

## **14. SUBSISTENCE RESOURCES**

### **14.1. Introduction**

The purpose of the subsistence resources study is to document traditional and contemporary subsistence harvest and use and to collect baseline data to facilitate the assessment of potential impacts of the Project construction and operation on subsistence harvest and use in the Project area. This study will provide information that will serve as the basis for compliance with FERC's NEPA obligations, along with other required approvals and analyses including those of the Bureau of Land Management (BLM) under Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA), and also address State of Alaska needs regarding subsistence resources management.

For purposes of this study plan, traditional use will be defined as the values and practices related to subsistence that are passed down through generations of subsistence users and that inform and guide contemporary subsistence practices. Contemporary use will be defined as recent harvest and use patterns that characterize the resources and areas that are being utilized by communities.

### **14.2. Nexus Between Project Construction/Existence/Operations and Effects on Resources to be Studied**

Construction and operation of the Project may result in changes to access to subsistence resources and/or changes in resource abundance or availability that could have potential direct or indirect effects on subsistence harvest and use. Increased human activity in the upper Susitna River basin also may affect subsistence uses, for instance by impacting wildlife behaviors or creating additional competition for subsistence resources. If a portion of a community's subsistence use areas are within the Project area, then a direct effect on subsistence use could occur.

Successful subsistence harvests depend on both continued availability of subsistence resources in adequate numbers and health and on continued access to those resources. Subsistence resource availability is affected by such factors as resource mortality or health changes, displacement from traditional harvest locations, and contamination (including actual and/or perceived contamination of resources and habitat or habituation of resources to development activities). Access to subsistence resources may be affected by such factors as construction of new roads and other infrastructure and establishment of a new reservoir. Changes in access can result in increased access to subsistence resources by harvesters. Increased access to an area may also result in more competition for resources from outsiders and/or from community or nearby community residents who did not previously use the area or who use the area differently as a result of changes induced by Project development. A decrease in access may decrease competition in the potentially affected area and introduce additional competition in new areas because harvesters can no longer access previously used hunting, fishing, or gathering areas (displaced users). A decrease in resource availability may potentially result in increased competition among harvesters as they try to meet their harvest needs from a depleted or displaced resource stock. It is important that these activities and resources are understood along

with potential Project impact sources, to adequately assess potential impacts to subsistence uses and, if needed, identify potential protection, mitigation, and enhancement measures.

### **14.3. Resource Management Goals and Objectives**

The results of this subsistence resources study and other related studies will inform FERC's NEPA analysis for the FERC licensing process and other agency approvals, as well as BLM's obligations under Title VIII of ANILCA and State of Alaska needs regarding subsistence resources management.

Alaska and the federal government regulate subsistence hunting and fishing in the state under a dual management system. The federal government recognizes subsistence priorities for rural residents on federal public lands, while Alaska considers all residents to have an equal right to participate in subsistence hunting and fishing when resource abundance and harvestable surpluses are sufficient to meet the demand for all subsistence and other uses. Much of the land occupied by the proposed Project is owned or managed by the Alaska Department of Natural Resources (ADNR), BLM, and private land owners, including Alaska Native Corporations established under the Alaska Native Claims Settlement Act (ANSCA).

ANILCA recognizes that "the situation in Alaska is unique" regarding food supplies and subsistence practices. Title VIII of ANILCA establishes subsistence protections on federal lands, including land selected by, but not yet conveyed to, the State or Alaska and Native Corporations, for Alaska's rural Alaska Native and other residents. Under section 803 of ANILCA, the term "subsistence uses" is defined as "the customary and traditional uses by rural Alaska residents of wild renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade" (16 USC 3113). Where a "customary or traditional use" is identified for a given resource, the Secretary of the Interior must ensure that "rural residents engaged in subsistence uses shall have reasonable access to subsistence resources on public lands" (16 USC 3113).

Section 810 of ANILCA specifies that before making any decision to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands, a federal land management agency must first evaluate the effects of such a decision on subsistence use and needs (16 USC 3120). If, upon completion of such review, the agency finds that the proposed action may "significantly restrict" subsistence, additional requirements with respect to the proposed withdrawal, reservation, lease, permit or other use of public lands are triggered (16 USC 3120).

In 1990, the U.S. Department of the Interior and the U.S. Department of Agriculture established a Federal Subsistence Board to administer the Federal Subsistence Management Program (55 FR 27114). The Federal Subsistence Board, under Title VIII of ANILCA and regulations at 36 CFR 242.1 and 50 CFR 100.1, recognizes and regulates subsistence practices for rural residents on federal lands. Federal regulations recognize subsistence activities based on a person's residence in Alaska, defined as either rural or nonrural. Only individuals who permanently reside outside federally designated nonrural areas are considered rural residents and qualify for subsistence harvesting on federal lands under federal subsistence regulations. Nonrural residents may harvest fish and game on most federal lands (unless these are closed to non-federally qualified subsistence uses), but these harvests occur under State regulations. Federal subsistence

regulations do not apply to certain federal lands, regardless of residents' rural designations. These include lands withdrawn for military use that are closed to general public access (50 CFR Part 100.3). Nonrural areas in Alaska include the areas around Prudhoe Bay, Fairbanks North Star Borough, Wasilla/Palmer, Anchorage, Kenai, Homer, Valdez, Seward, Juneau, and Ketchikan. Nonrural areas in relation to the proposed Project are shown on Figure 14.5-1.

The Alaska Board of Fisheries and the Alaska Board of Game have adopted regulations enforced by the State for subsistence fishing and hunting on all State of Alaska lands (except nonsubsistence areas) and waters, and lands conveyed to ANCSA entities. State subsistence uses are regulated under Alaska Statutes (AS) 16 and Title 5 of the Alaska Administrative Code (AAC)(05 AAC 01, 02, 85, 92, and 99). Under Alaska law, when there is sufficient harvestable surplus to provide for all subsistence and other uses, all Alaskan residents qualify as eligible subsistence users.

Under Alaska law, subsistence refers to the practice of taking wild fish or game for subsistence uses (AS 16.05.258). Defined under state law as the “noncommercial customary and traditional uses” of fish and wildlife, subsistence uses under state law include:

consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumptions, and for the customary trade, barter, or sharing for personal or family consumption.

(AS 16.05.940 33).

The State distinguishes subsistence harvests from personal use, general hunting, sport, or commercial harvests based on where the harvest occurs and the resource being harvested, not where the harvester resides (as is the case under federal law). More specifically, state law provides for subsistence hunting and fishing regulations in areas outside the boundaries of “nonsubsistence areas,” as defined in state regulations (5 AAC 99.015). According to these regulations, a nonsubsistence area is “an area or community where dependence upon subsistence is not a principal characteristic of the economy, culture, and way of life of the area of community” (5 AAC 99.016).

Activities permitted in these nonsubsistence areas include general hunting and personal use, sport, guided sport, and commercial fishing. There is no subsistence priority in these areas; therefore, no subsistence hunting or fishing regulations manage the harvest of resources. Nonsubsistence areas in Alaska include the areas around Anchorage, Matanuska-Susitna (Mat-Su) Valley, Kenai, Fairbanks, Juneau, Ketchikan, and Valdez (Wolfe 2000). The Anchorage–Mat-Su–Kenai nonsubsistence area is located closest to the Project area (Figure 14.5-2).

#### **14.4. Summary of Consultation with Agencies, Alaska Native Entities and Other Licensing Participants**

Consultation efforts to date include discussions with agency representatives, Alaska Native entities, and other licensing participants at the Project Technical Workgroup Meetings and other meetings with the Alaska Department of Fish and Game (ADF&G) held between December 2011 and June 2012. Table 14.4-1 summarizes consultation that has occurred since release of the Proposed Study Plan (PSP)).

