***Exxon Valdez* Oil Spill**
Restoration Project Final Report

Kametolook River Coho Salmon Subsistence Project
Final Report

Restoration Project 02247

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July 2003

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Restoration Projects 97247, 98247, 99247, 00247, 01247, 02247
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Study History:

The legislature of the State of Alaska awarded the Department of Community and Regional Affairs (DCRA) $5 million to fund restoration projects requested by villages in the area impacted by the *Exxon Valdez* oil spill. Perryville's top priority was restoration of the Kametolook River coho salmon run because of its importance to their subsistence way of life. The project began in 1996 with DCRA funding which was used to evaluate restoration alternatives. The *Exxon Valdez* Oil Spill Trustee Council funded the second through seventh years of the project (Federal Fiscal Years 1997 through 2002). National Environmental Policy Act (NEPA) compliance was obtained on May 30, 1997.

Abstract:

Subsistence users from the remote Alaska Peninsula Native Village of Perryville had noted significant declines in the coho salmon run in the nearby Kametolook River since the 1989 *Exxon Valdez* oil spill (EVOS). The Trustee Council began funding a project in Federal Fiscal Year 1997 (October 1, 1996 - September 30, 1997) with the intent of restoring this coho salmon run. This project was a continuation of an evaluative phase of the project funded through the EVOS criminal settlement (Grant Agreement Number 2168588/ May through September 1996). The criminal settlement funded the project for an assessment team from the ADF&G and local assistants from the Native Village of Perryville. The assessment period determined the preferred method to restore the Kametolook River's coho salmon run to historic levels. This phase ended with the approval of an Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) by the US Fish and Wildlife Service in May 1997. The EA and project review supported instream incubation boxes as the preferred restoration alternative.

Annually, every November 1997 through 2001, coho salmon eggs were placed in two Kametolook River instream incubation boxes to improve the green egg to fry survival over natural in-river conditions. Since, 1997, the Kametolook River coho escapement has shown some improvement. The later coho salmon escapement level can also be partially attributed to self-imposed in-river harvest restrictions by the villagers and commercial fishing restrictions in marine waters. Community involvement and use of local traditional ecological knowledge by the villagers of Perryville was also an integral part of the projects plan toward the restoration of Kametolook River coho salmon as a subsistence resource. Kametolook River coho escapement estimates didn't increase significantly over the six years of the project as hoped. This is due in part because of the low number of annual returning adult coho salmon available for the egg takes and natural spawning.

In 1999, The Perryville Subsistence Workgroup was formed to address the subsistence needs of Perryville residents and has remained active throughout the remainder of this project. This group is currently seeking funding that will allow the egg box project to continue beyond September 2002. In addition, this group also hopes to obtain genetic and pathology samples of nearby coho systems (fish transport permit requirements) and the eventual transport of eggs from these systems to the Kametolook River egg boxes. This additional work should increase escapements in the Kametolook River and thus provide more eggs for the incubation boxes and eventually a surplus of adult coho salmon available for Perryville residents' subsistence fishing.

Also as part of the project, starting in 1996 a school aquarium project for the Perryville School was set up and maintained annually throughout all project years. Annually approximately 300-500 fertilized coho salmon eggs were placed in the Perryville school aquarium and students followed the development of the eggs to the swim up fry stage. The teachers developed lesson plans in biology and ecology around the aquarium project and developed a stewardship of the local salmon runs with the students. This project is expected to continue indefinitely as long as the school supports it.

Key Words: Alaska Peninsula, Alaska Department of Fish and Game, Chignik Regional Aquaculture Association, coho salmon, community involvement, environmental assessment, *Exxon Valdez* oil spill, instream incubation boxes, net holding pens, Kametolook River, Perryville, Perryville School, Perryville Village Council, Perryville Subsistence Workgroup, school aquarium, subsistence, traditional and ecological knowledge.

Project Data: Kametolook River coho age-class data as well as genetic and pathological samples have been obtained. Thermograph data, air and water temperatures have also been collected. For further information not provided in this report regarding data contact James McCullough, ADF&G, 211 Mission Road, Kodiak, Alaska. 99615. Phone: (907) 486-1813. E-mail: "jim_mccullough@fishgame.state.ak.us"; or Lisa Hutchinson-Scarbrough, ADF&G, 333 Raspberry Road, Anchorage, Alaska. 99518. Phone (907) 243-4975. E-mail: "lisa_scarbrough@fishgame.state.ak.us".

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EXECUTIVE SUMMARY

Subsistence users from the remote South Alaska Peninsula Native Village of Perryville have noted declines in the coho salmon *Oncorhynchus kisutch* run in the nearby Kametolook River since the *Exxon Valdez* oil spill (EVOS). The Trustee Council began funding this project in Federal Fiscal Year 1997 with the intent of restoring the coho salmon run to historic levels. This project was a continuation of an evaluative phase of the project funded through the EVOS criminal settlement (Grant Agreement Number 2168588). Although limnological, juvenile, and adult fisheries data were not available or severely limited before the salmon decline, it was determined through the evaluation phase that instream incubation boxes in conjunction with self imposed harvest limits by subsistence users and commercial harvest restrictions were the preferred alternatives for restoration of this salmon run. In 1997, the Alaska Department of Fish and Game, Habitat and Restoration Division, aided the project by providing an Environmental Assessment (EA). In May of 1997, a Finding of No Significant Impact (FONSI) was signed for National Environmental Policy Act (NEPA) compliance.

