

23. SUBSISTENCE USES AND TRADITIONAL KNOWLEDGE

23.1 Introduction

The purpose of the subsistence uses and traditional knowledge study is to establish a description of subsistence uses and knowledge of local resources. The subsistence uses and traditional knowledge study includes a literature review and field research conducted from 2005 to 2010. The objectives of the subsistence uses and traditional knowledge study are as follows:

- Describe the role of subsistence in the study communities.
- Describe current and historic subsistence harvests.
- Describe current (10 years prior to each interview) and historic subsistence use areas.
- Describe local perceptions of areas important to the health and abundance of subsistence species.
- Describe local issues and concerns related to subsistence.
- Document traditional knowledge as a context for understanding current subsistence patterns and environmental conditions, including recent (10 years prior to each interview) changes in resources.
- Establish and describe subsistence baseline indicators for the study communities that can be measured over time.

The study area for the Bristol Bay drainages comprises 20 communities whose residents harvest subsistence resources in the vicinity of the Pebble Deposit and possible mine infrastructure or who harvest resources that migrate through or use this area. The study communities are Aleknagik, Clarks Point, Dillingham, Ekwok, Igiugig, Iliamna, King Salmon, Kokhanok, Koliganek, Levelock, Lime Village, Manokotak, Naknek, New Stuyahok, Newhalen, Nondalton, Pedro Bay, Port Alsworth, Portage Creek, and South Naknek (Figure 1-1 in Chapter 1). Field work includes household harvest surveys conducted by the Alaska Department of Fish and Game (ADF&G) and subsistence mapping and traditional knowledge interviews conducted by Stephen R. Braund & Associates (SRB&A).

Before developing the field plan, the study team established baseline indicators of subsistence use that could be measured over time. These indicators include changes in subsistence use areas, harvest participation, harvest amounts, harvest diversity, harvest sharing, resources, harvest success, frequency of harvest trips, timing of harvest activities, and harvest effort. The ADF&G and SRB&A field efforts collect data pertinent to these baseline indicators.

ADF&G field work was conducted in phases: Phase I (2005), Phase II (2006), Phase III (2008), and Phase IV (2009). For each phase, data were collected for the previous calendar year (e.g.,

harvest surveys conducted in 2005 collected data for the 2004 calendar year). ADF&G's 2005 through 2009 field work supplements findings from earlier ADF&G harvest surveys and mapping studies. Three types of interviews were conducted as part of the ADF&G field work: a harvest survey, a mapping survey, and key respondent interviews. ADF&G used its standard household harvest survey instrument, which is used in its other baseline harvest research, and gathered data for all subsistence resources. The mapping survey gathered data on the areas where households conducted hunting, fishing, and gathering activities during the study year, as well as locations of successful harvests. Key respondent interviews included questions about changes in the environment; changes in hunting and harvesting patterns; changes in resource availability and local responses to resource scarcity; important hunting, fishing, and camping sites; human effects on subsistence resources; and effects of regulations on hunting and fishing.

Upon completion of household surveys in each community, ADF&G edited subsistence maps and entered the collected data. SRB&A digitized mapped features and prepared harvest-area maps. Once data analyses and map production were complete, ADF&G traveled to each community to present the preliminary survey findings at community meetings and prepared a draft technical paper for review.

SRB&A field work consisted of a four-part interview that focused on: subsistence mapping; observed changes in subsistence resources and traditional knowledge related to those changes; traditional knowledge about the physical, biological, and social environment; and issues and concerns, including those related to the Pebble Project.

For the mapping portion of the interviews, study team members mapped subsistence use areas used during the 10 years prior to each interview, recording information on an acetate sheet (referred to as an overlay) positioned over a 1:250,000 U.S. Geological Survey map (Photo 23-1). Mapping interviews addressed the following resource categories: caribou, moose, other large land mammals, seals, other marine mammals, salmon, non-salmon fish, waterfowl, upland birds, eggs, berries, plants, and marine invertebrates. In addition to subsistence use areas, researchers mapped habitat areas, travel routes, and camps and cabins. For each subsistence use area recorded on the map, study team members recorded the following baseline information: months of use, harvest success, times visited per year, duration of trip (added in 2008), and travel method.

After or during the mapping portion of the interviews, researchers asked respondents for their observations about changes in the use, abundance, quality, distribution, and migration of each resource category. Respondents were also asked to share their knowledge about the causes of observed changes. During the next part of the interviews, the questions concerned the biological, physical, and social environment. In the last portion of the interviews, residents were asked about issues and concerns related to subsistence, including concerns about the proposed Pebble Project.

Upon completion of field work in each community, study team members edited the map overlays and notes for each interview, entered the features from each overlay and related data into an Access database, coded and organized traditional knowledge derived from the field notes, and digitized the geographic features recorded in the interviews using ArcGIS ArcEdit software. The study team exported data from the Access database into the Statistical Package for the Social

Sciences and used this program to create tables and figures summarizing baseline indicators, including harvest success, frequency of use, and months of use. Furthermore, the Access database is linked to a geographic information system (GIS) database so that GIS staff can develop maps by querying specific feature information. The study team represents subsistence use areas for each resource category using an overlapping polygon method. In this method, SRB&A converts polygons (use areas) to a grid with each pixel being assigned a value of one. Then, the number of overlapping pixels are summed and assigned a color, with the darkest color representing the highest density (or number) of overlapping pixels.