**Table 14.4-1. Summary of consultation on Subsistence Resources study plans.**

Comment Format	Date	Stakeholder	Affiliation	Subject	Response
TWG Mtg	8/8	David Turner	FERC	Provide a survey instrument for the household surveys	Study plan has been updated to include survey instrument. The draft household harvest survey instrument is provided in Attachmnet 14-2 and key respondent interview protocol in Attachment 14.3.
Letter	9/14/2012	Lisa Wade	Chickaloon Village Traditional Council, Health and Social Services Dept	Comments were in reference to the HIA specifically but noted: “traditional knowledge should be gathererd through qualitative discussions with Tribal communities to contribute to the completion of the HIA.” “can’t stress enough the importance of traditional knowledge ..”	Traditional Knowledge (TK) interviews will be conducted in Chickaloon during the first half of 2013. Section 14.5.4.5 and Table 14.5-3 present TK interview methods and communities slated to be interviewed including Chickaloon. Results will be shared with HIA study team as soon as they are available so that traditional knowledge can be incorporated into the HIA study process and analysis. Additionally, TK questions related to the HIA will be incorporated into the TK interview guide for use in all TK interviews.

## **14.5. Subsistence Baseline Documentation Study**

### **14.5.1. General Description of the Proposed Study**

Through a combination of household harvest surveys, mapping interviews, and traditional and local knowledge interviews, the subsistence baseline documentation study will collect baseline data and document traditional and contemporary subsistence harvest and use to facilitate the assessment of potential impacts of the Project construction and operation on subsistence harvest and use.

#### *14.5.1.1. Study Goals and Objectives*

The overall goal of this study is to demonstrate whether and, if so, the extent to which, communities harvest and use subsistence resources within or near the Project area, use Project area lands to access other lands for subsistence harvest and use, or harvest and use resources that migrate through the Project area and are later harvested in other areas.

The objectives of the subsistence baseline documentation study are as follows:

1. Document whether and, if so, the extent to which communities within the Susitna River watershed, as well as communities outside the Susitna River watershed that have subsistence use areas in the watershed, use areas that are within the Project area for subsistence harvests;
2. Document whether and, if so, the extent to which communities within the Susitna River watershed, as well as communities outside the Susitna River watershed that have subsistence use areas in the watershed, use Project area lands to access other lands or waters for subsistence harvest;
3. Document whether and, if so, the extent to which communities within the Susitna River watershed, as well as communities outside the Susitna River watershed that have subsistence use areas in the watershed, use resources that migrate through the Project area and are harvested in other areas;
4. Collect and document traditional and local knowledge of communities within the Susitna River watershed, or who have subsistence use areas within the watershed, to assist in assessing the potential impacts of construction and operation of the proposed Project on subsistence harvest and use. This information will be directly shared with the program leads for other resources, as appropriate;
5. Evaluate Project development plans to identify likely sources of potential impacts on identified subsistence uses; and
6. Provide the necessary information needed to support preparation of an ANILCA 810 evaluation.

The data developed through this study will be evaluated along with data from biological and wildlife and cultural resources studies to supplement the subsistence information and put it into context with other related resource conditions.

### **14.5.2. Existing Information and Need for Additional Information**

The intent of the subsistence baseline documentation study is to facilitate the assessment of potential Project impacts to subsistence uses by providing current and representative data that

will characterize the existing environment of subsistence uses in the proposed Project area. Critical to this assessment is the establishment of baseline indicators of subsistence use that can be used to assess potential effects of the Project. Existing baseline indicator information that characterizes the subsistence environment is available in the form of harvest data, mapping of subsistence use areas, and traditional knowledge studies. Existing information from harvest data can be used to determine which subsistence resources are harvested by communities either in or outside the Project area and which resources that migrate through the Project area are harvested in other areas. In addition, harvest data provide information about harvest amounts, harvest participation, and other baseline harvest indicators in potentially affected communities. Existing information from subsistence use area mapping studies can be used to identify which communities utilize areas within the Project area or use Project area lands to access other lands for subsistence harvests. Traditional knowledge studies will help provide the cultural basis for why and how community residents engage in subsistence activities and how cultural values and practices are incorporated into and inform present-day subsistence activities. Traditional knowledge studies also provide information about resources and the environment, all of which is relevant to identifying potential Project impacts and, if necessary, potential protection, mitigation, and enhancement measures. Obtaining pertinent Alaska Natives' statements of subsistence use policy and goals requires identification of each Alaska Native entity potentially involved and documentation and identification of each entity's specific policies or mission statements related to subsistence. This task could be performed during the literature review.

Updated information regarding harvests must be collected for communities lacking current data. Harvest amounts and species that are harvested change over time and are subject to annual variation. Timely data are needed in order to determine what resources are being used by a community to establish baseline conditions and assess effects.

ADF&G harvest surveys contain a one-year mapping component and are useful for comparing multiple data sets; however, as a stand-alone study, the one-year mapping component does not take into account annual variation in use areas. Without multiple one-year use area data sets, it is useful to conduct subsistence mapping that covers a more extensive time period (e.g., a mapping interview that documents residents' last 10-year use area) so that some annual variation is accounted for and the assessment of effects to use areas and user access can consider the variability in use over time and varying resource conditions.

Traditional knowledge is relevant regardless of the time period it was collected, as it is information that is intended to be passed down through generations of subsistence users. Traditional knowledge interviews can potentially identify cultural resources and potentially inform the Project design and/or the assessment of impacts and, if necessary, development of protection, mitigation, and enhancement measures.

The information collected in this study will help to support the assessment of environmental impacts under NEPA as well as an ANILCA 810 subsistence evaluation. Section 810 of ANILCA requires certain federal agencies, when determining whether to permit the use, occupancy, or disposition of public lands, to evaluate:

- the effect of use, occupancy, or disposition to be authorized on subsistence uses and needs;
- the availability of other lands for the purposes sought to be achieved; and

- other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes (16 USC 3120).

The existing information and additional information collected in the form of harvest surveys, subsistence mapping interviews, and traditional and local knowledge interviews will provide the baseline data that describes the use, occupancy, and disposition of subsistence uses and needs in order to assess the potential effects of the Project on subsistence use.

Existing information has been summarized in the Subsistence Resources Data Gap Analysis (Simeone, Russell, and Stern 2011). The study team reviewed the communities selected in the data gap analysis and ADF&G scope of work for this Project and documented whether the communities had existing subsistence baseline use area data and recent (within last three years) harvest data. See Attachment 14-1 for the results of the study team's review of the data gap analysis and ADF&G selected communities. After the subsistence study plan has been filed, the study team will systematically compile existing subsistence data for the selected study communities as part of the baseline description of subsistence uses (see Section 14.5.4.1, Task 1: Compilation of Existing Data).

### **14.5.3. Study Area**

To help inform the selection of study communities and define the study area for this study, the study team reviewed the Subsistence Resources Data Gap Analysis (Simeone, Russell, and Stern 2011) and communities identified by ADF&G as needing updated harvest information. See Attachment 14-1 for the results of the study team's review of the data gap analysis and ADF&G identified-study communities.

For purposes of this study plan, the study area is based on the Susitna River watershed, because the proposed Project could affect natural resources and access conditions upstream and downstream of the Susitna River as well as its associated tributaries. The study area also includes the proposed reservoir, road and transmission corridors, and other Project facility sites. The study team developed the following criteria for inclusion as a study community:

1. the community is located within the Susitna River watershed;
2. the community is located outside of the Susitna River watershed but has previously documented subsistence use areas that extend into the watershed; or
3. the community is included in ADF&G's 11 communities (Chase, Cantwell, Susitna, Skwentna, Glenallen, Gulkana, Nelchina, Paxson, Tazlina/Copperville, Tolsona and Tonsina) needing updated baseline information.

Based on the above criteria, the study team has identified 32 study communities whose subsistence uses could potentially be affected by the proposed Project (Table 14.5-1; Figure 14.5-1).

