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Traditions, Knowledge, and Customs of the Alaska Peninsula/Becharof National Wildlife Refuge Complex and Aniakchak National Monument Subsistence Fishing Communities

Final Report for Study 01-109

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ABSTRACT

The primary product of this project is *From Neqa to Tepa*: *A Database with Traditional Knowledge about the Fish of Bristol Bay and Northern Alaska Peninsula version 2.0*, a searchable database. The study area is Becharof National Wildlife Refuge, the northern portion of the Alaska Peninsula National Wildlife Refuge, and the Aniakchak National Monument. Nine communities are involved: Egegik, Pilot Point, Ugashik, and Port Heiden on the northwestern Alaska Peninsula (Bristol Bay watershed) and Chignik, Chignik Lagoon, Chignik Lake, Ivanof Bay, and Perryville on the south (Pacific-drainage) side of the Peninsula. Interview topics include: descriptions of subsistence uses and traditional knowledge of the area's fisheries, including harvest sites; timing of harvests; methods of preparation; local and traditional indicators of run strength, arrival, and location; historical observations, events, and stories of subsistence fishing; taxonomy; movements of resident species; observations of changes in habitats used by targeted species; and identification of current management issues as they relate to subsistence harvests. *From Neqa to Tepa* version 2.0 was added to the database *From Neqa to Tepa* version 1.0. Version 1.0 included information collected primarily from communities in western Bristol Bay and was completed in a previous project.

Key Words: Alaska Peninsula, Alaska Peninsula National Wildlife Refuge, Aniakchak National Monument, Arctic grayling, Becharof National Wildlife Refuge, Bristol Bay, Dolly Varden, lake trout, local knowledge, nonsalmon fish, northern pike, rainbow trout, salmon, smelt, traditional ecological knowledge, whitefish.

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INTRODUCTION

This project documented traditional and other local knowledge about the salmon and nonsalmon fisheries resources of the Becharof National Wildlife Refuge, the northern portion of the Alaska Peninsula NWR, and the Aniakchak National Monument, held by residents of nine communities, including Egegik, Pilot Point, Ugashik, and Port Heiden on the northwestern Alaska Peninsula (Bristol Bay watershed) and Chignik, Chignik Lagoon, Chignik Lake, Ivanof Bay, and Perryville on the south (Pacific-drainage) side of the Peninsula.[1] Table 1 provides the estimated 2000 population for these nine communities.

It is not uncommon to find people using the term "traditional ecological knowledge" interchangeably with "indigenous knowledge" or "local knowledge" (cf. Miraglia 1998:4-10). One way of interpreting these terms is to define traditional ecological knowledge (TEK) as a type of indigenous knowledge--general knowledge held by indigenous peoples usually, but not exclusively, about the places they live. Traditional ecological knowledge is indigenous knowledge describing ecology, i.e., the relationships of living beings (including humans) with one another and with their environment. Traditional, in the dictionary sense, refers to cultural continuity transmitted in the form of social attitudes, beliefs, principles, and conventions of behavior and practice derived from historical experience.

> Traditional ecological knowledge [is] a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission about the relationship of living beings (including humans) with one another and with their environment. TEK is both cumulative and dynamic, building on experience and adapting to changes. It is an attribute of societies with historical continuity in resource use on a particular land. By and large, these are nonindustrial or less technologically oriented societies, many of them indigenous or tribal, but not exclusively so (Berkes' 1999:8).

The study of traditional ecological knowledge begins with the study of species identifications and classification (ethnobiology) and proceeds to considerations of peoples' understandings of ecological processes and their relationships with the environment (human ecology) (Berkes 1999:5-6). This includes local knowledge of species, practices of hunting and fishing, and beliefs about and peoples' perceptions of their role in the ecosystem.

Salmon and other fish are key subsistence resources for the study communities (Wright et al. 1985; Morris 1987). Table 2 lists the nonsalmon, non-marine fish species that are known to be

[1] Three communities of the Naknek River drainage – King Salmon, Naknek, and South Naknek – may also use the fisheries resources of the national wildlife refuges for subsistence purposes, although most of their fishing activities are focused in the Naknek River watershed (Wright et al. 1985:Appendix D maps).

Table 1. Population of Study Communities, 2000

Community	Estimated 2000 Population
Chignik	79
Chignik Lagoon	103
Chignik Lake	145
Egegik	116
Ivanof Bay	22
Perryville	107
Pilot Point	100
Port Heiden	119
Ugashik	11
Total	802

Source: US Census Bureau 2001

Table 2. Fish other than salmon known to be used for subsistence purposes in the Alaska Peninsula study communities.

Common Name	Scientific Name
Arctic Grayling	*Thymallus arcticus*
Dolly Varden	*Salvelinus malma*
("candlefish")	*Thaleichthys pacificus*
Lake Trout	*Salvelinus namaycush*
Northern Pike	*Esox lucius*
Rainbow Smelt	*Osmerus mordax*
Rainbow Trout	*Oncorhynchus mykiss*
Whitefish	*Prosopium, Coregonus*

Source: Fall et al. 1996; Hutchinson-Scarbrough and Fall 1996

used in the study communities. Several important resource issues highlight the need for investigation of these fisheries resources. First, subsistence hunting of the Northern Alaska Peninsula Caribou Herd, a key subsistence resource in all the study communities, is restricted under state regulations to a Tier II permit system, which severely limits participation, thus reducing harvests. This places additional importance on subsistence fish harvests. However, in recent years, residents of Pilot Point and Ugashik have reported low salmon returns for the Ugashik River and consequent concerns about reduced subsistence harvests (BBNA 2000a). Additionally, residents of Chignik Lake have expressed concerns about low returns of late run sockeye salmon to the Chignik Lake and Black Lake systems (BBNA 2000a:10). As a result of poor returns of coho salmon to the Kametolook River, Perryville residents are now fishing in other locations (Hutchinson-Scarbrough and Fall 1999; BBNA 2000a:10). Alaska Peninsula communities have also raised concerns about resident fish populations, such as the grayling stocks of Becharof Lake (BBNA 2000b). Better understanding of subsistence patterns of nonsalmon fish and traditional knowledge about all fish will help to better assess subsistence needs, develop programs for collaborative stewardship, and potentially, plan future harvest assessment projects.

Since 1979, the Division of Subsistence, Alaska Department of Fish and Game (ADF&G) and the Bristol Bay Native Association (BBNA) has conducted research on traditional ecological knowledge of salmon and freshwater fish in the Bristol Bay area, including traditional taxonomies, trends in abundance, condition of fish stocks, movement, timing of runs, areas of harvest, timing of harvests, methods of harvests, food types, preservation methods, sharing, and customary trade. Most of this work has focused on communities in western Bristol Bay (e.g. BBNA and ADF&G 1996). An exception is recent work regarding salmon fisheries in Perryville. In support of an effort to restore coho salmon runs to the Kametolook River, local experts were interviewed about historical salmon runs and other traditional knowledge about local fisheries resources (Hutchinson-Scarbrough and McCullough 1998; ADF&G 1997). Additional interviewing took place in response to data requests from the Alaska Board of Fisheries (Hutchinson-Scarbrough and Fall 1999). Even here, most of the traditional knowledge on fisheries provided by local fishing experts remained in hand-written interviews and typed notes, trip reports, and audiotapes.

The Division completed *From Neqa to Tepa: A Database with Traditional Knowledge about the Fish of Bristol Bay Area*[2] version 1.0 as part of Project No. FIS 00-012, supported with funding from the United States Fish and Wildlife Service (USFWS), Office of Subsistence Management (Coiley-Kenner 2001). The goal of that project was to convert existing TEK narrative text data (from Division of Subsistence, ADF&G, research in the 1980s and 1990s) into a retrievable, usable format (a computer-accessible CD-ROM using the AskSam software, the division standard). Entries were key worded by general categories and the data set was assessed for coverage of topic area, species, and geographic area. Data gaps were identified for future work. As part of the current project (*From Neqa to Tepa* version 2.0) additional TEK data collected for

[2] "From Neqa to Tepa" (in the Yup'ik language, the generic name for "fish", neqa, to the making of "aging fish heads", tepa) combines the knowledge of harvesting wild fish, neqa, and its production into a local delicacy, tepa. The importance of both the wild fish and the knowledge of fish by the local people are connected in this phrase.

the Alaska Peninsula communities were entered in the database and previously documented TEK data were, to the extent possible, included as well.

OBJECTIVES

This project included the following objectives:

1. An inventory, summary, and evaluation of existing information on subsistence fisheries and of existing interview data relating to TEK for the study communities of the northern Alaska Peninsula/Chignik Area.

2. Sets of about 4 interviews in each of nine study communities, with elders and other knowledgeable residents including: Chignik, Chignik Lagoon, Chignik Lake, Ivanof Bay, Perryville, Port Heiden, Pilot Point, Ugashik, and Egegik.

3. Descriptions of subsistence uses and traditional knowledge of the area's fishery resources, including harvest sites; timing; methods of preparation; local and traditional indicators of run strength, arrival, and location; historical observations, events, and stories of subsistence fishing; life histories; taxonomy; movements of resident species; observations of changes in habitats used by targeted species; and identification of current management issues as they relate to subsistence harvests.

4. A searchable database with the contents of key respondent interviews, highlighting TEK, on CD-ROM.

5. A final report.

METHODS

This project was a collaborative effort between the Division of Subsistence of ADF&G, the Natural Resources Department of the Bristol Bay Native Association, and local communities. In early 2000, BBNA sponsored meetings in sub-regional hubs throughout the region to assess priority information needs for the Federal Subsistence Fisheries Monitoring Program. Village council members in Chignik Lake and Egegik, villages on the Alaska Peninsula, identified documenting traditional knowledge of the area's fish stocks as a very important need. The need for a project to document this information was subsequently presented by BBNA and ADF&G Subsistence Division to the Bristol Bay Regional Advisory Council and the Federal Subsistence Board. The project was supported with funding from the USFWS, Office of Subsistence

Management. Bristol Bay Native Association obtained authorization to conduct the research from the tribal councils in each of the nine study communities through village council resolutions. Bristol Bay Native Association and ADF&G Subsistence Division briefed each of the nine village councils on the scope of the project and descriptions of the project were given to each council. Following its approval, signed resolutions in support of the project and authorizing the research were submitted to the BBNA Natural Resources Department.

The first phase of the study, conducted by Division of Subsistence staff, was to locate, summarize, and evaluate existing information, including audiotapes and/or notes from previous interviews with community elders with TEK regarding local fisheries. This involved an inventory of ADF&G field notes, trip reports, audiotapes, and other records for information regarding traditional knowledge of fish (salmon and other species) in the nine study communities. This work followed the procedures developed in the *From Neqa to Tepa* version 1.0 project, and was essentially a continuation of that initiative. This assessment, along with information obtained through community meetings (see below) helped structure the key respondent interviewing that is the core of the project.

The Bristol Bay Native Association organized the FY 2001 Federal Subsistence Fisheries Research Coordination meeting in King Salmon on June 13 - 14, 2001. The primary purpose of the session was to bring together the principal investigators/partners and field crews to review all of the FIS research efforts scheduled for 2001. All partners in this project--BBNA, ADF&G, USFWS and tribal council representatives--were in attendance. Representatives from the tribal councils of the Northern Alaska Peninsula study communities were invited to the meeting but not all were able to attend. At this meeting the Subsistence Division presented an overview of the project and a draft key respondent interview guide. The interview guide was reviewed and discussed by those representatives present. The representatives took the information back to their tribal councils for further review. The information from this meeting was also forwarded to the tribal councils not represented at the meeting. This meeting provided a good forum for village residents and agency staff to discuss some important aspects of TEK for the Alaska Peninsula.

