funding to establish an eDNA laboratory in Haines. Through this initiative, CIA will bring its eDNA lab into fully operational status and validate the use of the eulachon eDNA assay for analysis of all eDNA samples collected.

eDNA sample collection will follow the already established protocols that CIA has been implementing on a regional level since 2014. The eulachon monitoring locations will include the 9 rivers currently being monitored by CIA in partnership with TWC and STC including the: Berners, Lace, Antler, Katzehin, Ferebee, Chilkat, Chilkoot, Taiya, and Skagway Rivers.

CIA will continue to coordinate the Southeast Alaska Tribal Eulachon Monitoring Network and participate in larger coast-wide collaborative eulachon monitoring initiatives. Participation in these larger efforts builds capacity and allows for networking opportunities between entities and projects throughout the Pacific.

Additionally, CIA will establish a Citizen Science eulachon monitoring program, an environmental internship, and continue to engage the local community through presentations and eulachon celebrations. CIA will also share projects results with the larger scientific and management community via conference presentations and to the Southeast Federal Subsistence Management Board.

Partnership and Capacity Building: This project will bring together a diverse group of partners to achieve the goal of building capacity for rural and Alaska Native organizations to more meaningfully participate in management of Federal subsistence fisheries through the use of eDNA to assess eulachon populations in northern Southeast Alaska. This diverse partnership includes Alaska Native organizations, community-based non-profits, University researchers, and international collaboration.

Technical Review Committee Justification: The goal of this 4-year proposal is to establish an eDNA laboratory and monitor the Eulachon populations in northern Southeast Alaska. Chilkoot Indian Association is a tribal organization and has led this project for more than a decade. Many of the listed co-investigators on this proposal are also tribal organizations. This research directly addresses a Priority Information Need identified by the Southeast Regional Advisory Council, "*Population assessment for Eulachon for northern Southeast Alaska".* The project investigation plan makes no mention of cost-savings by using eDNA alone versus both mark-recapture and eDNA methods, leaving to question if this proposal is using the most cost-effective method. The cost of this project is ambitious, due to its scope of accounting for 9-river systems. Chilkoot Indian Association has built tremendous technical and administrative capacity by becoming a leader in the eDNA field of study.

Project Number: 26-601
Project Title: Hoktaheen Sockeye Salmon Stock Assessment

Issue: Issue: This project directly addresses critical information gaps concerning the Hoktaheen sockeye salmon stock, a vital resource located on Yakobi Island, at the base of Glacier Bay, and within the Tongass National Forest. The monitoring program is essential for the sustainable management of this fishery, which is heavily relied upon by the communities of Hoonah, Pelican, Elfin Cove, and Gustavus.

Objectives:

1. Establish a robust, long-term dataset on sockeye salmon abundance and health in the Hoktaheen system through video monitoring stock assessments and age analysis through scale sampling.

2. Establish baseline environmental data for the Hoktaheen watershed, including year-round water temperatures, flows, and dissolved oxygen levels within the creek and lakes.

3. Create local employment opportunities through the hiring and training of three locals as Tribal Fish Monitors. These are stable long-term season jobs paying a competitive wage and offering experience to those interested in growing within this field.

4. Enhance educational opportunities related to fisheries science and management within the Hoonah community through classroom, online, and in the field participation with Hoonah City Schools, Alaska Youth Stewards, the Icy Straits Advisory Committee, and interested public.

5. Generate reports informing fisheries managers of annual findings through Hoktaheen monitoring.

Methods:

1. Video recorded and fish counted to 90%+ accuracy with a goal of 95%+ uptime of the monitoring system. Initially video monitoring will be brought online in June, as has been standard for the Neva and other weirs. Annual adjustments will be made to timing based on data analysis from the previous season. If weather conditions allow, and results warrant, we would like to leave the cameras in operation year round to expand the scope of the work to include recording and documenting outmigrating smolt as well as generating counts on Steelhead and other important fish species that utilize the system during non-peak sockeye season.

2. Year round measurements of water attributes (temperature, dissolved oxygen, etc.) These will be used in conjunction with fish counts to better assess and forecast the overall health and abundance of this important fish resource. Hobo loggers will be placed throughout the streams and lakes at specific locations chosen to deliver the most pertinent information. These locations will include the spawning areas previously identified by Mr. Van Alen in the previous Hoktaheen FRMP project (2001-2003), as well as the creek mouth and selected locations in between to generate a complete picture of the Hoktaheen watershed.

3. Quarterly and Annual progress reports to OSM to ensure active and responsible management of FRMP project & funds.

4. Seasonal weekly and annual Hoktaheen status report to be generated and shared with SE-RAC, USFS, OSM, ADF&G, and the public. This project will contribute to the seasonal and annual data presented through OSM and the USFS to relevant stakeholders and managers. Data will be shared through the new USFS Subsistence dashboard, OSM's seasonal weekly fish reports, and

the annual report to the SE-RAC & FSB. Data will additionally be shared through HIA's website and social media.

5. Photo & video generated through the project will be uploaded and shared to HIA's website and social media. These materials will be beneficial in supporting HIA's educational outreach within Hoonah City Schools and the public. Highlighting the important work being done across agencies to steward critical local resources.

Partnership and Capacity Building: This project strengthens partnerships between HIA, the US Forest Service, ADF&G, and local stakeholders. It provides valuable training and employment opportunities for residents, building capacity in fisheries science and management. The project promotes information sharing and collaboration among all partners. Most subsistence fishing within the Hoktaheen system is done in salt water as fish wait to enter Hoktaheen stream. This falls into the State of Alaska jurisdiction. Fish counts and information will be made available to the Alaska Department of Fish & Game for management decisions. HIA has already been receiving reports of poaching and concerns of illegal fishing activity at Hoktaheen. HIA will continue to work with Alaska Wildlife Troopers (AWT) to curtail this activity by forwarding photo evidence and reports of such activity to the local Hoonah wildlife trooper. HIA has a well-established and ongoing working relationship with ADF&G and AWT and looks forward to sharing the important data gathered through this project.