### **14.5.4. Study Methods**

To meet the study objectives and demonstrate whether and, if so, the extent to which, communities harvest and use subsistence resources within or near the Project area, use Project area lands to access other lands for subsistence harvest and use, or harvest and use resources that migrate through the Project area and are later harvested in other areas, this subsistence study plan proposes to complete the following tasks:

1. Compilation of Existing Subsistence Data
2. ADF&G Household Surveys
3. Household Surveys in State-Designated Nonsubsistence Areas
4. Subsistence Mapping Interviews
5. Traditional and Local Knowledge Interviews
6. Impact Analysis
7. Annual Study Reports

The methods used to implement the above tasks are described in the following sections.

#### *14.5.4.1. Task 1: Compilation of Existing Data*

The study team will compile existing data describing the subsistence uses of communities that may be affected by the proposed Project. Communities will include the 32 study communities listed in Table 14.5-1. In addition, to the extent that the ADF&G Winfonet database (i.e., land mammal harvest database) is available, the study team will assess this information to determine whether residents of additional communities use the area for subsistence purposes. Analysis of the Winfonet database will be conducted in coordination with the wildlife resource study. Methods for the compilation of existing data are as follows:

- Use ADF&G's Community Subsistence Information System (CSIS), and identify and compile existing harvest data for the 32 communities listed in Table 14.5-1.
- Compile available subsistence use area data for the 32 communities listed in Table 14.5-1.
- Compile available baseline indicator data (e.g., timing of harvest activities) from available sources.
- Request access to ADF&G's Winfonet database. These data can provide the following information:
  - identification of subsistence users and communities in Alaska who travel to the proposed Project area to participate in land mammal harvest activities and
  - additional information about study communities' (including those located in nonsubsistence areas) subsistence activities in the Project area.
- Create tables and maps describing the information compiled from the CSIS, Winfonet database, and additional sources.
- Incorporate results of the data review and compilation within the context of the proposed Project into Task 7.

#### *14.5.4.2. Task 2: Household Surveys*

ADF&G's Division of Subsistence will document one year of subsistence harvest and use by households in and around selected census designation place (CDP) communities located in the study area and outside the State-designated nonsubsistence areas (Figure 14.5-2). ADF&G has identified the following 11 communities as needing updated harvest data: Chase, Cantwell, Susitna, Skwentna, Glenallen, Gulkana, Nelchina, Paxson, Tazlina/Copperville, Tolsona, and Tonsina.

The study team conducted a review to determine whether additional study communities located in the Susitna River watershed needed updated harvest data, i.e., if harvest data is not available for those communities from within the past three years. Table 14.5-2 depicts all Susitna River



watershed study communities that are located outside State-designated nonsubsistence areas. Talkeetna and Trapper Creek are located within a nonsubsistence area but are close to the nonsubsistence area boundary. Because of residents' close proximity to the boundary, members of these communities likely travel outside the nonsubsistence area regularly for subsistence purposes; therefore, they are also included in Table 14.5-2. None of the eight communities listed in Table 14.5-2 have harvest data from the last three years. Two of the communities listed in Table 14.5-2 are not CDPs and were therefore not selected for harvest surveys. Of the three remaining communities, only one (Lake Louise) is outside State-designated nonsubsistence areas. Therefore, this study plan adds Lake Louise to the scope of work for updated harvest surveys. Based on the results shown in Table 14.5-2, this study would involve household harvest surveys in the following 12 communities:

1. Chase
2. Cantwell
3. Glenallen
4. Gulkana
5. Lake Louise
6. Nelchina
7. Paxson
8. Susitna
9. Skwentna
10. Tazlina/Copperville
11. Tolsona
12. Tonsina

The ADF&G Division of Subsistence has prepared a scope of work for this objective. Specific study methods identified in this scope of work include the following:

- Development of a survey instrument to produce updated comprehensive baseline information about subsistence hunting, fishing, and gathering and other topics that address subsistence needs and are compatible with information collected in past household interviews;
- Community consultation to identify community liaisons and seek study support;
- Household surveys to record the following information: demographic information; involvement in use, harvest, and sharing of fish, wildlife, and wild plants in their study year (i.e., 2012 or 2013); estimate of amount of resources harvested in their study year; information about employment and cash income; assessments of changes in subsistence harvest and use patterns based on data available from past study years; and location of fishing, hunting, and gathering activities in their study year;
- Key informant interviews to document traditional knowledge about changes in the environment, hunting and harvesting patterns, and resource availability; key subsistence resources and use areas; and the effects of regulations on hunting and fishing.
- Household surveys conducted in each community by community liaisons contracted and trained by ADF&G, with the goal of interviewing a representative of each year-round household in all the study communities. Participation in the surveys will be voluntary and all individual and household level responses will be confidential. ADF&G staff will conduct the harvest mapping component of the survey with each household. Surveys will be timed to avoid seasonal activities to allow for best participation;

- Collaborative review and interpretation of study findings through data analysis, the production of standard tables and figures, and community review meetings;
- Communication of findings to communities through community review meetings and four-page study finding summaries mailed to all households in each community; and
- Addition of final data to the CSIS and production of a final report summarizing the results of the systematic household surveys and mapping for each study year, including long-term trends for communities with harvest data available in the CSIS.

Attachments 14-2 and 14-3 provide the draft survey instrument for the household harvest surveys and the draft protocol for key informant interviews.

#### *14.5.4.3. Task 3: Household Surveys in State-Designated Nonsubsistence Areas*

As discussed above, ADF&G will conduct household harvest surveys in 12 CDP communities that are located outside State-designated nonsubsistence areas; are located in the Susitna River watershed or use the Susitna River watershed for subsistence; and have not had updated subsistence harvest studies within the previous three years (since 2009). In addition, the study team has identified Talkeetna and Trapper Creek for updated household harvest surveys (see Table 14.5-2). These two additional communities are located within a State-designated nonsubsistence area (Figure 14.5-2) and are therefore generally not included in ADF&G Division of Subsistence harvest studies. However, because of their proximity to the subsistence/nonsubsistence boundary and to the Project area, agency and public concern raised during technical Workgroup meetings, and the lack of recent (last three year) harvest data for these communities, the study team selected Talkeetna and Trapper Creek for household harvest surveys.

ADF&G and the study team will document one year of harvest and use by households in Talkeetna and Trapper Creek. Methods for the nonsubsistence area household surveys will be consistent with the methodology for surveys in communities identified under Task 2 and include:

- Development and use of a survey instrument and household harvest survey methodology comparable to that used in Task 2 so that data collection, entry, and analysis are compatible with existing methodology (see survey methods described in Section 14.5.4.2).
- Coordination with communities to seek study support and communicate findings.
- Collaborative review and interpretation of study findings through data analysis, reporting, and community review meetings.
- Incorporation of results of analysis, discussion and reporting of community-level survey, and mapping results within the context of the proposed Project into Task 7.

#### *14.5.4.4. Task 4: Subsistence Mapping*

The study team will conduct subsistence mapping interviews in selected study communities to document last 10-year subsistence use areas as well as related baseline indicators. Because a primary application of subsistence use area data in impact analyses is to determine whether a direct impact (i.e., occurring at the same time and place as the Project) may occur, the study plan is focused on selecting communities whose residents conduct activities in or near the Project area (Figure 1.2-1). The study team assumes that the closer a community is to the Project area, the more likely that community is to experience subsistence use area impacts of Project construction

and operation. Therefore, the study communities closest to the Project area, including the reservoir, reservoir study area, or any of the three potential road options, were selected for inclusion in the subsistence mapping studies.

