



FISHERIES RESOURCE
MONITORING PROGRAM

*Federal Subsistence Board
Work Session Materials*

*January 12-13, 2016
Anchorage, Alaska*



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**FEDERAL SUBSISTENCE BOARD
WORK SESSION**

USFWS Regional Office
Gordon Watson Conference Room
1011 East Tudor Road
Anchorage, Alaska 99503

January 12-13, 2016

**DRAFT AGENDA
8:30 AM to Finish Daily**

*** Asterisk identifies action item**

1. Review and Adopt Agenda*
2. Information Exchange
3. Recommendations on Fisheries Resource Monitoring Program* (Stewart Cogswell and Jennifer Hardin)
 - a. Northern Region
 - b. Yukon Region
 - c. Kuskokwim Region
 - d. Southwest Region
 - e. Southcentral Region
 - f. Southeast Region
 - g. Multi Regional
4. Closeout on deferred Special Actions from April 2015 Work Session -FSA15-02, 03, 05, 07, and 08* (Gene Peltola Jr.)
5. Closeout on deferred Special Action FSA15-17 Coho Salmon on the Kuskokwim River* (Gene Peltola Jr.)
6. Discussion and action on options for future Nonrural Determinations - Policy vs. Rulemaking vs. Blending* (Amee Howard and Theo Matuskowitz)
7. Update on State of Alaska and Federal Subsistence Management Program MOU* (Chuck Ardizzzone)
8. Update on Requests for Reconsideration for Kenai, Kasilof, & Makhnati (Jennifer Hardin)
9. Other Business

Work Session Audio Access
Information: Toll-Free: 1-888-455-5897
Pass Code: 3344290

2016 DRAFT FISHERIES RESOURCE MONITORING PLAN

OVERVIEW

The mission of the Monitoring Program is to identify and provide information needed to sustain subsistence fisheries on Federal public lands for rural Alaskans through a multidisciplinary and collaborative program. It is the responsibility of the Technical Review Committee (TRC) to develop the strongest possible Monitoring Plan for each region and across the entire state.

TRC evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit. The final score determined the ranking of each proposal within the region (**Tables 1-7**). Projects that rate higher comprise a strong Monitoring Plan for the region by addressing strategically important information needs based on sound science and promote cooperative partnerships and capacity building. The projects listed are currently being considered for Funding in the 2016 Fisheries Resource Monitoring Program. Projects which were not eligible due to the nature of the activity are not included.

Available Funds

Federal Subsistence Board guidelines direct initial distribution of funds among regions and data types. While regional budget guidelines provide an initial target for planning, they are not final allocations. Prior commitments to the 2014 Monitoring Program are up to \$2.7 million. The anticipated funding available for the 2016 Monitoring Program is up to \$2.0 million.

ISC Comments on the 2016 Draft Fisheries Resource Monitoring Program (FRMP)

The ISC supports the evaluation approach described in the FRMP overview, which states that proposal submissions must be complete and address five specific criteria in order to be considered high quality projects. We also agree that in light of declining revenues, only high quality projects should be funded. While some project proposals address priority information needs identified by the Regional Advisory Councils (details below) projects still need to adequately address the remaining criteria to better ensure success in meeting their proposed objectives. In situations where criteria are not adequately addressed, we agree with the Technical Review Committee (TRC) that those projects should not be funded.

Additionally, while the TRC rated three projects as high quality submissions, the ISC was informed that conditions changed since the TRC ranking with regards to the principal investigators that could impact the success of the projects. For two of these projects, OSM staff indicated that there were alternatives being considered; thus, the ISC recommends conditional support for 16-451, Bristol Bay Subsistence Salmon Networks and 16-453, Togiak River Chinook Salmon Subsistence Harvest Assessment, contingent upon submission of information to OSM staff and their review and approval of the proposed plans for alternate personnel. The third project, 16-151, will be addressed in the paragraph discussing the Northwest Arctic Council's recommendations in the Northern Region.

NORTHERN REGION

Priority Information Needs

The 2016 Notice of Funding Opportunity for the Northern Region identified 12 priority information needs:

- Understanding differences in cultural knowledge, beliefs, and perceptions of subsistence resources between fishery managers and subsistence users in Northwestern Alaska.
- Document rural residents' beliefs, attitudes, and knowledge about beavers and perceptions of changes to fish habitat related to beavers.
- Spawning locations for broad whitefish in the Northwest Arctic Region.
- Traditional/local knowledge of subsistence fish. Include application to Federal subsistence management, such as identifying critical habitat, refining range maps, and shedding light on ecological relationships.
 - Whitefish on the northern Seward Peninsula in the communities of Buckland, Deering, and the north coast in the community of Kivalina.
 - Dolly Varden in the communities of Noatak, Kobuk, and Kivalina
- Selawik River Clams (freshwater mussels) traditional harvest and use, abundance and life history.
- Description and analysis of sharing networks and customary trade of salmon in villages in northern Alaska.
- Documentation of longevity, age of maturity, and the abundance of fish of a given size range or maturity status for lake trout in the upper Anaktuvuk River.
- Description of temporal changes in subsistence harvest patterns and resource availability of broad whitefish, Arctic cisco and burbot in the Niglik River.
- Description of changes in harvests and relative abundance of broad and round whitefish observed by subsistence fishers in the context of climate change on the Meade River.
- Description of environment conditions leading to increased expression of Saprolegnia fungus in broad whitefish in the Colville River drainage.
- Identification of overwintering areas for Dolly Varden in the Hulahula River including demographic qualities of overwintering fish and estimating overwintering fidelity of fish.
- Reliable estimates of Chinook Salmon escapement in the Unalakleet River drainage.

Technical Review Committee Proposal Ranking

For the 2016 Monitoring Program, 10 proposals were submitted for the Northern Region. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit, and ranked them as follows:

Table 1. Technical Review Committee (TRC) ranking for projects in the Northern Region. Projects are listed by TRC ranking and include the total matching funds, total funds requested, and the average annual request for each project submitted to the 2016 Monitoring Program within the Northern Region.

TRC Ranking	Project Number	Title	Total Matching Funds	Total Project Request	Average Annual Request
1	16-105	Kobuk River Sheefish abundance	\$93,000	\$183,592	\$61,197
2	16-106	North Slope Overwintering Aerial Monitoring Dolly Varden	\$117,900	\$229,302	\$57,325
3	16-107	Chandler Lake Spawning aggregations of Lake Trout	\$152,380	\$245,686	\$81,895
4	16-152	Mead River Changes in Subsistence Fisheries	\$0	\$329,495	\$82,373.75
5	16-151	Northwest TEK Whitefish, Cisco, and Beavers	\$0	\$225,418	\$75,139
6	16-103	Kobuk River Dolly Varden Genetics	\$10,500	\$21,500	\$21,500
7	16-101	Arctic Dolly Varden Telemetry	\$0	\$105,400	\$26,350
8	16-104	Selawik Inconnu Age Abundance	\$30,000	\$390,560	\$130,187
9	16-108	Changing Conditions in Colville River Leading to Increased Mold on Whitefish	\$93,000	\$185,575	\$61,858.33
10	16-102	Colville Grayling Habitat and Migrations	\$145,300	\$236,160	\$78,720
Total			\$642,080	\$2,152,688	\$676,545

Regional Advisory Council comments

North Slope Subsistence Regional Advisory Council

Project 16-106. The Council stated that this project is important. Continued monitoring of overwinter Dolly Varden populations and an understanding of the population trends is needed to evaluate the health of the stocks. These populations continue to provide an important subsistence resource for many communities on the North Slope.

Project 16-107. The Council stated that this project is important to the community of Anaktuvk Pass. Chandler Lake provides an early spring subsistence resource on which the community depends. Because of industry activity and climate change the community is concerned about the health of this stock.

Project 16-152. The Council stated that there has been an ongoing concern about Meade River whitefish and whitefish are a very important resource to the community of Nuiqsut. The Council recommended that the Inarhu River be included in this project because the Inarhu River and the Meade River share a common outlet.

Project 16-101. The Council stated that understanding the location of overwinter areas is important to evaluating Dolly Varden populations and that Dolly Varden are an important subsistence resource to many communities on the North Slope.

Project 16-108. The Council stated that this project is very timely and important. North Slope communities continue to see the presence of a freshwater mold on whitefish and there is concern that the mold may spread to other systems and other species. Meade River whitefish are an extremely important subsistence resource both for food, trade and barter to the communities of Barrow, Atkasuk and Nuiqsut. Given the importance of this species the Council feels this project is ranked too low.

Project 16-102. The Council stated that while Arctic grayling are an important subsistence resource to the community of Nuiqsut, given the importance of the other projects this project is accurately ranked.

Northwest Arctic Subsistence Regional Advisory Council

The Council unanimously passed a motion to fund four projects in the Monitoring Plan. Specifically:

Project 16-105. The Council stated that this project is important. Sheefish are an important subsistence resource. The Kobuk River Sheefish population is large and the Council is worried about it overpopulating existing habitat. Because of the large sheefish population, there is talk of creating a commercial fishery. The Council feels it is important to have an accurate estimate of the population size before any action is taken in regards to a commercial fishery.

Project 16-151. The Council stated that this project is important. This project incorporates traditional knowledge of whitefish, cisco and beaver. Beaver continue to be an issue in the region. The Council has concerns about the negative effects of beaver on fish populations. They also stressed the importance of the investigators partnering with the communities and integrating with ongoing work. They stated some whitefish and cisco work is already being completed in the region. The Council would like youth involvement with the project. The youth need to understand beaver and the fish interactions and the effects of the growing beaver population on local subsistence fisheries resources. There is also concern because climate change has had an effect on beaver abundance.

Project 16-103. The Council stated that this project is important because the Kobuk River Dolly Varden/trout are an important subsistence resource in Northwest Alaska and not enough is known about the populations. There are summer fishing areas where subsistence fishers used to see Dolly Varden/trout and now they are gone.

Project 16-104. The Council stated that this project is important. Continuation of this project is important because of the gain that will be realized in the next couple years. The data is just beginning to show the effects of the slump on the Selawik River Sheefish population. The affected age cohorts are just beginning to return. It is very important to continue

this project to understand how/if the slump changed spawning success. There is also interest in studying the population because, it is a very important subsistence population and the Council wants it to grow and stay healthy.

Seward Peninsula Subsistence Regional Advisory Council

The Council provided no comments on the Monitoring Plan, as there are no proposed projects, beginning in 2016, in the area of the State covered by the Seward Peninsula Council. Instead, the Council discussed information needs and possible fish monitoring projects on the Seward Peninsula.

Interagency Staff Committee comments

In the Northern region, the Northwest Arctic Council supported all the proposals submitted for research in their region. The TRC ranked all of these projects at a level sufficient to succeed. One project supported by the Northwest Arctic Council and ranked as a high quality proposal by the TRC, 16-151, Northwest TEK, Whitefish, Cisco, and Beavers has reported the loss of a principal investigator and supporting organization, and effective alternatives have not been proposed; therefore, this project is no longer under consideration.

Members of the North Slope Council commented on the importance of research relating to changing environmental conditions and the effects on fish. They stated that project 16-108, Changing Conditions in the Colville River, should be ranked higher. However, the TRC did not rate this project as a high quality project and gave it a lower ranking on the list. The ISC concurs with the TRC recommendation.

Project Summaries and TRC Justification for Project Ranking

TRC Ranking: 1
Project Number: 16-105
Project Title: Spawning abundance of Kobuk River sheefish

Project Summary: The investigators seek funding to monitoring Kobuk River outmigration of post-spawning sheefish from the Kobuk River as a tool to provide managers with an index of the entire Kobuk River stock. A dual frequency identification sonar (DIDSON) system would be used to produce this estimate. This work builds on abundance estimate work completed by the Alaska Department of Fish and Game and U.S. Fish and Wildlife Service in 1995-1997 and 2008-2010 (project 08-103).

TRC Justification: This project will build upon Monitoring Program project 08-103 by allowing continued monitoring of sheefish in the Kobuk River. Sheefish are an important subsistence resource in northwest Alaska and can be harvested year-round throughout the Kobuk and Selawik River drainages. The largest subsistence harvest occurs in Hotham Inlet and Selawik Lake. These sheefish fisheries are a mixed stock group comprised of two spawning populations. The investigators propose ongoing monitoring of this stock to ensure long-term population stability. The project would be part of an ANSEP intern program that Alaska Department of Fish and Game wants to develop in Northern Alaska with the goal of developing a professional biologist. The investigator has successfully completed a pilot study addressing the feasibility of using DIDSON sonar. The cost of this project is low and the investigator has a significant match covering 30% of the project.

TRC Ranking: 2
Project Number: 16-106
Project Title: Aerial monitoring of Dolly Varden overwintering abundance in the Anaktuvuk, Ivishak, Canning, Hulahula, and Kongakut rivers

Project Summary: Dolly Varden populations are utilized by subsistence fisheries in Eastern North Slope communities. These populations depend on a relatively small amount of overwintering habitat, most of this overwintering habitat is thought to be located in upwelling areas near the headwaters of major river systems in the region. The investigators propose conducting a series of aerial surveys to monitor overwintering populations of Dolly Varden in five northern

Alaska rivers. This project will build upon information collected in 06-108 Aerial Monitoring of Dolly Varden overwintering abundance in the Anaktuvuk, Ivishak, Canning, Hulahula, and Kongakut rivers.

TRC Justification: The proposal addresses a need for ongoing monitoring of potentially very vulnerable overwintering Dolly Varden stocks concentrations in the Arctic National Wildlife Refuge. This project specifically addresses the priority information need for identification of overwintering areas for Dolly Varden in the Hulahula River. The project has well defined and achievable objectives. The investigators have a strong track record with successful completion of Monitoring Projects. The proposed project has a well-developed capacity building component that involves both an intern program for ANSEP students and training local borough biologist. Information from this project will help address any potential stock declines based on overwintering survey results.

TRC Ranking: 3

Project Number: 16-107

Project Title: Estimation of yield potential, identification and sampling of lake trout spawning aggregations, and abundance estimation of lake trout in Chandler Lake

Project Summary: The last assessment of Chandler Lake occurred from 1987-1989 when the goal was to determine sustainable yield and various metrics were examined including estimated population size, relative abundance, fecundity, growth, age composition, and length-weight relationships. Ultimately, an annual yield 0.14 kg/hectare was recommended, as well as continued efforts to monitor the population and harvests. Currently, comprehensive data on subsistence use for lake trout and freshwater fishes in Chandler Lake is limited to a single reporting year. In 2011, 504 lake trout were harvested by subsistence fishers, primarily from Chandler Lake, and when combined with sport fish harvests (~21 fish), equates to ~656 kg/yr and approaches the upper threshold of even the LA model (695 kg/yr), which is nearly five times the amount recommended during 1989.

TRC Justification: This project addresses a 2016 Priority Information Need and a concern of the North Slope Subsistence Regional Advisory Council. Subsistence users have expressed concern over the sustainability of Lake trout near the community of Anaktuvuk Pass. The investigators propose assessing the Lake trout population in Chandler Lake. The project would be part of an ANSEP intern program that Alaska Department of Fish and Game wants to develop in Northern Alaska with the goal of developing a professional biologist. The investigator has successfully completed a pilot study addressing the feasibility of using DIDSON sonar. The cost of this project is low and the investigator has a significant match covering 38% of the project.

TRC Ranking: 4

Project Number: 16-152

Project Title: Meade River subsistence fisheries: Evaluating changes in harvests and abundance of broad whitefish, other non-salmon species, and salmon

Project Summary: The research would be conducted with subsistence fishers living in Barrow and Atqasuk who fish in the Meade River. The investigation plan focuses on two research questions:

1. Based on the analysis of updated quantitative and qualitative data, how are subsistence harvests and uses of broad whitefish and other fish species changing over time?
2. Are changes occurring in the abundance of broad whitefish and other fishes taken for subsistence; what are their causes?

Three methods of data collection are proposed to meet the study objectives: harvest survey, key respondent interviews, and participant-observations. Three objectives are proposed:

1. Estimate annual harvest and use patterns of whitefish, char, Arctic grayling, and other species of fish used by residents of Atqasuk for three years. Assess whether subsistence needs for these species are being met and impacts to households when needs are not being met.

2. In Atqasuk and with a subset of Barrow households that fish on the Meade River, document traditional and local knowledge about whitefish, Arctic grayling, char, burbot, and other fishes with particular attention to temporal changes in run timing, abundance, locations, and links to other species. Document how environmental and other changes are affecting harvest methods, species targeted, how fishing is socially organized, fishing locations, preservation techniques, and harvest timing.
3. Compare data collected to previously collected information; interpret changes and trends in the subsistence harvest and use of whitefish, Arctic grayling, burbot, and other fish species.

TRC Justification: The investigator has proposed to conduct research in Atqasuk and Barrow with Federally-qualified subsistence users who fish in the Meade River. The project would have potential implications for this portion of the National Petroleum Reserve. The proposed study would allow managers to learn more about whitefish, Arctic grayling, char, burbot, and other non-salmon and salmon species. These subsistence fisheries are likely to become more important to rural residents in the future as the Western Arctic Caribou herd declines.

There is potential to obtain baseline subsistence harvest information for the Meade River that is needed both for established State and Federal management processes and for planning and impact assessment efforts. Existing data are 10 years old and would be updated.

The investigator proposed to address one priority information need for the Northern Region described in the 2016 notice of funding availability. The objectives are clearly written, measurable, and achievable. The proposed methods are well established in the Alaskan context. The sampling strategy is sound and achievable. The investigation plan describes how each objective would be achieved and when reports would be delivered.

The principle investigator has a demonstrated track record of successful completion of similar projects and reports. There are no co-investigators or research partnerships described. We recommend adding 1-2 co-investigators from local governmental agencies or tribes, the State, Bureau of Land Management, and/or the Office of Subsistence Management to help ensure project success and meaningful insights for managers.

No letters of support were submitted with the investigation plan. The investigator has initiated consultations with both tribal councils to obtain their permission to work in their communities and shared the investigation plan with each tribe. The project would build some technical capacity and provide temporary employment through local hire and training. The local tribal government would provide logistical help with the research.

The annual average cost of this project to the Office of Subsistence Management would be \$82,374. The cost of this project would seem to be reasonable for the amount of work and deliverables being proposed and the potential benefits to management of subsistence fisheries.

TRC Ranking: 5
Project Number: 16-151
Project Title: Traditional ecological knowledge of subsistence whitefish and cisco and attitudes/perceptions of beaver to subsistence fishing in Southern Kotzebue Sound

Project Summary: The investigators propose to examine subsistence harvest and use of whitefish and cisco in Buckland and Deering. The investigators propose to collect traditional ecological knowledge for these subsistence fisheries, including harvest locations and timing over the last twenty years to document temporal changes in harvest and use.