Technical Review Committee Justification: The investigation plan requests four years of funding to establish a long-term monitoring program for Sockeye Salmon in the Hoktaheen drainage using a video monitoring weir. This project addresses a 2026 Priority Information Need for the Southeast Alaska Region and is essential for effective subsistence fishery management. However, project design and methods require further development. The Hoonah Indian Association will lead the project, partnering with the U.S. Forest Service. The budget appears reasonable for the proposed work. While letters of support were received for the Tribal Wildlife Grant proposal, none were provided for the current project.

Project Number: 26-602
Project Title: Redoubt Bay Sockeye Salmon Stock Assessment

Issue: *Gaat* (sockeye salmon, *Oncorhynchus nerka*) is a culturally and ecologically important species. In its most recent Tribal Needs Assessment, STA Tribal Citizens indicated sockeye salmon was their most important traditional food and they would consume more if it was available. *Kunáa* (Redoubt Bay) is the largest subsistence fishery for *gaat* in Southeast Alaska, accounting for nearly 40% of all reported state and federal subsistence sockeye salmon harvest in Southeast Alaska in 2023 and 2024. Harvest regulations are governed by the Redoubt Lake Sockeye Salmon Management Plan, an award-winning plan collaboratively developed by federal, state, tribal, conservation, subsistence, sport, and commercial stakeholders. The plan depends on in-season escapement monitoring to liberalize subsistence and commercial harvest opportunity. Without in-season monitoring, the management plan cannot be implemented and subsistence harvest opportunity will be significantly reduced. Continued implementation of the Redoubt Lake management plan has important consequences for both food security and cultural wellbeing for Sitka Tribe of Alaska tribal citizens.

The State of Alaska and/or the US Forest Service have operated a manned picket weir to monitor in-season sockeye salmon escapement at Redoubt Lake since 1983. However, both agencies have indicated that they can no longer support weir operations at Redoubt Lake. Without additional funding to operate the weir, subsistence harvest opportunity will be restricted. STA is seeking Fisheries Resource Monitoring Program funding to support monitoring and management of Southeast Alaska's largest subsistence sockeye salmon harvest site.

Objectives: The long-term goal of the *Kunáa Gaat* (Redoubt Bay Sockeye Salmon) Stock Assessment is to provide in-season data to manage a culturally and ecologically important sockeye salmon population to ensure robust population health and maximize subsistence harvest opportunity. The objectives of the project are as follows:

1. Estimate the in-season escapement of sockeye salmon at Redoubt Lake with a mean average precision of >95%.

2. Describe the run timing, or proportional daily passage, of sockeye salmon through the weir.

3. Estimate the annual sex and age composition of sockeye salmon sampled at the Redoubt Lake weir such that 95% confidence intervals of age and sex composition will be within +/-7.5% (α = 0.05, d = 0.075).

4. . Estimate hourly stage height of *Kunáa Shak.áayi.*

Methods: The *Kunáa Gaat* (Redoubt Bay Sockeye Salmon) Stock Assessment will utilize cutting edge computer vision and deep learning algorithms to reduce project costs without sacrificing data precision. Automated swim-through video chutes will be the primary tool to accomplish Objectives 1 and 2 (estimate in-season escapement and run timing). The video chutes will be fitted to a fixed rigid picket weir near the lake outlet. Methods will build upon the successful implementation of unattended automated video chutes for sockeye salmon monitoring in British Columbia by First Nations and project partner Salmon Vision Collaborative.

Initial computer vision analysis will be performed on-site. Continuous video will be divided into motion detected clips using a motion sensing algorithm. These clips will be analyzed using a computer-vision deep learning model trained on videos from coastal watersheds across northern BC and later supplemented as Redoubt data become available. Video data and initial model results can be uploaded to a cloud server via satellite internet or by swapping portal hard drives. The Salmon Vision web app will be used to review data on the cloud server, correct any model errors, and build training and test data sets to improve model performance. Daily and cumulative sockeye escapement data will be posted to USFS' subsistence dashboard for state and federal managers and the general public to see.

Project staff will make at least two day-trips to Redoubt per week to check on the site, perform maintenance, double check data, and collect age, sex, length (ASL) samples to accomplish Objective 3 (estimate age and sex composition). Scales will be sent to the Alaska Department of Fish and Game for age analysis.

Objective 4 (estimate stage height) will be accomplished by installing a pressure transducer in a stilling well and following standard USGS procedures to obtain hourly stage data. These data will be compared to precipitation, tide, and escapement data to improve understanding of factors driving Redoubt Lake salmon escapement and estimate passage in the event of video chute malfunction.

STA is transitioning its data analyses to R and code will be posted to a publicly accessible repository to allow other Tribes and researchers to conduct similar salmon analyses.

Partnership and Capacity Building: Sitka Tribe of Alaska is the principal Investigator for the *Kunáa Gaat* (Redoubt Bay Sockeye Salmon) Stock Assessment. The project is notable for its significant collaboration between tribal, state, and federal agencies as well as non-governmental organizations. The project will allow STA to continue to build capacity and be an active stakeholder in the conservation and management of a highly valued traditional resource, which STA views as a critical expression of tribal sovereignty. To the best of STA's knowledge, the automated computer vision system proposed here has not been used in Alaska but holds considerable promise to reduce monitoring costs and improve management across the state.