Eight communities (Cantwell, Chase, Healy, Talkeetna, Lake Louise, McKinley Park, Trapper Creek, and Petersville) were identified for possible inclusion in the subsistence mapping studies due to their proximity to the Project. Four of these communities (Cantwell, Healy, Lake Louise, and McKinley Park) have documented subsistence use area data showing use of the Project area. Available use area data for these four communities are all at least 10 years old. For the remaining four communities (Chase, Talkeetna, Trapper Creek, and Petersville), subsistence use area data are not available. The study team will refine the list of identified subsistence mapping communities based on additional information (e.g., consultation with communities and agencies, adequacy of existing data, need for updated data, or suitability of community for subsistence mapping efforts).

The subsistence mapping studies will use the following methods to document subsistence use areas and related baseline indicators for the selected study communities:

- Coordinate with tribal governments and Alaska Native entities as appropriate to seek community support for the interviews;
- Identify active and knowledgeable harvesters in each study community through consultation with coordinating organizations and by asking study participants to nominate other active and knowledgeable harvesters;
- Work with coordinating organizations or local liaisons to contact respondents and schedule interviews;
- With two staff members present, conduct subsistence mapping interviews with active and knowledgeable harvesters to document resource-specific subsistence use areas within the last 10 years, along with related indicators (e.g., harvest timing, transportation method) on a U.S. Geological Survey (USGS) 1:250,000 map;
- Conduct post-field data processing, including editing of notes, data entry, digitizing of mapped data, and quality control checks of all data entry and digitizing;
- Conduct analysis and prepare community and resource-specific maps of subsistence use areas and related indicators;
- Conduct analysis and prepare tables and figures describing baseline indicators;
- Review findings with study communities; and
- Incorporate results of analysis from the subsistence mapping interviews, supplemented by respondent observations, within the context of the proposed Project, into Task 7.

Attachment 14-4 provides the draft protocol for the subsistence mapping interviews.

#### *14.5.4.5. Task 5: Traditional and Local Knowledge Interviews*

The study team will conduct workshops with knowledgeable residents in selected study communities to document traditional and local knowledge about the physical, biological, and social environment as it relates to the proposed Project. To select study communities for the traditional and local knowledge research, the study team considered the following criteria:

- the study community is located within the Susitna River watershed; or,
- the study community's use area is located within the Susitna River watershed;

and

- at least 50 percent of the community is Alaska Native; or
- a federally recognized tribe is affiliated with the community.

The study team's criteria were based on consideration of the likelihood that the community has knowledge about the Project area (proximity of community or use area to the Susitna River watershed), as well as consideration of the presence of long-term knowledge held by at least a portion of the community (Alaska Native population or affiliation of a federally recognized tribe). As depicted in Table 14.5-3, the following eight communities meet the criteria for inclusion in the traditional and local knowledge studies:

- Cantwell
- Chickaloon
- Chitina
- Copper Center
- Eklutna
- Gakona
- Gulkana
- Tyonek

The traditional and local knowledge studies will use the following methods to document knowledge of the physical, biological, and social environment with the selected study communities:

- Coordinate with tribal governments and Alaska Native entities as appropriate to seek community support for conducting the interviews;
- Consult with program leads for other resources (e.g., cultural resources, wildlife, fish, vegetation, water quality, air quality, socioeconomics) to identify key topics and questions for the traditional and local knowledge workshops;
- Develop a workshop protocol, incorporating input from program leads for other resources, that covers the following basic topics:
  - Physical Environment;
  - Biological Environment;
  - Social Environment; and
  - Issues and Concerns.
- Work with coordinating organizations in each community to schedule and arrange workshops and to identify knowledgeable residents to participate in the workshops.
- With two staff members present, conduct multiple traditional and local knowledge workshops in each selected community to document knowledge about the physical, biological, and social environment.
- Conduct post-field data processing by editing notes and compiling and organizing quotes by topic and subtopic.
- Review findings with study communities.
- Incorporate results of the traditional and local knowledge workshops in each selected community, supplemented by respondent observations, within the context of the proposed Project into Task 7.

Attachment 14-5 provides the draft protocol for the traditional knowledge community workshops.

#### *14.5.4.6. Task 6: Impact Analysis*

Based on the data collected and compiled throughout the subsistence baseline documentation study tasks (Sections 14.5.4.1 through 14.5.4.5), the study team will conduct an analysis of the potential impacts of the proposed Project on subsistence uses. The analysis will include assessment of potential impacts to subsistence use areas, user access, resource availability, resource competition, costs and time associated with subsistence activities, and culture. The study team will review other resource impact analyses as appropriate (e.g., wildlife, fish, and vegetation) to inform the analysis of potential changes to the environment that might yield insight into the types and levels of potential impacts on subsistence uses. In addition, information provided by community residents during the traditional and local knowledge workshops will inform the impact analysis.

#### *14.5.4.7. Task 7: Study Report Preparation*

The study team will prepare study reports at the end of each calendar year that document yearly progress to date and describe the methodology and field results of Tasks 1-5. The final report will contain the methodology, analysis, and synthesis of all data collected for Tasks 1-5, as well as an analysis of potential impacts and, if necessary, potential protection, mitigation, and enhancement measures associated with the proposed Project that will be useful for preparation of the Project license application.

### **14.5.5. Consistency with Generally Accepted Scientific Practice**

The ADF&G Division of Subsistence will conduct harvest and use studies using standard Division of Subsistence methodology involving systematic household surveys conducted by community-based survey technicians in cooperation with Division of Subsistence resource specialists. Methods for subsistence mapping and undertaking traditional and local knowledge interviews will be similar to those employed on other recent projects involving federal approvals. These include traditional knowledge interviews to support the EPA's National Pollutant Discharge Elimination System (NPDES) permit (SRB&A 2011); subsistence mapping and traditional knowledge interviews to support the NEPA EIS for the Red Dog Mine Extension, Aqqaluk Project (EPA 2009); and subsistence mapping for Bureau of Ocean Energy Management (BOEM) oil and gas leases on the Outer Continental Shelf (SRB&A 2009). Related to projects under FERC's purview, traditional knowledge interviews were recently conducted in 2012 for the Alaska Pipeline Project and it is proposed that the subsistence interview process for the Susitna-Watana Hydroelectric Project would employ similar methods as those accepted for use for that project.

AEA will be guided by the research principles adopted by the Interagency Arctic Research Policy Committee (1990). These principles include informing community organizations of planned research in their communities, gaining community consent, informing all project participants of all positive and negative implications of participating in the study, and protecting the anonymity of study participants. The study team will coordinate with each community to conduct research and provide each study participant with an informed consent form to read and

sign. The informed consent will note any risks and benefits of the study, agree to protect the anonymity of participants, and agree to show data only in an aggregated form.

#### **14.5.6. Schedule**

Table 14.5-4 presents the anticipated schedule for the subsistence study plan by primary tasks. Key dates (e.g., meetings, deadlines) are also presented for each calendar year. Also, Initial and Updated Study Reports documenting actions taken and data collected to date will be issued in February 2014 and 2015, respectively.

#### **14.5.7. Level of Effort and Cost**

For information related to level of effort, see Table 14.5-4 for a description of tasks that will occur by month. Section 14.5.4, “Study Methods,” provides additional information regarding the level of effort for each task. The estimated effort to implement this study plan, including field studies, data collection, analysis, and reporting over the two-year study period for Tasks 1-7 is approximately \$1.5 million.