In the fall of 1997, two production type instream incubation boxes were installed in the upper reach of the Kametolook River. These boxes replaced a small test incubation box that had successfully incubated eggs in 1996. In 1997, the Kametolook River coho salmon escapement was an estimated 724 salmon; nearly four times the estimated escapement during 1996. The increased escapement from 1996 is partially attributed to the self-imposed closure of the upper river by the villagers and a commercial fishing closure in marine waters during nearly the entire coho salmon run. In November 1997 only two fully ripe female coho salmon and five partially spent female coho salmon were caught. Eggs from these seven salmon were fertilized and placed into the egg incubation boxes. More salmon were desired, but there were difficulties capturing ripe coho salmon, most were green or spent. As a result of not having sufficient parents represented in the egg take (genetic diversity), the permit only allowed surviving fry to be released in two landlocked lakes near Perryville, Sandy and Sicken Lakes. From April 29 through May 18 1998, an estimated 9,500 fry were removed from the instream incubation boxes and released into the lakes.

In October and November of 1998, adult salmon holding pens were installed and used annually every fall through the end of the project to make the recovery of ripe salmon more efficient. This improved the egg harvest and fry production. In the fall of 1998, seven males were used to fertilize 11 females and the fertilized eggs were placed into the Kametolook River incubation boxes. Approximately 31,350 fry were produced and released into the Kametolook River in May 1999. In November 1999, the eggs from six ripe female coho salmon were fertilized with the milt from six male coho and placed in the egg incubation boxes, resulting in approximately 17,100 fry in the spring of 2000. In the spring of 2001, it is estimated that only 5,700 fry were produced from the egg boxes. This is a result of only two female and seven male coho salmon being available for the November 2000 egg take. The 2001 egg take from 11 female and 15 male coho salmon

resulted in an estimated production of 31,350 fry that were released into the Kametolook River.

Community involvement and use of traditional and ecological knowledge from the villagers of Perryville was an integral part of this project as well as contributing greatly toward helping to restore coho salmon to the Kametolook River as a subsistence resource. Presently there are no regulations that prohibit subsistence fishing in the Kametolook River; however, starting in 1997 the Perryville Village Council voluntarily closed the upper half of the Kametolook River to subsistence salmon fishing in order to not interfere with ripening and spawning coho salmon. In addition, the Perryville Village Council has hired local assistants who helped ADF&G with identifying critical habitat areas for ripening and spawning adult salmon and rearing juvenile salmon and historic run timing and escapement information. They also received training to assist ADF&G with other fieldwork including: genetic and pathological sampling, incubation box installation, egg takes and incubation techniques, and year-round monitoring of the environment. Also, an aquarium has been set up in the village school where students actively participate in incubating coho salmon from egg to fry stage and releasing the fry into the Kametolook River. In May 1997, 1998, 1999, and 2002 about 125 - 400 fry annually were produced from the school aquarium project and released into the Kametolook River. Fertilized eggs were also put into the aquarium in the fall of 1999 and 2000; however, a fungus killed the eggs in 1999 and a crack to the aquarium and subsequent water loss killed them in 2000.

Prior to the start of the project, there was little escapement data available for the Kametolook River. The initial escapement projections for the Kametolook River during 1998-2000 were mostly based on household surveys, key respondent interviews with Perryville subsistence users and subsistence salmon permit reports in 1996 and 1997. Escapements large enough to fill the incubation boxes to their designated capacity, 200,000 eggs, did not materialize and the initial restoration time frame estimate was low. The current escapement in the Kametolook River is so small that some type of supplemental egg source will likely be needed to restore this run within another two coho salmon life cycles as the project initially visualized. In the fall of 2003, if additional supplemental funding can be obtained for this project, the Perryville Subsistence Workgroup (a sub-group of the Chignik Regional Planning Team and the Aquaculture Association) plans to work with the ADF&G to conduct pathology and genetic sampling in neighboring coho salmon systems in hopes of being able to supplement the Kametolook egg take with another acceptable brood stock.

INTRODUCTION

This final report summarizes the *Exxon Valdez* Oil Spill (EVOS) Kametolook River Coho Salmon Subsistence Restoration Project from October 1, 1996 through September 30, 2002 (project numbers 97247, 98247, 99247, 00247, 01247, and 02247). This project originated in May 1996 through funding from the EVOS criminal settlement. Beginning in October 1997, the EVOS Trustee Council took over funding of the project and thereafter has funded the project annually. Please refer to annual reports: 97247, 98247, 99247, 00247, and 01247 for more specific information about the project during previous years. Project photographs are located at the end of this report on pages 37-66.

The remote Native village of Perryville is located approximately 500 air miles southwest of Anchorage on the Pacific side of the Alaska Peninsula (Figure 1). The Kametolook River is four miles northeast of Perryville, and easily accessible from the community via ATV, foot, or boat (Figure 2; Photos 1-8).