STA regularly discusses weir operations and data analyses and interpretation with state and federal managers. Through other grant funding, STA is currently working with state, academic, and NGO partners to collect a suite of environmental data at Redoubt Lake to characterize changes to freshwater productivity following a 2013 landslide.

The project has strong support in the community of Sitka. The US Forest Service, Alaska Department of Fish & Game, Salmon Vision Collaborative, City & Borough of Sitka, Sitka Conservation Society, Sitka Sound Science Center, Southeast Alaska Watershed Coalition, and Northern Southeast Regional Aquaculture Association have all provided letters of support for the project.

Technical Review Committee Justification: This proposal submitted by the Sitka Tribe of Alaska proposes a unique and modern solution to counting Sockeye Salmon at Redoubt Lake using an artificial intelligence enabled chute with a picket weir. If successful, it could help minimize costs for other visual or video-based weir projects. This is a long-standing project that has been operated by numerous agencies in the past. The Sitka Tribe of Alaska has built tremendous capacity to carry out this project as well as other projects nearby with a high degree of technical and administrative ability. Some components of the study could be modified easily to include ways to cross-validate counts at the weir by having intermittent visual counts while at the weir during site visits. The cost of this weir is somewhat high but expected, given its remote location and costs associated with the need to visit regularly by boat.

Project Number: 26-607
Project Title: Neva Lake Sockeye Salmon Stock Assessment

Issue: This project addresses the priority information need for reliable estimates of Sockeye Salmon escapement and in-season harvest and estimates of stream discharge in Neva Lake. Sockeye Salmon returns to Neva Lake have long been an important subsistence resource for Tlingit families living in Excursion Inlet, Hoonah, and other areas of northern Southeast Alaska. The lake is the most convenient

source of Sockeye Salmon for rural communities in Icy Strait, including Hoonah, Gustavus, and Excursion Inlet.

Active management requires good data, and the Neva weir project has been a consistent example of the importance of continuous data. Our project ensures data continuity is not lost in this priority sockeye system. Tribal ownership and management of projects like these will be necessary in future years as the scale of federal funding is reduced. HIA is ready to provide leadership in this project to meet the federal funding gaps and USFS staffing level issues from government cuts. Escapement for this system is not well understood and there are multiple forms of pressure on sockeye streams in the area through sport, subsistence, personal use, and commercial fisheries. Our project will gauge escapement in the system by inferring it from age classes and scale samples. This system may be vulnerable to warming and environmental fluctuations and we do not currently have data to project that risk. This project will establish baselines in lake characteristics to identify parameters for how weather and environmental variations may impact this system in the future.

Neva Lake has been the focus of multiple management decisions in recent years with harvest limits being as low as 10 fish per household to as high as 40. Both average annual sockeye returns, and harvest efforts appear to be on an upward trend. The escapement estimates obtained by this project will be critically important to State and Federal biologists evaluating the continued effectiveness of these actions, assuring the health of this resource, and maximizing subsistence opportunity.

Objectives:

1. Count (census) the annual escapement of adult and jack Sockeye Salmon into Neva Lake.

2. Determine, with 90% certainty, if at least 90% of the Sockeye Salmon spawners in Neva Lake are ≤ freshwater age-1.

3. Measure and record the temperature and discharge of Neva Creek during the Sockeye Salmon spawning migration.

4. Increase local and Tribal capacity in fisheries management and integration of results into community discussion and federal management to address the long-term need for local expertise and ensure the data collected directly informs management decisions that impact subsistence opportunities.

Objectives 1-4 ultimately assist stakeholders and resource managers in making informed management decisions. There is a permanent need for the data generated from this work, and through programs such as the FRMP, HIA looks to strengthen their involvement and capacity to ultimately better serve the people who rely on these resources.

Methods: This project outlines a comprehensive plan for assessing Sockeye Salmon stock at Neva Lake. It involves operating a remote video weir at the lake's outlet, transmitting live video via Starlink to the HIA Environmental office in Hoonah. Project personnel will use software to count Sockeye and other fish

species, reviewing motion-triggered video clips for daily escapement counts. Additionally, the project includes sampling 60 to 120 adult Sockeye for age, sex, and length data, with scales analyzed at the HIA Environmental office. A permanent stream gauge station will be established to monitor water level and temperatures, with data shared to contribute to environmental and stream temperature mapping data sets.

Partnership and Capacity Building: The Hoonah Indian Association, ADF&G, and Forest Service began cooperating on Fisheries Resource Monitoring Program, Stock Status and Trend projects at Neva Lake in 2002. Field personnel are all hired and employed by HIA and HIA has successfully filled these positions with local hires. HIA employees will participate in USFS safety training and have on-the-job training in how to sample fish and how to operate video weir, computer, networking, and solar power systems. While this proposal is similar to past Neva proposals, it should be noted that much of the work and funding is being moved from the USFS & ADFG to the HIA side. This represents an increase in HIA's capacity and should be measured as a level of progress and success generated from the years of partnership and successful operation of the Neva FRMP. Our previous work with the USFS on this project built up our capacity within our staff and organization to run this work. Along with the institutional knowledge of weir setup and operation, we hired a subsistence fisheries biologist through the Partner for Fisheries grant that can help oversee this work and link the results to federal management. Our proposal will continue to build our capacity by increasing our leadership role in this type of work, expanding the types of work we can do within HIA (such as scale age counting), and continue to be supported federally through the USFS and OSM. This project will build local youth capacity and knowledge of salmon monitoring and management. HIA participates in the summer Alaska Youth Stewards(AYS) program to support local youth interested in environmental and resource management. When possible, Hoonah AYS crew will work alongside HIA Fisheries and USFS staff.