To address public concern about range expansion of beavers in the region, the investigators propose to examine residents' attitudes, beliefs, and perceptions about the effects of beavers on subsistence fishing in Buckland, Deering, and Selawik. The investigators propose an ethno-ecological approach to collect traditional ecological knowledge followed by comparison and integration with existing scientific knowledge and data. The proposed research goals include:

1. Collect qualitative ethnographic data on subsistence harvesting and processing, using interviews, participant-observation, and mapping of harvest locations.
2. Collect qualitative and quantitative ethnographic data on beliefs and attitudes toward beavers in terms of their impacts on subsistence fishing practices, using free-listing and pile sort methods.

The investigators propose a design and approach to provide Federal managers and scientists with comparative data and a framework for meaningfully integrating expert knowledge and Alaska Native knowledge of whitefish harvest and uses. The investigators propose to recommend strategies for managers to use in communicating about effects of beavers on subsistence fisheries.

TRC Justification: The investigation plan directly addresses two priority information needs for the northern region. The proposed research has a clear nexus to Federal public lands and waters managed by three Federal agencies. The investigation plan covers five species of fish important for subsistence and addresses long-term, continuous public concern about beavers and subsistence fishing in the region. This information would have important implications for how Federal agencies communicate with subsistence fishers in the region regarding beavers and whitefish.

The conceptual framework and study design are grounded in well-established and sound approaches used in applied social science. The research goals are straightforward, and the study objectives are clearly written and achievable. The methodology is technically sound and meets up-to-date standards in applied social science. We recommend the investigators provide more detail and clarification on how the pile sort data would be analyzed in the final Investigation plan.

The project would contribute essential comparative data for Federal subsistence managers and identify and richly describe new areas for continued research. The proposed research has good potential to provide a framework for meaningfully integrating expert knowledge and observations and Alaska Native knowledge and observations.

The proposed project clearly describes a plan for partnering with rural community leaders, training residents of the region to conduct research, and sharing results and data. The data would augment local heritage preservation and local interest in and engagement with documenting local subsistence practices.

The proposed research process and results would further encourage local stakeholders to partner with Federal managers and fisheries biologists in future harvest monitoring and related fisheries management and research. The study would build the capacity of rural residents and Alaska Native Organizations to conduct their own research on subsistence fisheries and more effectively collaborate and partner with Federal agency staff and programs.

The annual average cost of this project to the Office of Subsistence Management would be \$75,139. The investigation plan outlines a research project that is cost effective.

TRC Ranking: 6
Project Number: 16-103
Project Title: Genetic diversity of Dolly Varden populations in Kobuk River

Project Summary: The investigator is requesting funding for two trips to the Kobuk River to collect genetic samples and for lab time to process the samples. The results of the analysis would add to the genetic baseline for Dolly Varden in Northwestern Alaska. Dolly Varden spend summers in the ocean feeding and return to fresh water to overwinter. Spawning Dolly Varden return to their natal streams, while non-spawning Dolly Varden typically overwinter in large mixed-stock aggregations in non-natal streams. The Wulik River is thought to be one of the largest overwintering populations in Northwestern Alaska. Fish natal to the Noatak, Kivalina, Wulik, Kobuk, and Pilgrim rivers have all used the Wulik River as an overwintering site. However, the relative proportions of the contribution stocks are not completely known.

TRC Justification: This project addresses an important subsistence Dolly Varden fishery resource in Northwest Alaska. Information from this project will assist fishery managers in identifying the portion of Dolly Varden harvested in the Wulik River subsistence fishery that originates in the Kobuk River. The investigators plan to collect and analyze genetic samples from the Kobuk River Dolly Varden population. While this project addresses an important subsistence resource it does not address a 2016 Priority Information Need identified for the Monitoring Program.

TRC Ranking: 7

Project Number: 16-101

Project Title: A radio telemetry investigation of overwintering habitats of Dolly Varden in the Canning River

Project Summary: The investigator is requesting funding for the six aerial surveys and analysis time in support of an on-going radio-telemetry project for Canning River Dolly Varden. Work on the project was initiated in 2014 with the goal of describing the overwintering distribution and fidelity rate of Dolly Varden in the Canning River drainage and any inter-drainage exchange that might occur. Dolly Varden populations are utilized by subsistence fisheries in Eastern North Slope communities. These populations depend on a relatively small amount of overwintering habitat. Most of the habitat is thought to be located in upwelling areas near the headwaters of major river systems in the region. The tagging component of this project will be paid for with other funds and completed in 2015. The requested funds are for aerial surveys to locate the deployed tags and one month per year of time for analysis and reporting on the aerial survey data. Aerial surveys will be completed from spring 2016 through 2018.

TRC Justification: This project represents the aerial survey component of an on-going radio-tagging project in the Canning River to study overwintering Dolly Varden habitat. Results from this work will describe run timing and spawning location of Dolly Varden, giving fishery managers the context for better understanding important habitat. This project is technically sound and addresses an important subsistence resource associated with the Arctic National Wildlife Refuge. The investigator has the expertise needed to successfully conduct this ongoing project. He has worked on several successful Monitoring Program projects. This project presents an excellent opportunity to leverage Monitoring Plan dollars against other funding sources to address a priority information need in Northern Alaska.

TRC Ranking: 8

Project Number: 16-104

Project Title: Selawik River sheefish age structure evaluation and spawning population abundance

Project Summary: A permafrost slump located about 40 km upstream from the sheefish spawning area in the Selawik River began emitting large amounts of sediment into the river in 2004. The Selawik River below the slump has become turbid during the summer months transporting huge quantities of sediment downstream, potentially having a negative effect on the habitat for stream-spawning fish. In 2010 and 2011, prior to Monitoring Program funding, a pilot study was implemented to assess a site for a dual-frequency identification sonar (DIDSON) system and evaluate its potential success at enumerating migrating Selawik River sheefish. In 2012, the Monitoring Program began funding 12-100 Selawik River Sheefish Age Structure Evaluation and Spawning Population Abundance. This funding was renewed in 2014, with project 14-104 Selawik River Sheefish Age Structure Evaluation and Spawning Population Abundance. The investigators are estimating the annual abundance and age structure of the Selawik River sheefish spawning population over time to determine if the sediment emitted from the permafrost slump resulted in an identifiable impact to the sheefish population. Changes in the Selawik River sheefish spawning population age structure will be compared to the Kobuk River sheefish spawning population to ensure any detected change is unique to the Selawik River. Given the sheefish life-cycle any changes reducing production in the Sheefish population would be expected starting in 2014.

TRC Justification: This investigation plan requests continued funding for Monitoring Program project 12-100/14-104 to study the effect of a permafrost slump located about 40 km upstream from the sheefish spawning area in the Selawik River. In 2004, the permafrost slump began emitting large amounts of sediment into the river. In 2010, the investigators began monitoring the annual abundance and age structure of the Selawik River sheefish spawning population to determine if the sediment emitted from the permafrost slump resulted in an identifiable impact to the sheefish population over time.

The proposed work is technically sound and addresses an important subsistence sheefish fishery associated with Selawik National Wildlife Refuge. This project builds upon several Monitoring Plan projects (02-020, 02-040, 03-016 and 04-101). Investigators have successfully completed 6 years of work funded through the Monitoring Plan. Investigators have collected age structure data for both the Selawik and Kobuk river sheefish populations for a comparison over time. Currently, the investigators are funded to collect data through 2016. Funding the project through 2019 will allow for conclusion of the project and an opportunity to understand the effects of the permafrost slump on sheefish spawning success.

TRC Ranking: 9

Project Number: 16-108

Project Title: Environmental conditions in the Colville River drainage potentially leading to increased expression of freshwater mold

Project Summary: In early October 2013, a freshwater mold was found on some broad whitefish near the community of Nuiqsut. Concurrently, traditional ecological knowledge and western science note that this mold had not been recorded in the area except on one occasion in 1980. *Saprolegnia* spp. was found on one broad whitefish on the Inaru River. While there may be many factors leading to the onset of *Saprolegnia* on broad whitefish in the Colville River drainage, the investigator will examine environmental conditions such as temperature, in the spawning waters. One environmental factor that has been documented in increasing the efficiency of colonization of this mold on fish is abrupt change in water temperature and /or low water temperatures during spawning.

TRC Justification: The results of the work would describe the environmental factors of water temperature and water level that occur during the presence of the freshwater mold *Saprolegnia parasitica* on Broad Whitefish in the Colville River drainage. By obtaining environmental data and specimens (mold and fish) from local, subsistence fishermen, whose fishery is being impacted, this work will describe the presence of this mold, but will not establish causation. The investigator mentions the use of traditional ecological knowledge, but the proposal lacks details describing how this information will be incorporated into the project methods and results. The results for this project would provide the foundation for further research, but the methodologies would not establish causation and the management implications are unclear. The *Saprolegnia parasitica* outbreak has been a concern for both the local subsistence users and the North Slope Subsistence Regional Advisory Council and was identified as a 2016 Priority Information Need. While the project is responsive to community concerns, the methodologies need to be further developed. The TRC recognizes the *Saprolegnia parasitica* outbreak is an ongoing concern to the North Slope Subsistence Regional Advisory Council. They encourage the investigator to continue working with the Council to address the local concerns.

TRC Ranking: 10

Project Number: 16-102

Project Title: Seasonal habitats and migrations of Arctic grayling within the Nuiqsut subsistence fishery of the lower Colville River

Project Summary: Arctic grayling are an important component of subsistence fisheries of the Colville River drainage. Unfortunately, very little is known about the population of the Colville River, and although the river and drainage are large, the available winter habitat may be quite limiting. During winter, river discharge reaches annual lows and some streambeds go dry while others freeze to the bottom. To avoid these areas, Arctic grayling of northern Alaska vacate small tributaries and upper portions of the drainage during autumn. Arctic grayling are most vulnerable to declines in water quality and quantity during late winter. Identification of overwinter habitats and timing of migrations to and from all seasonal habitats is needed to avoid or greatly reduce impacts associated with development and narrowly directed fisheries at vulnerable times and places.

TRC Justification: While this project addresses a general concern of the North Slope Subsistence Regional Advisory Council, it does not address a 2016 Priority Information Need. The investigator proposes assessing the Coville River Arctic Grayling population to describe winter habitat. Currently, it is thought that winter habitat is a limiting factor in

Arctic grayling population growth. This project is technically sound and addresses an important subsistence resource associated with the National Petroleum Reserve. While the investigation plan contains a general description of the investigators abilities, without more detail it is difficult to evaluate his technical background. While the TRC has ranked this proposal last in the Northern Region, they recognize that the Coville River Arctic Grayling population is an important subsistence resource and encourages the investigator to continue working with the North Slope Subsistence Regional Council to develop a proposal addressing local concerns.

YUKON REGION

Priority Information Needs

The 2016 Notice of Funding Opportunity for the Yukon Region identified the following priority information needs:

- Reliable estimates of salmon escapements (for example, projects using weir, sonar, or mark-recapture methods).
- Geographic distribution of salmon and whitefish species. Of specific interest are the Nulato River, Salmon Fork of the Black River, Porcupine River and Chandalar River.
- An indexing method for estimating species-specific whitefish harvests on an annual basis for the Yukon drainage. Researchers should explore and evaluate an approach where sub-regional clusters of community harvests can be evaluated for regular surveying, with results being extrapolated to the rest of the cluster, contributing to drainage-wide harvest estimates.
- Methods for including “quality of escapement” measures (for example, potential egg deposition, sex and size composition of spawners, spawning habitat utilization) in establishing Chinook Salmon spawning goals and determining the reproductive potential and genetic diversity of spawning escapements.
- A review of escapement data collection methods throughout the Yukon drainage to ensure that test fisheries are accurately accounting for size distribution and abundance of fishes (e.g., are smaller Chinook Salmon being counted accurately).
- Assessment of incidental mortality with gillnets, with particular consideration for delayed mortality from entanglement or direct mortality from drop-outs (e.g. loss of Chinook salmon from 6” mesh chum fisheries).
- Harvest and spawning escapement changes through time in relation to changes in gillnet construction and use (for example, set versus drift fishing, mesh size changes) for Chinook Salmon subsistence harvests in the mainstem Yukon River.
- Bering cisco population assessment and monitoring.
- Burbot population assessments in lakes and rivers known to support subsistence fisheries.

Technical Review Committee Proposal Ranking

For the 2016 Monitoring Program, nine proposals were submitted for the Yukon Region. The Technical Review Committee evaluated and scored each proposal on Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit, and ranked them as follows:

Table 2. Technical Review Committee (TRC) Ranking for projects in the Yukon Region. Projects are listed by TRC Ranking and include the total matching funds, total funds requested, and the average annual request for each project submitted for 2016 Monitoring Program within the Yukon Region.

Project Ranking	Project Number	Title	Total Matching Funds	Total Project Request	Average Annual Request
1	16-256	In-Season Salmon Management Teleconferences	\$0	\$74,015	\$18,504
2	16-255	Yukon River In-Season Community Surveyor Program	\$0	\$282,661	\$70,665
3	16-204	Abundance and Run Timing of Adult Salmon in Henshaw Creek, Kanuti National Wildlife Refuge, Alaska	\$48,800	\$637,035	\$212,345
4	16-205	Burbot Population Assessments in lakes of the Upper Tanana and Upper Yukon River Drainages, within the Boundaries of Wrangell-St. Elias National Park and Preserve	\$39,500	\$103,947	\$25,987
5	16-251	Characterization of seasonal habitats, migratory timing and spawning populations of mainstem Yukon River burbot and their subsistence use in the communities of Pilot Station, Galena and Fort Yukon Alaska	\$158,200	\$387,850	\$96,963
6	16-203	Estimation of Bering Cisco Spawning Abundance in the Upper Yukon Flats using a 2-Sample Mark-Recapture Experiment, 2016-2017	\$247,380	\$361,930	\$120,643
7	16-206	Abundance and Run Timing of Adult Salmon in Nulato River, Alaska.	\$75,040	\$888,224	\$222,056
8	16-201	Yukon Drainage Coho Radio Telemetry	\$40,000	\$327,183	\$81,796
9	16-202	Spatial and temporal variability in thermal refugia for fall chum salmon in Yukon River tributary streams: development of an integrated spawner and habitat monitoring program	\$0	\$1,012,676	\$253,169
Total			\$608,920	\$4,075,521	\$1,102,128

Regional Advisory Council Comments

Eastern Interior Council Subsistence Regional Advisory Council

The Council made no formal motion on the Monitoring Plan. However, some council members provided the following comments for the Yukon Region projects: Rhonda Pitka and Will Koehler stated that salmon studies should be the priority. Andy Bassich and Andrew Firmin stated that Project 16-203, Bering Cisco, is important and should be a higher priority on the list. They both stated that they saw a low number of cisco (and other whitefish species) at their fish wheels during the 2015 fishing season. Mr. Bassich wanted to see Burbot tested for mercury levels should project 16-251 be funded. Mr. Firmin stated that he liked the top three projects (16-256, -255 and -204).

Western Interior Subsistence Regional Advisory Council

The Council made no formal motion on the Monitoring Plan. Council members discussed why project 16-201, Coho Telemetry, was ranked so low. The Council felt this project should be ranked higher because the lack of information on the species along the Yukon River and because of concerns about possible overharvest by the commercial fishery, along with the species' increasing importance in times of low Chinook Salmon returns. The Council chair thought the project should be ranked higher than 16-251, since Burbot is an underutilized subsistence resource. Tim Gervais suggested a need for research to correlate ASL data to management strategies. Jack Reakoff noted the Eagle sonar is very important and there may be a need for funding in the future. He also would like to see consideration of consistent/standardized use of mesh size for gillnets on the Yukon.

Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

The Council made no formal motion on the Monitoring Plan and had no comments on the Yukon Region projects.

Interagency Staff Committee comments

In the Yukon and Kuskokwim regions, the Councils' comments and recommendations were consistent with the TRC evaluations of high quality projects, with the exception of one proposal. The Western Interior Council felt 16-201, Coho Telemetry, should be ranked higher because of concerns about possible overharvest by the commercial fishery. During the Western Interior Council meeting, the principal investigator for this project conveyed the information that supplemental funding for the proposal was not successful, which was a concern stated in the TRC evaluation.

Based on the FRMP evaluation criteria, the ISC has concerns regarding 16-206, Abundance and Run Timing of Adult Salmon in the Nulato River. While this project proposal addresses two priority information needs for the Yukon Region, it has a high start-up cost and requests a total of four years of funding for operations. Considering the trend toward reduced FRMP funding in future years, initiating an expensive new weir project will require extended funding for a return on investment, which may not be sustainable over the long run. In addition, the investigation plan does not address or justify the use of a resistance board weir to monitor salmon escapement into the Nulato River. Use of this type of weir is contrary to the recommendation from a 2010 feasibility study funded through the FRMP (Project 10-206). The TRC also noted that a resistance board weir is unsuitable for the proposed location and recommended use of a more efficient weir type to accomplish the project's objectives. Staff from OSM and members of the TRC will be looking at options to address projects that require long-term investments, such as weirs, for future notices of funding availability.

Project Summaries and TRC Justification for Project Ranking

Ranking: 1
Project Number: 16-256
Project Title: In-Season Salmon Management Teleconferences

Project Summary: The principal investigator is requesting four years of funding for continuing the weekly teleconferences conducted during the salmon fisheries season, June – August. This project addresses a listed priority need by providing a forum for subsistence users in the Yukon River drainage in the United States and Canada to come together once a week and provide information concerning the state of the salmon fisheries in their area, with special emphasis on the Chinook salmon fishery. The Yukon River drainage area includes a nexus to Federal lands where salmon is an important resource for subsistence users. This teleconference has been in existence for 15 years and subsistence users, Tribal entities, processors, and resource managers who participate in the call can find out from others in the group how the salmon stocks are doing as they enter the river and migrate up to Canada. Information gained helps fisheries managers manage the salmon fisheries by providing current information on a time critical basis so adjustments can be made if necessary to harvest levels or allocation priorities. This project will help to incorporate local knowledge into fisheries management decisions.

TRC Justification: This project hosts weekly teleconferences, bringing people together from remote and rural villages that share salmon resources. They share information with each other, and also share firsthand knowledge about what is happening on the fishing grounds with the fisheries managers of the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service. The project has operated for 15 years and has become a fixture of in-season salmon management along the Yukon River. Study design is appropriate for involving local subsistence users and providing them a voice to participate in the management of the Chinook fishery. The budget and project duration are reasonable for the proposed work and to accomplish project objectives. Investigators are highly qualified and fully capable of addressing and achieving the objectives, and reporting results in a timely manner.