Coho salmon from the Kametolook River have long been a major subsistence food source for the people of Perryville (Fall et al., 1995; Hutchinson-Scarbrough and Fall 1996; Morris 1987; Owen and Sarafin 1997 and 1999; Owen et al., 2000a and 2000b; Pappas et al., 2001 and Forth Coming). Since around the time of the EVOS, this stock of coho salmon has been in decline. Although baseline data are not available to document fish and wildlife population changes in the Perryville area, many of the local villagers attributed declining Kametolook coho salmon runs and other declining subsistence resource populations in the area to the EVOS. This subsistence project was designed to help improve coho salmon availability and subsistence opportunities for Perryville residents as well as for local wildlife (Photos 59, 60).

It was determined through the evaluation phase of this project in 1996 and 1997 that instream incubation boxes in conjunction with self imposed harvest limits by subsistence users were the preferred alternatives for restoration of this salmon run. An Environmental Assessment for the project was written and approved in 1997 (ADF&G 1997; Appendix A). Necessary permits (fish transport permits and a general habitat/waterway permit) were acquired for the life of the project (through 2003; Appendices B and C).

Annually in the fall starting in 1997, the Alaska Department of Fish and Game (ADF&G) staff and Perryville assistants captured adult coho salmon and harvested and added fertilized eggs to the egg incubation boxes on the Kametolook River (Figure 3). Starting in 1998 and continuing annually through the remainder of the project, captured fish were held in holding pens placed in the spawning area of the Kametolook River to improve availability of ripe salmon at time of egg harvest. In addition, throughout the project samples of adult coho salmon were collected on most of the coho used for the egg harvest by ADF&G and Perryville personal, for disease and genetic screening. The ADF&G pathology lab evaluated all kidney and ovarian samples collected for the project (Appendix D) and US Fish and Wildlife Service (USF&WS) lab is storing the genetic samples for future analysis.

The community of Perryville's participation throughout the project and the traditional and ecological knowledge shared by them to ADF&G proved to be an integral part of helping to restore the Kametolook River coho salmon stock as a subsistence resource (Appendix E; Photos 9-18). The earlier years of the project focused more on training local individuals to assist ADF&G staff with the project. In 1999 and 2000 these individuals, now trained, did much of the project work themselves and therefore reduced the time needed in the field by the ADF&G personnel to work on the project. Local assistants hired by the Perryville Village Council annually as part of a cooperative agreement with ADF&G (Appendix F), provided much of the data on habitat monitoring and site labor for the project, as well as assisting ADF&G with the annual salmon capturing and egg harvests (Photos 11-18, 24, 26-42, 49). Starting in 1999 and continuing annually through 2002, the Perryville Village Council imposed their own closure of coho salmon fishing in the upper reaches of the Kametolook River to do their part at speeding the recovery of its coho runs (Appendix G). Subsistence harvest reports in 1999 though 2002 reported virtually no salmon fishing at all on the Kametolook River (Pappas et al., Forthcoming).

The Perryville school aquarium for coho salmon was part of the community involvement/ educational goals for the project. It originated in 1997 and continued annually through 2002 (Appendices H and I). A small aquarium was purchased and installed in the Perryville School. ADF&G provided guidance when necessary, however the project was the responsibility of a Perryville teacher and designated older students. In most years of the project some of the older students would be involved in field trips to the Kametolook River to do minnow trapping, assist with the egg harvests, help with genetic and pathological sampling, and releases of the aquarium prodigy (Photos 44-58). Approximately 300 to 500 fertilized eggs would be obtained at the time of the egg harvest for the instream egg boxes, and transported to the school aquarium in the fall. The students and teachers would care for and observe the development of the eggs in the aquarium throughout the winter. In the spring of 1998, 1999, and 2002 approximately 400 fry were incubated from coho salmon eggs in the school aquarium and released into the Kametolook River by the students. During the winter of 1999/2000, the eggs died due to a fungus in the tank; and eggs in 2000/2001 died during the winter due to the tank cracking and subsequent water leakage (the tank was replaced in 2001).

Since 1997 the Chignik Commercial Fisherman also assisted with the project, which was supported by the Chignik Regional Planning Team and Chignik Regional Aquaculture Association (Appendix J). Chignik commercial salmon fisheries in the Western and Perryville Districts have been closed annually (by ADF&G emergency orders and 5AAC 15.357 Chignik Area Salmon Management Plan) on about 20 August with hopes of helping to rebuilding the Kametolook River coho salmon stock (Owen and Sarafin 1997; Owen et al., 1999; 2000a and 2000b; Pappas et al., 2001). In the summer of 2000, two deliveries of coho salmon harvested by commercial fishing operators was made available to Perryville villagers to make up for the villager's lack of subsistence coho salmon. In addition, the Perryville Subsistence Salmon Workgroup (PSW) formed on March 19, 1999 as requested by the Alaska Board of Fisheries in January 1999, after a resident of Perryville reported on shortages of subsistence salmon, and especially coho salmon in his community. The workgroup consists of representatives of the village of Perryville (subsistence users), Chignik commercial fisherman (including the Chignik

Regional Aquaculture Association (CRAA) and the ADF&G (staff as advisors) to identify the issues related to Perryville subsistence salmon and develop and implement solutions. In March 2001 and 2002, PSW met again as part of the CRAA annual meetings in Anchorage. Progress reports were given; objectives were reevaluated and additional goals were defined (PSW 2001a and 2001b). This group is expected to continue to meet in the future as long as needed.