Technical Review Committee Justification: The investigation plan requests four years of funding to continue assessing Sockeye Salmon in Neva Lake using a weir with video monitoring technology. This project addresses a 2026 Priority Information Need for the Southeast Alaska Region and has proven important for managing the subsistence fishery. The project has operated since 2002 and is technically sound. Meaningful capacity will be built by Hoonah Indian Association taking over as project lead, while maintaining its partnership with the U.S. Forest Service. The budget is reasonable for the proposed work and is 16% lower than last cycle. No letters of support have been received.

Project Number: 26-610
Project Title: Klag Bay Sockeye Salmon Stock Assessment

Issue: *Kleix'* (Klag Bay) is an important subsistence fishery for *gaat* (sockeye salmon, *Oncorhynchus nerka*) for the community of Sitka. *Gaat* is a culturally and ecologically important species. In its most recent Tribal Needs Assessment, STA Tribal Citizens indicated sockeye salmon was their most important traditional food and they would consume more if it was available.

Escapement data have been collected at Klag Lake since 2001; terminal returns have significantly declined from a mean of 17,697 during the first ten years of the project to 6,373 over the past ten years. The terminal return has not exceeded the long-term median in any of the past ten years. Additionally, a

recruitment failure by the 2013 brood year supports continued monitoring to identify possible limits to the population's productivity and develop long-term management strategies.

The Alaska Department of Fish and Game (ADFG) reviews Klag escapement and harvest data daily in-season. ADFG has closed the Klag Bay sport and subsistence fisheries six times since 2001 including twice in the past five years, as a direct result of the data provided by this project.

A long-term decline in escapement and the need for actionable data for in-season management warrant continued monitoring.

Objectives: The overarching goal of the *Kleix' Gaat* Stock Assessment is to provide data to manage a culturally and ecologically important sockeye salmon population to ensure robust population health and subsistence harvest opportunity. The project will address all three Priority Information Needs for conservation and management of Klag Lake sockeye salmon (estimates of sockeye salmon escapement, in-season harvest, and stream discharge). The *Kleix' Gaat* (Klag Bay Sockeye Salmon) Stock Assessment has five primary objectives:

5. Estimate the annual escapement of sockeye salmon at Klag Bay such that the coefficient of variation is 15% or less.

6. Describe the run timing, or proportional daily passage, of sockeye salmon through the weir.

7. Estimate the annual sex and age composition of sockeye salmon sampled at the Klag Bay weir such that 95% confidence intervals of age and sex composition will be within +/-7.5% ($\alpha = 0.05$, $d = 0.075$).

8. Estimate harvest by subsistence and sport fishermen at Klag Bay annually so that the coefficient of variation is 15% or less.

9. Estimate hourly stream discharge of *Gaat Héeni.*

Methods: Objectives 1, 2, and 3 (estimate escapement, run timing, and age and sex composition) will be accomplished by placing a fixed rigid picket weir across the outlet stream, approximately 100 yards upstream of the Klag Bay estuary. Salmon will be identified to species and enumerated as they pass the weir. A portion of salmon will swim into a trap, where 20% of sockeye salmon will be marked with an adipose fin clip and 10% of sockeye salmon will be anesthetized and sampled for age, sex, and length. Carcasses on the spawning grounds will be examined using a Petersen mark-recapture study design to validate the weir estimate. Scales will be sent to the Alaska Department of Fish and Game for age analysis.

Objective 4 (estimate in-season harvest) will be accomplished by conducting on-site creel surveys throughout the sockeye salmon run using a one-stage stratified sampling design. Weir personnel will follow a standard script to obtain data from harvesters. In-season escapement and harvest data will be shared daily with state and federal managers and the public through the USFS subsistence dashboard.

Objective 5 (estimate stream discharge) will be accomplished by installing a pressure transducer in a stilling well and following standard USGS procedures to produce a stage rating curve. These data will be compared to precipitation and escapement data to improve understanding of factors driving Klag Lake salmon escapement.

STA is transitioning its data analyses to R and code will be posted to a publicly accessible repository to allow other Tribes and researchers to conduct similar salmon analyses.

Partnership and Capacity Building: Sitka Tribe of Alaska is the principal Investigator for the *Kleix' Gaat* (Klag Bay Sockeye Salmon) Stock Assessment. The project is notable for its significant collaboration between tribal, state, and federal agencies as well as non-governmental organizations. The project will allow STA to continue to build capacity and be an active stakeholder in the conservation and management of a highly valued traditional resource, which STA views as a critical expression of tribal sovereignty.

STA regularly discusses weir operations and data analyses and interpretation with state and federal managers. STA has obtained additional grant funding to work with state, academic, and NGO partners to collect a suite of environmental data at Klag Lake to characterize freshwater productivity.

STA will hire three technicians each season to operate the weir and collect data. STA will recruit, hire, and train tribal citizens and local residents, with an emphasis on students, early-career individuals, and individuals seeking career change. New weir technicians will be paired with an experienced field partner to allow for hands-on, in-depth training throughout the season. Technicians will gain skills and knowledge in fisheries monitoring and management, including operation of a weir, salmonid identification, fish handling and anesthetization, mark-recapture methods, creel surveys, data collection, data analysis, and field safety.

The project has strong support in the community of Sitka. The US Forest Service, Alaska Department of Fish & Game, City & Borough of Sitka, Sitka Conservation Society, Sitka Sound Science Center, and Southeast Alaska Watershed Coalition all provided letters of support for the project.