SRB&A uses the tables, figures, and maps derived from the subsistence use area and traditional knowledge interviews to create a community report for each study community. SRB&A also incorporates data from the two available ADF&G technical papers prepared for this project, as well as earlier subsistence research, into each community report.

23.2 Results and Discussion

The ADF&G Division of Subsistence has conducted household interviews in 17 of the 20 study communities—Aleknagik, Clark’s Point, Igiugig, Iliamna, King Salmon, Kokhanok, Koliganek, Levelock, Lime Village, Manokotak, Naknek, New Stuyahok, Newhalen, Nondalton, Pedro Bay, Port Alsworth, and South Naknek. Field work is pending for one community—Dillingham. The remaining two communities—Ekwok and Portage Creek—are not included in ADF&G’s harvest survey efforts. The Ekwok Village Council chose not to participate in the study. Only one permanent household was living in Portage Creek in 2005 at the time of ADF&G’s planned field work, which was below ADF&G’s threshold for adequately depicting community harvest patterns. ADF&G field work was conducted by ADF&G personnel with the assistance of SRB&A staff members and locally hired research assistants. ADF&G conducted household surveys with 254 households in the first 10 study communities (Phases I and II), accounting for 71 percent of year-round resident households in those communities. Data from field work conducted in 2008 and 2009 (Phases III and IV) will be forthcoming. The final results of Phase I (2005) and Phase II (2006) of the field work are available in ADF&G technical paper No. 302 (Fall et al., 2006) and ADF&G technical paper No. 322 (Krieg et al., 2009), respectively.

In 2005, 2006, 2008, and 2010, SRB&A conducted subsistence mapping and traditional knowledge interviews in 17 of the 20 study communities—Aleknagik, Ekwok, Igiugig, Iliamna, King Salmon, Kokhanok, Koliganek, Levelock, Lime Village, Naknek, New Stuyahok, Newhalen, Nondalton, Pedro Bay, Port Alsworth, Portage Creek, and South Naknek. Field work is pending for the remaining three communities—Clarks Point, Dillingham, and Manokotak. Analyses are complete for 12 communities—Ekwok, Igiugig, Iliamna, Kokhanok, Koliganek, Levelock, New Stuyahok, Newhalen, Nondalton, Pedro Bay, Port Alsworth, and Portage Creek. SRB&A conducted interviews with a total of 288 residents in these 12 communities. Analysis of the data for the remaining five communities where SRB&A has conducted interviews will be forthcoming.

After completing community reports for the first 12 study communities, the study team provided each community with three copies of the draft report for their community and offered an opportunity to request a community review meeting. Community review meetings were requested and conducted in three communities. The reports were revised based on community

input provided either at community review meetings or through telephone or email contacts and then were finalized. The study team sent a second letter and extended the comment period for communities who did not respond to the original request for comments. If no comments were received from a community after the extended comment period ended, then the report was finalized without community input. The community reports for the study communities are being provided as Appendices 23A through 23T to Chapter 23 of the environmental baseline document.

As indicated by SRB&A field work conducted in the first 12 study communities, subsistence uses in the study communities occur over an extensive area, with communities' total subsistence use areas ranging from 1,481 square miles to 26,764 square miles. Subsistence use areas documented in these communities extend west as far Kulukak Bay and Round Island, east into Cook Inlet, north to the Swift and Kuskokwim rivers, and south to the Naknek River area. Residents of the study communities rely on a wide diversity of subsistence species and so far during the SRB&A mapping and traditional knowledge interviews have reported harvesting approximately 150 individual species, including species of large land mammals, small land mammals, marine mammals, fish, waterfowl, upland birds, marine invertebrates, berries, and plants. Respondents in all 12 study communities reported year-round subsistence activities, with peaks in activities generally occurring in the summer/early fall and late winter/spring months.

For the 10 communities involved in Phase I and Phase II of ADF&G's field work, per capita harvests ranged from 132.8 pounds (Port Alsworth) to 977.3 pounds (Koliganek) during the communities' study years. Households reported harvesting an average of between 6.7 and 15.8 subsistence species and sharing an average of between 3.4 and 10.5 species. On average, 91 percent of Phase I community households and 86 percent of Phase II community households reported participating in subsistence activities during their respective study years.

Primary concerns reported by local residents during ADF&G and SRB&A field efforts were related to the Pebble Project. In particular, residents cited concerns about possible contamination of the watershed, disturbance of wildlife from project-related disruptions (e.g., noise from helicopters and blasting), contamination of wildlife, and social effects related to impacts on subsistence and an influx of outsiders to the region. While respondents' comments generally focused on concerns related to the project, there were respondents from most study communities that voiced support for the project, citing the potential economic benefits to the region.