OBJECTIVES

The primary objectives of the project were to increase the coho salmon run to the Kametolook River and provide local subsistence salmon opportunities; and to include the people of Perryville through involvement in the project and education. The species of interest for this project was coho salmon.

Phase 1 (1996-1997) of the project included a complete assessment of the creek and river habitats in proximity to Perryville and interviews to determine salmon run strength, run timing, and physical changes to local drainages.

Phase 2 (1996-1997) included installation and testing of a streamside incubation box, continuation of the classroom aquarium and education programs for adults and high school students, and writing an Environmental Assessment.

Phase 3 (October, 1997 through 2002) installation and annual use of two large capacity streamside incubation boxes and continuation of the school aquarium and community education programs. In 1998, two salmon holding pens were built and installed near the coho salmon spawning region of the Kametolook and were used to make the recovery of ripe salmon more efficient and increase the egg take. These pens were then used every fall through the end of the project (2001/2002). Annually (through 2002), egg takes for the incubation boxes and the school aquarium, community and school education, and habitat and harvest monitoring occurred.

Phase 4 (originating in October 2001) was not part of the initial project objectives, but was added due to continual low escapement of coho salmon into the Kametolook River system throughout this project. An expansion of the project will investigate potential genetic and pathology brood stock concerns for the transport of coho salmon eggs and/or juvenile fish from nearby streams to the Kametolook River. River systems outside of the Perryville valley (other than the Kametolook, Three Star, and Long Beach Rivers) will be evaluated and if fish transport permits are granted as well as funding support, the transport of eggs from coho salmon will occur and be placed in the Kametolook River egg incubation boxes, annually until the Kametolook River coho runs are restored to allow for sufficient subsistence opportunities for the community of Perryville. The PSW will take the lead on the project in future years, with support from staff at the ADF&G, Bristol Bay Native Association, Chignik Regional Planning Team (CRPT), CRAA, Chignik Seiners Association, USF&WS, and the Perryville Village Council.

More specifically and as also done in previous project years, the objectives for 1999 through 2002 were to (Figure 4):

1) Conduct stream and habitat surveys in the fall of the Kametolook River to determine coho salmon escapement levels.
2) Collect adult coho salmon and keep them in holding pens (separating females and males) in the Kametolook River until they are ripe.
3) Remove ripe coho from holding pens and remove eggs and fertilized them with milt from ripe male coho salmon.
4) Place most of the fertilized eggs into the Kametolook River incubation boxes.
5) Transport the remaining fertilized eggs (250-500) to the Perryville school aquarium (Fish Resource Permits are obtained by the school annually (Appendix H).
6) Collect genetic and pathological samples from adult coho salmon used for the egg harvest and have them evaluated at the ADF&G and the USF&WS laboratories for pathological and genetics testing.
7) Surviving fry from egg boxes will, on their own, be released into the Kametolook River in the spring of each year.
8) School aquarium fry will be released into the Kametolook River by high school students and their science teacher in the spring of each year.
9) Continue with the Perryville community and student involvement and education component of the project through local participation and increasing their responsibility with assisting the ADF&G with accomplishing objectives of the project.
10) Continue with voluntary closure of the Kametolook River to coho salmon fishing.
11) Continue with the closure of commercial fishing for coho salmon on about August 20 in the Chignik commercial salmon fishing districts near Perryville.
12) Continue to have the CRAA provide commercially caught coho salmon for the community of Perryville to supplement lost use of the Kametolook River coho salmon.
13) Facilitate the PSW to help ensure the group's objectives to assist Perryville with their subsistence salmon needs are met.

METHODS

In the beginning and throughout the years of this project, ADF&G staff responsible for the project would provide updates or discussion about the project to the following groups: other ADF&G staff (i.e.; geneticists), The Perryville Village Council, the Chignik Regional Planning Team, the Chignik Regional Aquaculture Association, the Perryville Subsistence Workgroup and the Alaska State Board of Fisheries.

In 1996 and 1997 a team of ADF&G biologists, and local Perryville residents worked together and evaluated various potential restoration methods for this project. An Environmental Assessment and a Finding of No Significant Impact by the USF&WS was approved in May of 1997 (ADF&G 1997). It was determined that the most appropriate rehabilitation method for this project would be through the use of instream incubation boxes. Similar projects in other regions of Alaska particularly Norton Sound, have proven to be successful and this project too appeared to have good potential to make restoration of coho salmon in the Kametolook River possible.

A test incubation box was positioned in a head water tributary of the Kametolook River in 1996 and along with the natural flow from the stream was used to successfully incubate coho salmon eggs (Figures 2 & 3; Photos 21-23), and produced swim-up fry in by April, 1997. (The genetic integrity of the Kametolook River coho salmon was always assured annually under the guidance of ADF&G's Principal Geneticist, which was identified on appropriate, permits; Appendices B and C). Based on the results from similar projects in Norton Sound, it was assumed that improved returns would be noticeable in about five years, once larger instream incubators would be installed and employed along with the availability of sufficient coho salmon spawners to allow an egg take. Starting in the fall of 1997, the test box was removed and replaced with two production egg incubation boxes near a spring approximately eight miles upstream from the mouth of the Kametolook River (Photos 24-26; 42-43). These boxes were used throughout the remainder of the project. In 1998 and beyond, salmon holding pens were also installed in the upper portions of the Kametolook River near the egg boxes to hold captured salmon until ripe which would improve the recovery rates from ripe salmon (Photos 31-33).