After the June meeting, Jennifer Nicholson of the BBNA Natural Resources Department worked with the tribal councils in the study area to identify elders and knowledgeable individuals. This also secured the hiring of Local Research Assistants[3]. The Local Research Assistants were to help set up and conduct the interviews and then transcribe the tapes of the interviews.

Local Research Assistants

Local Research Assistants were hired through BBNA. At the start of the project the Local Research Assistants in the Bristol Bay watershed communities were hired for one month and

[3] "Local Research Assistant" is a formal job category within BBNA's Natural Resource Department.

paid $13.08 per hour for the duration of that month. Due to hiring requirements in BBNA's policy, from the date of hire their term of employment was for one month without provisions for non-pay status during that month. Interviews were not completed immediately after the Local Research Assistants were hired in Pilot Point and Ugashik. The Local Research Assistants were required to do individual interviews without the assistance of the Subsistence Division or BBNA personnel so that they were working throughout their term of employment. Also the term of employment of the Local Research Assistants expired before they were able to complete transcription of the tapes of the group interviews for the Bristol Bay watershed communities. In January and February of 2003 one of the Local Research Assistants was rehired to transcribe those tapes and a few additional tapes that were not completely transcribed earlier. The hiring was done in a separate employment agreement with BBNA and paid by project funds.

Before the start of the interviews in the Chignik area villages it was determined that the Local Research Assistants would be paid a lump sum of $250 per interview, including setting up the interview, helping with the interview, and transcribing the tapes (approximately $15 per hour for 16.5 hours of work). Payment was contingent on the submission of the completed transcripts to BBNA. This worked well because it relieved some of the time issues involved in coordinating the interviews under the previous hiring agreement. It also provided incentive for the Local Research Assistants to complete the transcripts so they could get paid. While there were some inequities because the length of the interview determined the time required to complete the transcripts, this did not appear to be an issue.

The Local Research Assistants helped set up and conduct the interviews and they also prepared transcripts or detailed notes from the interviews under the direction of ADF&G and BBNA staff. A brief transcription guideline was prepared for the Local Research Assistants. In some cases portions of interviews were summarized, paraphrased, or not recorded at all to exclude information not relevant to this project. Although this procedure was adequate it was determined that strict word-for-word transcripts were the most effective for documenting the intent of the respondent. This will be described in more detail in the Recommendations section below.

Interview Format

Two procedures for data collection were outlined in the Investigation Plan: key respondent interviews using a semi-structured interview format following the protocols for collecting TEK consistent with recommendations in Miraglia (1998) and the Principles for the Conduct of Research in the Arctic (ISSTF 1998); and discussions among small groups of experts using procedures similar to those used by Huntington and Mymrin (1996) and Huntington (1998) to document TEK of beluga in northwest Alaska and Chukotkan communities and those used by ADF&G to record TEK about walrus hunting on Round Island in western Bristol Bay (Fall et al. 1991).

Interviews were audio-taped with the permission of the respondent. During interviews, maps were used as prompts, and locations of key habitat areas and harvest areas were mapped using USGS 1:250,000 maps and clear inking film overlays.

At the initial meeting in Port Heiden, Johnny Christensen suggested that individual interviews should be done first, followed by a group interview. Consistent with that suggestion the procedure that was used for the Bristol Bay watershed communities was a combination of individual key respondent interviews followed by group interviews or discussions.

Three key respondent interviews were conducted in each community except Ugashik (see above) using a semi-structured interview format outlining general areas of discussion. The interview guide was developed, as described above, prior to when interviews began, by ADF&G and BBNA personnel with input from the tribal councils.

The plan for the group interview or discussion was to include the three key respondents that had already been interviewed, and where directed by the tribal council, to include additional key respondents that had not been interviewed individually. While the group interviews or discussions were not tightly structured they attempted to document data gaps identified following completion of the individual interviews, allow the individuals in the group to prompt each other to relate information they did not possess but felt was important, and inspire discussion so that TEK information and stories important to the scope of the project could be recounted. The group format also helped identify local place names and provided more than one respondent to verify the accurate placement of locations on the USGS maps. Mapping will be discussed in more detail below.

This procedure worked well, especially in Ugashik where after having completed the individual interviews the respondents had time to digest what had been discussed in those interviews. When they were brought together as a group they were able to fill in the gaps in what they had previously remembered by engaging in discussion with the other respondents. This also helped them to remember details. In discussion between the respondents the interview took its own course and tended to focus on the location of local place names that were associated with fishing, other subsistence activities, or habitat areas. The place names and locations that were discussed were documented on a map during the interview. At the end of the Ugashik interview all participants felt good about what had transpired and agreed that it was a very productive meeting. A place name map was digitized and can be viewed in the *From Neqa to Tepa* version 2 database.

Unlike the procedure in the Bristol Bay watershed communities, where interviews with individuals were followed by interview by group interviews, the Chignik communities were characterized by interviews with individuals. In Chignik Bay, one interview included a group of four young men that were active subsistence fishers. While this interview followed the semi-structured interview format, it also provided for some interaction among the respondents that helped document valuable TEK information. In Chignik Lake, two interviews included women elders and their sons, and one husband and wife interview. The mother and son combinations seemed to work well. In one of the mother and son interviews the son was able to prompt his mother to recount important first hand information that he had heard second hand from a family

member when he was younger. This interview was also special because the young son of the respondent was present and listened intently to the stories told by his grandma.

Another difference with the procedure in the Chignik area communities was that the mapping effort to document resource habitat and harvest areas was more focused than in other communities. This was mainly due to the fact that with three people working together (Pletnikoff, Krieg, and LRA) one person could handle the mapping responsibilities at all times during the interviews. While this was advantageous for mapping, if it was not properly coordinated the attention of the interview could shift away to documenting the locations and thus not allowing the respondent time to relate the associated TEK information.

Bristol Bay Watershed Communities – Fall 2001

In August and September of 2001 Ralph Andersen of BBNA and Ted Krieg of ADF&G Subsistence Division attended meetings with the tribal councils of Port Heiden, Pilot Point, Ugashik, and Egegik. At the meetings the goals of the project were presented and discussed. After meeting with the tribal council in each community the plan was to hire and train the Local Research Assistants and begin the interviews. This procedure worked in Port Heiden from August 13 to 15, 2001 and Egegik September 17 and 18, 2001, but required some flexibility in Ugashik and Pilot Point. Following is a chronology of the project which was completed in the fall of 2001.

The tribal council meeting in Port Heiden took place on August 13, 2001. The Local Research Assistant was also hired and trained on that date. Three interviews were conducted on August 14 and 15, 2001. In an effort to include key respondents that were unavailable at that time it was determined that a group interview would take place at a later date.

A meeting with the Ugashik Tribal Council took place at their office in Anchorage on August 18, 2001, and although a number of the key respondents were at the meeting, time constraints were not conducive to conducting interviews at that time. Plans were made to conduct the interviews on a subsequent trip to Ugashik.

On August 27, 2001 a meeting was held in Pilot Point with the Pilot Point Village Council and the Ugashik Local Research Assistant in attendance. The Pilot Point Local Research Assistant was unable to make her plane flight from Anchorage and was not in attendance at this meeting. The plan was to hire and train the Local Research Assistants for both communities at that time. After the council meeting Ted Krieg and the Ugashik Local Research Assistant flew to Ugashik. The Ugashik individual that the tribal council had indicated would be a good respondent was unavailable. Although no interviews were conducted, the time was well spent reviewing the project goals, and discussing the interview techniques and mapping procedures. The Local Research Assistant was given a tape recorder and mapping materials to proceed with interviewing the respondents as they became available.

In the afternoon of August 28, 2001, Krieg returned to Pilot Point to work with the Local Research Assistant who had returned to Pilot Point from Anchorage. One interview was completed on August 29, 2001. The other respondents suggested by the Pilot Point Village Council were not available so the Local Research Assistant was left with materials to conduct interviews when the respondents were available and Krieg returned to Dillingham.

On September 17, 2001, Andersen and Krieg met with the Egegik Village Council and the Local Research Assistant was hired and trained at that time. Krieg worked with the Local Research Assistant to conduct two interviews on that day and one interview on September 18, 2001, before flying to Ugashik. He met with Local Research Assistant and reviewed the transcripts and maps from the interviews she had conducted. On September 19, 2001, a group interview was conducted with the three Ugashik respondents that had previously been interviewed individually. One key respondent whom the Ugashik Tribal Council felt very strongly should be interviewed was a village elder that had been living in Anchorage for several years. The Local Research Assistant was able to interview her in Anchorage on September 23, 2001.

On September 20, 2001, Krieg traveled from Pilot Point on to Port Heiden and met with the Local Research Assistant. On September 21, 2001, they conducted a group interview with four respondents: two individuals who previously had been interviewed for this project and two who had not been interviewed. A fifth previously interviewed respondent was not available for this group interview.

September 27, 2001 Krieg returned to Pilot Point and reviewed the transcripts of two interviews conducted by the Local Research Assistant. One of the interviews was not taped recorded and only notes were taken. A group interview was conducted with one respondent previously interviewed for this project and two respondents whom had not been interviewed.

After completing the interviews in Pilot Point, Krieg was scheduled to continue on to Egegik and conduct a group interview. One of the key respondents recommended by the Egegik Tribal Council was not available as scheduled. The respondent had also not been available to be interviewed separately. In an attempt to include the respondent in this project, the Egegik group interview was postponed until a later date.

On November 26, 2001, Krieg returned to Egegik to conduct the group interview. The interview was conducted with two of the previously interviewed respondents making up the group. The respondent that it was anticipated would be available as described above was again not available to be interviewed.

During the time period described above, when the interviews were taking place in the four communities, two tragic events affected work on this project. The first was the September 11, 2001, terrorist attacks that for a time stopped all air travel. On October 10, 2001, a Peninsula Airways plane departing from Dillingham crashed and all 10 individuals on board perished. The passengers were BBNA employees, BBNA board members from Alaska Peninsula communities, and Alaska Peninsula community residents (seven of the 10). Two of those individuals were respondents for this project and very respected BBNA Full Board representatives that had just completed a meeting in Dillingham: Johnny Christensen from Port Heiden and Andrew Abyo

from Pilot Point. They both greatly supported this project. It is fortunate that they were able to participate in this project before their untimely deaths.

Chignik Area communities – Fall 2002

Interviews in the Chignik area communities were conducted by BBNA and ADF&G personnel between November 15 and 23, 2002. The gap in the timeline for completion of the interviews for this project was due to the need for work to take place on two other BBNA and Subsistence Division cooperative projects: Western Bristol Bay Large Land Mammal Harvest Surveys and Subsistence Fisheries Assessment: Kvichak River Watershed Resident Species (FIS02-034).

Prior to the start of the second set of interviews, tribal councils in the five villages were contacted by Karen Pletnikoff of the BBNA Natural Resources Department to coordinate the work, confirm the availability of key respondents, and to recommend persons to be hired as Local Research Assistants. This planning replaced the tribal council meetings that were previously held in the upper Alaska Peninsula communities prior to the start of the interviews there.

The interviews were conducted in four of the five study communities: Perryville, Chignik Bay, Chignik Lagoon, and Chignik Lake. At the time that the interviews were conducted no one was living full time in Ivanof Bay. Before traveling to Perryville to conduct interviews it was anticipated that there were at least two Ivanof Bay households temporarily living in Perryville that could be interviewed. On arrival in Perryville it was learned that only one Ivanof Bay household was living there and that household intended to move back to Ivanof Bay in the near future. In fact that household was acting as the caretaker of Ivanof Bay facilities, apparently until Ivanof Bay residents returned to their community. The head of this household regularly made trips to Ivanof Bay to check on things. An interview was conducted with the key respondent from that household.