TRC Ranking: 2
Project Number: 16-255
Project Title: Yukon River In-Season Community Surveyor Program

Project Summary: The principal investigator is requesting four years of funding to conduct in-season surveys in ten rural villages which harvest fish in Federal waters under the subsistence priority. This project addresses the need to monitor the harvest of Chinook in the Yukon Region and the priority information need of the Multi-Regional Priority Information Need “changes in subsistence fishery resources and uses in the context of climate change, where relevant, including, but not limited to, fishing seasons, species targeted, fishing locations, fish quality, harvest methods and means, and methods of preservation. Information gathered will help with in-season management of the Chinook fishery.” This project will address these priority information needs by documenting subsistence fisher observations, and their customary and traditional ecological knowledge related to their decreasing harvests of Chinook salmon and increasing harvests of other available species. The 10 villages chosen for the project are spread out over a large area of the Alaskan Yukon drainage area.

TRC Justification: This project addresses the need for inclusive in-season management for Chinook salmon fisheries on the Yukon River. During the Chinook salmon season, YR DFA will hire community surveyors in 10 villages who will expand communication with fishers in their communities about important fishery information and will gather information from their fishermen that will provide managers with weekly information about fishers’ concerns, observations, and ability to harvest salmon throughout the Alaskan portion of the Yukon River drainage. This project will encourage community members, from the ten villages to be surveyed, to become involved with the in-season teleconferences focused on gathering information in-season about the Chinook fishery. This project has the potential to involve many subsistence users at a minimal cost. Objectives are clear, measurable, and achievable.

TRC Ranking: 3
Project Number: 16-204
Project Title: Abundance and Run Timing of Adult Salmon in Henshaw Creek, Alaska

Project Summary: The principal investigator is requesting three years of funding, starting in 2017, for continuing the operation of the Henshaw Creek weir to monitor salmon escapement. Project 14-209 funds the project through 2016.

This weir will be operated to determine daily escapement, run timing, and age, sex, and length composition of adult salmon. This project would also determine the number of resident fish passing the weir during the study period and serve as an outreach platform for Kanuti National Wildlife Refuge Staff and Tanana Chiefs Conference Partners Program fisheries biologists in the form of an onsite science camp.

TRC Justification: The proposal addresses one of the Yukon Region priority information needs listed in the 2016 Notice of Funding Availability. Information and data collected from the project will be applied to management of important subsistence salmon fisheries resources. The proposed investigation plan is technically sound and the project objectives are clear, measurable, and achievable. The TCC investigator has successfully led and managed this weir project funded by OSM under projects 12-202 and 14-209 within the past four years. The principal investigator is an Alaskan Native organization. The cost of the project is somewhat high to achieve objectives comparable to the cost of other OSM-funded weirs in the Yukon Region. However, the TRC recognizes that the higher budget is due to the negotiated overhead rate of the TCC, considered as part of the price of capacity building.

This project is an example of how a rural Alaskan Native organization has increased its capacity in subsistence management. The Tanana Chiefs Conference serves as the primary investigator and hires and trains local residents as technicians on the project. Both of these actions have allowed rural residents and local communities a continued role in the management of important subsistence fisheries resources.

The cost of operating the weir is high, with much of the budget attributed to staffing. It seems there are more technicians than necessary for just one weir. If the cost of weir operation continues to rise, additional sources of funding (cost sharing) may need to be identified in future years.

TRC Ranking: 4

Project Number: 16-205

Project Title: Burbot Population Assessments in Lakes of Upper Yukon River Drainage

Project Summary: The principal investigator is requesting four years of funding to acquire baseline Burbot abundance and population characteristics data for lakes of the Upper Tanana River and Upper Yukon River drainages that lie within the northeastern portion of Wrangell-St. Elias National Park and Preserve and are known to support, or have the potential of supporting, subsistence Burbot fisheries. These lakes include, but not limited to, Grizzly, Beaver, Ptarmigan, Rock, Braye, and Carden lakes. There is currently no baseline data of Burbot populations in any of these lakes, except for Grizzly Lake, where population assessments were performed in 2011 and 2014. The only other data available on fish in the other lakes is from a freshwater fish inventory from 2001. This project addresses one of the Yukon Region priority information needs listed in the 2016 Notice of Funding Availability, namely: "Burbot population assessments in lakes and rivers known to support subsistence fisheries."

TRC Justification: This project directly addresses one of the Yukon Region priority information needs listed in the 2016 Notice of Funding Availability and an immediate conservation concern. The objectives are clear, measurable, and achievable. The methods have a rigorous sampling design that includes clear data collection, compilation, analysis and reporting procedures. These methods and have been successfully utilized for other Burbot abundance projects in the area. The cost of the project is reasonable to accomplish the objectives.

The TRC questioned the 2015 and 2016 assessments that are already planned; is it still a strategic priority in light of SAC funding? The investigation plan should have a better description of what lakes will be investigated and when. The plan is written loosely in this aspect and should have more detail.

TRC Ranking: 5

Project Number: 16-251

Project Title: Characterization of seasonal habitats, migratory timing and spawning populations of mainstem Yukon River burbot and their subsistence use in the communities of Pilot Station, Galena and Fort Yukon Alaska

Project Summary: The principal investigator is requesting four years of funding to characterize the scale of burbot migrations for those fish captured and tagged from the lower and middle Yukon River. In addition, this project will document TEK of burbot life history, and harvest and use practices in three mainstem Yukon River communities, Pilot Station, Galena, and Fort Yukon. This project has linkage to Federal public land and waters through the Yukon Delta and Yukon Flats National Wildlife Refuges and directly addresses the Yukon Region Priority Information Need for burbot population assessments in lakes and rivers known to support subsistence fisheries. Burbot are harvested for subsistence use throughout the Yukon drainage and their value for Federally-qualified subsistence users may increase as salmon runs decline.

TRC Justification: The project directly addresses priority information needs and involves a documented subsistence resource utilized by Federally-qualified subsistence users. The interdisciplinary nature of this project is notable and the technical and scientific merit is high, as is principal investigator capacity. In addition, while not required, there is significant match in funding and existing resources that improves the cost/benefit of the project. The partnership and capacity building portion of the project is low to middling, and there are no other partners listed in the investigation plan. The project will contract local research assistants and proposes the hire of an ANSEP or college intern.

TRC Ranking: 6
Project Number: 16-203
Project Title: Bering Cisco Spawning Abundance in the Upper Yukon Flats

Project Summary: The principal investigator is requesting funding to conduct a two-year study to estimate abundance, and sex, age and length compositions of Bering Cisco in the Upper Yukon Flats area of the Yukon River, utilizing two-event Petersen mark-recapture techniques for a closed population. This project addresses 1) a specific recommendation for Bering cisco research outlined in the OSM whitefish strategic plan: priority #6, “Quantitative spawning population abundance estimates with mark and recapture or DIDSON sonar projects,” and 2) a priority information need for the Yukon Area in the 2016 Monitoring Program Notice of Funding Availability: “Bering cisco population assessment and monitoring.”

TRC Justification: This project addresses both a specific recommendation for Bering cisco research listed in the OSM whitefish strategic plan and a priority information need for the Yukon Area in the 2016 Notice of Funding Availability. The objectives are clear, measurable and achievable. The proposed mark-recapture methods have a proved ability to achieve the expected technical results. There is a rigorous sampling design. The project addresses important Bering Cisco subsistence and conservation issues and is responsive to past TRC recommendations. The cost appears appropriate to achieve project objectives.

The project has opportunities to strengthen capacity building and partnership – it ranked lower because opportunities to work with local, rural communities were not (fully) developed.

TRC Ranking: 7
Project Number: 16-206
Project Title: Abundance and Run Timing of Adult Salmon in the Nulato River

Project Summary: The principal investigator is requesting four years of funding for the purchase, delivery and operation of a resistance board weir to monitor salmon escapement in the Nulato River. The weir will be operated to determine daily escapement, run timing, and age, sex, and length composition of adult salmon.

This project addresses two of the Yukon Region priority information needs listed in the 2016 Notice of Funding Availability, namely: “Reliable estimates of salmon escapements (for example, projects using weir, sonar, or mark-recapture methods)”, AND “Geographic distribution of salmon and whitefish species. Of specific interest are the Nulato River, Salmon Fork of the Black River, Porcupine River and Chandalar River.”

TRC Justification: The proposal addresses two Yukon Region priority information needs. Information and data collected from the project will be applied to management of important subsistence salmon fisheries resources. The proposed investigation plan is technically sound and the project objectives are clear, measurable, and achievable. The TCC investigator has successfully led and managed a similar salmon weir project funded by OSM within the past four years. The principal investigator and co-investigator are from Alaskan Native organizations. The cost of the project is reasonable to achieve the objectives and comparable to the cost of other OSM-funded weirs project in the Yukon Region.

The investigation plan does not address the selected type of weir and the justification for its use, which is contrary to the recommendation from the 2010 feasibility study (project 10-206).

This is a new weir project with a high startup cost requiring extended funding for return on investment. The project is not using the correct type of weir; the TRC recommends a more efficient weir for the project's needs.

TRC Ranking: 8

Project Number: 16-201

Project Title: Assisting a Radio Telemetry Investigation of the Distribution of Coho Salmon in the Yukon River Drainage

Project Summary: The Principal investigator from the U.S. Fish and Wildlife Service is requesting four years of funding to assist the Alaska Department of Fish and Game (ADF&G) in a drainage-wide, Coho Salmon radio telemetry project. Staff from the Fairbanks Fish and Wildlife Field Office would participate in the radio tagging operations in the lower Yukon River, as well as, logistical and telemetry flight support in the upper Yukon River. The project's main focus will be to identify drainage-wide migratory distribution patterns, run timing, and spawning areas of Yukon River Coho Salmon.

TRC Justification: The proposal appeared to be incomplete and in draft form, and not ready to rate. The proposal is tied to, and dependent on, the results of an ADF&G funding proposal to the Alaska Sustainable Salmon Fund (AKSSF). The principal investigator should have included a copy of the 2015 ADF&G proposal to the AKSSF, but was unable to do so because the ADF&G proposal was not fully written at the time of submission of the investigation plan. The principal investigator provided project methods listed in a draft 2009 ADF&G proposal, with an implied assumption that the methods will be the same in the 2015 ADF&G proposal.

The TRC believes the investigators have the capacity to conduct (their proposed portion of) the project. However, there are no immediate subsistence or conservation concerns regarding Coho Salmon in the Yukon River drainage. The ADF&G is currently conducting a Yukon River summer Chum Salmon radio telemetry project without USFWS participation.

TRC Ranking: 9

Project Number: 16-202

Project Title: Fall Chum Spawner and Habitat Monitoring

Project Summary: The principal investigator is requesting four years of funding to accomplish the following: 1) map historic and current thermal refugia within core Fall Chum Salmon spawning areas in three Yukon River tributaries (Chandalar, Sheenjek, Tanana), 2) validate and calibrate Forward-Looking Infrared (FLIR) remote sensing imagery through measurement of in situ physicochemical conditions within core salmon spawning areas, 3) quantify spatiotemporal relationships between salmon spawning locations and thermal refugia/upwellings, and 4) develop an integrated adult salmon and spawning habitat monitoring plan to detect changes in the number of spawners and distribution of spawning habitats through time.

TRC Justification: This project was ranked low due primarily to a lack of partnerships and capacity building and high cost of operation. In addition, the investigator ability was difficult to fully assess because the PhD candidate was not identified. The investigators have no track record with the Monitoring Program, although other principal investigator

expertise was evident and easy to assess. The hourly charge for aircraft and affiliated costs seemed high. The project could have been strengthened with the addition of local knowledge. The TRC agreed that there was value in mapping the upwellings, but to add detailed habitat and spawning abundance assessment seems to be taking on too much. The mapping of upwellings would be enough value. This is a very expensive project, budget wise, with no capacity building.

KUSKOKWIM REGION

Priority Information Needs

The 2016 Notice of Funding Opportunity for the Kuskokwim Region identified seven priority information needs:

- Reliable estimates of Chinook, Chum, Sockeye, and Coho Salmon escapement (for example, projects using weir, sonar, mark-recapture methods).
- Methods for including “quality of escapement” measures (for example, potential egg deposition, sex and size composition of spawners, spawning habitat utilization) in establishing Chinook Salmon spawning goals and determining the reproductive potential and genetic diversity of spawning escapements.
- Estimate the size and growth of the sport fishery over the next 30 years, including the impacts of the sport fishery on cultural values and social systems.
- An understanding of the meaning and significance of sharing in the context of the social, cultural, and economic life of people in the lower Kuskokwim Area.
- Local knowledge of whitefish species to supplement information from previous research in central Kuskokwim River drainage communities. Groups of communities might include Kalskag, Lower Kalskag, Aniak, and Chuathbaluk or Red Devil, Sleetmute, and Stony River.
- Local knowledge of whitefish species to supplement information from previous research in lower Kuskokwim River drainage communities. A group of communities might include Kwethluk, Akiachak, and Tuluksak.
- An indexing method for estimating species-specific whitefish harvests on an annual basis for the Kuskokwim drainage. Researchers should explore and evaluate an approach where sub-regional clusters of community harvests can be evaluated for regular surveying with results being extrapolated to the rest of the cluster, contributing to drainage-wide harvest estimates.

Technical Review Committee Proposal Ranking

For the 2016 Monitoring Program, six proposals were submitted for the Kuskokwim Region. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit, and ranked them as follows:

Table 3. Technical Review Committee (TRC) ranking for projects in the Kuskokwim Region. Projects are listed by TRC ranking and include the total matching funds, total funds requested, and the average annual request for each project submitted to the 2016 Monitoring Program within the Kuskokwim Region.

TRC Ranking	Project Number	Title	Total Matching Funds	Total Project Request	Average Annual Request
1	16-301	Lower Kuskokwim River Subsistence Chinook Salmon Harvest ASL Composition	\$41,079	\$157,108	\$78,554
2	16-302	Salmon River Weir, Pitka Fork	\$298,838	\$466,469	\$116,617
3	16-303	Enumeration and spawning area characterization of sheefish in the Upper Kuskokwim River	\$255,000	\$299,600	\$99,867
4	16-351	Middle Kuskokwim River Inseason Subsistence Salmon Harvest Monitoring and Estimation	\$79,159	\$429,983	\$107,496
5	16-304	Assessment of Chinook Salmon freshwater production in the Kwethluk River	\$0	\$623,802	\$155,951
6	16-305	Kuskokwim River Broad Whitefish harvest cataloging and spawning demographics	\$166,221	\$387,722	\$129,241
Total			\$840,297	2,364,684	\$687,725

Regional Advisory Council comments

Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

The Council made no formal motion on the Monitoring Plan and had no comments.

Western Interior Subsistence Regional Advisory Council

Council Chair Jack Reakoff expressed his approval of the Pitka Fork project (16-302) and the Lower Kuskokwim Age-Sex-Length (ASL), project 16-301, due to their relevance to understand potential future salmon run health. The Sheefish enumeration and spawning project (16-303) was also an important one due to the species importance to subsistence users. Overall, Mr. Reakoff approved of the objective ranking process. Darrel Vent expressed the importance of the effects of climate change on spawning ground survival and out-migration. Project 16-304 would address his concerns. Tim Gervais wondered why project 16-301 wouldn't also address upper Kuskokwim River ASL composition and asked if the scope of the project could be changed after submitted (it cannot). There should be a dual assessment to see what the effects of the fishery on the spawning population of salmon might be.

Interagency Staff Committee comments

In the Yukon and Kuskokwim regions, the Councils' comments and recommendations were consistent with the TRC evaluations of high quality projects.

Project Summaries and TRC Justification for Project Ranking

TRC Ranking: 1
Project Number: 16-301
Project Title: Lower Kuskokwim River Subsistence Chinook Salmon Harvest ASL Composition

Project Summary: The principle investigator is requesting two years of funding for continuing the collection and analysis of biological age, sex, and length samples from the subsistence Chinook Salmon harvest in the lower Kuskokwim River, from Eek Island to Tuluksak. The project began in 2001 and has been supported by the Fisheries Resource Monitoring Program since 2005. The stated goal of this project is to collect high quality age, sex, and length samples from Chinook Salmon harvested in the lower Kuskokwim River subsistence fishery, such that samples are reasonably representative of the total subsistence harvest of Chinook Salmon. This project addresses one of the Kuskokwim Region priority information needs listed in the 2016 Notice of Funding Availability, namely: *Reliable estimates of Chinook, Chum, Sockeye, and Coho Salmon escapement (for example, projects using weir, sonar, mark-recapture methods).*

TRC Justification: The TRC considers this a strong project because it 1) addresses one of the Kuskokwim Region priority information needs listed in the 2016 Notice of Funding Availability, 2) will collect important and needed data for the conservation and management of Kuskokwim River subsistence salmon resources, 3) has clear, measurable, and achievable objectives, 4) will be implemented and managed by well-qualified and experienced investigators, 5) involves a strong, long-standing partnership between the ADF&G and ONC, and 6) is much more cost effective than current project 12-302.

TRC Ranking: 2
Project Number: 16-302
Project Title: Salmon River Weir, Pitka Fork

Project Summary: The principle investigator is requesting three years of funding to operate a weir on the Salmon River of the Pitka Fork to index Chinook Salmon (*Oncorhynchus tshawytsch*) escapement to the headwaters of the Kuskokwim River, upriver from McGrath. There are currently no ground-based salmon assessment projects operated in

the headwaters of the Kuskokwim River. Local and traditional knowledge, combined with eight years of intensive mark-recapture studies, indicate that the Salmon River of the Pitka Fork may be the best location for indexing Chinook Salmon escapement to the headwaters. The technical and outreach potential of this project were recognized by State of Alaska Chinook Salmon Research Initiative Technical Steering Committee, and startup funds for this weir were provided through that program for the 2015 and 2016 field seasons. The principle investigator is proposing to continue the project for the 2017 – 2019 field seasons with funding from OSM.

TRC Justification: The proposal addresses one of the 2016 priority information needs and the need for a salmon monitoring project in the upper Kuskokwim River drainage. Information and data collected from the project will be applied to management of important subsistence fisheries resources. The proposed investigation plan is technically sound and the project objectives are clear, measurable, and achievable. The ADF&G investigators have successfully led and managed other similar salmon weir projects in the Kuskokwim region funded by OSM within the past four years.

There is a rural, Alaska Native organization as a co-investigator on the project. However, the partnership does not contribute significantly to the research aspect of the proposal. In the proposal the investigators state they “hope” to hire a student and “plan” to work out a cooperative agreement – working out these aspects in advance would strengthen the project. This project has added value because it is high up in the watershed and would help in the on-going mark/recapture projects in the lower river. Telemetry data indicate that Chinook Salmon utilize this up-river watershed for spawning. The cost of the project is reasonable to achieve objectives. This is one of the more affordable weirs in the Kuskokwim River drainage.