Cooperative agreements were drawn up annually each fall for the Native Village of Perryville who are partners with ADF&G on the project (Appendix F). In the fall of each year of the project, weekly stream surveys were generally conducted by local assistant Jerry Yagie and various other Perryville residents to determine the presence of coho in the Kametolook River. Jerry would then contact ADF&G personal Jim McCullough or Lisa Scarbrough with a verbal report on what he observed. When Jerry determined that coho salmon started to appear in the upper reaches of the Kametolook River (late October or early November), Jim would fly to Perryville and together with Jerry conduct more thorough stream surveys. During this same time, they along with the help of several other local residents would use small mesh gill nets to capture adult coho salmon in the portion of the Kametolook River where spawning/ripening occurs. These salmon were quickly separated by gender and placed into holding pens in the Kametolook River until their gonads were ripe (Photos 27-32). During this time, Jim and Jerry also cleaned the two large production egg boxes and prepared them for the egg installation approximately two weeks later (Photo 26).

Jim (and sometime other ADF&G personnel) would return to Perryville approximately two weeks later (mid November) when Jerry thought salmon were ripe and ready for harvest. Together, and assisted by other local residents, they would remove the salmon from the holding pens, and harvest the coho eggs and fertilized them with milt and placed then into the egg boxes (Photos 33-42). A small quantity of fertilized eggs was also transported to the Perryville school aquarium (Photos 50-53). Kidney, ovarian (for pathological testing), and fin clips (for genetic testing) samples continued to be collected from coho salmon used for the egg take and given to the ADF&G and the USF&WS for pathological and genetic analysis (Appendix D; Photos 44-49).

Jerry monitored the egg boxes throughout the winter and spring and provided reports to Jim. Fry from these boxes survived in 1997/1998; 1998/1999; 1999/2000; 2000/2001 and 2001/2002 from the fall egg harvests and with the exception of 1997/1998 (where eggs were released into two local landlocked lakes) fry were naturally released into the Kametolook River the following spring around April or May.

The Trustee Council's goal of achieving community involvement and traditional and ecological knowledge in the restoration process occurred every year of the project. Through project funds, the Perryville Village Council continued to be responsible for hiring and paying local project assistants, and provided necessary logistical support for the project's operation. In addition to providing labor to the project, the community continued to contribute much to the project. Some of their contributions include: their providing subsistence salmon harvest numbers and locations over time; input from personal observations and identification of physical changes over time to the Kametolook River and the surrounding environment; historic to contemporary salmon run timing and historic escapement estimates; helping the ADF&G identify spawning and rearing areas, and identifying potential characteristics of the river, such as where winter freeze over or spring and fall flooding might occur (Photos 9-18).

Several residents of Perryville have continued to work with the ADF&G on the project. In addition, since the start of the project, Jerry Yagie has monitored the project throughout each the year and provided reports to Jim (ADF&G). Over the years of the project through hands-on involvement, Jerry and others in 1999/2000 and 2000/ 2001 took on much of the responsibility of the project fieldwork with little guidance from the ADF&G. The community of Perryville was informed about the project during village meetings or individual discussions with the ADF&G personnel while they were in Perryville conducting project fieldwork. The Perryville Village Council exercised their own initiative to speed up the recovery of the Kametolook coho runs particularly starting in 1997 and continuing through 2002 by voluntarily closing the upper half of the Kametolook River to subsistence salmon fishing (Appendices E-G; Photos 9-15, 24, 26-49).

Starting in 1997 and continuing throughout the project, children of Perryville were given various opportunities to learn, understand, and appreciate the complexities of the growth cycle of salmon in part through the use of a classroom aquarium that enabled the rearing of coho salmon from egg to the swim-up fry stage, and their release of the fry into the Kametolook River. In addition, when allowed by the teachers and parents, 7th though 12th grade students often accompanied the ADF&G personnel and village assistants to the Kametolook River and nearby lakes to assist with minnow trapping, biological and habitat sampling, and egg harvests. Children that participated in field trips were generally required by their teacher to present a paper or presentation to their class about something they learned. ADF&G personnel would also provide classroom presentations or discussions about the project or other related topics whenever present in the community as part of the project (Appendix H; Photos 39-58).

In March 2001, the PSW met in Anchorage and after ADF&G staff reports on the project, they concluded that the egg boxes alone were not sufficiently restoring the coho salmon runs on the Kametolook River. They identified the objective to secure additional funding in order to: 1) Identify disease free coho runs from three neighboring coho salmon systems (year 2001/2002). 2) Relocate disease free and genetically similar coho eggs from these alternate brood sources to the Kametolook River run (years 2002/2003). 3) Continue with the egg boxes and using Kametolook stock (years 2002/2003). 4) Continue with the approximately August 20th closure of commercial fishing of the Perryville and Western Districts. 5) Continue with Perryville Village Council's prohibition of instream coho fishing and better enforcement to insure escapement

protection. The group met again in March 2002 and 2003 to review the project, assess the goals and address future project goals and funding sources, beyond 2002.