Two Local Research Assistants were hired in Perryville, one to handle Perryville interviews and one to handle the Ivanof Bay interviews. A total of six interviews were conducted in Perryville, including the one Ivanof Bay respondent. While in Perryville when it was uncertain if additional Ivanof Bay interviews would be possible, it was determined to interview five Perryville key respondents. This was done to allow nearly all of the total number of interviews budgeted for the project to be conducted in the event that additional Ivanof Bay interviews were not possible. Additionally this decision was made because verbal agreements to hire the two Local Research Assistants were already made and, upon the arrival of Pletnikoff and Krieg, they were both anticipating work. By conducting six interviews in Perryville each Local Research Assistant was responsible for three and they were willing to transcribe tapes of additional Ivanof Bay interviews if conducted. Perryville key respondents indicated that they were closely aligned with the Ivanof Bay people and the TEK information from both communities overlapped. Also, the two communities are in close proximity and share subsistence harvest areas. Additional Ivanof Bay interviews could not be coordinated.

On November 14, 2002 Karen Pletnikoff of the BBNA Natural Resources Department and Ted Krieg of the ADF&G Division of Subsistence traveled to Perryville. They hired and trained the two Local Research Assistants. Between November 15 and 18, 2002 six interviews were conducted. On November 18, 2002 they departed Perryville and arrived in Chignik Bay. They hired and trained the Local Research Assistant and on November 19, 2002 conducted three interviews. On November 20, 2002 they departed Chignik Bay and arrived in Chignik Lagoon, they met, hired, and trained the Local Research Assistant, and conducted one interview that evening. On November 21 and 22, 2002 they conducted three more interviews. They departed Chignik Lagoon on November 22, 2002 and arrived in Chignik Lake. The Local Research Assistant was not available to meet with them on that day but arrangements were made to meet the morning of November 23, 2002. Without the help of the Local Research Assistant Pletnikoff and Krieg decided to proceed with interviews and conducted one interview the evening of November 22, 2002. On the morning of November 23, 2002 they hired and trained the Local Research Assistant; they also conducted three interviews before returning to Dillingham.

Mapping

The maps used for eliciting information for this project were USGS topographic 1:250,000 scale maps with adjoining sheets taped together to produce a base map that covered a significant area around the study communities. Three separate base maps were constructed so that what was anticipated to be the use areas for multiple communities could be included without making the base maps too large. One base map was used for multiple communities, which this helped to reduce the number of base maps needed (e. g. one for each community). In the experience of researchers, base maps should be kept to a size that can easily be placed on a kitchen table. The requirement for ease of use of a map during an interview is a large table, or limberness and agility to do the mapping on the floor, keeping in mind the placement of the tape recorder to record what is being said.

Clear inking film sheets (measuring 31 x 40”) were laid on top of the base maps to document mapping points. The base map was kept free of marks so that it could be reused multiple times. The base map and inking film are hole punched along an edge and seven pin register bars are used to hold the inking film in place over the base map. The inking film can then be removed and later placed on the base map so that the mapping points can be accurately repositioned. Reference points should be marked on the base map near where the four corners of the inking film lie, when attached to the register bar, over the base map are marked on the base map. These reference points are marked on each sheet of inking film as additional insurance that the inking film can be properly realigned later.

Each base map is individually numbered, the base map number is also written on the inking film along with other respondent identification to insure accuracy due to variations in the construction of each base map. Additional copies of the three base maps were constructed so that when

necessary base maps and mapping paraphernalia could be left with the Local Research Assistants.

While colored permanent ink pens were available to identify different resources, in most cases using one color worked well. Point locations were identified on the map and numbered. And then a legend with the number and description of the point location was placed on the side of the map. In addition to developing the legend, the interviewers clearly stated place number was being placed on the map so that it was recorded on tape as part of the interview. This helped to link the interview to the map for later reference.

When identifying a place name, respondents in both the individual and group interviews were prompted to provide a point location on the map. Local names for rivers and streams were often different from the names attached to the USGS maps so it was important to document those distinctions. The maps were not only important in documenting location information including place names, harvest locations and resource habitat and etc., but they also served as prompts and provided spatial reference for the respondents and the interviewers.

Scheduling

As was especially the case in 2002, fall-time weather tends to be unpredictable and disruptive to scheduled travel by small plane to the villages. Further complicating scheduling was the fact that the schedule for this project was pushed back due to conflicting work on other projects. One such project was FIS02-034, for which we received late confirmation of funding after schedules had been set for other projects. Prior to the December 31, 2002 deadline for the project, interviews had been conducted in all of the study communities, some of the interview tapes still needed to be transcribed, and work was progressing on the database. When it became apparent that the December 31, 2002 deadline would not be met an extension was requested and granted to extend the deadline for completion of the work to September 30, 2003.

A demonstration of *From Neqa to Tepa* version 2.0 was presented to the Bristol Bay Regional Subsistence Regional Advisory Council on September 30, 2003, at their fall meeting in Dillingham.

RESULTS

The primary product of this project is the CD-ROM *From Neqa to Tepa: A Database with Traditional Knowledge about the Fish of Bristol Bay and Northern Alaska Peninsula* version 2.0, a searchable database of indigenous local knowledge about the fish of Bristol Bay and the northern Alaska Peninsula. *From Neqa to Tepa* was compiled from interviews with Alaska

Natives from Bristol Bay and the northern Alaska Peninsula. The information was collected beginning in 1982, during the early days of ADF&G Subsistence Division, to the present. The Subsistence Division, ADF&G, has had personnel in Dillingham this whole time—working on issues important to subsistence users. This *From Neqa to Tepa* database covers a variety of information including traditional knowledge, field observations, and information from key respondents. The extent of the coverage in this database reflects the research the Division has done in the area and is by no means comprehensive. The purpose of the CD is to make this information available to agency biologists and fisheries managers and the public.

From Neqa to Tepa is a collection of hundreds of notes, each less than one page long. In the askSam Program, each note is a "document" and is like a card in a card file. At the top of each document are listed nine fields or main categories of information describing the contents of each document: community, researcher, code, year, ethnicity, respondent, location, species, keywords. Users of *From Neqa to Tepa* are provided with a "view-only version" of the askSam software, as licensed by the Alaska Department of Fish and Game from askSam Systems.

Added to version 2.0 are:

- edited transcripts of 35 interviews with residents of the Alaska Peninsula communities of Egegik, Pilot Point, Ugashik, Port Heiden, Chignik Lake, Chignik Lagoon, Chignik Bay, Perryville, and Ivanof Bay in 2001 and 2002 (see Table 3 for a list of interviews);

- four maps showing the locations of sites discussed in the interviews with residents of Egegik, Pilot Point, Ugashik, and Port Heiden in 2001;

- edited transcripts of interviews with residents of Perryville in 1990;

As mentioned previously, version 1.0 was completed in January 2002 and includes observations about fish from other Bristol Bay communities: Levelock, Manokotak, Togiak, and Twin Hills. Some information from Aleknagik, Clarks Point, Ekwok, Koliganek, and New Stuyahok is also included. These observations were collected by researchers with the Division of Subsistence at the Alaska Department of Fish &Game since 1980. Version 2.0 adds new information to this earlier version, the keyword list is expanded to accommodate information from newly added communities, and the instructions and other information have been made easier to view and use. A description of each part of *From Neqa to Tepa* follows.

Table 3. Interviews that were completed during the project "Traditions, Knowledge, and Customs of the Alaska Peninsula/Becharof National Wildlife Refuge Complex and Aniakchak National Monument Subsistence Fishing Communities".

EGEGIK		
9/17/01	Shirley Kelly	1 Tape (2 sides)
9/17/01	Scott Olsen	2 Tapes (4 sides)
9/18/01	Pete Olsen	1 Tape (2 sides)
11/26/01	Group Interview Shirley Kelly and Pete Olsen	2 Tapes (3 sides)
PILOT POINT		
8/29/01	Andrew Abyo	1 Tape (2 sides)
9/5/01	Ace Griechen	1 Tape
9/21/01	Mike Abyo	unrecorded (notes only)
9/27/01	Group Interview Andrew Abyo, Sophie Abyo, and Sue Evanoff	1 Tape (2 sides)
PORT HEIDEN		
8/14/01	Johnny Christensen	1 Tape (2 sides)
8/14/01	Nefuti Orloff	1 Tape (2 sides)
8/15/01	Andrew Matson Sr.	3 Tapes (6 sides)
9/21/01	Group Interview Johnny Christensen, Macarlo Christensen, Eli Neketa, and Nefuti Orloff	2 Tapes (4 sides)
UGASHIK		
9/5/01	Art Woinowsky U-01-1	1 Tape (2 sides)
9/12/01	U2 (wished to remain anonymous)U-01-2	2 Tapes (3 sides)
9/16/01	Roy Matsuno U-01-3	1 Tape
9/23/01	Alexandera Matsuno U-01-4	2 Tapes
9/19/01	Group Interview Art Woinowsky, U2, Roy Matsuno	2 Tapes (4 sides)

[continued]

Table 3. Continued.

PERRYVILLE		
11/15/02	Harry O. Kosbruk	1 Tape (2 sides, side 1 blank)
11/16/02	Harry O. Kosbruk	1 Tape (2 sides)
11/16/02	Harry W. Kosbruk	1 Tape (1 side)
11/16/02	Martha Kosbruk	1 Tape (1 side)
11/16/02	Bruce Phillips	1 Tape (1 side)
11/17/02	Marvin Yagie	1 Tape (1 side)
IVANOF BAY		
11/18/02	Harvey Kalmakoff (interviewed in Perryville)	1 Tape (2 sides)
CHIGNIK BAY		
11/19/02	Jeanette “Chicky” Carlson	1 Tape (2 sides)
11/19/02	William Stepanoff	1 Tape (2 sides)
11/19/02	Group Interview Brandon Daugherty, Peter Anderson, Joseph Kalmakoff JR., Sean Stepanoff	1 Tape (2 sides)
CHIGNIK LAGOON		
11/20/02	Julius Anderson	2 Tapes (4 sides)
11/21/02	Al Anderson	1 Tape (2 sides)
11/21/02	Andy Stepanoff	1 Tape (2 sides)
11/22/02	Don Bumpus	1 Tape (2 sides)
CHIGNIK LAKE		
11/22/02	Oxecenia & Tom O’Domin	1 Tape (1 side)
11/23/02	Doris and Mitch Lind	1 Tape (2 sides)
11/23/02	Johnny Lind	1 Tape (1 side)
11/23/02	Elliot and Elizabeth Lind	1 Tape (1 side)

The Outline of "From Neqa to Tepa"

There are seven parts to *From Neqa to Tepa*, and the database is just one of these. Across the top of every page of *From Neqa to Tepa* are the same seven hypertext links[4]: Home, Instructions, Keywords, Acknowledgments, Technical Papers, Map of Area, and Go to Database. To view any of these topics, click the mouse on the link.

The "Home" Link

From Neqa to Tepa's opens at the Home page, shown in Figure 1. The Home page lists the communities mentioned in the database. The Home page has a link to ADF&G's copyright notice as well as descriptions of each of the other six links. Notice that there is a scroll bar on the right side of the screen to view the rest of the page.

The "Instructions" Link

From Neqa to Tepa's second link is to the Instructions, the screen image of which is shown in Figure 2. On this page, two database search methods are described, as well as how to view the results of a search, and how to print the results of the search. The following is a short description of this information.

Searching Using the "Search Line". In Figure 2 notice the Search Line at the top of the page. Search requests are entered here from the first page of the database part of *From Neqa to Tepa*. When searching using this method, askSam recognizes Boolean searches, using AND, OR, and NOT, wildcard searches, using * for letters and ? for numbers, and searches for multiple words or phrases. This is described in more detail on the rest of the Instructions page on the CD.