TRC Ranking: 3
Project Number: 16-303
Project Title: Sheefish in the Upper Kuskokwim River

Project Summary: The principle investigator seeks three years of funding to 1) deploy and operate a Dual frequency IDentification SONar (DIDSON) at the mouth of Big River to enumerate sheefish that spawn in this drainage during 2016-2018. The DIDSON will be used to enumerate post-spawning sheefish during their compressed two-week outmigration in early to mid-October, 2) verify a suspected sheefish spawning area on the South Fork of the Kuskokwim River by conducting a site visit and capturing sheefish to assess their spawning condition, and 3) identify and document upwelling groundwater and/or hyporheic zones in four known sheefish spawning areas in the upper Kuskokwim River drainage by deploying temperature, conductivity, and dissolved oxygen data loggers. This project addresses two of the research priorities for Inconnu stated in the OSM Whitefish Research Strategic Plan for the Yukon and Kuskokwim Rivers.

TRC Justification: The project addresses two of the research priorities for Inconnu in the OSM Whitefish Research Strategic Plan for the Yukon and Kuskokwim Rivers, and indirectly addresses one of the 2016 priority information needs for whitefish for the Kuskokwim area. The project does not address any immediate subsistence or conservation concerns. However, due to low runs of Chinook Salmon in recent years, whitefish species have received increased harvest pressure. This project would provide important information to fisheries managers to help determine the level of (sustainable) exploitation of inconnu. The objectives are clear, measurable, and achievable and have a proven ability to achieve technical results. The project has a rigorous sampling design that includes clear data collection, compilation, analysis and reporting procedures. The principal investigator is experienced and has a proven project management track record for OSM-funded projects. The cost of the project appears reasonable to achieve the objectives.

TRC Ranking: 4
Project Number: 16-351
Project Title: Middle Kuskokwim River In-season Subsistence Salmon Harvest Monitoring and Estimation

Project Summary: Through this four-year project, investigators will provide an index of relative abundance of salmon in a stretch of the middle Kuskokwim River, and further investigate the feasibility of estimating the in-season Chinook

Salmon harvest. The size of recent Chinook Salmon runs were some of the lowest on record. In 2012 and 2014, fishery managers implemented restrictions aimed at preventing the directed harvest of Chinook Salmon while minimizing its incidental harvest during times when fishers were permitted to target Chum and Sockeye Salmon for subsistence. This management strategy required stock assessment projects providing run timing and relative stock abundance information in-season. In-season management decisions are currently informed by a limited number of data sources, including one test fishery at Bethel, a developing inriver radio telemetry mark-recapture survey, and in-season qualitative harvest reports from a small portion of subsistence fishers (Project OSM14-354). The proposed project will supplement these data sources by providing an additional index of relative salmon abundance. The study communities are Lower Kalskag, Kalskag, Aniak, Chuathbaluk, Crooked Creek, Red Devil, Sleetmute, and Stony River. The principle investigator conducted a similar feasibility study with residents of Napakiak and Oscarville in 2014 that is likely to be expanded to some tundra villages in 2015.

TRC Justification: The four-year project addresses an information need that is considered of high strategic priority by fishery managers, staff, and the public. The project has a clear Federal linkage. In collaboration with the Kuskokwim Native Association and eight villages, ADF&G Division of Subsistence staff will investigate if it is possible to recruit subsistence fishers as collaborators in data collection, and is it possible that analysis of these data can provide estimates of salmon run timing and stock abundance in an area of the middle Kuskokwim River. The principle goal is to support the development of a new research program that will provide accurate in-season harvest estimates in the Kuskokwim River drainage by using a similar sampling design and expanding the results to the entire subsistence fishery. Investigators are qualified to conduct the study and have requested a reasonable budget. However, the objectives of the study are not clearly defined, and the investigation plan does not include a detailed budget for the Kuskokwim Native Association.

TRC Ranking: 5

Project Number: 16-304

Project Title: Kwethluk River Chinook Salmon Freshwater Production

Project Summary: The principle investigator seeks four years of funding to conduct a Chinook Salmon smolt capture-recapture project through the operation of a rotary-screw trap, in conjunction with the Kwethluk River weir project, from mid-May through September. Data collected from this project will be utilized to assess smolt outmigration timing, estimate outmigration, and freshwater smolt survival using the number of spawning female Chinook Salmon, by size composition (potential egg deposition), collected by the USFWS Kenai FWFO through OSM-funded Project 14-308. Information gathered will have direct applicability to understanding the freshwater habitat carrying capacity and quality of escapement parameters and contribute to the management of Kuskokwim River Chinook Salmon.

TRC Justification: The proposed project addresses one of the priority information needs identified in the 2016 Monitoring Program Notice of Funding Availability and is technically sound. The objectives are clear, measurable, and achievable. The project would occur within the boundaries of the Yukon Delta National Wildlife Refuge and involves subsistence fish resources that are harvested by Federally-qualified subsistence users. This is a worthwhile project to conduct, as the information gathered will have direct applicability to understanding the freshwater habitat carrying capacity and quality of escapement parameters and will contribute to the management of Kuskokwim River Chinook Salmon. However, the cost of the project is excessive to accomplish the objectives. More than half of the proposed budget each year would be utilized to support a full-time term biologist. No other U.S. Fish and Wildlife Service managed Spring/Summer field season project funded by OSM has a full-time position associated with it.

Some TRC members commented that the strategic priority is low because of a focus on smolts, and low river capture of smolts might not inform much about adult salmon. Counting smolts will not separate out fresh water vs. marine water survival. The weir is relatively high in the Kuskokwim River drainage and has only limited utility. Management occurs based on in-season abundance. This type of project does little to inform the management process

TRC Ranking: 6

Project Number: 16-305

Project Title: Kuskokwim River Broad Whitefish

Project Summary: The principle investigator seeks three years of funding to continue collecting mature broad whitefish destined for spawning areas above McGrath. Data will be collected and recorded on the age, sex, length and weight of these fish. In addition, investigators will utilize mark-recapture techniques to estimate population abundance.

TRC Justification: This project addresses the priority information need listed for whitefish in the Kuskokwim Region; *“An indexing method for estimating species-specific whitefish harvests on an annual basis for the Kuskokwim drainage...”* In addition, the project will continue to address 1) the priority information need in the 2014 Request for Proposals regarding Broad whitefish population assessment in the Kuskokwim River drainage and 2) a priority research need identified in the OSM-funded *Strategic Plan for Research of Whitefish Species in the Yukon and Kuskokwim River Drainages*. The objectives are clear, measurable, and achievable. The investigators are experienced Broad Whitefish field researchers and they are fully-qualified to carry out this project.

In the TRC review of project 14-301, the TRC wrote *“In the investigation plan, the principal investigator needs to address the sensitivity of Broad whitefish to electrofishing, including conducting a literature review and providing the results.”* This has not been done to date. The principal investigator now has one year of experience electrofishing Broad Whitefish to draw upon to address this issue. It is essential that the principal investigator address the issue of mortality rates associated with electrofishing, especially since the stated goal of project 16-305 is *“...to sample and mark (i.e., t-bar tag) as many Broad Whitefish as possible.”*

There is no partnership or capacity building associated with this project. The investigation plan does not show any evidence that the principal investigator heeded the TRC’s recommendation for project 14-301 for this category, *“The investigators need to be proactive to improve on the low rating by developing a local partnership and/or securing local hires for this project.”* The investigation plan does not address the use of local hires or ANSEP students.

Results of project 14-301 should be the basis for any follow-on work or study and 14-301 is incomplete. The final report for 14-301 is scheduled for completion in May 2016.

The cost of the project appears excessive to achieve the objectives.

It is unclear whether funds are being replicated or double funding is occurring in consideration of Project 14-301, which is currently addressing the same or similar issues. It is difficult to determine what is being funded and what isn’t. The TRC previously recommended that the principal investigator include a literature review on the mortality rates of electroshocking whitefish. No information or further analysis is provided. The methodology should include recapture. This project will only provide a qualitative assessment and does not really determine abundance.

SOUTHWEST ALASKA REGION

Priority Information Needs

The 2016 Notice of Funding Opportunity for the Southwest Region identified 11 priority information needs:

- Reliable estimates of Sockeye and Coho Salmon escapements in the Lake Clark watershed (for example, from projects utilizing a weir, sonar, tower and/or mark-recapture methods).
- Historical salmon escapement to the Lake Clark watershed using isotopic analysis of lake sediment cores.
- Document the diversity in size and age structure of sockeye salmon among spawning populations within Lake Clark National Park and Preserve.
- Identify location and extent of rearing habitat capacity for juvenile Sockeye Salmon in Lake Clark National Park and Preserve.
- Distribution and timing of spawning by Sockeye Salmon in the major Bristol Bay watersheds of Katmai National Park and Preserve.
- Reliable estimates of Chinook Salmon escapement and evaluation of “quality of escapement” measures (for example, potential egg deposition, sex and size composition of spawners, spawning habitat quality and utilization) for determining the reproductive potential of spawning stocks in the Meshik River.
- Evaluation of quality of escapement measures (for example, potential egg deposition, sex and size composition of spawners, spawning habitat quality and utilization) for determining the reproductive potential of spawning stocks in Big Creek, Naknek River, Alagnak River, Nushagak River and Chignik River.
- Reliable estimates of Chinook Salmon escapement into the Togiak River (for example, from projects utilizing a weir, sonar, tower and/or mark-recapture methods).
- Description and analysis of the social network underlying the distribution of fish harvested for subsistence by residents of the Bristol Bay Area and Chignik Area.
- Harvest of salmon for subsistence by residents of the communities of Cold Bay, King Cove, and Sand Point, including harvest methods by species and distribution practices.
- Comparative ecological evaluation of lake rearing habitats of subsistence Sockeye Salmon stocks in southwest Kodiak Island, Alaska, including Olga Lakes and Akalura Lake watersheds; assessment of (1) the decline in salmon stocks and associated subsistence harvest opportunities, and (2) the potential effects of climate change on salmon production in these lake systems.

Technical Review Committee Proposal Ranking

For the 2016 Monitoring Program, six proposals were submitted in the Southwest Region. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability

and Resources, Partnership and Capacity Building, and Cost/Benefit, and ranked them as follows:

Table 4. Technical Review Committee (TRC) ranking for projects in the Southwest Region. Projects are listed by TRC ranking and include the total matching funds, total funds requested, and the average annual request for each project submitted to the 2016 Monitoring Program within the Southwest Region.

TRC Ranking	Project Number	Title	Total Matching Funds	Total Project Request	Average Annual Request
1	16-451	Bristol Bay Subsistence Salmon Networks	\$72,970	\$302,803	\$100,934
2	16-453	Togiak River Chinook Salmon Subsistence Harvest Assessment	\$70,994	\$299,498	\$74,875
3	16-452	Western Alaska Salmon and Other Harvests on Federal Lands and Waters	\$0	\$348,174	\$87,043.50
4	16-404	Pre-historical Salmon Abundance in the Lake Clark System	\$35,566	\$62,670	\$31,335
5	16-402	Utilization of a time lapse camera system to monitor timing and abundance of the sockeye salmon (<i>Oncorhynchus nerka</i>) return to Akalura Lake, Kodiak Island, Alaska	\$69,027	\$41,965	\$10,491
6	16-401	Southwest Kodiak Ecological Assessment	\$184,214	\$367,340	\$91,835
7	16-403	Abundance and Distribution of Togiak River Chinook Salmon, 2016-2019	\$766,644	\$1,586,598	\$396,650
		Total	\$1,199,415	\$3,009,048	\$793,164

Regional Advisory Council comments

Kodiak/Aleutians Subsistence Regional Advisory Council

The Council discussed the Monitoring Plan projects and Fisheries Resource Monitoring Program (FRMP) issues for nearly three hours over two days, but did not make a specific motion regarding the Monitoring Plan. The Council expressed concern that its region is lumped in with the Bristol Bay region with regards to FRMP projects; that FRMP projects should be considered and prioritized per Council regions, not FRMP regions. The Council stated that the TRC did not rank the two Kodiak Island salmon project proposals (16-401 and 16-402) properly (high enough). The Council expressed its concern that the TRC apparently did not understand that these are the only projects that address subsistence shortages, and noted that the TRC had incorrectly assumed that these projects might lead to a justification and/or prescription for lake fertilization. The Council decided to send a letter to Stewart Cogswell and Jennifer Hardin requesting that the Councils be allowed to review FRMP project proposals before the TRC does to help avoid these types of misunderstanding in the future. Some Council members expressed a desire and commitment to become more involved in proposal development with principal investigators in the future. The Council felt it would be beneficial to discuss FRMP issues with the other councils at the All-Council meeting in March 2016 and requested that the topic be placed on the agenda.

Bristol Bay Subsistence Regional Advisory Council

The Council expressed approval for the high ranking of Proposal 16-451 on Subsistence Salmon Networks; this is an issue of importance to this Council and region and has been a priority information need for the 2014 and 2016 FRMP cycles. However, Council members also expressed dismay over the lower ranked Togiak Chinook project 16-403; any information that furthers understanding of Chinook salmon decline in the region is a top priority for this Council. A number of Council members questioned the utility of project 16-404, Pre-historical Salmon Abundance in the Lake Clark System, and suggested this project be demoted in rank or removed from consideration. Finally, a number of Council members reiterated support for any project addressing Bristol Bay Chinook salmon.

Interagency Staff Committee comments

In the Southwest Region, the Kodiak/Aleutians Council members strongly endorsed two projects for their region, 16-401, Kodiak Lakes Ecological Assessment, and 16-402, Kodiak Akalura Sockeye Salmon Camera System. The Council commented that these proposals addressed subsistence shortages; however, the TRC did not rank either of these proposals as high quality projects.

The Bristol Bay Council commented on their support for any research proposals addressing Bristol Bay Chinook Salmon, and one of the two project submissions dealing with this issue was ranked by the TRC as a high quality project, 16-453, Togiak River Chinook Salmon Harvest Assessment. As noted above, 16-453 is one of the two proposals that have conditional support dependent upon submission of alternate investigators.

Project Summaries and TRC Justification for Project Ranking

TRC Ranking: 1
Project Number: 16-451
Project Title: Description and analysis of the subsistence salmon network in Bristol Bay

Project Summary: This project proposes to document subsistence salmon harvests in five communities and examine the sharing patterns that exist among harvesters and their families in neighboring communities. The goal of the proposed research is to provide data on how the social network functions in the allocation and management of subsistence resources and how it could be used by Federal subsistence managers. The proposed objectives include:

- Estimate the harvest and use of salmon by residents of Chignik Lake, Chignik Lagoon, Egegik, Perryville, and Port Heiden.
- Describe the harvest of salmon in terms of species, gear, location, timing of harvests, and distribution patterns.
- Illustrate the sharing networks both within each community, across the broader region, and throughout Alaska, using harvest surveys and key respondent interviews.

TRC Justification: All residents of the proposed study communities are eligible to participate in Federal subsistence fisheries on Federal lands and waters. The proposed communities are in, near, or adjacent to three Federal conservation units. The Federal Subsistence Board has recognized customary and traditional uses of salmon for these rural residents, and Sockeye Salmon are particularly important to their way of life.

The proposed study addresses a priority information need for Southwest Alaska and would address a number of cultural practices such as harvest, processing, sharing, and barter.

The proposed study builds on previous research and could have important implications for the Alaska Peninsula and the entire Bristol Bay Region. Salmon harvested in these communities is believed to be widely distributed throughout Alaska. Documenting sharing networks would provide insight into how, when, and why salmon are distributed in the region and beyond. The results and implications would help the Federal Subsistence Board, managers, and regional advisory councils develop comprehensive management plans for salmon.

The objectives are clearly written, measurable, and achievable. The study design is well thought out and organized. The description of the methodology is detailed. The proposed methods are well established and would achieve technical results, and the strategy for data analysis is sound and achievable. The investigators should include the interview protocols with the final investigation plan.

The investigators have substantial resources, skills, and access to staff and facilities for completing the proposed study. The investigation plan outlines how and when objectives would be met and reports completed. We did recommend that the investigators clarified the roles and involvement of the lead investigator and other State personnel not listed as primary investigators.

Alaska Department of Fish and Game, Subsistence Division and Bristol Bay Native Association have a demonstrated track record of successful completion of similar projects and reporting requirements. There have been no serious problems with their progress or performance.

The investigators received two letters of support for the investigation plan from local leaders. The project would build some technical capacity and provide temporary employment. Bristol Bay Native Association would gain technical capacity. There would be some consultation with local tribes, but no formal local partnerships with residents or groups would be created above and beyond the investigators' existing relationships in the region.

The annual average cost of this project to the Office of Subsistence Management would be \$100,934. The cost of funding this project would be reasonable for the amount of work and deliverables being proposed and the potential benefits to management of subsistence fisheries.

TRC Ranking: 2
Project Number: 16-453
Project Title: Subsistence Harvest Assessment and Biological Sampling of Chinook Salmon in the Togiak River Drainage

Project Summary: This 4-year project proposes to assess the subsistence harvest of Togiak River Chinook Salmon by

the communities of Togiak and Twin Hills through two years of in-season observations, interviews and the administration of a post-season harvest survey. Additionally, investigators will conduct stock assessment of the Togiak River Chinook Salmon through harvest samples for Ichthyophonous and age, sex, and length (ASL) analysis. With this two-pronged approach researchers will attempt to address concerns regarding the health and abundance of Togiak River Chinook Salmon and a declining local subsistence harvest. The principal investigator, Sarah Hazell, and the Alaska Department of Fish and Game specifically, have a strong history with the Monitoring Program and have successfully completed numerous Monitoring Program Stock, Status, and Trend (SST) and Harvest Monitoring and Traditional Ecological Knowledge (HM/TEK) projects. Both Co-Investigator Courtenay Carty and the Bristol Bay Native Association (BBNA) have a demonstrated track record of successfully assisting with and partnering on Monitoring Program projects and similar projects funded by other sources.

TRC Justification: This project proposes to assess the subsistence harvest of and biologically sample the Chinook Salmon of the Togiak River watershed for the 2016 and 2017 harvest seasons. The project moderately addresses the priority information needs of the 2016 NOFA as it primarily addresses harvest escapement rather than escapement. However, investigators have demonstrated that the issue addressed is a critical one for local communities and organizations. The research objectives are sound and the methods are standard for such work and the project uses both SST and HM/TEK methodologies to meet its objectives. The proposal would be strengthened by a more detailed description of staff responsibilities and duties. While not required, there is a significant match in funding and existing resources that improves the cost benefit of the project. Partnership and capacity building are strong; the co-investigator is a regional Alaska Native Organization and both agencies have established communications with the research communities. Local research assistants and student interns will be employed by this project.