#### **14.5.8. Literature Cited**

- Braund, Stephen R. & Associates (SRB&A). 2011. Chukchi and Beaufort Seas National Pollutant Discharge Elimination System Exploration General Permits Reissuance: Report of Traditional Knowledge Workshops – Point Lay, Barrow, Nuiqsut, and Kaktovik. Prepared for Tetra Tech and U.S. Environmental Protection Agency. Anchorage, Alaska.
- Braund, Stephen R. & Associates (SRB&A). 2010. Subsistence Mapping of Nuiqsut, Kaktovik, and Barrow. United States Department of the Interior Minerals Management Service, Alaska OCS Region, Environmental Studies Program. MMS OCS Study Number 2009-003. Interagency Arctic Research Policy Committee. 1990. <http://www.ankn.uaf.edu/IKS/conduct.html>
- Simeone, William, Adam Russell, and Richard Stern. 2011. Watana Hydroelectric Project Subsistence Data Gap Analysis. Report prepared for the Alaska Energy Authority, Anchorage. Report prepared by Northern Land Use Research, Inc., Fairbanks.
- U.S. Environmental Protection Agency (EPA). 2009. Red Dog Mine Extension: Aqqaluk Project. Final Supplemental Environmental Impact Statement. Seattle, WA.
- Wolfe, R. 2000. Subsistence in Alaska: A Year 2000 Update. Alaska Department of Fish and Game Division of Subsistence. Juneau, Alaska.

## 14.5.9. Tables

Table 14.5-1. Study Communities.

Number	Study Community	Community in Watershed	Use Area in Watershed	ADF&G Study Community
1	Beluga		X	
2	Cantwell		X	X
3	Chase	X	No Data	X
4	Chickaloon		X	
5	Chitina		X	
6	Copper Center		X	
7	Copperville		No Data	X
8	Denali Hwy Households	X	No Data	
9	Eklutna		X	
10	Gakona		X	
11	Glennallen		X	X
12	Gulkana		X	X
13	Healy		X	
14	Kenny Lake		X	
15	Lake Louise	X	X	X
16	McCarthy		X	
17	McKinley Park		X	
18	Nelchina		No Data	X
19	Parks Hwy Households (Chulitna, Gold Creek, Hurricane/Broad Pass)		No Data	
20	Paxson		X	X
21	Petersville	X	No Data	
22	Skwentna	X	X	X
23	Susitna	X	No Data	X
24	Talkeetna	X	No Data	X
25	Tazlina		No Data	X
26	Tolsona		No Data	X
27	Tonsina		X	X
28	Trapper Creek	X	No Data	X
29	Tyonek		X	
30	Wasilla <sup>1</sup>	X	No Data	
31	Western Susitna Basin		X	
32	Willow	X	No Data	

<sup>1</sup>Wasilla includes the outlying CDPs of Big Lake, Buffalo-Soapstone, Fishhook, Houston, Knik-Fairview, Meadow Lakes, Point MacKenzie, and Tanaina.

Stephen R. Braund & Associates, 2012.

**Table 14.5-2. Susitna Watershed Household Harvest Survey Study Communities.**

Study Community <sup>1</sup>	Census Designated Place	Existing ADF&G Study Community	Additionally Selected for ADF&G Household Surveys	Selected for Nonsubsistence Area Household Surveys
Chase	X	X		
Denali Hwy Households				
Lake Louise	X		X	
Parks Hwy Households (Chulitna, Gold Creek, Hurricane/Broad Pass)				
Skwentna	X	X		
Susitna	X	X		
Talkeetna <sup>2</sup>	X			X
Trapper Creek <sup>2</sup>	X			X

<sup>1</sup>Table includes only communities located within the Susitna River watershed outside of a State designated nonsubsistence area, with the exception of Talkeetna and Trapper Creek.

<sup>2</sup>Talkeetna and Trapper Creek, while located in a State designated nonsubsistence area, are included in this table because of their proximity to the nonsubsistence area boundary. Residents from these communities are presumed to travel outside the nonsubsistence area regularly to participate in subsistence activities.

Stephen R. Braund &amp; Associates, 2012.

**Table 14.5-3. Traditional Knowledge Criteria and Selected Study Communities.**

Study Community	Community in Watershed	Documented Use Area in Watershed	50 Percent or more Alaska Native Population	Federally Recognized Tribe	Selected Traditional Knowledge Study Community
Beluga		X			
Cantwell		X		X	X
Chase	X	No Data			
Chickaloon		X		X	X
Chitina		X		X	X
Copper Center		X	X	X	X
Denali Hwy Households	X	No Data	No Data		
Eklutna		X	No Data	X	X
Gakona		X		X	X
Glennallen		X			
Gulkana		X	X	X	X
Healy		X			
Kenny Lake		X			
Lake Louise	X	X			
McCarthy		X			
McKinley Park		X			



Study Community	Community in Watershed	Documented Use Area in Watershed	50 Percent or more Alaska Native Population	Federally Recognized Tribe	Selected Traditional Knowledge Study Community
Parks Hwy Households (Chulitna, Gold Creek, Hurricane/Broad Pass)	X	No Data	No Data		
Paxson		X			
Petersville	X	No Data			
Skwentna	X	X			
Susitna	X	No Data			
Talkeetna	X	No Data			
Tonsina		X			
Trapper Creek	X	No Data			
Tyonek		X	X	X	X
Wasilla <sup>1</sup>	X	No Data			
Western Susitna Basin		X	No Data		
Willow	X	No Data			

<sup>1</sup>Wasilla includes the outlying CDPs of Big Lake, Buffalo-Soapstone, Fishhook, Houston, Knik-Fairview, Meadow Lakes, Point MacKenzie, and Tanaina.

Stephen R. Braund & Associates, 2012.

**Table 14.5-4. Schedule for implementation of the Subsistence Resources Study.**

Activity	2012				2013				2014				2015
	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q
Subsistence Study Plan		_____											
Task 2: ADF&G Household Surveys Pre-field Planning - Year 1			_____										
Task 1: Compilation of Existing Data					_____								
Task 2: ADF&G Household Survey - Year 1					_____								
Task 2: ADF&G Reporting and Community Review - Year 1					_____								
Task 2: ADF&G Household Surveys Pre-field Planning - Year 2								_____					
Task 3: Household Surveys in Nonsubsistence Areas					_____								
Task 5: Traditional and Local Knowledge Interviews					_____								
Task 1-3, 5: Prepare 2013 Study Report and Community Reviews								_____					
Initial Study Report													
Revise Study Plans (as needed)													

Activity	2012				2013				2014				2015
	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q
Task 2: ADF&G Household Survey - Year 2									—				
Task 2: ADF&G Reporting and Community Review - Year 2									—	—	—	—	△
Task 4: Subsistence Mapping Interviews									—	—			
Task 4-5: Additional 2014 Subsistence Data Collection as needed									—	—			
Task 2-5: Prepare 2015 final Updated Study Report and Community Reviews											—	—	▲
Consultation	—	—	—	—	—	—	—	—	—	—	—	—	—