Searching Using "Fields" and "Keywords". Using this method, keywords are placed in fields which allow for faster and more specific searches. The askSam program looks for a keyword in one field only (e.g. "Perryville" in the Community field) rather than searching through the entire text of all 3,233 documents. Multiple fields can be searched at the same time. (The fields are located at the beginning of each entry in the database. All of the fields and keywords are listed on the Keyword page of *From Neqa to Tepa* and also in Table 4.)

[4] These links can be identified by their blue type - **hypertext link.**

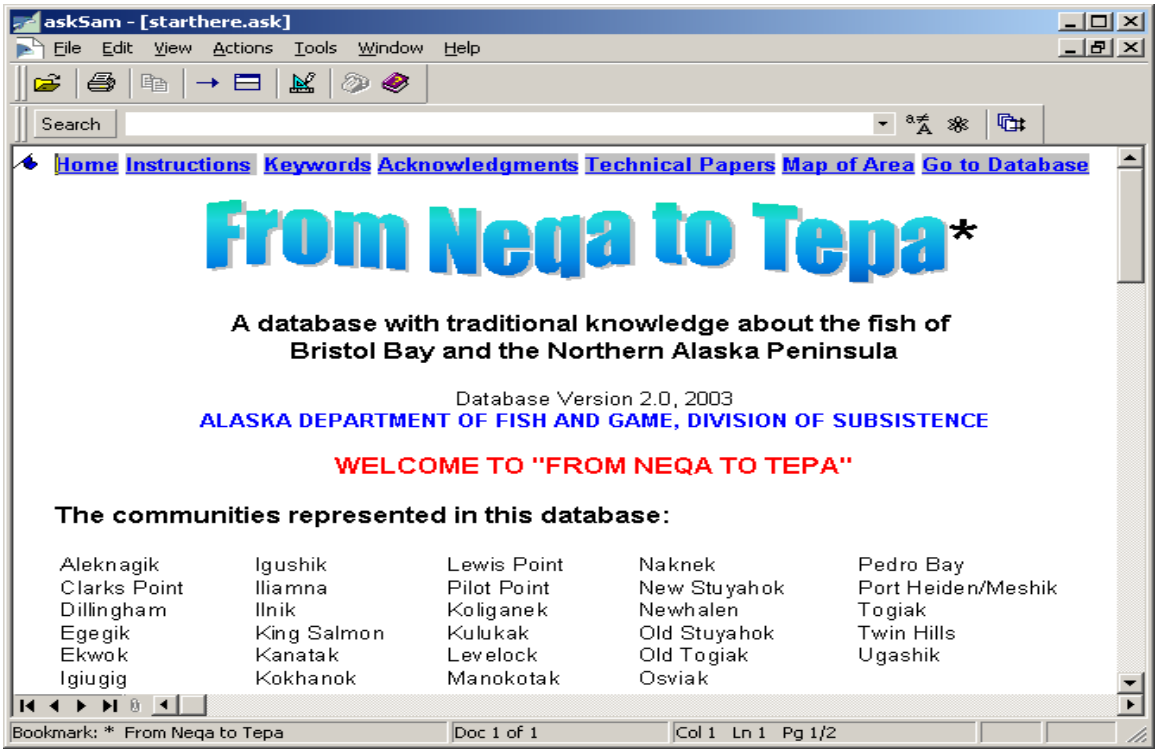

Figure 1. The Home page from *From Neqa to Tepa*.

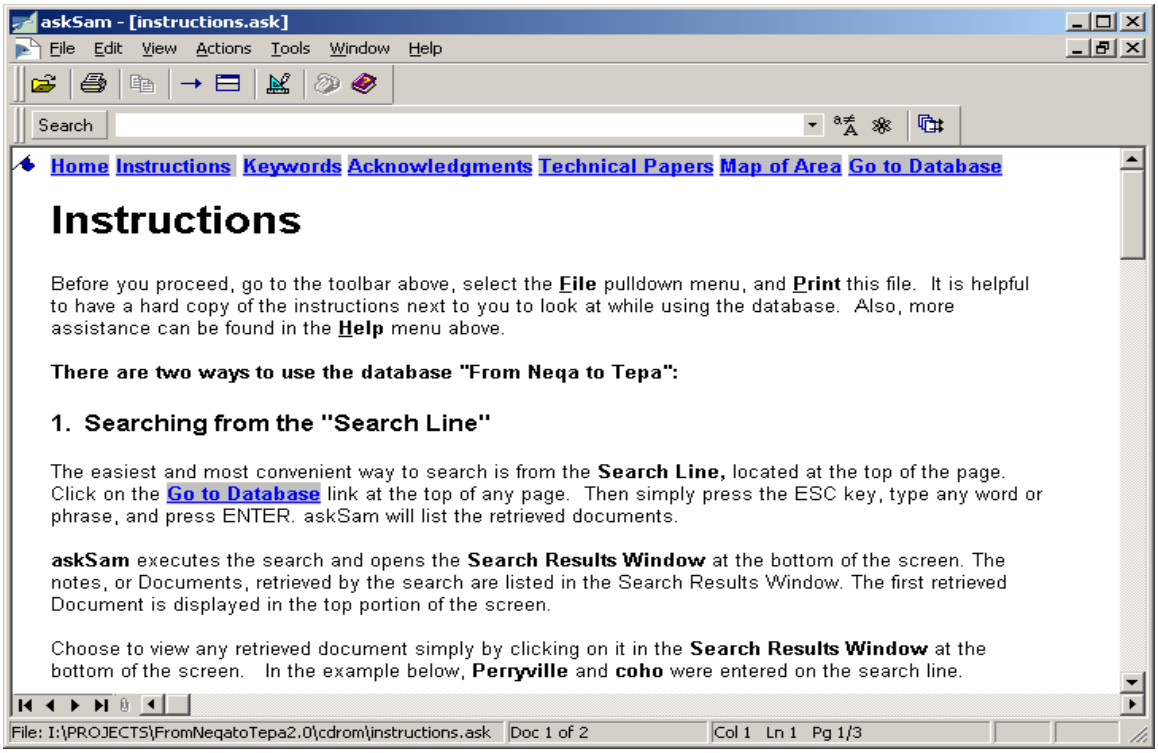

Figure 2. The Instructions page from *From Neqa to Tepa*.

Table 4. The field names and keywords used in the *From Neqa to Tepa* database.

COMMUNITY	Aleknagik	Koliganek
	Chignik Bay	Kulukak
	Chignik Lake	Levelock
	Chignik Lake	Manokotak
	Clarks Point	Naknek
	Dillingham	New Stuyahok
	Egegik	Newhalen
	Ekwok	Old Stuyahok
	Igiugig	Old Togiak
	Igushik	Osviak
	Iliamna	Pedro Bay
	Ilnik	Port Heiden/Meshik
	Ivanof Bay	Port Moller
	King Salmon	Togiak
	Kanatak	Twin Hills
	Kokhanok	Ugashik
	Lewis Point	
	Perryville	
	Pilot Point	

RESEARCHER	Lori Abyo	Ted Krieg
	Star Ames	Vera Lind
	Steve Behnke	Ruth McGarvey
	Kristian Carlson	Judith Morris
	Molly Chythlook	Russell Nelson
	Pippa Coiley-Kenner	Karen Pletnikoff
	Annie Durst	Janet Schichnes
	Sherry Hermeling	Jody Seitz
	Lisa Hutchinson Scrarbrough	Vicki Vanek
	Casey Kalmakoff	Robert Wolfe
	Karen Kalmakoff	John Wright
[continued]	Clara Kosbruk	

Table 4. Continued.

CODE	000-000-000000 (000 community code 000 household number or initials of respondent 000000 monthdayyear) The "Code" is in three parts to show the community ID number, the household ID number, and the date of the interview. The community ID number is an arbitrary number assigned by our Data Management section to reference each Alaskan community. Household ID numbers constitute the middle number of the code. Household lists associating these ID numbers with family names are highly confidential and can be accessed only by Division of Subsistence staff members. Household names are not made available as public information. To protect their privacy, respondents are sometimes referred to simply as "R". The third part of the code is the date when the information was recorded.	
YEAR	Example: 1990	
ETHNICITY	Yup'ik, Athabaskan, Alutiiq, other	
RESPONDENT	expert, questionnaire note, summary, uncategorized	
LOCATION	Anchor Bay drainage	northeast of Perryville
	Bear River drainage	north of Port Heiden
	Castle Bay	south of Chignik Bay
	Chignik Bay drainage	
	Chignik lagoon and lake	
	Black Lake	
	Cinder River drainage	south of Ugashik
	Egegik Bay drainage	
	Hook Lagoon	south of Ugashik
	Humpback Bay drainage	east of Ivanof Bay
	Igushik River drainage	east side of Nushagak Bay
	Ilnik Lake drainage	south of Port Heiden
	Ivanof Bay drainage	
	Kametolook River drainage	runs through Perryville
	Kulukak Bay drainage	
	Kvichak Bay drainage	
	Metervik Bay drainage	east of Togiak
	Mitrofania Bay	east of Perryville
	Naknek Bay drainage	
	Nushagak Bay	
	Nushagak River drainage	
	Port Heiden drainage	
[continued]	Port Moller drainage	

Table 4. Continued.

LOCATION (cont'd)	Reindeer Creek drainage	north of Port Heiden
	Sandy River drainage	north of Port Heiden
	Stepovak Bay drainage	west of Ivanof Bay village
	Togiak Bay drainage	
	Ugashik Bay drainage	
	Wildman Lake	near Ilnik Lake, south of Port Heiden
	Wood River drainage	flows to Nushagak Bay
	Bristol Bay offshore	
	Pacific Ocean offshore	
SPECIES	**salmon AND**	**nonsalmon fish AND**
	chinook	Arctic char
	chum	Arctic grayling
	coho	blackfish
	kokanee (landlocked sockeye)	burbot
	pink	capelin
	sockeye	cod
	spawnout	Dolly Varden
		flounder
		greenling
		hake
		halibut
		lake trout
		lingcod
		marine invertebrate
		Pacific herring
		pike
		prowfish
		rainbow trout
		rockfish
		sculpin
		shark
		skate
		smelt/eulachon (hooligan)
		sole
		steelhead
		stickleback
		sucker
		trout/char
		tuna
		walleye pollock (tomcod)
		whitefish
[continued]		wrymouth

Table 4. Continued.

KEYWORDS

Ecological Keywords	**Sociological Keywords**
traditional taxonomy	seasonality
customary rule	method and means
condition	harvest level
population	preservation and processing
seasonal movement	preparation
ecology	preference
	distribution
	other use
	regulation
	user conflict
	commercial use

Ecological Keywords	**Expanded Meaning**	**Example**
traditional taxonomy	Traditional taxonomy	yugyak, anerrluaq, or fish description
customary rule	Customary rule or belief	waste prohibitions, catch and release prohibition "playing with fish"
condition	Condition of fish	healthy, skinny, wormy
population	Population trend	more fish, less fish
seasonal movement	Seasonal movement	spawning areas, winter habitats, summer habitats, run timing, life cycle
ecology	Other ecology	the relationship between individuals of a species and individuals and the environment, i.e., competition for food, effects of pollution, prey species, diet, and weather

[continued]

Table 4. Continued.

Sociological Keywords	Expanded Meaning	Example
seasonality	Timing of harvest	month or season
method and means	Harvest method and means	seine, gillnet, rod and reel, snow machine, boat
harvest level	Harvest level	more fish, less fish, 20 fish, and why
preservation and processing	Preservation/processing method	drying, freezing, splitting, and hanging, parts of fish used
division of labor	Division of Labor	women icefishing and splitting salmon, men using fish traps
preparation	Preparation method	preparation of meals
preference	Preference	fresh or smoked, boiled or fried, differences between young and old people
distribution	Distribution	sharing between individuals and trade between communities
other use	Use other than human consumption	dog food, bait
regulation	Regulation of harvest	ADF&G regulations
user conflict	User conflict	fishing sites on Togiak River
use area	Use area	Dillingham beaches, confluence of Kokwok and Nushagak rivers
commercial use	Commercial use	commercial use
ceremony	Ceremony	Selavi
traditional story	Traditional story	A story, usually about people and animals, often describing a rule

Figure 3 is an example of the Search dialogue box, which is opened from the first page of the database. This search is for "Perryville" in the Community field and "coho" in the Species field.