Technical Review Committee Justification: This is a 4-year stock assessment and harvest monitoring project for Sockeye Salmon escapement into Klag Lake by the Sitka Tribe of Alaska, who has been the sole principal investigator and manager of this work for over two decades. The project addresses three Priority Information Needs for the Southeast Region by providing reliable estimates of escapement and in-season harvest, and stream discharge, which inform both State and Federal fisheries management. The cost of this project has increased around 60% from the last time the Monitoring Program funded it, in 2018. There is a secondary mark-recapture component at the end of the season that may not be warranted and removing it could provide some cost savings. Collection of stream discharge data is a stated objective, but it was not clearly shown how it would integrate into practical uses for in-season fisheries management. Overall, this project aims to continue delivering high quality subsistence stock assessment data for Klag Lake, a significant Sockeye Salmon harvest system.

Project Number: 26-650

Project Title: Documenting Salmon and Nonsalmon Fish Harvest and Use Patterns in Four Central Prince of Wales Island Communities

Issue: This project proposes to update subsistence fish harvest and use information for the communities of Hollis, Thorne Bay, Coffman Cove, and Kasaan in direct fulfillment of the priority information need articulated for the Southeast Region in the 2024 Fisheries Resource Monitoring Program Priority Information Needs document to "Update community household fish harvest surveys."

This research will update subsistence fish harvest and use information for the communities of Hollis, Thorne Bay, Coffman Cove, and Kasaan. The most recent comprehensive harvest data available for these 4 communities dates to 1998 and is over 25 years old. All of the study communities are located within the Tongass National Forest. Kasaan was founded as a Haida village hundreds of years ago while Hollis, Thorne Bay, and Coffman Cove are younger communities with roots in the timber industry. All 4 communities have historically heavily depended on subsistence resources. Because the communities are surrounded by the Tongass National Forest, there are hunting and fishing opportunities provided by both the state and federal governments.

The Alaska Department of Fish & Game (ADF&G) mandates harvest reporting for most species that require a permit or harvest tickets, such as salmon or large game. Additionally, ADF&G conducts biennial, voluntary, halibut harvest surveys and occasional marine mammal harvest surveys. The methods used to collect these permit data provide only harvest numbers for the specific species, decoupling harvest from the broader context in which the resources are harvested. For example, permits do not document information about household demographics, sharing practices, or qualitative assessments about the harvests, all of which provide important explanatory context and provide additional detail for managers.

Over the nearly 30 years since the last comprehensive subsistence harvest survey, these communities have experienced demographic, economic, resource abundance, and regulatory changes which have likely affected their subsistence harvest and use patterns. Populations have fluctuated and population structure has changed, with fewer young families remaining in the communities as the availability of stable timber-based employment has declined. While resource-based jobs have declined, some tourism and services-based industries have grown. In addition to demographic and economic changes, the federal government established a subsistence halibut fishery in Alaska in 2003. To date, there has been little investigation into how this new regulation has modified household use of salmon or other kinds of fish, but recent surveys completed in other Southeast Alaska communities suggest that halibut harvests may have replaced some salmon harvests. Prior to these regulations, halibut fishing occurred under sport regulations, which allowed only the use of rod and reel with bag limits of just a few fish. The federal subsistence regulation provides for rod and reel as well as long line gear, with bag limits of 20 fish per day, among other provisions. A dearth of information on the use of fisheries resources in the proposed study communities creates obstacles for communities, managers, and regulatory boards in making informed decisions that are in the best interests of the communities and that continue to provide a subsistence priority.

Objectives: Produce reliable estimates of the harvests and uses of salmon and nonsalmon fish for calendar year 2026 by residents of Thorne Bay, Hollis, Coffman Cove, and Kasaan; 2) Record the

geographic extent of search and harvest areas for wild resources by residents of the study communities; and 3) Document observations of subsistence harvesting practices, harvest trends, resource abundance and characteristics, and areas used for subsistence fishing activities over time in the study communities.

Methods: If funded, the project would commence in the fall of 2026 with scoping meetings in the proposed study communities to discuss the project's goals, objectives, methods, and how results can be used. Division of Subsistence staff will conduct field work in the spring and summer of 2027, employing 2 integrated social science data gathering methods: 1) household harvest surveys and 2) key respondent interviews. Researchers will return draft data to the communities for review prior to publication. Researchers will use voluntary household harvest surveys with a mapping component to address objectives 1 and 2. The Division of Subsistence has used harvest surveys for over 40 years to collect information about the use and harvest of resources by Alaska residents. This has been the foundation of accurate subsistence harvest data useful to the Alaska Board of Fisheries and the Federal Subsistence Board. Based on standard Division of Subsistence sampling strategies, researchers will attempt a census of Hollis (50 households), Coffman Cove (69 households), and Kasaan (10 households), and a 50% random sample of Thorne Bay (104 households). Project staff will hire local research assistants (LRAs) and train them in survey administration and will conduct the surveys in teams. Researchers will design the household survey to collect information for the 2026 study year about a household's harvest and use of fish resources and document corresponding spatial data. Household harvest surveys will occur in the spring of 2027. The principal investigator will use ethnographic key respondent interviews in summer 2027 to address objectives 2 and 3. Key respondent interviewing provides an avenue to collect narrative data from individuals with unique personal knowledge that will provide important context for analyzing quantitative data collected through the household survey. Key respondents will be identified in consultation with local governments, LRAs, and others in the community using a snowball sampling method. Respondents will also be selected to represent a cross-section of ages, genders, subsistence histories, and kinship or harvesting groups to capture a wide scope of perspectives on subsistence opportunities and environmental observations. Sample sizes will vary by community: Kasaan (3–5 interviews), Hollis (5–8 interviews), Coffman Cove (5–10 interviews), and Thorne Bay (10–15 interviews). Based on past division studies, these sample sizes should be sufficient to reach saturation; researchers will regularly analyze the data as it is collected to gauge whether interviews continue to yield new insights and will conduct more if necessary.