RESULTS

The following is a summary of results/ fieldwork for all years of the project. This includes:

Perryville 96-1 (original start of project/ EVOS Criminal Settlement Funded) and EVOS TC funded project years: 97247, 98247, 99247, 00247, 01247 and 02247.

The project's annual report 02247 is included in this report and contains a more detailed project results summary as well as pertinent trip reports and other attachments for the final project year. For more detailed project descriptions, trip reports and attachments for the previous years of the project, refer to individual annual reports. (Note: 96-1 is included in AR 97247 and AR 01247 is included in AR 00247.)

Project 96-01 (May 1996 through September 1996)
This phase of the project (and portions of field work through May of 1997) were funded through the EVOS Criminal Settlement (Perryville 96-1).

The village of Perryville selected this project as their highest priority during workshops held by the Subsistence Restoration Planning Team in September 1994 and May 1995 (Fall 1995).

In May 1996 Bill Hauser, Jim McCullough, and Pete Velsko (ADF&G) traveled to Perryville and joined with local assistants, Ignatius Kosbruk, Moses Kosbruk, and Jerry Yagie, to assess the Kametolook River in order to make recommendations for the best restoration efforts. A small instream test incubator box (two foot square plywood box) was installed at the headwaters of the river. The incubator box was also equipped with a thermograph to aid in determining the potential of the incubation site. Thermographs were also installed at three other habitat-monitoring locations along the Kametolook River. The Perryville guides showed the ADF&G team the different stream reaches; at this time, there was no evidence of blockages to adult or smolt migration. Blockage and breaching events apparently occur on a scale of about 2-10 years. ADF&G personnel were given the impression that the river has relatively unstable spawning areas with current upstream spawning sites in the Kametolook River improved from prior years.

Young-of-the-year and fingerling coho were observed in several slough habitats and small ponds. Several ponds, deep main-stem pools, side-channel sloughs and spring areas apparently do not freeze solid and would provide over winter rearing habitat. During this trip preliminary investigations were also undertaken for possible stocking of rainbow trout or coho salmon into two landlocked lakes (Sandy and Sicken Lakes) in proximity to Perryville. At the high school ADF&G personnel discussed potential education projects such as a classroom salmon aquarium and recirculating egg incubators.

In March/ April, Lisa Scarbrough prepared a project proposal and DPD to the EVOS TC to request funding to take over the budget for the project starting in FY-1997. Funding was granted.

Project 97247 (October 1996 - September 1997)

Lisa Scarbrough prepared a cooperative agreement between Perryville and ADF&G for their work on the project in FFY 1997.

In early October, three ADF&G personnel, William Hauser, Jim McCullough, and Lisa Scarbrough traveled to Perryville and expanded the habitat surveys of the adjacent drainages (Three Star and Long Beach Rivers) to the Kametolook River, and to initiate a cooperative educational program with the Perryville School, collect genetic and pathological samples from the Kametolook River coho salmon subsistence harvest and placed fertilized eggs in the experimental steam side incubation box. The local assistants, Gerald Kosbruk and Jerry Yagie showed ADF&G much of the historic and potentially productive reaches of the Kametolook, Three Star, and Long Beach Rivers. Long Beach River, although historically productive, presently had no quality spawning or rearing habitat, the Kametolook River showed the most salmon spawning and rearing potential.

Several Perryville high school students assisted with coho fingerling data collection efforts. Minnow trapping was conducted in all three drainages. Rearing and spawning habitat in Long Beach River appeared to be negligible. Three Star River had limited high quality slough habitat and supported juvenile coho salmon and Dolly Varden; spawning habitat appeared to be limited to several short stream reaches. Rearing habitat for juvenile coho salmon in the Kametolook River appeared to be quite abundant while upper stream reaches seemed able to support relatively good numbers of spawning salmon.

A total of 32 adult coho salmon were collected from the Kametolook River during this trip. Few other adult salmon were seen. Genetic and kidney samples, otoliths and scales were taken from each salmon. All observed coho salmon appeared to be recent arrivals to the river and were not ripe; seeding fertilized coho eggs into the incubation box was not possible. High school students, in addition to assisting with fingerling sampling, also explained the field trip experience to their fellow students. Each presented some aspect of the field studies and the ADF&G team participated by asking questions and explaining details. ADF&G personnel also demonstrated scale reading techniques and presented representative samples of all species collected from the minnow traps. Plans were developed with the science teacher to install and permit a classroom aquarium incubator for coho salmon eggs.

In November 1996, Jim McCullough and Joe Sullivan (ADF&G) traveled to Perryville and joined with local assistants to capture and spawn one pair of coho salmon for the incubation box in the Kametolook River. Gillnetting captured about 20 salmon including 4 sockeye, 13 male coho and 3 female coho salmon. Following standard delayed fertilization techniques, the eggs were fertilized and seeded into the incubation box (November 2). A thermograph was deployed in the substrate near the largest group of spawning salmon. Although only a one time event, a

survey to enumerate spawning coho was conducted. About 75% of all observed coho were located within 1 mile downstream of the incubation box; the remaining 25% were scattered in small groups throughout the remainder of the drainage. The total observed coho escapement was about 100 salmon with no ocean bright salmon observed. The subsistence harvest continued, and the observed escapement might have been higher than the actual spawning escapement.