"Search Results" Window. The Search Results window is one feature that makes *From Neqa to Tepa* a powerful research tool. The Search Results window, shown in purple in Figure 4, lists the notes retrieved when "Perryville and coho" have been requested from the Search Line. The first retrieved note is displayed in the top portion of the screen. Choose to view any document found by the search simply by clicking on it in the Search Results window, and it will replace the note at the top of the screen. At the top of the Search Results window shown in Figure 4, there were 19 documents found that match the search criteria, having both "Perryville" and "coho". The window is configured to show the contents of three fields for each of the 19 found documents: community, year, and keywords.

The "Keywords" and "Acknowledgments" Links

The third part of *From Neqa to Tepa* is the list of keywords (see Table 4 to view the keywords). The fourth part is the acknowledgments.

The "Technical Papers" Link

This page of *From Neqa to Tepa* is a list of titles of reports that are part of the Division of Subsistence, ADF&G, technical paper series (Figure 5). The reports listed contain information about subsistence fisheries in Bristol Bay and the northern Alaska Peninsula from information collected between 1983 and 2000. Each title is a link to the entire report. At the top of the page is a link to the Adobe web page where a free Adobe Reader can be downloaded in order to view the reports, which are in .PDF format.

The "Map of Area" Link

Part six of *From Neqa to Tepa* is a detailed map of the study area (Figure 6). It is in Adobe .PDF format, allowing the viewer to zoom in on the map with no loss of detail.

The "Go to Database" Link

The seventh and final part of From *Neqa to Tepa* is the database. The first page of the database is shown in Figure 7. The Search Line is at the top of the page for quick searches of the database, as described above in the Instructions section. Each document can be viewed by

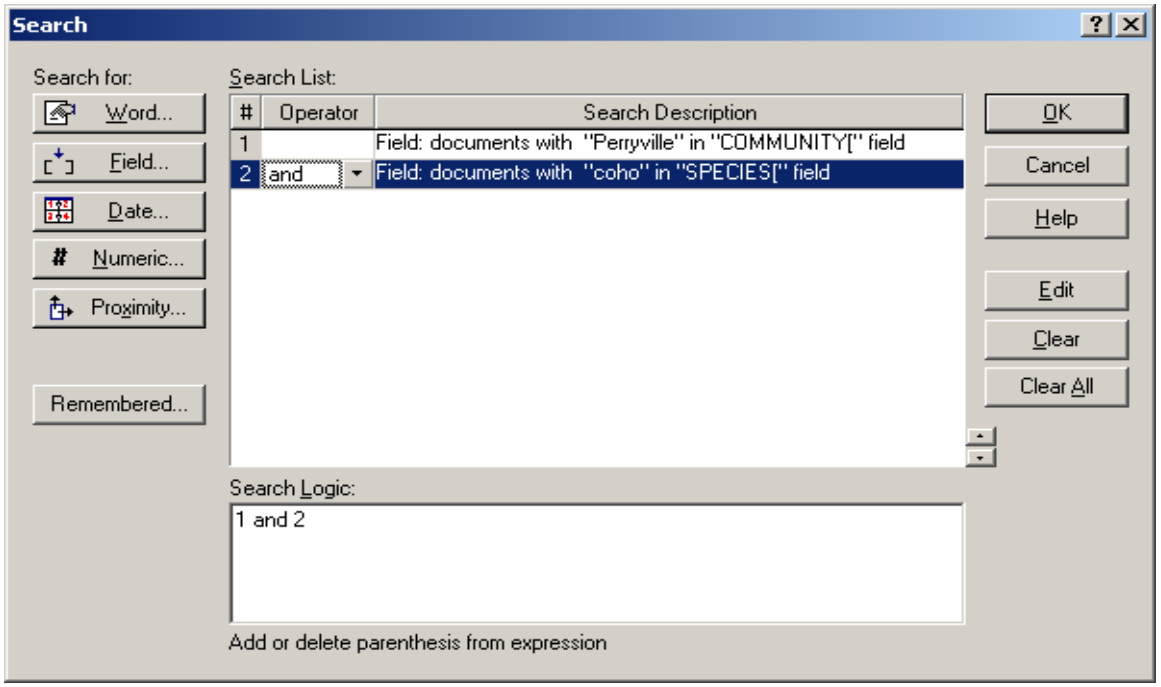

Figure 3. "Search" dialogue box in *From Neqa to Tepa* .

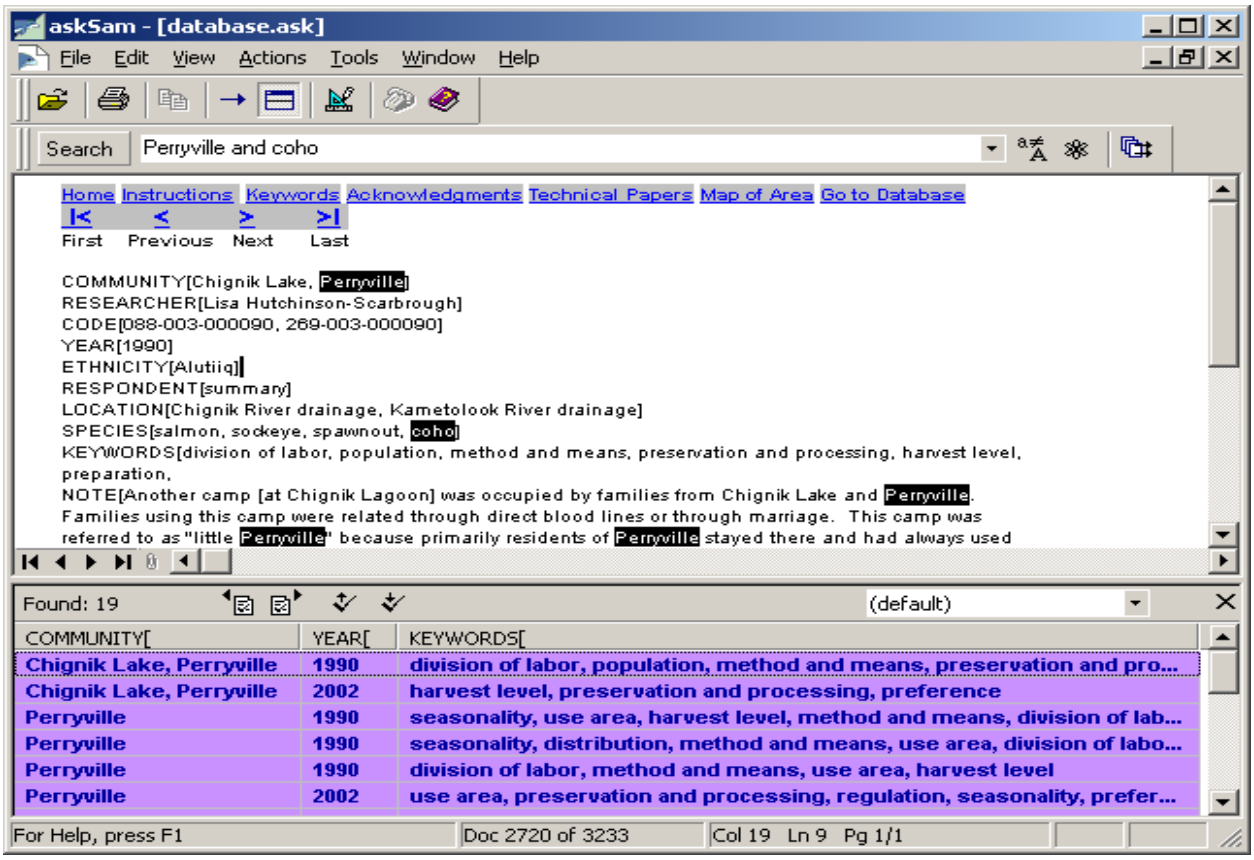

Figure 4. The "Search Results" window in *From Neqa to Tepa*.

Figure 5. The "Technical Papers" page in *From Neqa to Tepa*.

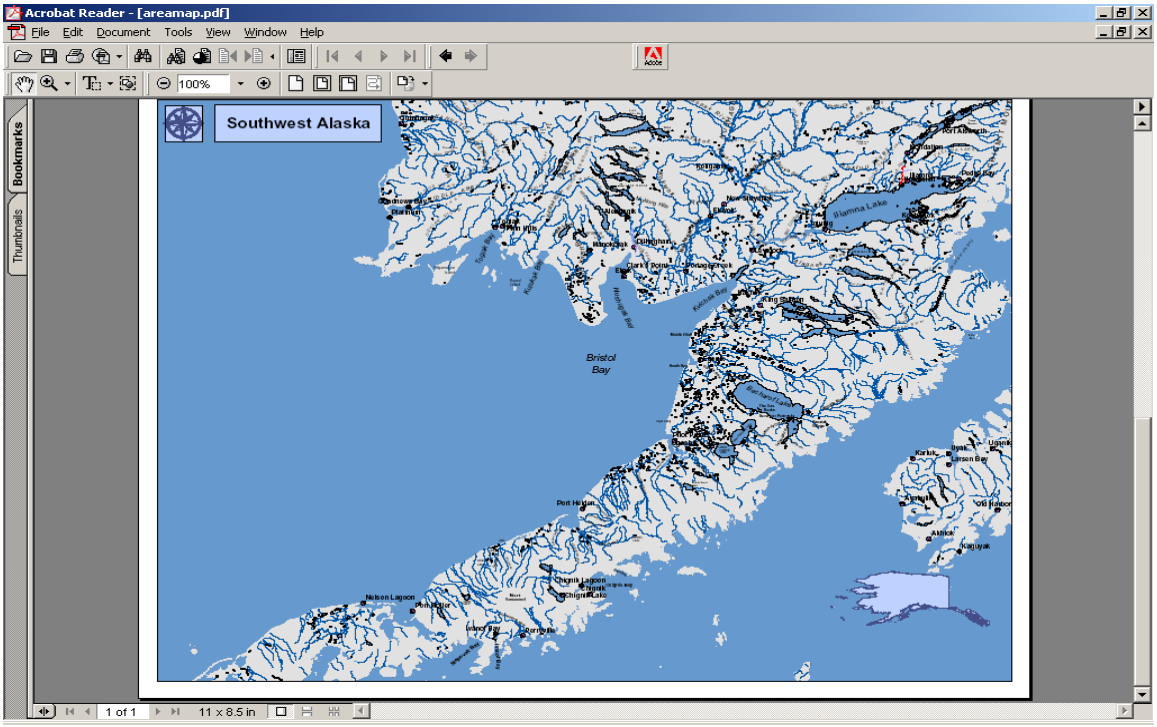

Figure 6. The "Map of Area" page in *From Neqa to Tepa*.