INTERIM DRAFT

### 14.5.10. Figures

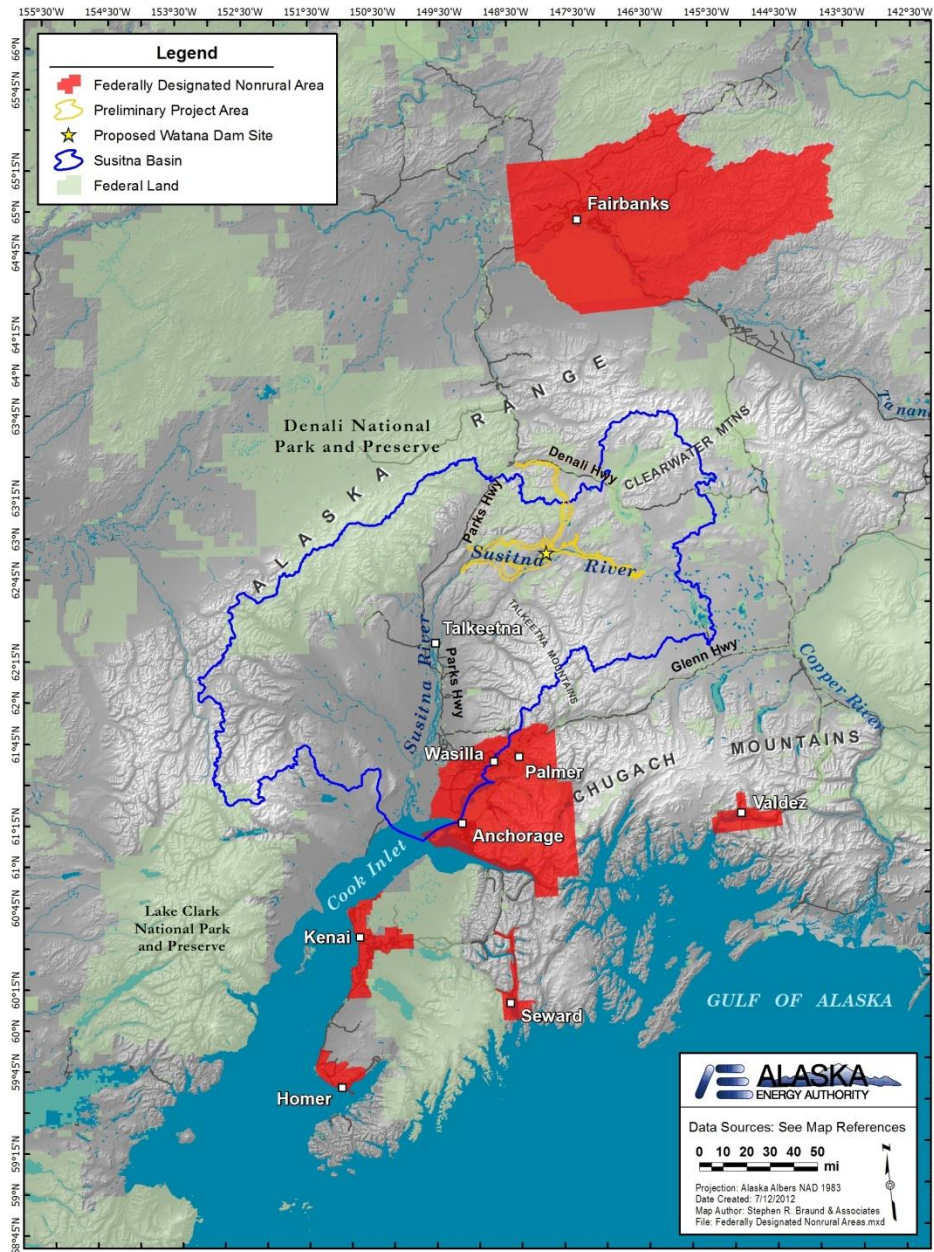


Figure 14.5-1. Federally Designated Nonrural Areas

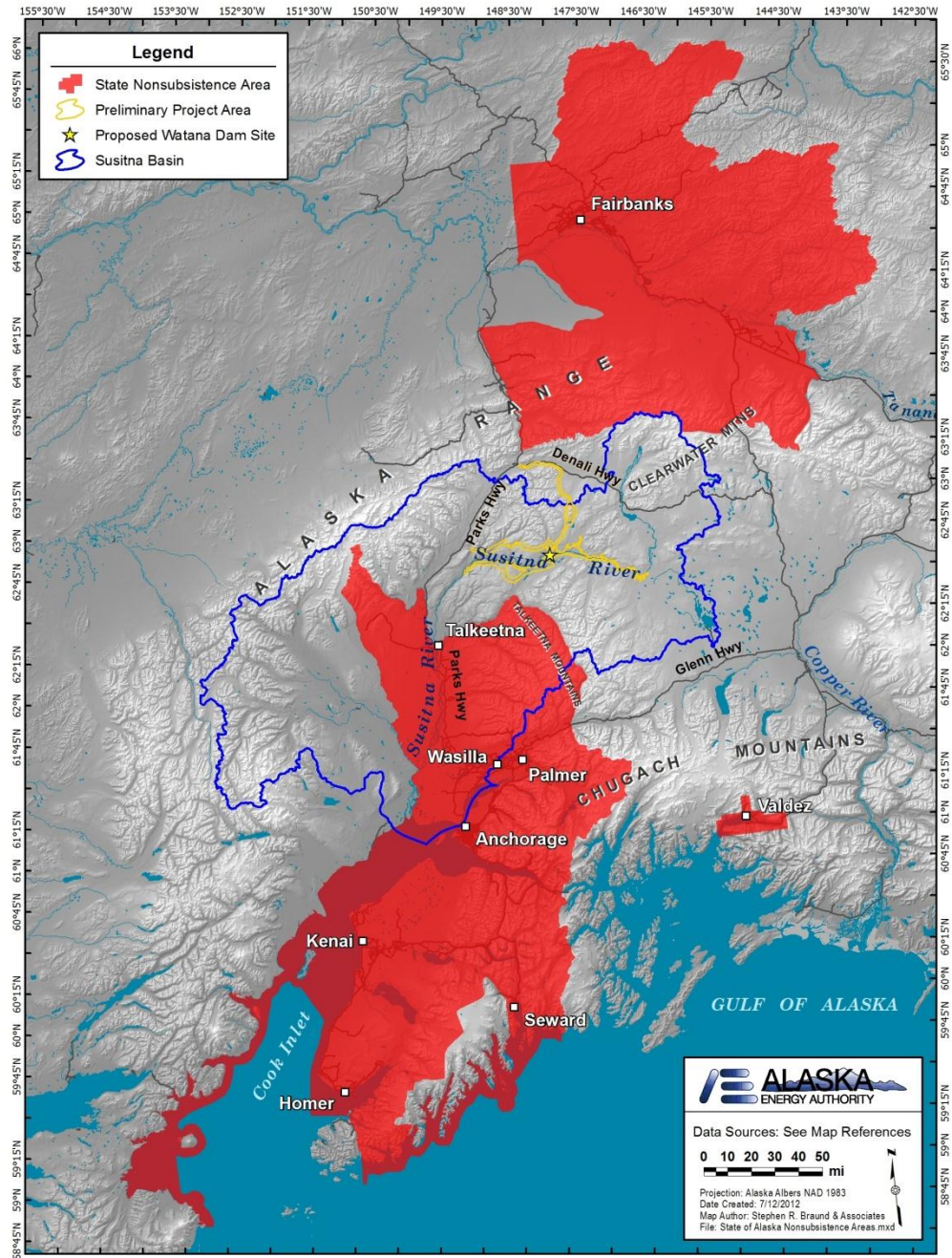


Figure 14.5-2. State of Alaska Designated Nonsubsistence Areas

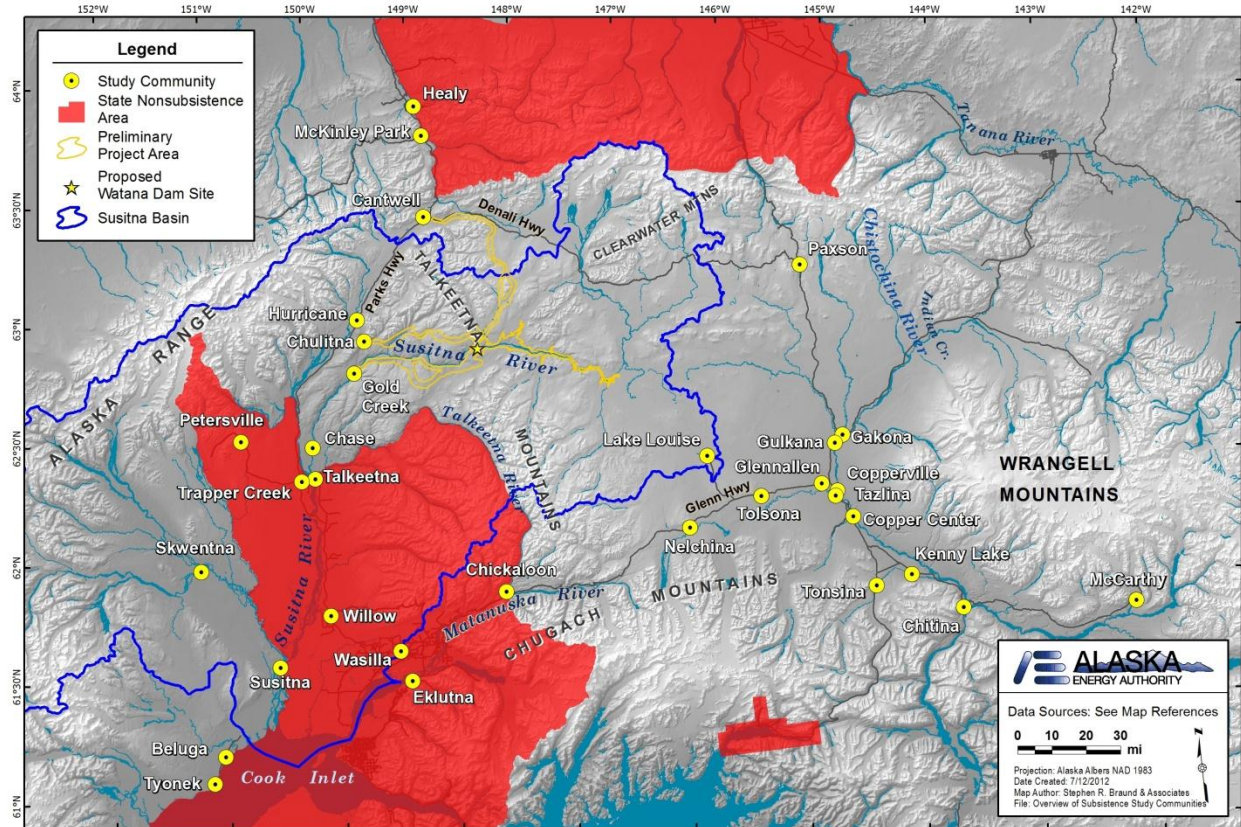


Figure 14.5-3. Overview of Subsistence Study Communities

**STUDY INTERDEPENDENCIES FOR SUBSISTENCE BASELINE DOCUMENTATION STUDY**

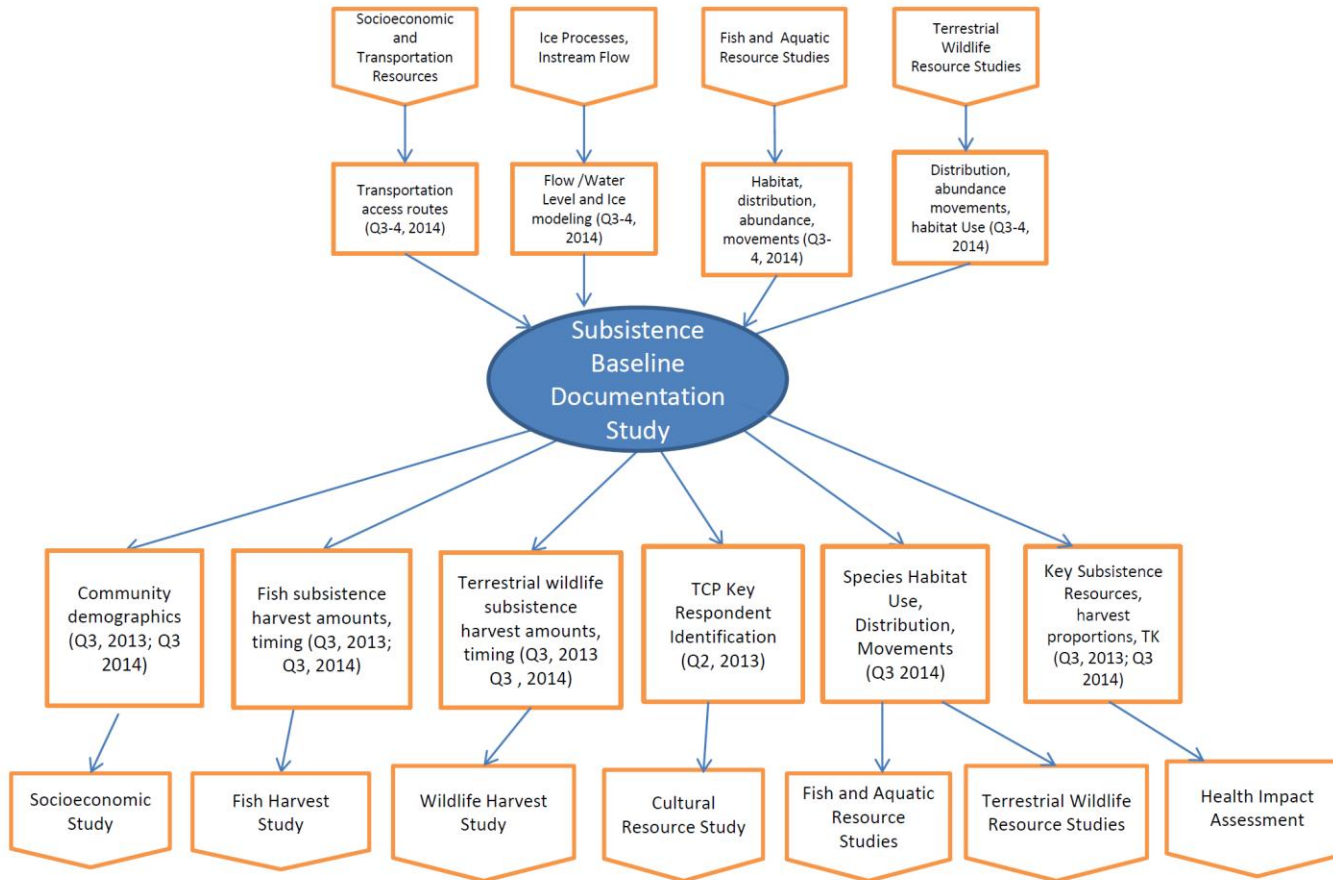


Figure 14.5-4. Interdependency Table for Subsistence Baseline Documentation Study

## **14.6. Attachments**

### **ATTACHMENT 14-1. REVIEW OF COMMUNITIES AND SUBSISTENCE USE AREAS IN THE SUSITNA RIVER WATERSHED**

[use original attachment]

INTERIM DRAFT

ATTACHMENT 14-2. DRAFT HOUSEHOLD HARVEST SURVEY  
INSTRUMENT

[See accompanying PDF]

INTERIM DRAFT



ATTACHMENT 14-3. DRAFT HOUSEHOLD HARVEST SURVEY KEY  
INFORMANT INTERVIEW PROTOCOL

INTERIM DRAFT

## KEY INFORMANT INTERVIEW PROTOCOL

### SUSITNA BASIN 2013

Name of community:

Date:

Name of interviewer:

Name of respondent:

Age of respondent:

How long have you lived in this community?

Would you like to have your name included in the report?      Yes      No

Notes:

## PROJECT OVERVIEW

We are currently conducting a survey in your community to document the harvest and use of wild resources for the calendar year 2011. We understand that one year doesn't represent the long-term pattern of resource use. As part of this survey we ask questions about how the harvest and use of wild resources is different than in recent years, say the past five years. In addition, this interview is intended to help us better understand long-term trends in harvest patterns over time, possibly over your lifetime. We appreciate you sharing this information with us as it will give us a much better understanding of the changes that have occurred in your area over time.

*Note to interviewer. You do not have to ask all of these questions. You can simply ask the main questions and then use this protocol as a guide to understand the types of questions we are interested in.*

## WHERE, HOW, AND FROM WHOM, DID YOU LEARN YOUR SUBSISTENCE WAY OF LIFE?

FISH (SALMON/NON-SALMON) – What kinds of fish are important to your household and community? How has this changed over your lifetime?