TRC Ranking: 3

Project Number: 16-452

Project Title: Western Gulf of Alaska Salmon and Other Harvests on Federal Lands and Waters

Project Summary: This 3-year project spans 4 calendar years and proposes to document and analyze the subsistence and sport harvest of salmon and the subsistence harvest of all other species for the communities of Cold Bay (108 residents), King Cove (938 residents), and Sand Point (976 residents) on the Alaska Peninsula. Specifically, it looks to contextualize harvest data through community needs, sport harvesting activity, and the lens of changes in ecological, socioeconomic, and political environments which the investigator writes is lacking for these communities.

This proposal was submitted to the 2014 Monitoring Program Notice of Funding Opportunity and was not recommended for funding due in large part to a lack of strategic priority for that year. The Principal Investigator was encouraged to address the reviewer comments and reapply. Since 2014 the strategic priority was strengthened and many of the reviewer comments were addressed. The 2016 investigation plan and research questions have remained the same while the objectives differ only slightly from the 2014 proposal. Other differences include a decrease in project personnel and a significant decrease in project cost.

TRC Justification: The proposal is strong in scope and moves beyond the immediate need for subsistence salmon harvest data as stated in the 2016 call to recognize the utility of a current and comprehensive baseline subsistence survey in the three study communities; the existing subsistence baseline data is old in two communities and Cold Bay was never surveyed. The social network analysis addresses the distribution practices of Federally-qualified subsistence users and has direct management implications for understanding the significance of a resource beyond household and community use, highlighting the web of relationships statewide enhanced by systems of exchange. Additional value is seen in the development of an independent authority (the Principal Investigator) with expertise (connections, trust, working relationships) in Southwest Alaska, and a dataset that could possibly contribute to the Community Subsistence Harvest Information System (CSIS); a publically accessible database for immediate assessment of community subsistence harvests comparable across regions and over time. While the database developed by the University would expand a unique genealogical dataset and provide researchers with a detailed analysis of the social structures that support a local

subsistence economy, it is unclear how accessible the database will be to Federal and State Management agencies or to the general public.

TRC Ranking: 4
Project Number: 16-404
Project Title: Pre-historical Salmon Abundance in the Lake Clark System

Project Summary: This proposal requests funds for two years to “*estimate pre-historical sockeye salmon abundance in the Lake Clark system.*” “*This project will address that data gap by reconstructing sockeye salmon abundance during the past ~500 years in key locations within the Lake Clark system using lake sediment cores.* The proposed project title and references thereafter may be more reflective of the project if the term historical were used in place of “*pre-historical*”. Regardless, “*Resulting data will facilitate sustainable management by defining the natural variability of sockeye salmon in the system, placing recent fluctuations of abundance into a long-term historical context.*” Similar studies were funded by the National Park Service in 2003 to fill this data gap using sediment cores and isotope analysis. At the time, the technology was new and pre-historical abundance information was not completed as part of the 2003 study. Since then the methods have been refined.

The investigation plan alludes to core samples that were taken in 2003, but not analyzed. Assuming the samples taken in 2003 were preserved and the methods of collecting the samples haven’t changed it is recommended that the PI investigate the potential use of those samples to accomplish the proposed objectives.

TRC Justification: The proposed study requests funds for two years to “*estimate pre-historical sockeye salmon abundance in the Lake Clark system.*” “*This project will address that data gap by reconstructing sockeye salmon abundance during the past ~500 years in key locations within the Lake Clark system using lake sediment cores.* Nutrients from historical salmon runs are deposited onto lake bottoms throughout natal lakes each year within the proposed study area. The size of the salmon runs depositing the nutrients can be quantified by the amount of annual nutrient deposition.

This project has a direct linkage to Federal lands within and around the Lake Clark National Park and Preserve. Subsistence fisheries including those harvesting salmon are essential to the diet, economy, and culture of local communities in the Bristol Bay region of Alaska. This study proposal directly addresses one of the priority information needs identified in the 2016 Fisheries Resources Monitoring Program’s Notice of Available Funding for the Southwest Region “*Historical salmon escapement to the Lake Clark watershed using isotopic analysis of lake sediment cores.*” The proposed study has wide geographic implications because Sockeye Salmon returning to the Lake Clark system support subsistence fisheries throughout the Bristol Bay Region.

Information collected from this study “*will facilitate sustainable management by defining the natural variability of sockeye salmon in the system, placing recent fluctuations of abundance into a long-term historical context.*” However, the investigators do not specially address the implications to subsistence fisheries in the region nor identify any immediate or urgent subsistence concerns. The subsistence fishery in the region has never been restricted by any means, not even during the worst salmon return years. It is unclear how the proposal would be significant to any subsistence management. The proposal appears to be mostly research based and is not of the highest priority to managing subsistence fisheries. Any resulting management would likely have greater implications to commercial fisheries management because the Bristol Bay Region is the World’s largest commercial Sockeye Salmon fishery which operates under intensive management.

The investigators indicate that a similar study with multiple objectives including the use of sediment coring and isotope analysis was conducted in 2003 in the same region. Objectives from that study pertaining to the isotope analysis and historical salmon abundance estimates were not completed. It is recommended that the investigators address the utility of those samples for use to achieve the proposed project objectives. The investigators also noted that the methods used to quantify historical salmon abundance have been improved and expanded on since the first attempt.

Each investigator has resources needed to accomplish the proposed objectives of this study. The National Park Service

brings all the infrastructure and logistical support to conduct field studies in the Lake Clark region and the University of Washington brings the analytical and laboratory resources need to accomplish the objectives.

The cost of the project appears to be reasonable and prudent. The total project cost is \$62,670 with an annual cost of \$31,335. Costs associated with year one are to conduct the field collections and costs for year two are necessary to run the laboratory analysis.

None of the investigators represent a rural, Alaska Native, or tribal organization. However, each entity has a history working with and disseminating information to rural communities and organizations. The National Park Service's, Lake Clark National Park and Preserve have partnered with the Bristol Bay Native Association since 2008 to hire, recruit and train local residents. This study proposal would continue collaboration between the National Park Service and the University of Washington.

TRC Ranking: 5

Project Number: 16-402

Project Title: Utilization of a time lapse camera system to monitor timing and abundance of the Sockeye Salmon (*Oncorhynchus nerka*) return to Akalura Lake, Kodiak Island, Alaska

Project Summary: This proposal seeks four years of funding to operate a remote time lapse camera system to estimate Sockeye Salmon returning to the Akalura Lake system in Southwest Kodiak Island. The proposed project site would be located near the outlet of Akalura Lake within Akalura River. Sockeye Salmon returning to Akalura Lake system have been intermittently monitored by several entities over the last century since 1923 using varying techniques. Currently, there are no escapement goals associated with Sockeye Salmon returning to the Akalura Lake system.

TRC Justification: This proposal marginally addresses one of the priority information needs identified in the 2016 Fishery Resource Monitoring Program Priority Information Needs for Southwest Region. The average annual cost of the project is \$10,491. The project is inexpensive because the principal investigator is supplying all the equipment and field time is minimal due to the type of proposed camera system. As written, information collected from this study would give an estimate/index of abundance with no relative confidence or scalable precision. The objective is clear; however, the methods presented may not be sufficient to achieve the objective as written. To meet the objective as written, the methodology would need to change which ultimately would increase the cost of the project during year one. Project budget for subsequent years would be substantially less. Video technology used in fisheries management has largely shifted from analog to digital and from aerial to underwater video for several reasons. Underwater video allows for complete census of multiple species simultaneously migrating, allows for fish enumeration during all water conditions, and minimizes the amount of time required to analyze video data through motion detection algorithms and digital file selection—all while maintaining a complete census of the population alleviating the need for estimates and introduction of sample bias. Some concerns that should be addressed are how poor visibility from wind, glare and turbidity would be handled in the estimates/index and how fish species would be differentiated from one another. Biases associated with the proposed method would need to be evaluated to determine the direction of the bias. To do this the project cost would likely increase substantially.

The investigator should have the resources available from the Kodiak National Wildlife Refuge to complete the proposed study; however, he did not identify those resources. Most of the data analysis will be completed in Kodiak at the Refuge headquarters using an intern from the Alaska Native Science and Engineering Program. The investigator also indicated that the collected information would be shared with the Alaska Department of Fish and Game. Although this study would provide an estimate/index of Sockeye Salmon abundance in the Akalura river/lake, it remains unclear as to how the information would be used to manage subsistence fisheries. Currently, there are no escapement goals identified for the Akalura Lake Sockeye Salmon population. The proposed study likely has localized implications and would assist commercial fisheries management more than subsistence management.

TRC Ranking: 6

Project Number: 16-401

Project Title: Southwest Kodiak Ecological Assessment

Project Summary: This proposal seeks four years of funding to conduct a comparative evaluation of lake rearing Sockeye Salmon habitats from Akalura, Olga, Red, and Horse Marine lakes in Southwest Kodiak Island region. *“This project will obtain smolt condition and lake habitat quality data over time for Akalura and Upper Olga lakes and compare them to similar systems (Red and Horse Marine lakes) that are in close proximity but have had relatively stable sockeye salmon production. Smolt condition and age data, when coupled with limnological data, provide the information for identifying critical linkages in sockeye salmon life histories when they are most susceptible to mortality as juveniles.”*

TRC Justification: Fisheries Resource Monitoring Proposal 16-401 directly addresses one Southwest Regional priority information need identified in the 2016 Notice of Funding Availability, *“Comparative ecological evaluation of lake rearing habitats of subsistence sockeye salmon stocks in southwest Kodiak Island, Alaska, including Olga Lakes and Akalura Lake watersheds; assessment of (1) the decline in salmon stocks and associated subsistence harvest opportunities, and (2) the potential effects of climate change on salmon production in these lake systems.”* Information collected from this project would be applied to management of Sockeye Salmon returning to Southwest Kodiak Island lake systems located in Olga Bay, including Akalura, Horse Marine, Olga, and Red lakes. The proposed project is technically sound and the objectives, with minor modifications, are clear, measureable and, achievable. Minor modifications include establishment of confidence intervals and bounds of precision for objectives that include estimates of age, weight, and length of Sockeye Salmon. All investigators appear to have the knowledge and resources available to accomplish the proposed objectives. The proposed cost of the project is reasonable and justified averaging \$91,835 annually for a total request of \$367,340. None of the investigators are rural, Alaskan Native, or from a tribal organization. However, this partnership will help develop partnerships and build collaboration between Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, Kodiak Regional Aquaculture Association, and subsistence users.

With regards to subsistence management of fishery resources, the investigation plan does not clearly address or indicate how the proposed study would affect management of subsistence resources within the region. The investigation plan also does not identify any immediate or urgent subsistence concerns within the region. It remains unclear but appears as if the proposed study would have greater implications to commercial fisheries management rather than federal subsistence fisheries because project results could be a prescription for lake fertilization and potentially future enhancement. The investigation plan indicates that Sockeye Salmon stocks would be managed for optimal sustained yield. Currently, there are no escapement goals associated with Akalura Lake but biological and optimal escapement goals do exist for other nearby systems including Olga Lake system.

TRC Ranking: 7

Project Number: 16-403

Project Title: Abundance and Distribution of Togiak River Chinook Salmon, 2016-2019

Project Summary: This proposal seeks four years of funding to conduct a mark-recapture study on Chinook Salmon in the Togiak River Drainage using a combination of Spaghetti-tags, radio-tags, a float resistance board weir, and ground surveys. Additionally, this study will attempt to correlate aerial counts to escapement estimates to develop correction factors to be used in future aerial index surveys. This project would resume a recent study completed by the USFWS, Anchorage Fish and Wildlife Field Office between 2009 and 2012 (latest funding through FRMP project # 10-402). There are concerns as to whether the proposed methods can accomplish the objectives listed in the investigation plan.

TRC Justification: This proposal addresses one of the Southwest Regional priority information needs listed in the 2016 Fisheries Resource Monitoring Program Notice of Funding Availability. This project as written essentially resurrects previous work and proposes nearly identical methodologies used by the U.S. Fish and Wildlife Service, Anchorage Fish and Wildlife Field Office from 2009 to 2012. The prior project completed was unable to provide accurate estimates of abundance due to complications in the capture and recapture of marked fish. Therefore, proposed objectives for this proposal may not be achievable. There is concern as to whether the investigators can achieve the sample goals required

to meet their confidence and precision levels identified in objective one of the investigation plan and whether or not they will be able to establish estimates of Chinook salmon abundance in the Togiak River from 2016 to 2019. Effort during the mark and recapture of Chinook Salmon would need to be substantially greater in this study over prior studies which would increase the cost of the project. This was minimally addressed by the investigators but was not quantified. It is also unclear as to whether the objective to correlate the estimated escapement to aerial survey indices to develop more accurate correction factors for future aerial surveys is warranted given the aerial surveys have been discontinued since 2005 due to the inconsistent flights.

The cost to complete the study appears to be excessive and the total proposed price across all agreement periods is unreasonable. The cost of this project is not well documented and appears unjustified. In addition, it is unclear in the project budget the intent for inclusion of a request for a BBNA Partner's Program position requesting annually \$76,018 in addition to an annual request for \$36,067 by BBNA. Further explanation of the budget is warranted and could have been covered in the Budget Justification; however, a Budget Justification was not included in the proposal package. In the Notice of Funding Availability and Application Instructions it specifically states that a Budget Justification is a required document. The cost/price of the proposal is not reasonable and does not represent a price to the government that a prudent persona would pay when consideration is given to the prices in the market.

The investigators did not identify or discuss the long term effects of this study and establishment of aerial survey correction factors to the management of Chinook Salmon. It is recommended that the investigators discuss the likelihood of future aerial surveys routinely taking place beyond the scope of this study. The implication to federal subsistence fisheries from this study proposal is also unclear because escapement goals pertaining to Chinook Salmon returning to the Togiak River drainage are not established and other fisheries harvesting Chinook Salmon, i.e. commercial and sport, continue persist in the area.

SOUTHCENTRAL ALASKA REGION

Priority Information Needs

The 2016 Notice of Funding Opportunity for the Southcentral Region identified three priority information needs:

- Obtain reliable estimates of Chinook and sockeye salmon escapement into the Copper River drainage (for example, projects utilizing weir, sonar, mark-recapture methods).
- Abundance, run timing, spawning site fidelity and timing, and age, sex, and length composition for Chinook and Coho salmon that stage or spawn in waters of the Kenai River and its tributaries below Skilak Lake under Federal subsistence fisheries jurisdiction.
- Abundance, run timing, spawning site fidelity and timing, and age, sex, and length composition for Chinook and Coho salmon that stage or spawn in waters of the Kasilof River and its tributaries under Federal subsistence fisheries jurisdiction.
- Assessment of Ibeck Creek Coho salmon harvest and escapement.
- Change in subsistence-user attitude concerning the harvest of salmon since the establishment of the Russian River dipnet fishery, including; dependence on the fish as a food source; the significance of sharing, barter, and customary trade; harvest methods (including methods of access); and, processing/preservation methods.

Technical Review Committee Proposal Ranking

For the 2016 Monitoring Program, six proposals were submitted for the Southcentral Region. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit, and ranked them as follows:

Table 5. Technical Review Committee (TRC) ranking for projects in the Southcentral Alaska Region. Projects are listed by TRC ranking and include the total matching funds, total funds requested, and the average annual request for each project submitted to the 2016 Monitoring Program within the Southcentral Alaska Region.

TRC Ranking	Project Number	Title	Total Matching Funds	Total Project Request	Average Annual Request
1	16-551	Subsistence Users' Attitudes and Perceptions in the Russian River Dip Net Fishery	\$26,952	\$99,441	\$33,147
2	16-503	Ibeck Creek Coho Salmon Escapement and Harvest Monitoring Program	\$173,544	\$959,570	\$239,893
3	16-552	Chitina Check Station (Copper River in season data on Chinook and Sockeye Salmon Harvest)	\$160,000	\$200,000	\$ 50,000
4	16-501	Abundance, run timing, and age, sex, and length compositions of Chinook Salmon in the Killey and Funny rivers, Kenai Peninsula, Alaska	\$227,686	\$436,660	\$145,553
5	16-505	Stock Assessment of Late Run Kasilof River Chinook Salmon	\$289,600	\$827,046	\$206,762
6	16-502	Age, sex, length, run time, spawning site fidelity and distribution of Chinook Salmon within Federal waters of the mainstem Kenai River, Kenai Peninsula, Alaska	\$227,172	\$580,706	\$193,569
Total			\$1,104,954	\$3,103,423	\$868,924

Regional Advisory Council comments

Southcentral Alaska Subsistence Regional Advisory Council

The Council ranked the proposals differently than the Technical Review Committee, as follows:

1. 16-552 Chitina Check Station
2. 16-502 Kenai Chinook Distribution ASL and Run Timing
3. 16-505 Kasilof Late Run Chinook Salmon SST
4. 16-503 Ibeck Creek Coho Escapement and Harvest Monitoring
5. 16-551 Russian River Subsistence Users Attitudes and Perceptions
6. 16-501 Killey and Funny Rivers Chinook Abundance and Run Description

Comments: Judy Caminer (Anchorage) asked whether the Kenai Peninsula was part of the Southcentral Region funding guideline. She noted that the SC funding guideline was derived in earlier years when parts of the Kenai Peninsula were not considered rural. Andrew McLaughlin (Chenega Bay) thought that the number of subsistence users impacted by a project should be considered in the ranking of the proposals. Judy Caminer (Anchorage) noted that proposals that would be eliminated because they are incomplete, should not be included in the list of projects for consideration, as there is no point in ranking proposals that will be eliminated. Ralph Lohse (Copper River) stated that, although he is unsure of the compliance and enforcement of running the Chitina Check Station, the Council has supported this in the past and is still supportive. Gloria Stickwan (Tazlina) mentioned that the Chitina Check Station benefits many subsistence users. Ralph Lohse (Copper Center) mentioned that the Funny and Killey Rivers project (16-501) would not have much impact on subsistence users.

Interagency Staff Committee comments

The Southcentral Council members voted to rank projects proposed in the Southcentral region; however, the TRC did not identify any high quality projects for this region.