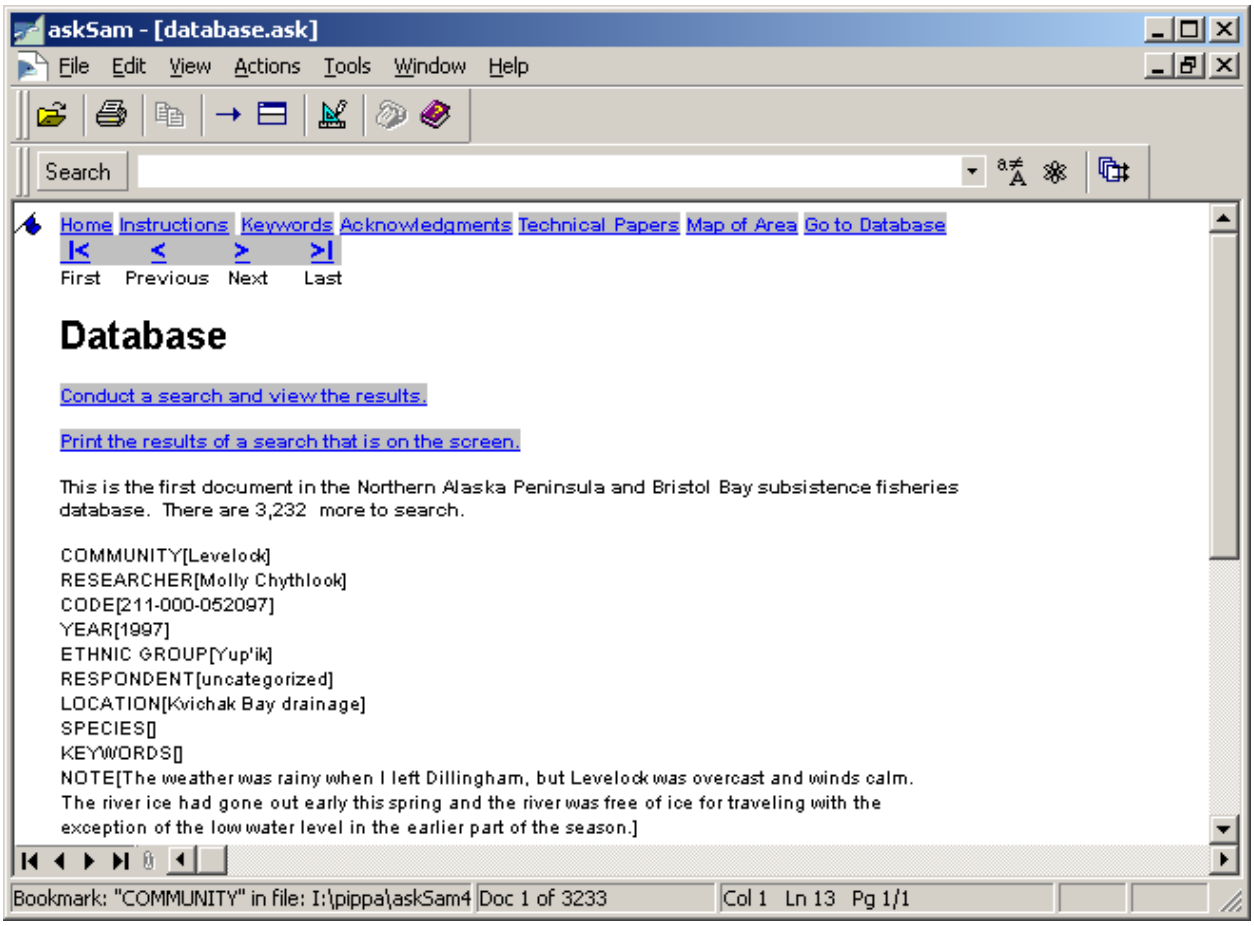

Figure 7. The "Database" page in *From Neqa to Tepa*.

clicking on the Next arrow button at the top of the window. The link **Conduct a search and view the results** opens the Search dialogue box (Figure 3) for more complex searches and searches in fields. The link **Print the results of a search that is on the screen** opens the Export dialogue box and saves the results of a search quest in a new file. Every document in the database begins with the nine fields filled with keywords. The fields are community, researcher, code, year, ethnicity, respondent, location, species, keywords. The line at the bottom of the screen indicates that the document in the window is the first of 3,233. The help menu at the top of the screen provides detailed information on other ways to view and organize the database. The database will be demonstrated in the Discussion section of this report.

The database is made up mostly of the edited transcripts of interviews with knowledgeable respondents. The transcripts have been edited to remove extemporary dialogue, such as "Come in, the door's open", and to clarify the content of the discussion. Other parts of the database include notes taken during surveys quantifying subsistence harvests, researcher observations, and other notes.

DISCUSSION

The database has several design features added specifically in response to requests from some researchers. So that researchers could view more than just short pieces of interviews taken out of context, the Respondent field was added to reveal if the document came from a recognized expert or was a note written down during a questionnaire interview. A significant feature of the database is that the entire text of every edited interview is in the database. This means that the context of the information in a document, described in adjacent documents, can be quickly viewed by clicking on the arrows at the top of the page. The Code and Researcher fields were added specifically to aid the researcher in recognizing documents that were collected together.

Another feature of *From Neqa to Tepa* is the keyword outline (Table 4). Many keyword lists from various projects were reviewed before devising the structure used here. Search requests using these keywords will clump rather than split information. It is easy to quickly scan the documents obtained from a search request and toss the ones not wanted before exporting them to a printable file. "Keyword" is used two ways in *From Neqa to Tepa*. The first meaning is any word in the keyword structure in Table 4 that can be entered into a field. This includes all the community names and drainage names, as well as other information. There is also a field called "Keyword", the content of which is listed on the last page of Table 4. These keywords are divided into two categories: ecological and sociological keywords. The first category contains words such as population and seasonal movement, words describing fish and their environment. The other category, "sociological keywords", includes seasonality (when a resource is harvested) and method and means. The database can be searched in a way to meet the needs of researchers, including local residents, biologists, and anthropologists.

To fully understand what the database *From Neqa to Tepa* is, think of it as an old fashioned card file used to organize research notes. Many of these notes are the transcripts of interviews highlighting traditional ecological knowledge of various species of fish (as well as other types of information). Rather than manually organizing these notes and searching them for specific information, the researcher asks the askSam software to do this. For instance, one might want to see the notes from the community of Egegik. Or one might want to see all the notes connected with a group of communities, or notes organized by species (rainbow trout, pike), or species category (salmon, nonsalmon fish). All of these notes can be quickly viewed.

Very specific searching can also be done. For example, entering "(Ugashik or Pilot Point) and pike" on the Search Line, produces all the notes about pike from both Ugashik and Pilot Point interviews in the Search Results Window. Ugashik and Pilot Point are located on the same drainage. The search "Ugashik Bay drainage and pike" yields similar results but would result in notes concerning the Ugashik Bay drainage – not just those from Ugashik and Pilot Point interviews. Below are two examples of research using *From Neqa to Tepa.*

Using "From Neqa to Tepa" as a Research Tool

Egegik Smelt

This example concerns the community of Egegik. To evaluate the available information on fish, a quick series of searches was done. There were 21 notes concerning grayling, 12 for pike, 17 for whitefish, 23 for smelt, and 39 for trout/char. The notes that were retrieved indicated, for example, the following information:

- the grayling population was low in 2001;
- grayling were found in the main stem of the Egegik River with a higher density in Featherly Creek where it was common to see sport fishermen;
- pike are aggressive fish;
- pike were harvested primarily from the King Salmon River;
- pike were also abundant in the Island Arm of Becharof Lake;
- whitefishes were common in the Egegik and King Salmon rivers;
- whitefishes were not harvested in large quantities; and
- whitefishes were noticed in the greatest numbers in the late fall after the rivers are clear of salmon.

Table 5. The nonsalmon fish harvest at Egegik, 1973/74 and 1987.

	n=20/24	n=25/42
	Pounds Per Capita Harvest	
Species	1973/74	1984
Grayling	0.80	2.90
Pike	5.10	
Sucker		
Whitefish	1.50	0.08
Cod		0.03
Flounder	0.90	2.19
Herring	1.50	
Sculpin		
Smelt/eulachon	7.70	5.36
Trout/char	2.90	2.94
char		
Dolly Varden	1.70	1.32
lake trout	0.30	0.19
trout		
rainbow trout	0.70	1.43
Total	20.40	13.50

Source: Gasbarro and Utermohle 1974 and Scott et al. 2003

Table 5 , above, indicates that during the two subsistence resource harvest surveys, conducted in Egegik in 1974 and 1987, smelt was harvested at the highest level in pounds per capita compared to other species of nonsalmon fish, and the notes in *From Neqa to Tepa* support these data. The 23 notes describe knowledge of smelt specific to the Egegik Bay drainage and are representative of what a researcher might learn about smelt today while visiting Egegik. Using the link on the first page of the database **Print the results of the search that is on the screen**, the notes were printed to a file, or exported, and saved in Rich Text format (RTF) and called *egegiksmelt.doc* (Figure 8).

Another screen was opened in MSWord (Figure 9) and the notes were edited and organized into the overview of smelt ecology in the Egegik Bay drainage:

> Various species of fish were called “candlefish” throughout Bristol Bay and the northern Alaska Peninsula. In Egegik, people had heard of candlefish but explained that what was harvested locally was “smelt”. Respondents described that “candlefish” were caught in Perryville. Smelt was the preferred and most abundant nonsalmon fish used by residents of the community, according to respondents. Three different types of smelt were mentioned in the Egegik drainage, related but differing in appearance.
>
> Smelts migrated to the Egegik River in early fall and at the mouth were seen “running” along the beach but were also observed at the mouth of the river during most seasons. One respondent explained that 2000 was a warm winter “so we

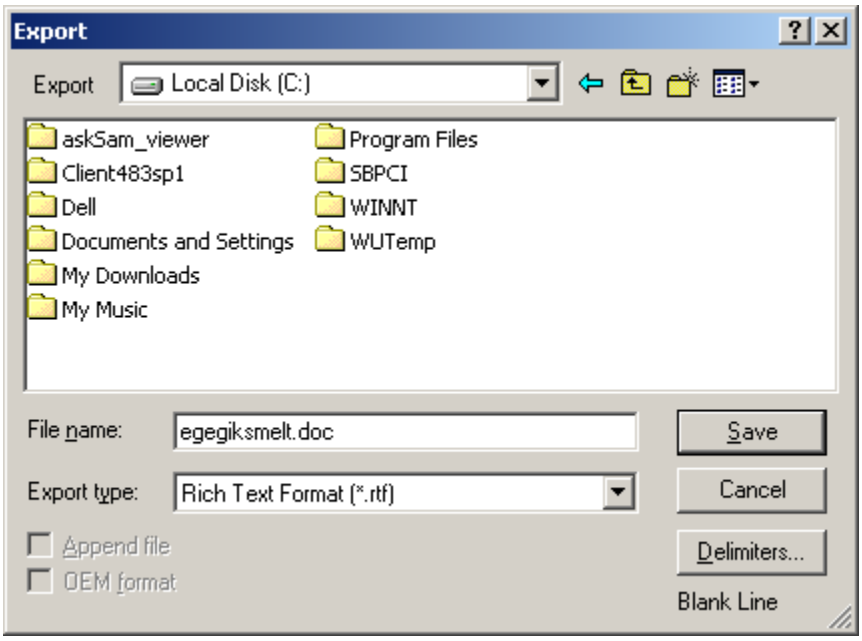

Figure 8. The "Export" dialogue box in *From Neqa to Tepa*.