Chapter 23 of the environmental baseline document includes a discussion of the definitions of subsistence (including regulatory definitions), an overview of each of the 20 study communities, and a discussion of the cultural values of subsistence. A synthesis and comparative analysis of subsistence uses and traditional knowledge in the Bristol Bay drainages study area is awaiting completion of field work, analysis, and report preparation for all 20 study communities.

23.3 References

Fall, J.A., D.L. Holen, B. Davis, T. Krieg, and D. Koster. 2006. Subsistence Harvests and Uses of Wild Resources in Iliamna, Newhalen, Nondalton, Pedro Bay, and Port Alsworth, Alaska, 2004. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 302. Juneau, Alaska.

Krieg, T.M., D.L. Holen, and D. Koster. 2009. Subsistence Harvests and Uses of Wild Resources in Igiugig, Kokhanok, Koliganek, Levelock, and New Stuyahok, Alaska, 2005. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 322. Juneau, Alaska.

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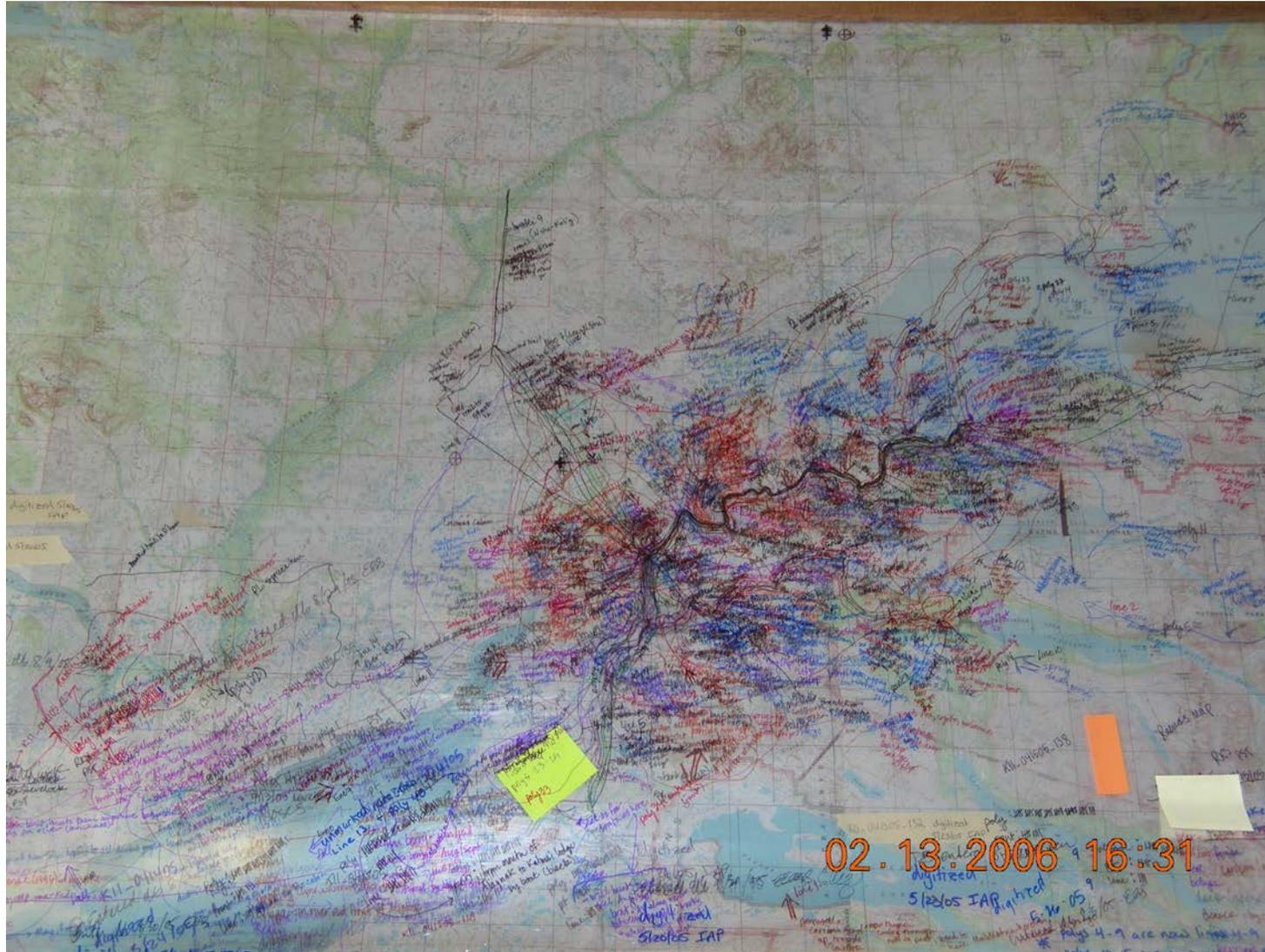


PHOTO 23-1. Example of a map with multiple acetate overlays on which information gathered during interviews has been recorded.