Project Summaries and TRC Justification for Project Ranking

TRC Ranking: 1
Project Number: 16-551
Project Title: Subsistence Users' Attitudes and Perceptions in the Russian River Dip Net Fishery

Project Summary: The focus of this research is to document the contemporary subsistence dipnet fishery in Cooper Landing, Hope, and Ninilchik, including methods of access to harvest locations, seasonality of fish harvest, processing of the harvest, and interactions with other anglers. This project will also explore the topic of customary trade with fisheries participants. Understanding how the current fishery operates and the attitudes and perceptions of the fishery by residents will aid in the management of the fishery. This project addresses a Monitoring Program priority information need for 2016.

TRC Justification: The focus of this research is to document the contemporary subsistence dipnet fishery in Cooper Landing, Hope, and Ninilchik, including methods of access to harvest locations, seasonality of fish harvest, processing of the harvest, and interactions with other anglers. This project will also explore the topic of customary trade with fisheries participants.

Understanding how the current fishery operates and the attitudes and perceptions of the fishery by residents will aid in the

management of the fishery. However, this proposal does not articulate substantial community involvement or capacity building for community organizations. The Principal Investigator does propose to consult with non-governmental agencies in each community to assist with logistics, such as setting up interviews. This proposal would be stronger if it proposed to build capacity for the community organizations to be able to assist in this project in a more direct way than just facilitation for interviews. Communities should have been contacted initially, before proposing to conduct a study in these communities.

The Principal Investigator proposes to conduct 10-15 key respondent interviews. This seems like a small number when they are working with three communities and may not produce robust research results. The investigator proposes to enter data into the Nvivo 10 analysis program. He should describe more fully what they hope to achieve when they enter the data in the Nvivo 10, and what the analysis should be able to tell them.

TRC Ranking: 2
Project Number: 16-503
Project Title: Ibeck Creek Coho Salmon Escapement and Harvest Monitoring Program

Project Summary: The investigator proposes using a weir to estimate Coho Salmon escapement in Ibeck Creek and a creel survey to estimate harvest and angler characteristics. Estimates from the weir can be used to evaluate the accuracy of Coho Salmon aerial surveys on the Copper River Delta. A creel survey will be used to evaluate harvest levels and collect angler data. The investigator will continue to work with Alaska Department of Fish and Game to ensure data from both the weir and creel survey is collected in a manner that can be used for management decisions.

TRC Justification: This project is technically sound and addresses a 2016 Priority Information Need. The investigator has the expertise needed to successfully conduct this ongoing project. The investigator and his agency have successfully completed several successful FRMP projects in a timely manner. However, the investigation plan needs further development of the sampling methods. The investigator should work with the Alaska Department of Fish and Game in the development of the methods to ensure that data from both the weir and the creel survey(s) are collected in a manner that can be utilized for management decisions. The cost of the project is excessively high.

TRC Ranking: 3
Project Number: 16-552
Project Title: Chitina Check Station (Copper River in season data on Chinook and Sockeye Salmon Harvest)

Project Summary: This four-year project proposes to establish a voluntary reporting station in order to collect in season harvest data for Chitina area salmon fisheries. As participation in the Chitina Area fisheries increase, up river communities are concerned that their harvest will require greater effort and that up river escapement will decline.

TRC Justification: The proposal demonstrates strong capacity building and partnership and has clear implications for Federally qualified subsistence users. However, it does not address a Monitoring Program priority information need. Past research efforts like the “Validity Assessment of Permit Estimates of Copper River Subsistence Salmon Harvests” Monitoring Program project No. 10-552 describe a harvest estimate process that is tightly run with few avenues for error of any magnitude or management concern. The Sockeye Salmon runs remain strong and the current harvest and escapement levels are sustainable. In addition, it is unclear how the project can ensure enough voluntary participation to generate meaningful data. Key staff responsible for the development of a data collection, analysis, and reporting process are not yet hired or identified, thus the proposed process remains undescribed and cannot be analyzed by reviewers for scientific merit. Finally, the cost is not sufficient for the work being proposed.

TRC Ranking: 4

Project Number: 16-501

Project Title: Abundance, run timing, and age, sex, and length compositions of Chinook Salmon in the Killey and Funny rivers, Kenai Peninsula, Alaska

Project Summary: This proposal requests to fund two weirs that will enumerate and collect biological information on Chinook Salmon that spawn in the Killey and Funny rivers during 2016 and 2017. With current declines in Chinook Salmon returns to the Kenai River, the subsistence Chinook Salmon fisheries have either closed or have been severely restricted. The Killey and Funny river weir projects are the only up river assessment projects that provide necessary information to check the accuracy of the escapement information collected in lower Kenai River projects. The project specifically addresses a priority information need in the 2016 Notice of Funding Opportunity.

TRC Justification: In the Notice of Funding Availability and Application Instructions, in the Basic Eligibility Requirements, it specifically states that submissions should be for a single project and not joint or combined projects. Each weir should be an independent project submission.

This project specifically addresses the priority information need that was identified by the Southcentral Subsistence Regional Advisory Council for the 2016 Monitoring Program. The Killey and Funny Rivers are located within Federal public waters, are the primary tributaries to the Kenai River that support spawning early-run Chinook Salmon, and is a subsistence resource for Federally qualified subsistence users from Ninilchik, Cooper Landing, and Hope.

The Killey and Funny river weirs have been operated by the U.S. Fish and Wildlife Service; however, funding for these projects is ending and it is unclear as to why the funding for these projects is ending. Because this is an established project the methods have a proven ability to achieve technical results, it has proven science and logistics, and has a rigorous sampling design for this area and species; in addition the objectives are clear, measurable, and achievable. For the project to be successful the information collected by this project should have a strong nexus with on-going projects in the area and should tie into existing research. The project will provide information that on the early-run Kenai River Chinook Salmon population; however, there is not a strong link to on-going projects in the area.

The cost of the proposal is slightly high; however, it does cover the cost of two weirs. The project is requesting salary and fringe benefits for five positions: one GS-6 (six months 2016 and 2017 and two months in 2018); two GS-5 technicians (six months in 2016 and 2017); permanent GS-7 (1.8 months 2016, 2017, and 2018); and for the principle investigator (two months in 2016, 2017, and 2018). The GS-7 Fishery Technician is slated to work on project 16-502 for three months in 2016 and 2017 and for one month in 2018. Both weirs are only operating for 2.5 months and the technician hires should only be long enough to complete the needed training, weir installation, and weir breakdown. Due to the importance of Kenai River Chinook Salmon to multiple user groups the principle investigator should explore ways to find a partner and matching funds to lower the cost of the project.

The budget does not include enough detail to be evaluated. Further explanation of the budget is warranted and could have been covered in the Budget Justification; however, a Budget Justification was not included in the proposal package. In the Notice of Funding Availability and Application Instructions it specifically states that a Budget Justification is a required document and is on the check-list for required documents.

This project does not identify a way to build partnerships or capacity within rural, Alaska Native, or Tribal organizations. In addition, there is no discussion of local hire, ANSEP students, or rural student interns. If this project is to be funded the PI should look at ways to build partnerships or capacity.

TRC Ranking: 5

Project Number: 16-505

Project Title: Stock Assessment of Late Run Kasilof River Chinook Salmon

Project Summary: This project specifically addresses a 2016 Monitoring Program Priority Information need by

providing an estimate of the in river abundance of wild, age-2+ Chinook Salmon in the Kasilof River from 20 June through 31 August, through a mark recapture-study. Investigators propose to estimate the proportion, by age and sex, of Kasilof River late-run Chinook Salmon. In addition, the number of Chinook Salmon that are present in Kenai National Wildlife Refuge waters will be reported by day of year. The Principal Investigator states that the project is needed because the study completed during 2005 to 2008 when was abundance of late-run Chinook Salmon was likely higher than current levels and that it is unknown how their results might compare to the current abundance levels. However, it is unlikely that run-timing or spawning site fidelity would be affected by a decreased abundance and that this project would provide new information that would have management implications.

TRC Justification: This project specifically addresses the priority information need, Abundance, run timing, spawning site fidelity and timing, and age, sex, and length composition for Chinook and Coho salmon that stage or spawn in waters of the Kasilof River and its tributaries under federal subsistence fishery jurisdiction that was identified by the Southcentral Subsistence Regional Advisory Council for the 2016 Monitoring Program. The Principle Investigator states that the project is needed because the study completed during 2005 to 2008 when was abundance of late-run Chinook Salmon was likely higher than current levels and that it is unknown how their results might compare to the current abundance levels.

It is unlikely that run-timing or spawning site fidelity has changed since 2008 due to a decreased abundance. It is not certain this project will provide any new information that will have management implications. The project could be used in concert with other assessment projects to monitor the population, evaluate current assessment tools, and/or validate past research on Kasilof River late-run Chinook Salmon. The project has a comprehensive plan for completing progress, annual and final reports.

The project has an average annual request of \$275,682. The project has a total match of \$289,600. This brings the total cost of the project to \$1,116,646 and the average annual cost to \$372,215. The cost of the project is high and appears to be due from personnel (requested \$573,606 and matching \$188,100) and equipment costs (requested \$180,000 and matching \$101,500).

The U.S. Fish and Wildlife Service is requesting \$24,500 for the to purchase a new boat, trailer, and a boat motor (jet) and the Alaska Department of Fish and Game is requesting \$6,500 for the purchase a new boat motor (jet). Due to the proposal not having a budget justification there is no supporting justification on this equipment is needed to operate the project and why either agency does not have one available.

The project proposal is requesting funds to cover salary and fringe benefits for seven positions; with four positions placed with the U.S. Fish and Wildlife Service and three positions with the Alaska Department of Fish and Game. The Service is requesting salary and fringe benefits five positions: Term Biologist at a GS-7 position (8 months for 2016, 2017, 2018); Permanent Biologist at a GS 9/11 (2 months for 2016, 2017, 2018); GS-5 (4 months for 2016, 2017, 2018); and a GS-6 (4 months for 2016, 2017, 2018). The U.S. Fish and Wildlife Service will be responsible for the capture and marking component of the study which runs from 1 July to 31 August and that a two-person crew will conduct sampling for 6.5 hours per day. Therefore, it is unclear as to what the four positions the U.S. Fish and Wildlife Service is requesting funds for. In addition to the position they are requesting funds for, they providing a position for the same costs as in-kind. It is unclear why there are two biologists needed to run the project; however, it is good that the U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game are partnering.

The Alaska Department of Fish and Game is requesting funds for three positions: Fishery Biologist II (3 months for 2016, 2017, 2018); Fish and Wildlife Technician III (4 months for 2016, 2017, 2018); and Fish and Wildlife Technician III (3 months for 2016, 2017, 2018). The ADF&G will be responsible for the recapture and radio-telemetry component of the study from 15 July to 25 September and will use a two-person crew for capturing Chinook Salmon during the recapture event three days per week for 6.5 hours per day.

The Service has \$35,000 listed for matching funds under personnel; however, there is no description. That would make a total of \$464,606 of funds used to cover personnel costs for the U.S. Fish and Wildlife Service and the U.S. Fish and

Wildlife Service is not completing all aspects of the project. It appears that ADF&G's matching personnel funds are the exact same as what is listed for the funds being requested to cover the Fishery Biologist II for three months in 2016, 2017, and 2018.

Further explanation of the budget is warranted. This information could have been covered in the Budget Justification; however, a Budget Justification was not included in the proposal package. In the Notice of Funding Availability and Application Instructions it specifically states that a Budget Justification is a required document and is on the check-list for required documents.

This project does not attempt to develop partnerships within rural, Alaska Native, or Tribal organizations. In addition, there is no discussion of local hire, ANSEP students, or rural student interns.

TRC Ranking: 6

Project Number: 16-502

Project Title: Age, sex, length, run time, spawning site fidelity and distribution of Chinook Salmon within Federal waters of the mainstem Kenai River, Kenai Peninsula, Alaska

Project Summary: Kenai River Chinook Salmon escapement has recently declined to historic lows and as a result all fisheries for Chinook Salmon, including the subsistence fishery, have either closed or have been severely restricted. This project will provide information on spawning destination, run timing, site fidelity, estimating age and sex composition, and estimating the mean length by age and sex of Kenai River Chinook Salmon through a radio telemetry study. The project will focus on the early-run population that spawn in the first 8 rkm below the outlet of Skilak Lake. This project partially addresses a priority information need identified for the 2016 Monitoring Program.

TRC Justification: Kenai River Chinook Salmon escapement has recently declined to historic lows and as a result all Chinook Salmon fisheries including the subsistence fishery have either closed or have been severely restricted. This project partially addresses a 2016 Monitoring Program priority information need. This project has a federal linkage and has Federal jurisdiction. The majority of early-run Chinook Salmon that return to the Kenai River spawn within the Kenai National Wildlife Refuge and are available for harvest in the Federal subsistence fishery; however, due to recent declines the Federal subsistence fishery has been closed to the harvest of Chinook Salmon.

The objectives for this study are clear, measurable, and achievable; however, it is not certain if this study will contribute new information on Kenai River Chinook Salmon. Chinook Salmon distribution in the Kenai River has been examined by radio telemetry studies during the early 1980's, early 1990's, and from 2010 to 2014 and each study had similar results. This project may not answer immediate subsistence or conservation concerns. This project could be used in concert with other assessment projects to monitor the population and compared with past studies that were addressed under Strategic Priority; however, it is unlikely that this project will collect new information.

The results from this study will be compared to past studies; however, it is not certain if this study will contribute new information on early-run Kenai River Chinook Salmon that will have management implications or advance knowledge in regards to spawning timing, run timing, site fidelity and ASL compositions. The Alaska Department of Fish and Game is currently analyzing their findings from a study completed recently on Chinook Salmon abundance and migratory timing. This information should be available in the next year and should provide valuable information on the differences seen recently in regards to Chinook Salmon run timing, abundance, and spawning timing.

The average annual cost of the project is \$193,568.67. The cost of the project is high and appears to be due from personnel costs and contractual. The proposal is requesting salary and fringe benefits for six positions: two GS-5 positions (six months each in 2016 and 2017); two GS-6 positions (six months each in 2016 and 2017 and one month each in 2018); GS 7 Fishery Technician (three months in 2016 and 2017 and for one month in 2018); and the principle investigator (two months in 2016, 2017, and 2018). The GS-7 position is also slated to work on the Killey and Funny river weirs for project 16-501, if funded, for 1.8 months in 2016, 2017, and 2018.

In 2018, no field work will be completed so it is not clear why funds are needed for the two GS-6 positions and the GS-7 position during that year. The budget has listed \$88,922 as matching funds for permanent personnel; however, there is no description on which personnel will be providing services for this project. The budget also requests \$80,000 in 2016 and 2017 for Radio Transmitters under contractual costs; however, it is unclear as to what and how much of the equipment will be purchased.

Further explanation of the budget is warranted and could have been covered in the Budget Justification; however, a Budget Justification was not included in the proposal package. In the Notice of Funding Availability and Application Instructions it specifically states that a Budget Justification is a required document and is on the check-list for required documents.

This project does not attempt to build partnerships with rural, Alaska Native, or Tribal organizations. In addition, there is no discussion of local hire, ANSEP students, or rural student interns. If this project is to be funded the principle investigator should look at ways to build partnerships or capacity within rural, Alaska Native, or Tribal organizations and/or hire local hire, ANSEP students, or rural student interns. The Fisheries Resource Monitoring Program works to integrate Alaska Native and rural organizations into the management of subsistence fisheries by having the level of rural involvement as one of the criteria for evaluating investigation plans. The Principle Investigator can work with the Office of Subsistence Management to incorporate partnerships and capacity building into the proposed work.

SOUTHEAST ALASKA REGION

Priority Information Needs

The 2016 Notice of Funding Opportunity for the Southeast Alaska Region identified three priority information needs:

- Reliable estimates of sockeye salmon escapement. Stocks of interest include: Gut Bay, Red, Kah Sheets, Karta, Salmon Bay, Sarkar, Hoktaheen, Klawock, Eek, Kutlaku, Port Houghton, Kasook, Hunter Bay and Manhattan Lake.
- In-season subsistence harvest of sockeye salmon. Stocks of interest include: Hatchery Creek, Gut Bay, Red, Kah Sheets, Salmon Bay, Sarkar, Kanalku, Hoktaheen, Eek, Kutlaku, Port Houghton, Kasook, Hunter Bay and Manhattan Lake.
- Escapement index for Yakutat Forelands eulachon (continuation).

Technical Review Committee Proposal Ranking

For the 2016 Monitoring Program, five proposals were submitted for the Southeast Alaska Region. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit, and ranked them as follows:

Table 6. Technical Review Committee (TRC) ranking for projects in the Southeast Region. Projects are listed by TRC ranking and include total matching funds, total funds requested, and the average annual request for each project submitted to the 2016 Monitoring Program within the Southeast Region.

TRC Ranking	Project Number	Title	Total Matching Funds	Total Project Request	Average Annual Request
1	16-604	Eek Lake Subsistence Sockeye Salmon Project	\$0	\$266,448	\$66,612
2	16-606	Sarkar Creek Sockeye Salmon Stock Assessment	\$140,817	\$356,343	\$89,086
3	16-601	Hatchery Creek Sockeye Salmon Population Assessment	\$0	\$545,917	\$136,479
4	16-602	Virginia Lake Sockeye Salmon Stock Assessment	\$0	\$743,084	\$185,771
5	16-605	Stikine Eulachon Stock Assessment	\$0	\$170,000	\$42,500
Total			\$140,817	\$2,081,792	\$520,448

Regional Advisory Council comments

Southeast Alaska Subsistence Regional Advisory Council

The Council made one motion: move the Hatchery Creek Sockeye Salmon projects to the lowest priority on both the list of 2014 continuation projects and the list of 2016 proposed projects. *Motion passed.*

In addition to the motion passed by the Council, the following comments were received:

- The 2014 continuation projects are the highest priority for the region, with the exception of the Hatchery Creek projects that appear on both the 2014 list of projects approved for funding and the new 2016 list of FRMP proposed projects;
- Once the 2014 continuation projects are funded, the 2016 Sarkar Creek Sockeye project (16-606) is the highest 2016 priority;
- The Council may draft a letter to the Forest Service requesting that the agency reallocate funds so that 2014 continuation projects are funded to completion; and
- The Council is not completely sure that the new FRMP ranking process is beneficial for the region.

Interagency Staff Committee comments

In the Southeast Region, to date the USDA Forest Service proposes to fund eight continuing projects with a combination of 2015 funds and new 2016 funds. Three other continuation projects are currently not being funded. The ISC recommends that if additional Forest Service and/or Department of the Interior funds become available, the unfunded continuation projects be funded first and then new Southeast proposals be funded in order of TRC ranking.

Forest Service staff shared information on declining FRMP funding with the Southeast Council. Councilmembers agreed that funding continuing 2014 FRMP projects is the priority before funding new projects, with the exception of funding for the Hatchery Creek project; both the continuing and proposed 2016 project. The Council also recommended that if funding is available for new projects, the 16-606, Sarkar Creek proposal should be the highest priority.