Partnership and Capacity Building: Individuals, communities, and local and regional councils can use information collected through this project to advocate for subsistence practices before state and federal regulatory bodies. Partnerships with the U.S. Forest Service will be strengthened through collaboration with local staff throughout the project period. Researchers will stay in contact with local government councils throughout the life of the project and will strive for collaboration on survey development, interview protocols, and logistics. If researchers become aware of issues in any of the communities that could be addressed through the state or federal regulatory processes, researchers can assist the local tribal council, Subsistence Regional Advisory Councils, ADF&G Fish and Game Advisory Committees, and residents in navigating that process. Researchers will share examples of subsistence harvest data used by communities to improve regulations. The regulatory process can be a confusing and difficult one to navigate. Partnerships developed through intensive survey efforts in communities have proven to be

beneficial to all parties involved, both during the survey but also years after, through increased communication and collaboration.

Technical Review Committee Justification: The proposed project will update household fish harvest and use survey information in four Prince of Wales Island communities that have not been surveyed in over 25 years, filling a priority information need expressed by the Southeast Alaska Subsistence Regional Advisory Council. The project will also collect important geographic information about the locations and extent of area households' harvesting efforts, as well as key respondent interview data to provide local ecological knowledge and context for the survey results that will allow the researchers to better understand socioecological changes and issues being faced within the study communities. The project may also receive additional funding to expand the scope of the study to document the harvest and use of wildlife species and other wild resources. Expanding the scope of the project to include wildlife harvest and use could be particularly valuable given the recent wildlife special action requests and proposals submitted regarding Unit 2 deer. Overall, the proposed project has the potential to provide insight into current subsistence management issues, food security issues, conservation concerns, and social changes in the communities of study. It should also produce data that will be relevant to the analysis of longer-term species population trends, broader ecological changes, and related changes in subsistence practices and uses in the area. However, the project does not contain a particularly strong partnership or capacity building component. It would be ideal if the project proposed a specific mechanism to help build stronger, ongoing working relationships with a local organization working on land and resource management issues in the area. Despite the potential of the project, it is also worth questioning the proportion of research funds dedicated to staff salary and benefits.

Project Number: 26-651
Project Title: Understanding Sockeye Salmon Harvest Locations through Traditional Ecological Knowledge

Issue: This research will document how Traditional Ecological Knowledge (TEK) informs how fishers distribute their fishing effort for salmon among the available salmon systems near the communities of Yakutat, Klawock, Hoonah, and Sitka, Alaska. Past Alaska Department of Fish & Game (ADF&G) Division of Subsistence research and ethnographic records indicate that local Southeast Alaska fishers harvest subsistence salmon from numerous water bodies throughout the region, and communities usually rely on more than one salmon stream to meet their subsistence salmon needs. The study communities are located within the Tongass National Forest and each use several sockeye salmon systems to meet their subsistence needs.

Subsistence salmon permits provide an annual time series of harvest data, including harvest locations; these data quantify where community residents are harvesting salmon and how these locations may change over time. Ethnographic data considered alongside quantitative permit data provides a richer context within which to understand findings. For example, during previous ethnographic research in Hoonah, researchers found that some residents do not consider traveling to Basket Bay to harvest sockeye salmon because that location is within the traditional territories of the Angoon Tlingit and is therefore considered off-limits. The proposed project will build on earlier division work that analyzed household

subsistence-personal use salmon permit data for Southeast Alaska between 1996 and 2006, updating that analysis to include 1985–2025. Researchers will use similar methods to ensure comparability so that they can compare the findings and identify changes that have occurred in harvesting locations and other notable differences across a broader time period. Informed by the results of this new analysis, researchers will conduct ethnographic interviewing and participant observation in the study communities to investigate the factors associated with decision-making that determines harvest location selection.

Objectives:

1. Analyze reported subsistence sockeye salmon harvest locations in Southeast Alaska from 1985–2025 using ADF&G Division of Commercial Fisheries subsistence and personal use fishing permit data.

2. Document Traditional Ecological Knowledge related to the distribution of salmon harvest across available sockeye salmon systems, including changes over time, in select Southeast Alaska communities

3. Record the geographic extent of search and harvest areas for sockeye salmon by residents of the study communities within the past 20 years.

Methods: The project will begin with a permit analysis to synthesize available reported harvest location data from ADF&G Division of Commercial Fisheries' subsistence-personal use permits. The permit analysis will provide a generalized summary of region-wide harvest locations, provide context for mapping data, and inform development of key respondent interview protocols.

At the outset of the project, researchers will hold scoping meetings in each of the study communities to consult with residents and local governments about the research design. These initial site visits will allow researchers to identify community members who are interested in working directly with staff as local research assistants (LRAs). Research staff will work closely with participating communities to maintain effective local participation. In each of the study communities, LRAs will be hired and trained to assist with data collection. The division's Information Management analysts will conduct the permit analysis in the fall of 2026 in fulfillment of Objective 1. Researchers will conduct field work in the summer and fall of 2027 and 2028, employing three integrated social science data gathering methods: 1) ethnographic key respondent interviews; 2) mapping; and 3) participant observation. These methods will provide data to address objectives 2 and 3.

The principal investigators will use ethnographic key respondent interviews (KRIs) to document TEK regarding salmon fishing in each community, including harvest locations throughout time. Data gathered through KRIs will enhance the understanding of the environmental, social, cultural, and regulatory factors that shape harvest locations in these communities, and how these have changed over time. During interview sessions, key respondents will be asked to map historical and contemporary subsistence harvest areas, as well as historical and contemporary areas of observed fish migration. Researchers will also engage in participant observation to gain a more thorough understanding of fishing locations, including how residents use TEK to inform their selection of harvest locations. Participant observation will be used

in conjunction with key respondent interviews. Ethnographic fieldwork will take place first in the communities of Yakutat and Hoonah in the summer of 2027, and in the communities of Klawock and Sitka in the summer of 2028. Once draft project results are available, researchers will bring them back to the communities to present for feedback at a community meeting. A draft of the final report will be shared with the communities for an opportunity to review before publication.