At the Perryville school the ADF&G team assembled the aquarium incubator. When the eggs reach the eyed stage, about 250 eggs from the stream side incubator were transferred to the classroom incubator.

In January 1997, Jim McCullough and Lisa Scarbrough traveled to Perryville. While waiting in King Salmon for the flight to Perryville they met with the Alaska Peninsula/Becharoff National Wildlife Refuge staff to discuss the Kametolook project and review the draft Environmental Assessment. In Perryville, they joined local assistants and checked the thermograph and staff gauge sites, shocked the incubating eggs, discarding dead eggs, and sorted out about 250 eggs, which were transported to the school aquarium. An approved Fish Transport Permit allowed 250 eggs to be raised in the school aquarium and the release of any resulting fry back into the Kametolook River. With the assistance of five high school students the team measured physical characteristics of two landlocked lakes as potential coho fry or rainbow trout release sites and collected gravel for alevin habitat in the aquarium. A slide show of the restoration project and discussion of the life cycle of salmon was presented to all Perryville students. ADF&G personnel also attended a meeting sponsored by the Village Council where they presented a similar slide show. At the village meeting the restoration project and the school aquarium were discussed as well as the life cycle of coho salmon, the 1996 coho salmon escapement, and potential production from the escapement.

From March through May, Joe Sullivan with ADF&G, Division of Habitat and Restoration drafted an Environmental Assessment for the Kametolook River Coho Salmon Restoration Project. A FONSI was developed and in May was signed for NEPA compliance. A Habitat Permit was reviewed and accepted which allows the instream incubation boxes to be deployed. Fish Transport Permits were drafted for review to insure that management, genetic, and pathology concerns are addressed. Approximately 125 coho salmon fry were released into the river of origin (Kametolook) from the school aquarium project (Fish Resource Permit P-97-021).

In April, Lisa Scarbrough prepared a project proposal and Detailed Project Description (DPD) to the EVOS TC to request funding to continue the project in FY-1998. Funding was granted.

During the summer of 1997, the project received appropriate fish transport permits from ADF&G for harvesting salmon eggs and releasing fry from the incubation boxes and school aquarium for the 1997/98 season. Materials for two incubation boxes were purchased, constructed, and transported to Perryville. A meeting was held with the CRPT, CRAA, and the public to development a Western and Perryville Districts coho salmon management plan.

In September 1997, Jerry Yagie and Dennis Shangin from Perryville spent two weeks at the Kodiak Island, Pillar Creek Hatchery and were trained in salmon spawning and incubator maintenance techniques.

Project 98247 (October 1997 - September 1998)

In October 1997, Lisa Scarbrough prepared the annual project cooperative agreement between Perryville and ADF&G for their work on the project. Also in October, Perryville Village Council voluntarily closed the spawning areas of the Kametolook River to fishing.

Jim McCullough traveled to Perryville the first week in November. On this trip set up the school aquarium for incubation of coho salmon from egg to fry stages, met with the teachers and this year's upper class members and instructed them on classroom salmon incubation techniques. Local assistants, Jerry Yagie, Austin Shangin and Dennis Shangin assisted Jim and installed the two production type salmon incubation boxes in the Kametolook River. They attempted a coho salmon egg take for the incubator boxes and the school aquarium, 50 coho salmon were caught, however most were males and only two ripe females were caught. These eggs were fertilized and added to one of the egg incubation boxes (November 5). Genetic and pathological samples were taken from all captured adult coho salmon. Salmon from the egg take were then given away to village residents to be eaten.

The three local assistants along with another resident, Bruce Phillips made 10 additional trips throughout November to the Kametolook River and at different stream locations made several sets per day to capture ripe coho for the incubation boxes. They only were able to capture a total of four ripe females, and 11 males, which were spawned out (November 12). Fertilized eggs were added to one of the egg boxes. They also reinstalled and deployed thermographs at designated sites identified by Jim McCullough. Jim decided that fish holding pens would need to be purchased, installed, and used in future years of the project to improve the harvest rate of ripe salmon. In December 1997, Jerry Yagie and Austin Shangin traveled to the egg incubation boxes and removed approximately 300-eyed eggs that were used in the school aquarium.

From January though May, 1998 Perryville assistants took monthly monitoring trips to Kametolook River to check thermograph sites and egg boxes. Approval to release fry in Kametolook was denied by ADF&G Pathologist due to low number of females harvested; however, approved was granted to release them in local landlocked Sicken and Sandy Lakes in late April or May. The Perryville teacher communicated with Jim McCullough and stated that fry was produced from the school aquarium and released into the Kametolook River in early May.

Jim McCullough and Lisa Scarbrough attended the Alaska State Board of Fisheries (BOF) and Chignik RPT meetings and presented each with reports on the project. A fish transport permit request was submitted to ADF&G for review. In April, Lisa Scarbrough prepared a project proposal and DPD to the EVOS TC to request funding to continue the project in FY-1999 along with the annual report for FY-1997. Funding was granted for another year.

Project 99247 (October 1998-September 1999)

In October 1998, Lisa Scarbrough prepared the annual project cooperative agreement between Perryville and ADF&G for their work on the project.