Project Summaries and TRC Justification for Project Ranking

TRC Ranking: 1
Project Number: 16-604
Project Title: Eek Lake Subsistence Sockeye Salmon Project

Project Summary: The investigators plan to estimate Sockeye Salmon escapement into Eek Lake by utilizing two underwater-video equipped net weirs. Personnel will be housed on site where they can review video footage daily and sample sockeye twice weekly for age, sex, and length. Subsistence harvest will be estimated in conjunction with the Hetta Lake harvest estimate objective.

TRC Justification: This project will build on existing sockeye stock and harvest information which will aid in managing resources important to residents of Hydaburg. Eek Lake Sockeye Salmon stock and harvest was listed in the priority information needs for the 2016 cycle. Concern regarding below average escapement at Hetta Lake has recently caused the shifting of some subsistence sockeye effort to the Eek Lake stock. The current stock status of Sockeye Salmon returning to Eek Lake is unknown and there is concern about the sustainability of the fishery due to shifted effort from the Hetta Lake stock. The investigators have significant expertise and ability regarding sockeye stock and harvest assessments with satisfactory past performance on other projects funded through the Monitoring Program. They have developed a budget which is closely tied to the Hetta Lake project resulting in considerable cost savings. This project will generate new information about sockeye stock and harvest at Eek Lake that will be useful in managing the resource. We have identified some concerns in the technical and scientific merit section. However, the investigators have already addressed these

issues by modifying the project for the 2015 season and will carry the changes over to future years.

TRC Ranking: 2
Project Number: 16-606
Project Title: Sarkar Creek Sockeye Salmon Stock Assessment

Project Summary: The investigators plan to estimate the escapement of Sockeye Salmon into the upper Sarkar watershed with two video equipped net weirs. Age, sex, and length samples will be taken from 100 Sockeye Salmon captured with dip nets and beach seines at spawning and/or staging areas. Escapement data on this system is scarce. A weir was operated in 1982 and 1983 at the main outlet which generated unvalidated sockeye counts.

TRC Justification: This cooperative project between the Craig Tribal Association and the U.S. Forest Service will provide new information on the status of the Sarkar Sockeye Salmon stock which is important to Federally-qualified subsistence users on Prince of Wales Island. This is a high priority project in the Southeast Alaska region due to the scarcity of data coupled with the possibility of higher future effort shifted from the Klawock Lake fishery due to stock decline and management restrictions. Also, subsistence Sockeye Salmon harvest from the Sarkar stock reported to the State has declined dramatically since 2012. A stock assessment can provide information to address this decline in subsistence harvest. The cost is reasonable compared to similar, funded Monitoring Program projects. As a first-time principal investigator, Craig Tribal Association Fisheries Coordinator will be responsible for implementing this project with guidance of U.S. Forest Service biologists. Local residents will be targeted when filling four fisheries positions responsible for execution of the field component. These field technicians will be trained by the investigators and develop valuable skills that could be used on future Monitoring Program projects.

TRC Ranking: 3
Project Number: 16-601
Project Title: Hatchery Creek Sockeye Salmon Stock Assessment

Project Summary: The investigators are proposing to continue the Sockeye Salmon stock assessment at Hatchery Creek. Adult and jack sockeye will be counted through a picket weir while age, sex, and length data will be collected in proportion to the run with a trap integrated into the picket weir. Extremely low escapement in 2008 (238) and 2009 (667) resulted in a series of state and/or federal closures in those and subsequent years. A fish pass was installed in 2010 at a partial barrier falls below the weir site to aid sockeye migration. Since 2010 the sockeye counts at the weir above this fish pass were at least 6,000 with a high of over 10,000 in 2010. This is a continuation of Monitoring Program project 14-605.

TRC Justification: This cooperative project between the U.S. Forest Service and the Organized Village of Kasaan will be a continuation of Monitoring Program Project 14-605. The Organized Village of Kasaan will continue to assist in the implementation of this project with a locally hired crew leader and field technicians. An escapement estimate of Hatchery Creek sockeye was not included in the 2016 Notification of Funding Availability; however, it was listed on the 2014 Notification of Funding Availability and was subsequently funded through 2017. The intent of this proposal is to gain approval for funding in 2018 and 2019. The Hatchery Creek Sockeye Salmon fishery has been subjected to State and Federal fishery closures in several years beginning in 2008. However, recent escapement levels of at least 6,000, with a high of over 10,000 in 2010, suggest that the fish pass is effectively aiding Sockeye Salmon migration to spawning areas resulting in fewer closures and liberalization of harvest limits. There has not been substantial sockeye harvest reported at Hatchery Creek since 2003 when 853 were reported harvested. An average harvest of 86 sockeye has been reported here annually since 2003.

TRC Ranking: 4
Project Number: 16-602
Project Title: Virginia Lake Sockeye Salmon Stock Assessment

Project Summary: Sockeye Salmon returning to Virginia Lake will be counted using double-redundant open net weirs and underwater digital video recorders. These weirs and cameras will be operated continuously from late-June through mid-September. The design and operation of the video/mini-DVR fish counting system is described in Van Alen (2008). Age, sex and length data for Sockeye Salmon will be gathered on the spawning grounds using a beach seine. The escapement of Sockeye Salmon into Virginia Lake was estimated through the Monitoring Program in 2001 (1,003 sockeye) and 2002 (2,073). Sockeye Salmon returns to Virginia Lake have long been an important subsistence resource for residents of Wrangell.

TRC Justification: There is clear Federal linkage since Sockeye Salmon are harvested and spawn in waters under Federal jurisdiction and the primary users of the resource are Federally qualified subsistence users from Wrangell. The need for escapement estimates of Sockeye Salmon at Virginia Lake was listed as a priority in the 2006 Southeast Alaska Strategic Plan; however, it was rated as a low priority. Virginia Lake was not included as a priority information need in the 2016 notice of Funding Availability. The investigations did not provide a compelling reason why this project should be a priority information need other than subsistence use. There is a high likelihood that the objectives will be achieved; however, there are concerns about validation of the weir count and age/sex/length sampling in proportion to the run. The budget is high compared to other weir projects in the region especially since the system is close to Wrangell and is boat accessible. The principle investigator has 24 years of experience with hatchery operations. One of the co investigators, Ben Van Alen, has completed numerous Monitoring Program projects in Southeast Alaska. Capacity building is high with the Wrangell Cooperative Association taking the lead role in all aspects of this project with technical support from the U.S. Forest Service and the Alaska Department of Fish and Game.

TRC Ranking: 5
Project Number: 16-605
Project Title: Stikine River Eulachon Stock Assessment

Project Summary: This project will estimate timing, distribution, and relative abundance of Eulachon returning to the lower Stikine River from mid-March through mid-May using aerial surveys and remote video monitoring. The project will increase the understanding of coast-wide declines in Eulachon stocks. This information is needed to better provide for the continuation of subsistence take by Federally qualified subsistence users in the Stikine River.

TRC Justification: Eulachon are harvested in waters under Federal jurisdiction and are widely used by residents of Wrangell and Petersburg. Information on Eulachon stocks in the Stikine River was not identified as a priority in the 2006 Southeast Region Strategic Plan or in the 2016 Notice of Funding Availability. There was no compelling evidence in the investigation plan of a conservation concern or a problem with subsistence harvest of Eulachon in the Stikine River. However, there are general concerns with Eulachon abundance south of the Stikine River in the Unuk River near Ketchikan and in British Columbia, Canada. The budget seems reasonable. While all but one of the investigators are new to the Monitoring Program, a co-investigator and his agency have successfully conducted numerous projects funded through the Monitoring Program. There is very little involvement with cooperators outside the U.S. Forest Service.

MULTIREGIONAL

Priority Information Needs

The Multi-regional category is for projects that are applicable in more than one region. For the Multi-regional category, the 2016 Notice of Funding Availability is focused on the following priority information needs:

- Changes in subsistence fishery resources and uses, in the context of climate change where relevant, including, but not limited to, fishing seasons, species targeted, fishing locations, fish quality, harvest methods and means, and methods of preservation. Include management implications.
- Effects of the Bering Sea and Gulf of Alaska Pollock fishery on Federal Chinook and Chum Salmon subsistence resources throughout Alaska.
- Changes in subsistence fishery resources, in the context of climate change, including but not limited to fish movement and barriers including permafrost slump, water quality and temperature, draining of tundra lakes, changing patterns of precipitation both snow and rain, changing freeze-up and break-up.

Technical Review Committee Proposal Ranking

For the 2016 Monitoring Program, two proposals were submitted in the Multi-regional category. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit, and ranked them as follows:

Table 7. Technical Review Committee (TRC) ranking for projects in the Multi-regional category.

TRC Ranking	Project Number	Title	Total Matching Funds	Total Project Request	Average Annual Request
1	16-752	YK Delta Coastal Communities Non-Salmon Harvest and Use Pattern	\$0	\$445,216	\$148,405
2	16-751	Kuskokwim and Yukon the Meaning and Context of Sharing within the Subsistence Fisheries	\$0	\$549,672	\$183,224
Total			\$0	\$994,888	\$331,629

Regional Advisory Council comments

Western Interior Subsistence Regional Advisory Council

- The Council had no comments on the two Multiregional projects. Jack Reakoff would like to see the Yukon Region priority information need, “Assessment of incidental mortality with gillnets, with particular consideration for delayed mortality from entanglement or direct mortality from drop-outs (e.g. loss of Chinook salmon from 6” mesh chum fisheries)” be included in the multi-regional priority information needs. Tim Gervais asked a question about ASL data on Bering Sea bycatch and how it could be used to assist with management. Tim also made a comment on habitual under escapement and low spawning biomass throughout the Region. Tim would like to see a study on Kuskokwim River nutrient flow on spawning grounds.

Eastern Interior Subsistence Regional Advisory Council

The Council had no comments on the two Multiregional projects.

Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

Council member Greg Roczicka stated that both multiregional projects looked like good projects.

However, he also stated that people of the region are "... being surveyed to death, and people are just getting tired of it."

Interagency Staff Committee comments

No comments.

Project Summaries and TRC Justification for Project Ranking

TRC Ranking: 1
Project Number: 16-752
Project Title: Subsistence Harvest and Use Patterns of Nonsalmon Fishes by Yukon-Kuskokwim Delta Region Coastal Communities

Project Summary: During the three-year project, investigators will collaborate with five study communities to document their harvests and uses of nonsalmon fishes for subsistence. The nonsalmon subsistence fisheries in coastal communities of the Yukon-Kuskokwim delta are among the least documented subsistence fisheries in the state. Limited harvest data and ethnographic information indicate that regional harvest and use patterns have changed dramatically in recent years in response to factors that include changing weather patterns. Lack of harvest and use information precludes a meaningful analysis of changes in the fisheries over time and prevents an understanding of the potential future and ongoing impacts of climate change. The study will update information collected during previous studies that include Nunivak Island in 2008 (Project OSM05-353), Scammon Bay in 2011, Nelson Island in the 1980s and early 1990s, and Hooper Bay and Kwigillingok in 1983. The study communities are Scammon Bay, Mekoryuk, Tooksook Bay, Kipnuk, and Quinhagak.

TRC Justification: Over three years, investigators will document the harvest and use of nonsalmon fishes in five coastal communities in the Yukon-Kuskokwim delta. The project addresses priority information needs, the Federal linkage is clear, investigators are qualified to conduct the work, and the budget is reasonable. Partnership and capacity building will be collaborating with five participating communities and hiring five to 10 local assistants to help with the research and provide Yup'ik-English language interpretation. Investigators do not describe mapping protocols such as the specific information they are seeking and how it will be analyzed. Also, investigators do not explain why a statistical design requiring a 60% random sample of households in communities with over 100 households is being used, but the omissions do not significantly take away from the overall completeness and quality of the investigation plan.

TRC Ranking: 2
Project Number: 16-751
Project Title: The Meaning and Context of Sharing within the Subsistence Fisheries of the Kuskokwim and Yukon River Drainages.

Project Summary: Through this three-year study investigators will document traditional and contemporary practices of sharing and other forms of exchange in seven Kuskokwim and Yukon river communities with particular attention to understanding the nature and scope of sharing and its role in a larger continuum of exchange practices and how they relate to the harvest of salmon. The proposed project builds on earlier sharing network research in the region. For 2009–2013, ADF&G Division of Subsistence conducted subsistence harvest and use surveys of all fish and wildlife, including a sharing and exchange network analysis, in 21 Kuskokwim River communities and 10 Yukon River communities. Comparing the two regions may yield insights into how resources are exchanged considering socio-cultural and economic factors that differ between the two river systems. The proposed project will address data gaps in previous research by

examining factors such as the ceremonial context of exchange, perceptions of change, and the role of obligation in harvest and sharing relationships. Investigators will collaborate in research with seven communities and Tribes, four situated along the Kuskokwim River and three along the Yukon River.

TRC Justification: The three-year study aims to address data gaps in previous sharing network research by collecting data on social dimensions of salmon production in communities along the Yukon and Kuskokwim rivers. Comparing communities from different parts of each river will strengthen the potential for understanding variable responses to changing salmon abundance and regulatory actions. The Federal linkage is clear, the study is well thought out, and the objectives are clear, measurable, and achievable. Investigator ability and resources are highly rated. Proposed partnership and capacity building are appropriate for the type of research. The cost is reasonable for the work being proposed.

Technical Review Committee proposal rankings and 2016 Draft FRMP Monitoring Plan Tables

A complete table of the 2016 FRMP TRC rankings (**Table 8**) is included as a handout with this summary. A draft 2016 FRMP Monitoring Plan, based on TRC Rankings, RAC comments, and ISC comments, is also included as a handout with this summary.

TABLE 8. 2016 Technical Review Committee (TRC) FRMP Rankings by Region

IP Number	SST or HMTEK	Project Name	Agency	Total	Average Annual Cost	Running Average Annual Total
NORTHERN						
16-105	SST	Kobuk River Sheefish Abundance	ADF&G Sport Fish	\$183,592	\$61,197	\$61,197
16-106	SST	North Slope Overwintering Aerial Monitoring Dolly Varden	ADF&G Sport Fish	\$229,302	\$57,326	\$118,523
16-107	SST	Chandler Lake Spawning Aggregations of Lake Trout	ADF&G Sport Fish	\$245,928	\$81,976	\$200,499
16-152	HMTEK	Mead River Changes in Subsistence Fisheries	ADF&G Subsistence	\$329,495	\$82,374	\$282,873
16-151	HMTEK	Northwest TEK Whitefish, Cisco, and Beavers	SWCA	\$225,418	\$75,139	\$358,012
16-103	SST	Kobuk River Dolly Varden Genetics	FWS Selawik NWR	\$21,500	\$21,500	\$379,512
16-101	SST	Arctic Dolly Varden Telemetry	FWS Fairbanks FWFO	\$105,400	\$26,350	\$405,862
16-104	SST	Selawik Inconnu Age Abundance	FWS Fairbanks FWFO	\$390,659	\$130,220	\$536,081
16-108	SST	Changing Conditions in Colville River Leading to Increased Mold on Whitefish	North Slope Borough- Department of Wildlife Management	\$185,575	\$46,394	\$582,475
16-102	SST	Colville Grayling Habitat and Migrations	ADF&G Sport Fish	\$236,160	\$59,040	\$641,515
YUKON						
16-256	HMTEK	Yukon River In-Season Teleconferences	YRDFA	\$74,015	\$18,504	\$18,504
16-255	HMTEK	Yukon River In-Season Community Surveyor Program	YRDFA	\$282,661	\$70,665	\$89,169
16-204	SST	Henshaw Creek Weir	Tanana Chiefs Conference	\$637,035	\$212,345	\$301,514
16-205	SST	Upper Yukon and Tanana Rivers Burbot Population Assessment	NPS Wrangell- St. Elias	\$103,947	\$25,987	\$327,501
16-251	HMTEK /SST	Yukon Burbot Life-History Characteristics and Subsistence Use	ADF&G Sport Fish	\$387,850	\$96,963	\$424,463
16-203	SST	Yukon Flats Bering Cisco Spawning Abundance Mark-Recapture	ADF&G Sport Fish	\$361,930	\$120,643	\$545,107
16-206	SST	Nulato River Weir	Tanana Chiefs Conference	\$888,224	\$222,056	\$767,163
16-201	SST	Yukon Drainage Coho Radio Telemetry	FWS Fairbanks FWFO	\$327,183	\$81,796	\$848,958
16-202	SST	Yukon Fall Chum Habitat Monitoring	USGS AK Coop F & W Research Unit	\$1,012,676	\$253,169	\$1,102,127
KUSKOKWIM						
16-301	SST	Lower Kusko Chinook Harvest ASL Comp	ADF&G Comm Fish	\$157,108	\$39,277	\$39,277
16-302	SST	Kuskokwim Salmon River Weir	ADF&G Comm Fish	\$466,469	\$116,617	\$155,894
16-303	SST	Upper Kusko Sheefish Enumeration and Spawning Area	ADF&G Sport Fish	\$299,600	\$99,867	\$255,761
16-351	HMTEK	Middle Kusko In-Season Subsistence Salmon Harvest Monitoring	ADF&G Subsistence	\$429,983	\$107,496	\$363,257
16-304	SST	Kwethluk River Smolt Assessment	FWS Kenai FWFO	\$623,802	\$155,951	\$519,207
16-305	SST	Kuskokwim River Broad Whitefish	FWS Kenai FWFO	\$387,722	\$96,931	\$616,138
SOUTHWEST						
16-451	HMTEK	Bristol Bay Subsistence Salmon Networks	ADF&G Subsistence	\$302,803	\$100,934	\$100,934
16453	HMTEK	Togiak River Chinook Salmon Subsistence Harvest Assessment	ADF&G Subsistence	\$299,498	\$74,875	\$175,809
16-452	HMTEK	Western Alaska Salmon and Other Harvests on Federal Lands and Waters	University of Idaho, Department of Anthropology	\$348,174	\$87,044	\$262,853
16-404	SST	Pre-historical Salmon Abundance in the Lake Clark System	University of Washington School of Aquatic and Fishery Science	\$62,670	\$15,668	\$278,520
16-402	SST	Kodiak Akalura Sockeye Salmon Camera System	FWS Kodiak National Wildlife Refuge	\$41,965	\$10,491	\$289,012
16-401	SST	Kodiak Lakes Ecological Assessment	ADF&G Commercial	\$367,340	\$91,835	\$380,847
16-403	SST	Togiak Chinook Abundance and Distribution	Bristol Bay Science and Research Institute	\$1,586,598	\$396,650	\$777,496
SOUTHCENTRAL						
16-551	HMTEK	Russian River Subsistence Users Attitudes and Perceptions In Dip Net Fishery	ADF&G Subsistence	\$99,441	\$33,147	\$33,147
16-503	SST	Ibeck Creek Coho Escapement and Harvest Monitoring	Native Village of Eyak	\$789,151	\$197,288	\$230,435
16-552	HMTEK	Chitina Check Station	Copper River-Ahtna Inter-Tribal Resource Conservation District	\$200,000	\$50,000	\$280,435
16-501	SST	Killey and Funny Rivers Chinook Abundance and Run Description	FWS Kenai FWFO	\$436,660	\$109,165	\$389,600
16-505	SST	Kasilof Late Run Chinook Salmon SST	FWS Kenai FWFO	\$827,046	\$206,762	\$596,361
16-502	SST	Kenai Chinook Distribution ASL and Run Timing	FWS Kenai FWFO	\$580,706	\$145,177	\$741,538
SOUTHEAST						
16-604	SST	Eek Lake Sockeye Assessment	Hydaburg Cooperative Association	\$266,448	\$66,612	\$66,612
16-606	SST	Sarkar Creek Sockeye Stock Assessment	Craig Tribal Association	\$356,343	\$89,086	\$155,698
16-601	SST	Hatchery Creek Sockeye Stock Assessment	FS Craig Ranger District	\$545,917	\$136,479	\$292,177
16-602	SST	Virginia Lake Sockeye Stock Assessment	Wrangell Cooperative Association	\$743,084	\$185,771	\$477,948
16-605	SST	Stikine Eulachon Stock Assessment	FS Wrangell Ranger District	\$170,000	\$42,500	\$520,448
MULTI-REGIONAL						
16-752	HMTEK	YK Delta Coastal Communities Non-Salmon Harvest and Use Pattern	ADF&G Subsistence	\$445,216	\$111,304	\$111,304
16-751	HMTEK	Kuskokwim and Yukon the Meaning and Context of Sharing Within the Subsistence Fisheries	ADF&G Subsistence	\$549,672	\$137,418	\$248,722
Green	Projects the TRC ranked that would be recommend for funding.					
Yellow	Projects the TRC would use caution with funding due to 1) TRC score, 2) Regional budget or 3) TRC concerns.					
Red	Projects the TRC would not be recommend for funding at this time.					