Partnership and Capacity Building: Individuals, communities, and local and regional councils can use information collected through this project to address concerns about their subsistence practices before the Federal Subsistence Board or Alaska Board of Fisheries. Local capacity for ethnographic analysis will be built with interested project partners. For example, staff from the Hoonah Indian Association (HIA) have expressed interest in qualitative data analysis methods, and this project will provide an opportunity for the division and HIA to work together to build that capacity. Partnerships with U.S. Forest Service will be strengthened through collaboration with local U.S. Forest Service staff throughout project implementation. Throughout the life of the project, researchers will stay in contact with local government councils to ask for assistance with interview protocols and logistics, discussion of results, crafting of deliverables and review of draft products. During the project, if researchers become aware of issues in any of the communities that could be addressed through the state or federal regulatory processes, researchers can assist the local tribal council, Subsistence Regional Advisory Councils and ADF&G Fish and Game Advisory Committees, and residents in navigating that process. Researchers will also share examples of subsistence harvest data being used by communities to improve regulations with these groups as well.

Technical Review Committee Justification: The proposed project would analyze subsistence Sockeye Salmon harvest locations in Southeast Alaska and document how Traditional Ecological Knowledge (TEK) informs the distribution of subsistence Sockeye Salmon harvest among the available salmon systems near the communities of Yakutat, Klawock, Hoonah, and Sitka. In the process, it would explore potential demographic, economic, and environmental factors influencing changes in these harvest locations and practices over time in each community. The project would fulfill a priority information need expressed by the Southeast Alaska Subsistence Regional Advisory Council, and it would create data with important management applications. The project appears to be intended to enhance partnerships with rural communities, Tribal organizations, and Federal land management staff. However, these partnerships had not been finalized at the time of proposal submission. The project could potentially be improved with some modifications to the participant observation and interview protocols, or greater explanation of the reasoning behind these protocols. The amount of project funds dedicated to staff salary seems disproportionately high. It also seems that given the percentage of the budget allocated to staff, LRAs, Key Respondent interviewees, and participant observation harvesters should be receiving higher rates of remuneration.

MULTI-REGIONAL

Priority Information Needs

The multi-regional category is for projects that are applicable in more than one region. The 2026 Notice of Funding Opportunity identified three priority information needs identified by Regional Advisory Councils:

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

- Statewide analyses of archived salmon scales to assess 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.

- Understanding and documenting subsistence sharing networks of fish throughout the state and the importance of resource networks.

Proposals Submitted for the Multi-Region

No proposals were submitted for funding under the Multi-Region category.

No Multi-Region projects are currently being funded by the Monitoring Program.

FEDERAL SUBSISTENCE BOARD ACTION

At their meeting on February 5, 2026, the Federal Subsistence Board took up the Monitoring Program's 2026 Monitoring Plan. Following a presentation of the Monitoring Plan, the Federal Subsistence Board moved to accept the recommendations for funding for the 2022 Fisheries Resource Monitoring Plan based on the Technical Review Committee ranking, the Regional Advisory Council comments, and the Interagency Staff Committee comments.

Table 8. Projects submitted to the 2026 Fisheries Resource Monitoring Program

Project	Title	Organization	Total Cost	1st Year Cost
26-100	Assessment of life history patterns and hypoxic stress of northwest Alaska whitefish and Arctic Grayling	Wildlife Conservation Society	$242,150	$117,798
26-101	Beaver expansion into the Arctic: Current impacts and future implications for fishes in Northwest Alaska	University of Alaska Fairbanks	$938,509	$234,971
26-102	Selawik Northern Pike population dynamics, movement, and habitat use	United States Geological Survey	$402,741	$113,913
26-103	Kobuk River Sheefish Spawning Abundance	Alaska Department of Fish and Game	$299,616	$0
26-150	The Harvest and Use of Sheefish and other Nonsalmon Fishes in Hotham Inlet	Alaska Department of Fish and Game	$615,010	$205,906
26-151	Kawerak Tribal Fisheries Stewardship Program - Awaitipta Ecosystem Monitoring Project	KAW	$926,318	$233,696
26-200	Chena River Chinook and Summer Chum Salmon Enumeration	Alaska Department of Fish and Game	$467,664	$113,958
26-201	Application of mixed-stock analysis for Yukon River Chum Salmon	United States Fish and Wildlife Service	$319,288	$79,822
26-202	Feasibility of Sonar Estimation of Adult Salmon Passage in the Middle Yukon River near Ruby Alaska	Tanana Chiefs Conference	$690,310	$228,241
26-250	Traditional Ecological Knowledge and Life History of Salmon in Tributaries of the Yukon Coastal District	Alaska Department of Fish and Game	$341,477	$124,484
26-252	In-season Yukon River Subsistence Salmon Survey Program	Yukon River Drainage Fisheries Association	$377,385	$93,409
26-300	Goodnews River Salmon Escapement Monitoring	Alaska Department of Fish and Game	$628,886	$226,281