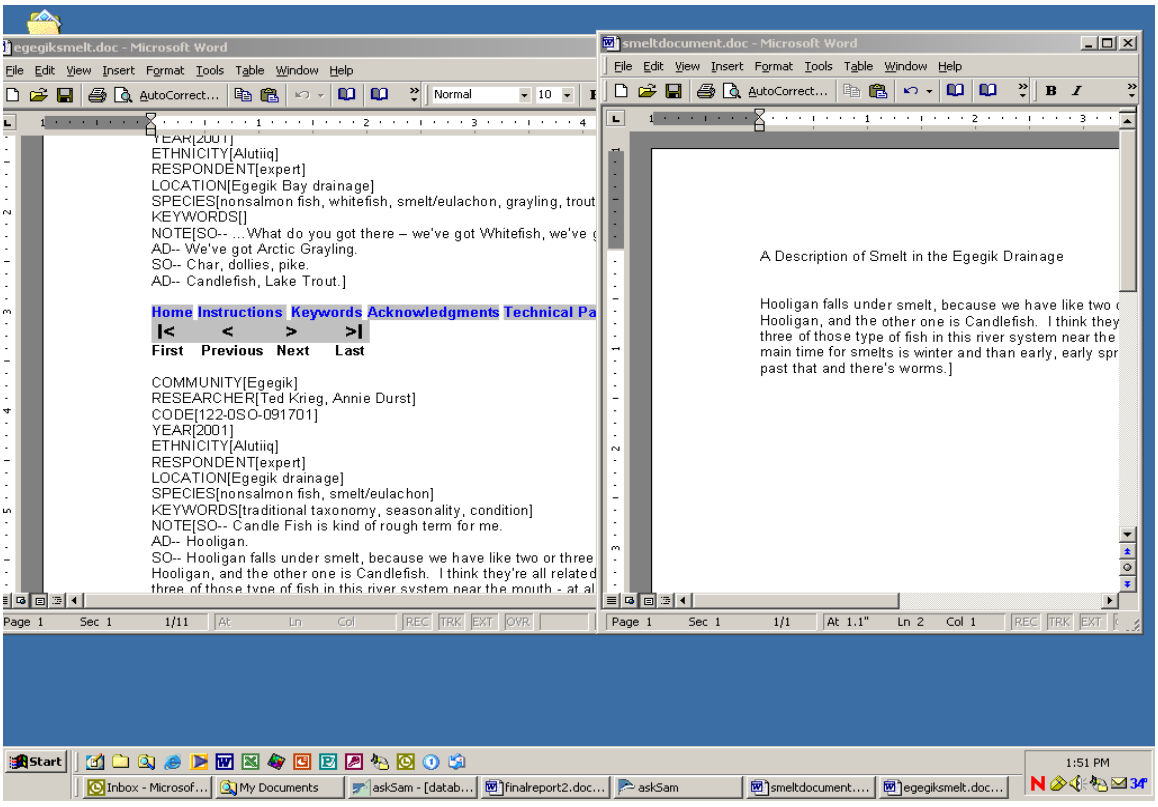

Figure 9. An example of using the database *From Neqa to Tepa* as a research tool. Results of a search request have been exported to the file on the left. The window on the right is where the notes are being pasted and edited.

couldn't go fishing that much" because of poor traveling conditions. "But there's years past you could just catch hundreds and hundreds of them right out of the ice." Another primary harvest location was a spot locally referred to as the first fishing hole [#10 on place name map] in the King Salmon River. Other species of fish were targeted here sometimes, but most of the harvest out of the first fishing hole was smelt caught in the winter season. One respondent explained that the King Salmon River is still tidal at the first fishing hole, and people caught smelt during the high and low tides. More smelt were caught during weak tides than strong tides. He had never seen smelts above the tidal zone at the first fishing hole on the King Salmon River, although he had been told that smelt migrated further up the river.

Smelts were harvested mainly in winter and early spring up to breakup. Anytime later they are wormy. "As soon as the ice chunks are gone and the majority of the river's broken up, you don't touch anymore smelt, because they're full of worms. So, at that time you quit going for smelt, you quit going for rainbow, typically, because you can't get there anymore. By middle February or March, all fish get wormy and people won't fish again until the salmon comes."

In 2001, there were fewer smelts compared to 15 years ago. One reason given was predation, specifically belugas and seals, all kinds of birds – in short, all the animals that typically feed on salmon. Belugas were seen up the King Salmon River, a recent occurrence not seen before in memory. They were eating all kinds of fish. There had been a lot of smelt in recent years "but not millions like there used to be." One person explained this was a normal cycle for the smelt, the abundance going up and down over time and intertwined with the population cycles of other animals. During a recent fall season, a respondent described "a lot of little fish" coming out of the river, in the wake behind his skiff, "It just seemed like it was raining back there." He began to notice them at a fishing hole [#19 on place name map] about half way down the Egegik River from the lake. He also noticed these fish jumping around the set nets in the river.

Notice that local place names different than United States Geological Service place names were used by the people interviewed, and these places were also assigned numbers. At the top of many of the individual documents in the database is a link to a place name map. By clicking on the link, a detailed map of the Egegik Bay drainage, in this case, appears on the screen. The place name number mentioned in the report is on this map, as well as a table of place names and corresponding place name numbers (Figure 10). When reading the notes, researchers can move back and forth between the place name map and the notes.

Iliamna and Newhalen Area Salmon Population

Beginning in the mid 1990s, sockeye escapement into the Kvichak drainage had been declining. A search request for the communities of Iliamna and Newhalen concerning salmon population,

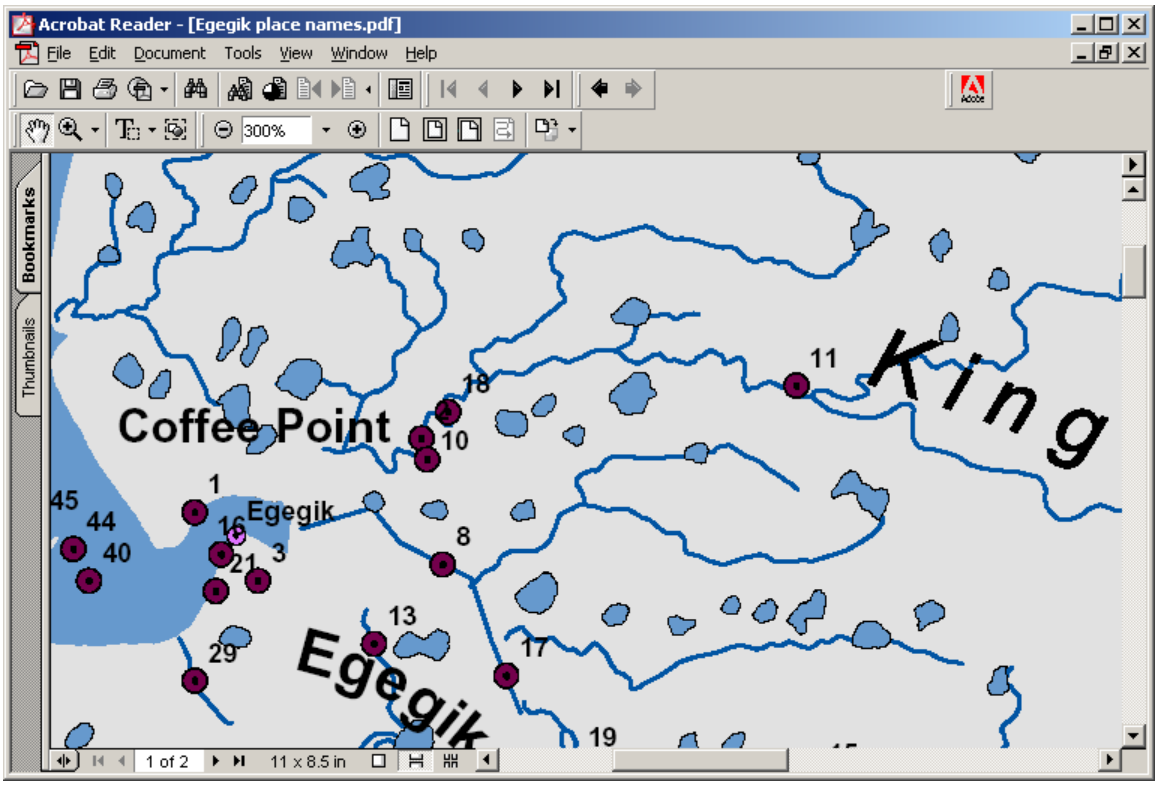

Figure 10. Magnified place name map of the Egegik drainage from *From Neqa to Tepa*.

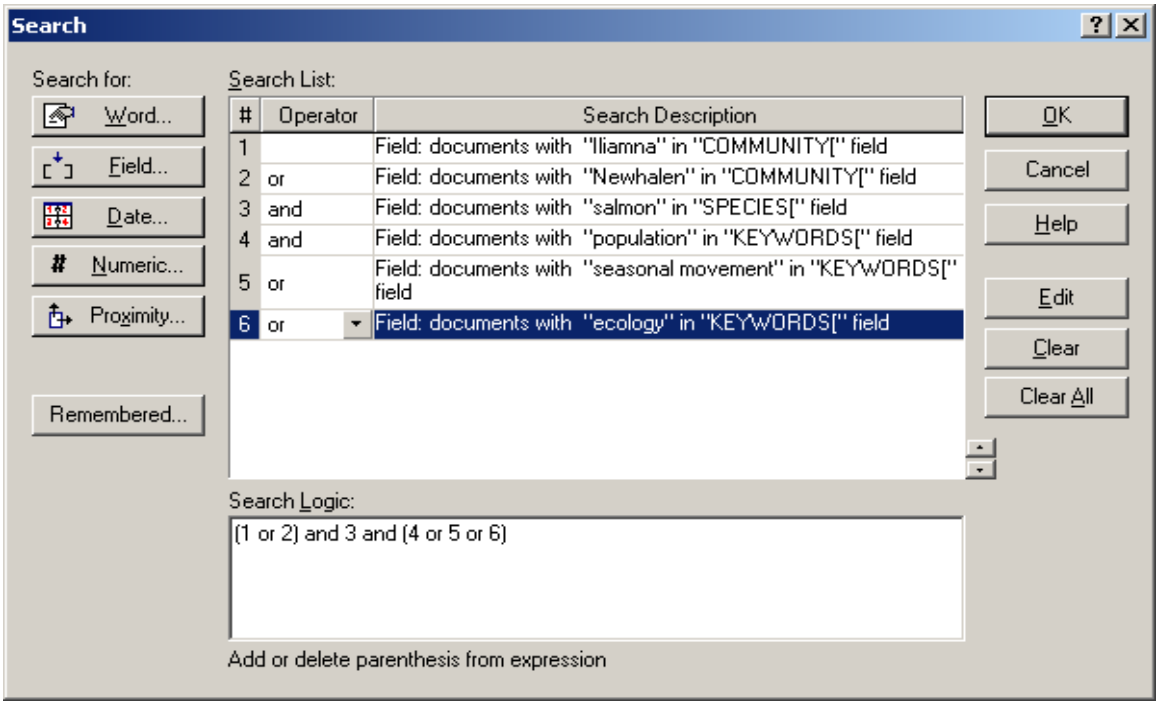

Figure 11. Search request for Iliamna and Newhalen salmon from the *From Neqa to Tepa* database.

seasonal movement, and ecology was entered into the Search dialogue box above in Figure 11. The following is the narrative produced from results of this search request.

> The lack of fish in spawning ponds was mentioned during interviews in the fall of 1992. Sockeye spawn in the Upper and Lower Talarik creeks and in three ponds located in the Iliamna area. These ponds teemed with fish in the past, but now there were hardly any in them. A division researcher observed one pond located about 1/2 mile off the Iliamna main road. The pond was about 100m x 50m and there were less than 50 bright red fish in it. Other than a very old green gill net with a couple of buoys attached on the edge of the pond, no other human trash or debris was visible. The pond was just inside the boundary of a spruce forest. Less than 20 meters away was the beginning of a treeless swampy tundra setting.
>
> Further down the Nondalton road was reportedly another spawning pond. A 1/2 mile trail traversed a ridgeline, gently climbing in an easterly direction towards the mountains. The pond was visible below the trail in a forested environment. A deep, fast moving creek ran from the pond to the Newhalen River, and the creek paralleled the path. There were less than 50 red salmon observed by the division researcher in the pond. Other ponds were visible in the distance.
>
> One person said that there were no salmon around Flat Island and Chekok when salmon were usually pouring through there, and no salmon at Tommy Point. However, pink salmon were observed on the bottom of Iliamna Lake in larger quantities than noticed before, and more pink salmon were being caught in subsistence nets than in the past. It was noticed that salmon were not making it up to some creeks and ponds at all anymore, and one person wondered if this was because of beaver dams. Specific places mentioned were Bear Creek and MacKarluk Pond.
>
> One women said she had really had to work at getting salmon this past year. Her net was never really "hit" but she would get eight or nine fish a day. She had put her net in East Bay, and there was some thought that maybe the new dock had affected the shoreline and travel patterns of the salmon.