Note - All projects are in ranked order from highest to lowest for each Region.

TABLE 9. 2016 DRAFT RECOMMENDATIONS FOR THE FRMP

Based upon TRC Rankings, RAC comments and ISC comments

IP Number	SST or HMTEK	Project Name	Agency	Total	Average Annual Cost	Running Average Annual Total	Region
16-256	HMTEK	Yukon River In-Season Teleconferences	YRDFA	\$74,015	\$18,504	\$18,504	Yukon
16-255	HMTEK	Yukon River In-Season Community Surveyor Program	YRDFA	\$282,661	\$70,665	\$89,169	Yukon
16-301	SST	Lower Kusko Chinook Harvest ASL Comp Budget	ADF&G Comm Fish	\$157,108	\$39,277	\$128,446	Kuskokwim
16-105	SST	Kobuk River Sheefish abundance	ADF&G Sport Fish	\$183,592	\$61,197	\$189,643	Northern
16-106	SST	North Slope Overwintering Aerial Monitoring Dolly Varden	ADF&G Sport Fish	\$229,302	\$57,326	\$246,969	Northern
16-107	SST	Changler Lake Spawning aggregations of Lake Trout	ADF&G Sport Fish	\$245,928	\$81,976	\$328,945	Northern
16-152	HMTEK	Mead River Changes in Subsistence Fisheries	ADF&G Subsistence	\$329,495	\$82,374	\$411,319	Northern
16-451	HMTEK	Bristol Bay Subsistence Salmon Networks	ADF&G Subsistence	\$302,803	\$100,934	\$512,253	Southwest
16-302	SST	Kuskokwim Salmon River Weir IP	ADF&G Comm Fish	\$466,469	\$116,617	\$628,870	Kuskokwim
16-204	SST	Henshaw Creek Weir	Tanana Chiefs Conference	\$637,035	\$212,345	\$841,215	Yukon
16-205	SST	Upper Yukon and Tanana Rivers Burbot Population Assessment	NPS Wrangell- St. Elias	\$103,947	\$25,987	\$867,202	Yukon
16-453	HMTEK	Togiak River Chinook Salmon Subsistence Harvest Assessment	ADF&G Subsistence	\$299,498	\$74,875	\$942,077	Southwest
16-752	HMTEK	YK Delta Coastal Communities Non-Salmon Harvest and Use Pattern	ADF&G Subsistence	\$445,216	\$111,304	\$1,053,381	Multi
16-251	HMTEK	Yukon Burbot Life-History Characteristics and Subsistence Use	ADF&G Sport Fish	\$387,850	\$96,963	\$1,150,343	Yukon
16-103	SST	Kobuk River Dolly Varden Genetics	FWS Selawik NWR	\$21,500	\$21,500	\$1,171,843	Northern
16-101	SST	Arctic Dolly Varden Telemetry IP	FWS Fairbanks FWFO	\$105,400	\$26,350	\$1,198,193	Northern
16-203	SST	Yukon Flats Bering Cisco Spawning Abundance Mark-Recapture	ADF&G Sport Fish	\$361,930	\$120,643	\$1,318,837	Yukon
16-303	SST	Upper Kusko Sheefish Enumeration and Spawning Area	ADF&G Sport Fish	\$299,600	\$99,867	\$1,418,703	Kusko
16-751	HMTEK	Kuskokwim and Yukon the Meaning and Context of Sharing within the Subsistence Fisheries	ADF&G Subsistence	\$549,672	\$137,418	\$1,556,121	Multi
16-104	SST	Selawik Inconnu Age Abundance	ADF&G Sport Fish	\$390,659	\$130,219	\$1,686,340	Northern
16-351	HMTEK	Middle Kusko In-Season Subsistence Salmon Harvest Monitoring Budget	ADF&G Subsistence	\$429,983	\$107,495	\$1,793,835	Kuskokwim
16-452	HMTEK	Western Alaska Salmon and Other Harvests on Federal Lands and Waters	University of Idaho, Department of Anthropology	\$348,174	\$87,043	\$1,880,878	Southwest

Funding by Region	
Northern	\$460,942
Yukon	\$545,107
Kuskokwim	\$363,257
Southwest	\$262,853
Southcentral	\$0
Multit-Regional	\$248,722
TOTAL	\$1,880,881

Southeast \$0

OPTIONS TO ADDRESS FUTURE NONRURAL DETERMINATIONS

	Option #1	Option #2	Option #3
	Federal Regulation Only	FSB Policy Only	Blend of Regulation & Policy
Board Options	Direct staff to initiate formal rulemaking to address future nonrural determinations	Direct staff to draft policy on nonrural determinations	Direct staff to initiate formal rulemaking and draft policy on nonrural determinations
Pros	<p>Force of Law – “Teeth”</p> <p>Set Criteria</p> <p>Predictability</p> <p>Transparency through public process</p>	<p>Allows greatest flexibility for Board determinations</p> <p>Streamlined Process – will likely require less time than Options #1 and #3, which include formal rulemaking</p> <p>All three options could address regional variations, but Option #2 would be the most agile option for considering unique regional characteristics</p> <p>Allows for more timely changes to process if found to not be working satisfactorily</p> <p>Addresses existing void in how the public can request changes to the current nonrural determinations</p>	<p>Some flexibility introduced through the policy portion</p> <p>Force of Law – “Teeth”</p> <p>Transparency through public process</p> <p>Ability to address regional variations through the policy portion</p>
Cons	<p>This option was the source of the majority of negative comments during the various public comment periods</p> <p>May contain arbitrary content</p> <p>Lacks Flexibility</p>	<p>Perceived as lacking “Teeth”</p> <p>Dependent on Administration – Perception that policy can and will be changed when there is a change in leadership</p>	<p>Lose some flexibility due to rulemaking component</p> <p>Onerous Public Process (changes to Subpart B is at the Secretarial level)</p> <p>Longer timeframe before the Board would be able to address issues with current nonrural determinations</p>

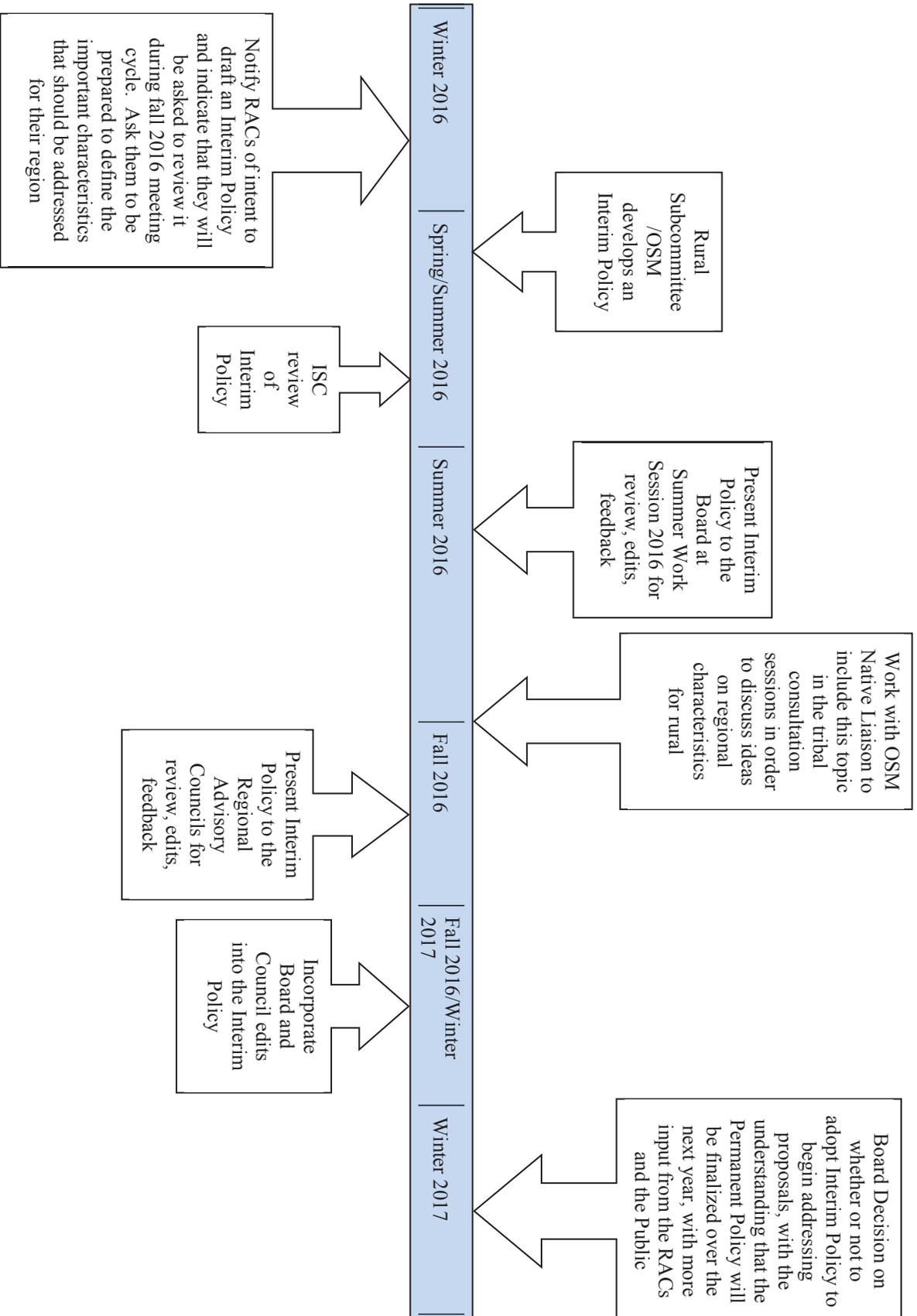
OPTIONS TO ADDRESS FUTURE NONRURAL DETERMINATIONS

	<p>Rigid Criteria that are hard to change/update, especially in Subpart B of implementing regulations</p> <p>Any future revisions would require formal rulemaking at the Secretarial level</p> <p>Lengthy Public Process (changes to Subpart B is at the Secretarial level)</p> <p>Inability to adjust to Regional changes in a timely manner</p>		
Timelines	2-3+ Years	1-2 years – dependent on Board’s direction for public, RAC and tribal input (See attached Interim Policy Timeline)	2-3+ years
Rural Subcommittee Recommendation	<p>The Rural Subcommittee considered and dismissed a strictly regulatory option; it could take an extremely long time and it likely would be met with resistance from the Secretaries and the public.</p>	<p>The Policy Only Option is recommended by the Rural Subcommittee as the best course of action.</p>	<p>The Rural Subcommittee considered and dismissed the development of a brief regulation directing the Federal Subsistence Board to follow an established policy.</p>
Notes	<p>The Secretaries just signed two new rules on this topic and may resist consideration of a third, especially if it appears that the process is shifting back towards the previous rule.</p>		<p>Most of the positives associated with this option are contingent on support from the Secretaries, without that we would be forced to go with Option #2.</p>
Feasible Next Steps		<p>1. Develop Interim Policy, following the proposed timeline, which allows for Board direction and input and gives</p>	

OPTIONS TO ADDRESS FUTURE NONRURAL DETERMINATIONS

		<p>the Regional Advisory Councils time to review, comment, and make recommendations. The Rural Subcommittee envisions a straight forward Interim Policy that will allow the Board to address existing or more immediate concerns.</p> <p>2. Once the Interim Policy is in place, its effectiveness can be discerned and within a year, Councils can give the Board their recommendations and feedback on if it is working or not and whether or not it would be appropriate to adopt the Interim policy as the permanent FSB Policy.</p>	
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Interim Policy Timeline for Nonrural Determinations



FEDERAL SUBSISTENCE BOARD BRIEFING MEMORANDUM

DATE: January 12 - 13, 2016
SUBJECT: Memorandum of Understanding for Coordinated Interagency Fish and Wildlife Management for Subsistence Uses on Federal Public Lands in Alaska.
FROM: Office of Subsistence Management

Key Points

- Review of the 2008 MOU was directed by the 2010 Secretarial Review.
- Due to administration and staff changes on the side of the State, this review process has been on hold until recently.
- The current State administration has been briefed on the issues associated with the MOU and expressed at a recent meeting their interest to re-engage in the review process with the Federal Subsistence Program.

Background

In 2009, the Secretaries directed the Federal Subsistence Board (Board) to “Review, with Regional Advisory Council (Council) input, the December 2008 Memorandum of Understanding (MOU) with the State to determine either the need for the MOU or the need for potential changes to clarify federal authorities in regard to the subsistence program.”

In 2011, the MOU was provided to all ten Regional Advisory Councils for comment during the winter 2011 meeting cycle. Council comments were presented to the Board and to the State. Completion of a revised MOU was not possible when State signatories would not agree to the content of a revised MOU.

In June 2013, the State reported at the Federal Subsistence Board work session that they considered the assemblage of a State/Federal working group and solicitations for Councils and Advisory Committee input to qualify as a review which extended the 5 year expiration date, the Board did not concur.

In July 2014, the Board voted to establish a working group together to address the MOU and to work with the State on the identified differences, several Board members volunteered for the group. Also, the Board voted that the established protocols developed under the Interim Memorandum of Agreement/MOU (IMOA/MOU) for Coordinated Interagency Fish and Wildlife Management for Subsistence Uses on the Federal Public Land in Alaska (April 2000) will continue upon expiration of the IMOA/MOU in November 2014.

In November 2014, the 2008 MOU expired in accordance with Section 5, Clause 8 stating, “If no review is conducted, this MOU will expire 5 years after the most recent review was conducted.”

Current Status

On December 09, 2015, the Alaska Board of Fisheries met for a briefing by State staff regarding the Federal/State Subsistence Committee. The response to the briefing by the Board of Fisheries was the need to reengage with the Federal agencies on this issue.

Next Steps

- Federal Subsistence Board decision to re-commit and assign the Office of Subsistence Management to prioritize the task of reviewing and re-negotiating the MOU with the State.
- Formalize commitment or non-commitment in a letter to the State of Alaska.

Contact: George Pappas, State Subsistence Liaison, OSM, 907-786-3822



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ALASKA BOARD OF FISHERIES
Federal / State Subsistence Committee

December 9, 2015, Egan Convention Center, Anchorage

MEETING SUMMARY

The Board of Fisheries (BOF) Federal / State Subsistence Committee (committee) met on Wednesday, December 9, 2015 in Anchorage at the Egan Convention Center. The purpose of the meeting was to review the committee purpose and receive updates on subsistence issues related to federal and state management. Committee members present were: Orville Huntington, (Chair), John Jensen, and Tom Kluberton. Board of Game members Ted Spraker and Nate Turner were also in attendance for a part of the meeting. The meeting was open to the public.

The meeting opened with an overview of the committee purpose provided by Glenn Haight, BOF Executive Director. The committee was formed in 2005 or 2006 to review regulatory changes made by the Federal Subsistence Board (FSB) and determine if the BOF should take reciprocal action to ease public confusion over differing rules. The committee met a few times thereafter. There is information indicating in 2006 the board generated three proposals which included the content of three federal fishery proposals. The board did so to allow for public and board consideration of these proposals prior to the FSB taking action on the proposals. There was no recent record of the board meeting to review changes in federal regulation.

Following the overview, the committee heard from representatives from the US Fish and Wildlife Service (USF&WS) and the Alaska Department of Fish and Game (ADF&G) on the 2008 Memorandum of Understanding (MOU) between USF&WS and ADF&G. The MOU has not been in effect since 2013. Unsuccessful efforts were made at the time to execute a new MOU. The committee expressed its interest in the ADF&G reigniting efforts to have the MOU resigned.

The committee then heard from ADF&G about recent FSB regulatory actions with a nexus to state management. The six actions include:

- Kenai River subsistence gillnet for sockeye salmon
- Closure near Makhnati Island (Sitka) for commercial herring fishing
- Salmon fin removal for subsistence fish in Southeast Alaska Area
- Chignik area waters (Black Lake) open to subsistence fishing
- Kodiak subsistence permit requirements for salmon and herring
- Klawock River sockeye salmon open season

Finally, the committee heard a brief report by ADF&G staff on the 2015 Kuskokwim salmon season, including specific information on king salmon harvests. The committee also heard from USF&WS on progress made to date on its work with the Kuskokwim River Inter-Tribal Fisheries Commission on establishing a co-management system.

No action was taken by the committee although it acknowledged additional follow through was needed.