Project	Title	Organization	Total Cost	1st Year Cost
26-301	Kusko River Whitefish and Coho Sonar	Alaska Department of Fish and Game	$622,727	$148,685
26-302	Salmon River of the Pitka Fork Chinook Salmon Escapement Monitoring	Alaska Department of Fish and Game	$431,960	$140,120
26-303	Implementing Artificial Intelligence for rural Alaskan Salmon Counts	NDS	$770,087	$220,570
26-304	George River Salmon Weir	Alaska Department of Fish and Game	$867,884	$253,681
26-350	Bethel Subsistence Harvest Surveys	ONC/ADFG	$732,029	$144,151
26-351	Kuskokwim Management Area Post Season Subsistence Salmon Harvest Survey	Alaska Department of Fish and Game	$938,557	$234,454
26-352	Local and Indigenous Knowledge of Nonsalmon Fisheries Including Whitefishes, Sheefish, and Northern Pike in a Changing Climate	Alaska Department of Fish and Game	$581,834	$199,492
26-400	Buskin River Sockeye Salmon Stock Assessment and Monitoring	Alaska Department of Fish and Game	$564,877	$207,629
26-401	Chignik River In-season Subsistence Harvest Surveys	United States Fish and Wildlife Service	$228,870	$57,401
26-402	Estimation of Sockeye Salmon Escapement into McLees Lake	Qawalangin Tribe	$938,223	$234,665
26-403	Addressing Priority Subsistence Salmon Concerns in the Buskin Watershed to Enhance Ecological Strength and Food Security of Kodiak	STK/ADFG	$699,332	$147,171
26-451	Understanding the Importance of resource networks in Alaska: Documenting Subsistence Fish Sharing Networks in	Alaska Department of Fish and Game	$435,624	$196,578

Project	Title	Organization	Total Cost	1st Year Cost
	Select Bristol Bay Communities			
26-501	Klutina River Salmon Monitoring Program: Estimating Spawning Escapement on Major Salmon Producing Drainages of the Copper River	Ahtna Intertribal Resource Commission	$824,991	$215,320
26-502	Abundance and Run Timing of Adult Salmon in Tanada Creek	Ahtna Intertribal Resource Commission	$475,278	$119,593
26-504	Inriver Abundance of Copper River Chinook Salmon	Native Village of Eyak	$940,000	$235,000
26-600	Advancing eDNA for Northern Southeast Alaska Eulachon Population Monitoring	CIA	$735,012	$39,994
26-601	Hoktaheen Sockeye Salmon Stock Assessment	Hoonah Indian Association	$488,624	$119,486
26-602	Redoubt Bay Sockeye Salmon Stock Assessment	STA	$717,732	$167,711
26-607	Neva Lake Sockeye Salmon Stock Assessment	Hoonah Indian Association	$408,790	$99,973
26-610	Klag Bay Sockeye Salmon Stock Assessment	STA	$907,259	$226,364
26-650	Documenting Salmon and Nonsalmon Fish Harvest and Use Patterns in Four Central Prince of Wales Island Communities	Alaska Department of Fish and Game	$357,775	$147,795
26-651	Understanding Sockeye Salmon Harvest Locations through Traditional Ecological Knowledge	Alaska Department of Fish and Game	$475,828	$64,647

Table 9. Summary of projects submitted for the 2026 funding cycle with regional allocations, agency funds, harvest monitoring/Traditional Ecological Knowledge (HMTEK) and stock, status, trends (SST) breakdown and requested fund by primary investigator type (not showing breakout of co-investigator types). All monetary values presented in units of thousands of dollars.

Region	DOI Funds 1st Year	%	Guide-line %	USDA Funds 1st Year	%	Guide-line %	HMTEK	SST	Federal Agency	State Agency	Tribal or Rural Organ-ization	Other Organ-ization
Northern	$906	20	17	$0	0	0	$440	$467	$114	$206	$234	$353
Yukon	$640	14	29	$0	0	0	$218	$422	$80	$238	$228	$93
Kuskokwim	$1,567	35	29	$0	0	0	$578	$990	$0	$1,202	$144	$221
Southwest	$843	19	15	$0	0	0	$197	$647	$57	$404	$382	$0
Southcentral	$570	13	5	$0	0	33	$0	$570	$0	$0	$570	$0
Southeast	$0	0	0	$861	100	63	$212	$649	$0	$212	$649	$0
Multi-Region	$0	0	5	$0	0	5	$0	$0	$0	$0	$0	$0
Total $	**$4,527**			**$861**			**$1,645**	**$3,743**	**$251**	**$2,264**	**$2,206**	**$667**
Total %	84%	100	100	17%	100	100	31%	69%	5%	42%	41%	12%

Table 10. Final Monitoring Plan list of projects selected for funding beginning in 2026.

Project	Title	Organization
26-102	Selawik Northern Pike population dynamics, movement, and habitat use	U.S. Geological Survey, U.S Fish and Wildlife Service
26-201	Application of mixed-stock analysis for Yukon River Chum Salmon	U.S. Fish and Wildlife Service,
26-302	Salmon River of the Pitka Fork Chinook Salmon Escapement Monitoring	Alaska Department of Fish and Game, MTNT
26-451	Understanding the Importance of resource networks in Alaska: Documenting Subsistence Fish Sharing Networks in Select Bristol Bay Communities	Alaska Department of Fish and Game, Bristol Bay Native Association
26-504	Inriver Abundance of Copper River Chinook Salmon	Native Village of Eyak
26-600	Advancing eDNA for Northern Southeast Alaska Eulachon Population Monitoring	Chilkoot Indian Association
26-607	Neva Lake Sockeye Salmon Stock Assessment	Hoonah Indian Association
26-610	Klag Bay Sockeye Salmon Stock Assessment	Sitka Tribe of Alaska
26-650	Documenting Salmon and Nonsalmon Fish Harvest and Use Patterns in Four Central Prince of Wales Island Communities	Alaska Department of Fish and Game
26-651	Understanding Sockeye Salmon Harvest Locations through Traditional Ecological Knowledge	Alaska Department of Fish and Game