- Difference between salmon and non-salmon fish for your community?
- Have your harvest locations for fish changed over time?
- Has harvest timing changed?
- What kind of gear/transportation did you use in the past? What about now?
- Have environmental changes affected harvest patterns over your lifetime?

LARGE LAND MAMMALS – What large animals are most important to your household and community? Has what you harvest and how you harvest changed over your lifetime?

- Has harvest timing changed? If so why?
- How have you changed the areas where you harvest over your lifetime, and why do you think this has occurred?
- What kind of transportation did you use in the past and how has this changed over time?

SMALL LAND MAMMALS/FURBEARERS – What small game and furbearers are most important to your household and community? How has your harvesting effort changed over your lifetime?

- What small game do you harvest to eat and which game do you harvest for fur?
- Has harvest timing changed? What about harvest locations?
- Do you harvest small game opportunistically or do you target small game?
- What kind of gear/transportation did you use in the past? What about now?

BIRDS AND EGGS – What birds are most important to your household and community? How has your harvesting effort changed over your lifetime?

- Are eggs important to your household or community?
- Has harvest timing changed?
- Are the places you go to find birds and eggs different now than in the past?

PLANTS/BERRIES/WOOD – What plants and berries are most important to your household and community? Has what you harvest and how you harvest changed over your lifetime?

- Has harvest timing changed?
- Do you use more or less wood for heat than in the past? Is it more or less difficult to find wood?
- Are the places you go to find plants, berries, or wood different now than in the past?
- What kind of transportation did you use in the past? What about now?
- How has environmental change affected the areas you use to harvest berries? What about the abundance of berries?

## RESOURCES PARTICULAR TO YOUR COMMUNITY

- Are there resources that you feel are unique to your community, or hold a special value to your community?
- Are there particular times of year that you harvest these resources? What about sharing these resources within your community and with other communities?

## FINAL COMMENTS

What do you feel has been the biggest change in your subsistence way of life, from the time you can remember until now?

Do you recall a time before regulations were enforced? How have your harvest practices and patterns changed since that time?

Is there anything else you would like to share?

INTERIM DRAFT

## ATTACHMENT 14-4. DRAFT SUBSISTENCE MAPPING INTERVIEW PROTOCOL

INTERIM DRAFT

## Active Harvester Subsistence Mapping Interview Protocol, 2013 Susitna-Watana Hydroelectric Project

### Alaska Energy Authority

Community: \_\_\_\_\_ Date of Interview: \_\_\_\_\_ Interviewers: \_\_\_\_\_  
 Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

#### Section A: Respondent Information

For each individual completing the interview:

Respondent	1	2	3	4
Respondent ID				
Birth year				
Birth Residence				
Residence history				
Active Harvester?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section B: Community Trails and Travel Routes**

Travel Routes (including routes to other villages)	Record the following information for Last 10 Year Travel Routes (✓ box to indicate complete)				
	Line	Line	Line	Line	Line
Location					
Travel Method					

**Section C: Last 10 Year Subsistence Mapping and Resource Change**

Document last 10 year subsistence use areas for each of the following resource categories:

	Caribou	Moose	Other Large Land Mammals	Furbearers & SLM	Waterfowl	Upland Birds	Eggs	Salmon	Non-Salmon Fish	Berries & Plants	Other
Recorded Last 10 Year Use Areas and/or Traplines? (Check if Yes)											
Record baseline indicators for above mapped features											

Document last 10 year observed changes for the following resource categories and change types:

	Caribou	Moose	Other Large Land Mammals	Furbearers & SLM	Waterfowl	Upland Birds	Eggs	Salmon	Non-Salmon Fish	Berries & Plants	Other
Use											
Abundance											
Migration/ Distribution											
Health/ Quality											
For each of the above changes, record how and why the change is believed to have occurred											

**Section D: Last Year Subsistence Activities**

Between January 1, 2012 and December 31, 2012, did you **try to harvest...** [Check the appropriate boxes for each resource]

Caribou	Moose	Bear Sheep	Furbearers & SLM	Marine Mammals	Waterfowl	Upland Birds	Eggs	Salmon	Non- Salmon Fish	Marine Inverts.	Berries & Plants	Other

[Starting in January, record each of the subsistence activities the harvester engaged in between January 1, 2012 and December 31, 2012, by month. Document the following information for each activity identified. Use additional forms as needed.]

	Harvest Activity					
	1	2	3	4	5	6
Subsistence Resources Targeted [List and circle TARGET resource]						
<b>Record baseline indicators for each harvest activity</b>						

**Section E: Issues and Concerns**

**Issues and Concerns**

- Do you have any issues and concerns regarding your subsistence lifestyle and/or your community? (e.g., sport hunting and fishing, climate change, development)
- Do you have any issues and concerns regarding cultural resources?
- Are there comments you would like to express about the proposed project?
- Suggestions or overall message for the project?

**Other**

- Are there other active harvesters in the community that we should interview?



## ATTACHMENT 14-5. DRAFT TRADITIONAL KNOWLEDGE WORKSHOP PROTOCOL

INTERIM DRAFT

## Traditional Knowledge Workshop Protocol

### Susitna-Watana Hydroelectric Project

#### Physical Environment

1. Terrestrial Environment (e.g., soils, permafrost, erosion)
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about soils or land in the Project area?
    - i. Specific Places?
  - b. *Additional questions to be provided by relevant resource authors*
2. Watershed (e.g., rivers, lakes, and wetlands [e.g., swampy areas])
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **rivers, lakes, and wetlands** (swampy areas) in the Project area?
    - i. Specific Places?
  - b. *Additional questions to be provided by relevant resource authors*
3. Storms, Winds, and Climate
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **storms, winds, or climate** in the Project area?
    - i. Specific Places?
  - b. *Additional questions to be provided by relevant resource authors*
4. Ice and Snow
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **ice and snow** in the Project area?
    - i. Specific Places?
  - b. *Additional questions to be provided by relevant resource authors*
5. Air Quality
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **air quality** in the Project area?
    - i. Specific places
  - b. *Additional questions to be provided by relevant resource authors*
6. Earthquakes and Volcanoes
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **earthquakes and volcanoes** in the Project area?
    - i. Specific places
  - b. *Additional questions to be provided by relevant resource authors*

#### Biological Environment

1. Vegetation
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **plants and trees** in the Project area?
    - i. Specific Places?
  - b. *Additional questions to be provided by relevant resource authors*

2. Wildlife
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **animals** in the Project area?
    - i. Specific Places?
  - b. *Additional questions to be provided by relevant resource authors*
3. Fish
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **fish** in the Project area?
    - i. Specific Places?
  - b. *Additional questions to be provided by relevant resource authors*

### **Social Environment**

1. Cultural Resources
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **culturally important places** in the Project area?
    - i. E.g., camps, cabins, and caches; old village sites; burials; place names; traditional use areas; traditional and contemporary trails and travel routes; important traditional lookouts; any other areas of importance?
  - b. *Additional questions to be provided by relevant resource authors*
2. Subsistence
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **subsistence** hunting, fishing, and gathering (e.g., berries, plants, firewood) activities in the Project area?
    - i. Specific places?
    - ii. For what resources?
  - b. Are there important areas for hunting or gathering or other cultural activities that you feel need to be protected or considered by the Project?
  - c. In general, when do you most actively use the Project area for subsistence harvesting activities?
  - d. Approximately what proportion of your community's subsistence harvest comes from the Project area?
  - e. *Additional relevant questions may be provided by resource authors*
3. Noise and Visual
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **noise and visual** effects?
    - i. Specific places?
  - b. *Additional questions to be provided by relevant resource authors*
4. Socioeconomics
  - a. Is there anything the Susitna-Watana Hydroelectric Project should know about **social** and **economic** issues or topics?
  - b. *Additional questions to be provided by relevant resource authors*