The content of the above narrative is a good example of information that is useful to biologists examining the sockeye escapement in the Kvichak drainage before the magnitude of the decline was realized.

During the recent research on the Alaska Peninsula, certain knowledgeable people, especially those in Egegik, were not available. Follow-up interviews would likely add some new information. The information in *From Neqa to Tepa* is a snapshot of an ongoing process of knowledge attainment and discovery. However, a large quantity of information of species used at higher levels in the communities is in the database. The so-called “gaps” in the database probably directly reflect what is and is not observed in the communities by people who interviewed.

CONCLUSIONS

The primary product of this project is *From Neqa to Tepa: A Database with Traditional Knowledge about the Fish of Bristol Bay and Northern Alaska Peninsula* version 2.0. There are seven parts to *From Neqa to Tepa*, of which the database is only one. The other parts include a Home page, Instructions, Keywords, Acknowledgments, Technical Papers, and Map of Area. These titles are displayed as hypertext links at the top of every page of the CD *From Neqa to Tepa*. The database is a collection of indigenous local knowledge about the fish of Bristol Bay and the northern Alaska Peninsula that has been imported into a searchable database made up of over 3,000 entries, over half of which are from the current research in Chignik Bay, Chignik Lake, Chignik Lagoon, Egegik, Ivanof Bay, Perryville, Pilot Point, Port Heiden, and Ugashik. There is also a home page to orient users, instructions for searching the database, a list of keywords used in the database, a list of everyone involved in both projects *From Neqa to Tepa* version 1.0 and 2.0, a page of hypertext links to the Division's technical paper series, and a map of the research area. There is a "view-only version" of askSam, as licensed by the Alaska Department of Fish and Game from askSam Systems, that comes installed on the CD. The viewer allows people to view the CD without purchasing the askSam software and is licensed for unlimited distribution.

From Neqa to Tepa version 2.0 contains several special features, described below.

- The entire text of all the edited interviews and other notes are in the database and can be easily viewed, allowing researchers to view the context in which the content of every document was collected;

- each document begins with seven fields that allow for more detailed search requests with the askSam software;

- the keyword list has been enlarged to accommodate information from the newly added communities, mentioned above;

- links to the main pages of the CD (Home, Instructions, Keywords, Acknowledgments, Technical Papers, Map of Area, and Go to Database) are at the top of every file and document on the CD;

- and, documents from Egegik, Pilot Point, Port Heiden, and Ugashik, are linked to place name maps that were made during the interviews.

These features make the *From Neqa to Tepa* database a powerful research tool. The CD was distributed to all the communities that participated in the research. It is also available to the public. It includes *version 1.0* which primarily includes documents from communities on the west side of Bristol Bay. Therefore, in addition to viewing the transcripts from the current

research, most of the Division's written information regarding fisheries in the research areas can be viewed by anyone. However, the search capability of the software is what makes the database superior to previous efforts to organize textual data. AskSam software is quickly becoming the standard research tool for the Division, and federal programs are also beginning to use the software (cf. Togiak National Wildlife Refuge, USF&WS).

RECOMMENDATIONS

This section is divided into two parts. First, recommendations from researchers' experiences in the communities are presented. This includes recommendations about how to successfully hire and train local assistants; advice concerning the benefits gained from using some recording and transcription equipment over others; and guidance about when to schedule visits to communities when doing TEK research. Second, recommendations for further research in Alaska Peninsula communities are listed.

Recommendations for Projects of this Type

Hiring and Paying Local Research Assistants

Local Research Assistants were hired through BBNA. Some problems were encountered early on due to hiring requirements in BBNA's policy involving paying by the hour. The solution that worked was to pay the Local Research Assistants a lump sum of $250 per interview; this included setting up the interview, helping conduct the interview, and transcribing the tapes. Payment was made when the completed transcripts were submitted by BBNA. This payment plan worked on a fixed project budget because it insured that a finished product, in this case the transcripts, would be received before any payment was made. It also provided incentive for the Local Research Assistants to get the work done in timely manner so they could get paid. This plan worked well for this project in large part because of the excellent abilities of the Local Research Assistants and their commitment to complete the work.

Some problems with this payment plan are that not all interviews are the same length (a longer interview means more transcribing time) so there are inequities in the amount of time each Local Research Assistant is required to work to complete the transcripts. This also creates a situation where the Local Research Assistant may rush through the work so they can get paid sooner. Compounding this is the fact that the supervisors (i.e. BBNA and ADF&G) are not physically present to work with and keep track their progress. The lump sum payment method therefore is an issue of the amount of responsibility that can be placed on the Local Research Assistant for the amount of money they are being paid

As anyone who hires employees knows, not all employees work out. Someone that is capable, and really wants to do the work, may find out that family responsibilities prevent concentrating on transcribing tapes. Self motivation is another factor, especially since transcribing tapes is a tedious process that requires discipline and tenacity to complete and is clearly not something that everyone has the patience to do well or efficiently. Without an office and specific work hours set it is easy to look at tomorrow as a good day to get things done and in some cases that tomorrow never comes. If at all possible provisions for office space and computer access should be arranged for the Local Research Assistant in the village if they require it.

Training Local Assistants to Transcribe Taped Interviews

A brief transcription guideline was prepared for the Local Research Assistants, but specific transcription guidelines and examples should be prepared for the Local Research Assistants. In some cases portions of interviews were summarized, paraphrased, or not recorded at all to exclude information not relevant to this project. Although this procedure was adequate it was determined that strict word-for-word transcripts were the most effective for documenting the intent of the respondent. Word-for-word transcripts can be more easily checked for accuracy and it removes some of the responsibility from the Local Research Assistant for evaluating the importance of the interview. When transcribing the tape the portions of the interviews that are not transcribed, because they appear to be irrelevant, should be identified in brackets with a note: "discussion not relevant" or something to that effect. Untranscribed portions of the tape can more easily be completed at a later date without the need to evaluate for accuracy the portions of the taped interview that were summarized. Transcripts need to be reviewed for accuracy by listening to the tape while simultaneously reading the transcript. This can be a time consuming process, but it is critical, and should be stressed to the Local Research Assistants. Local Research Assistants should be monitored by reviewing the transcripts they have completed and giving them more instruction, as needed.

Local Research Assistants were grateful for the opportunity to work on this project but in most cases would have preferred long-term employment. Apparently the short duration of the work for this project deterred some qualified individuals from applying for the job because they were looking for long-term employment. Only one Local Research Assistant quit during this project without doing the work. That individual moved to Anchorage after helping with the interviews and did not transcribe the interview tapes. The research assistant from another village was rehired to do the transcribing.

Equipment

Cassette tape recorders that are capable of good quality recordings are essential. Transcription machines with remote controls are much more efficient than push button tape recorders for transcribing tapes. A Subsistence Division transcription machine was sent to one Local Research

Assistant rehired to finish transcribing tapes for the project. That was the only tape transcription machine available between the lead cooperators and was only available in this case to complete the tapes left untranscribed from the north side of the Alaska Peninsula villages as described in the Methods section above. Requiring tape counter numbers on the transcripts is essential to provide an efficient means for the lead cooperators or researchers to find portions of the taped interview that they would like to listen to. Tape transcription machines would be the most likely solution to this need. After conducting interviews in the villages the lead cooperators of the project should not return home without a copy of the audiotape so that originals are not left with the Local Research Assistants. This requires a tape-dubbing machine so that copies of the tapes can be produced in the field. A back up tape is essential in the event that something happens to the copy left in the village. Personal computers or access to a current computer that is at least Windows 95 compatible are essential. Blank computer disks or CD's must be provided so that computer files of the interview transcripts can be sent to the lead cooperators.

Scheduling

Late spring, summer, and early fall are busy times when it is hard to catch people at home in the villages. Then in the fall village leaders are involved in regional and statewide meetings. Subsistence activities are ongoing and always a priority; it is hard to schedule around subsistence activities that are opportunistic. Typically our informants are village leaders and/or heavily involved in subsistence activities. Their time is precious so we tried to work into their schedules. Patience and coordination are required to be able to meet with the key respondents to conduct the interviews in the villages.

Recommendations for Future Research

- Mapping should be a budgeted part of TEK research. Informants have used the dimension of location in most, if not all, of their descriptions of present and past hunting and fishing activities.

- Additional knowledgeable people should be interviewed, especially elders, who were missed during this project.

- Identify areas about which particular informants have the most in-depth knowledge and return to interview the same people again. Research of this type (TEK) is long term. It is common for an informant to be interviewed repeatedly (if he or she wants to be, which is often the case). By doing this, topics of particular interest to the researcher, or topics that an informant is particularly knowledgeable about, can be explored in more depth. This is how researchers, ethnobiologists and others, and informants generally proceed during TEK projects. Initial interviews with individuals or small groups are a good way

for the local people, as well as researchers, to identify these people and areas of knowledge.

- Share information and actual recordings with families. Due to an airplane accident, several people died soon after being interviewed. Researchers filled several requests from family and friends for the taped interviews. This highlights two points: one, knowledgeable people from the generation before frequent airplane travel are passing; and two, people value the results of the interview process and are eager to participate.

- Participate with and observe people harvesting fish, for example in nets and through the ice, making note of methods used to harvest fish, such as, the use of different net sizes, and why.

- Describe, or identify some aspects of, the total, often unspoken, management practices used locally, now or in the past.

- Tie local ecological observations to broader generalizations about indigenous knowledge of how the ecosystem is organized, often in consultation with others, such as biologists and ecologists.

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Davin Holen in the Division of Subsistence office in Anchorage produced the digitized place names maps that are included in *From Neqa to Tepa* version 2.0.

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APPENDIX

INTERVIEW GUIDE

Alaska Peninsula Traditional Knowledge of Fisheries Project
Division of Subsistence, ADF&G and BBNA, Natural Resource Department
Key Respondent Interview Guide

PRELIMINARY/BACKGROUND:
For each respondent, obtain age (approximation is OK) and residency history, e.g. how long they have lived in the study community and in the study area; other communities in the study area that they have lived in; where they are from originally.

TAXONOMY:
There are several kinds of nonsalmon freshwater fish in the Alaska Peninsula area. What kinds do you know about and what are the local names for them?

POPULATION TRENDS:
Do you think the [species] populations are increasing, decreasing, or about the same as they were in the past?

LIFE HISTORY:
What can you tell me about the seasonal movements of [species]? (timing of "runs" into lakes, out of lakes, etc.)

Do you know what they eat?

Do you know where and when they spawn?

Where do they spend winters?

Where do they spend summers?

USE OF [SPECIES] AND USE AREAS
Are there specific areas (lake/creek systems) that are/were known as good [species] fishing areas? (Map there and collect place names.)

What do you look for in selecting an area to fish for [species]?

Are some types of freshwater fish preferred over others?

Are some areas known for producing one kind of freshwater fish or is it always a mix?

What kinds of fishing gear are/were used?

How is the catch normally preserved? (freezing, drying, smoking, canning)

How are [species] prepared?

[continued]

Appendix – Interview Guide (continued)

Differences in quality of spring vs. fall fish?

Use of fish as trapping bait or dog food?

INTERACTIONS WITH OTHER SPECIES
For example, beavers, other fish, other mammals.

Are there other animals that affect the abundance and distribution of [species]?

Were there traditional ways of dealing with/changing these interactions?

What is different now?