In late October, Jim McCullough traveled to Perryville to work with Jerry Yagie on the egg incubation project. They conducted a foot survey of the Kametolook River looking for the presence of salmon. Approximately 70 coho and 25 sockeye salmon were observed in the main upriver spawning area located about ¼ mile below the incubation boxes. An additional four coho salmon were counted in the main stem of the river below the main spawning site and an additional 15 sockeye salmon in Candlefish Slough. The indexed escapement count for the Kametolook River was 148 coho salmon and 40 sockeye salmon. The indexed count for coho was twice the observed count (sockeye estimate not expanded). Although the river was somewhat turbid below the main spawning area, it was also obvious that there were few salmon present.

Jerry and Jim caught 16 female and 15 male coho salmon and placed in the holding pens to ripen until the egg take would occur. The instream incubator boxes and water head collector boxes were cleaned and disinfected. The Three Star River was also visited where five adult coho salmon were spotted. Jim McCullough met with the new science teacher, Patsy Chapple and discussed report requirements and the permit process for running the school aquarium, and prepared the aquarium for receiving eggs.

Jerry Yagie continued to monitor the salmon in the holding pens as well as the Kametolook River for the presence of coho salmon and provided updates to Jim. On November 9, 1998 Jim and Melvin Chya (Pillar Creek Fish Hatchery), arrived in Perryville to assist with the egg harvest. The holding pens where checked for adult ripening coho salmon and they noticed that all the adult male salmon had escaped, the female salmon were still captive in their pen. The Kametolook River was surveyed again for adult salmon with approximately 20 coho and 10 sockeye salmon in the main upriver spawning area located about ¼ mile below the incubation boxes observed. None of these salmon appeared fresh and were likely counted during the 23 October salmon survey. The indexed escapement count for the Kametolook River was estimated at 148 coho salmon and 40 sockeye salmon, the survey count from 23 October.

On November 11,1998, Jim, Jerry, Melvin, and Austin Shangin caught seven male coho salmon from the Kametolook River and used them to fertilize the 11 ripe female coho salmon from the holding pen. Standard salmon delayed fertilization techniques were used and the fertilized eggs were immediately rinsed and placed in the instream incubators. All but about 300 unfertilized eggs, which were held back for the school aquarium, were distributed between the two instream incubator boxes. Fin and kidney samples were collected from each salmon for genetic analysis and disease screening, and ovarian samples were collected from each female salmon for disease screening. Genetic samples were kept frozen and later delivered to USF&WS laboratory in Anchorage and kidney and ovarian samples taken to Anchorage ADF&G laboratory for testing.

Jim and Melvin showed all the Perryville students from kindergarten through the sixth grade how to fertilize salmon eggs. After fertilizing the eggs, they were placed them in the school aquarium

where the students were able to watch their development through the swim up fry stage and their release into the Kametolook River in the spring of 1999.

Jim McCullough attended the BOF meeting in January and gave a status report of this project. In March, he and Lisa Scarbrough attended the CRPT and CRAA meeting and provided project status report. A PSW was created consisting of representatives from: Perryville, Chignik commercial fisherman, and ADF&G staff members to look into identifying ways (in addition to the incubation boxes) to assist with the recovery of coho salmon in the Kametolook River. In April, Lisa and Jim participated in a teleconference with this workgroup, and discussed the Kametolook project. The workgroup requested that Lisa and Jim conduct key respondent interviews with families in Perryville that would provide the group with better information about the subsistence salmon fishery in Perryville.

Jim and Lisa traveled to Perryville April 29-May 4, 1999 and completed these interviews. Topics discussed in the interviews were directed at trying to learn how each salmon stock contributes toward meeting the salmon needs of Perryville, and alternative subsistence resources available. Life histories were also gathered for several respondents to document stocks used over time, locations of harvests, and ways each species is processed and cooked. Jim McCullough and local assistants attempted to travel to the incubation boxes on the Kametolook River, but heavy wet snow halted the trip.

Jim and Lisa constructed a project poster and presented it at the March 1999, 10th annual EVOS conference "Legacy of an Oil Spill 10 Years After *Exxon Valdez* (Figure 5). In March/April, Lisa prepared a project proposal and DPD to the EVOS TC to request funding to continue the project in FY-2000 along with the annual report for FY-1998. Funding was granted.

Jerry Yagie continued to monitor the boxes throughout the winter. When he checked them in late May the fry that developed and grew in the incubation boxes had left the boxes for the Kametolook River. Surviving school aquarium fry were also released into the Kametolook River in April.

Project 00247 (October 1, 1999 – September 30, 2000

Lisa Scarbrough prepared the annual project cooperative agreement between Perryville and ADF&G for their work on the project in early October. In late October 1999 Jim McCullough and Lisa attended a teleconference with the PSW. The Kametolook Coho Restoration project was discussed. Jim Fall (ADF&G Division of Subsistence) attended the Alaska State Board of Fisheries meeting in Fairbanks and gave a status report of the PSW including the Kametolook project (Hutchinson-Scarbrough and Fall 1999).

In early November, Jim McCullough traveled to Perryville to work on the egg box project. While he was there he met with the school teachers to discuss the school aquarium project and get the aquarium ready for the coho eggs which would be placed in there at the time of the egg harvest for the Kametolook egg incubation boxes. He and Jerry Yagie, and one high school

student, Michael Shangin, set up the holding pens in the spring above the Kametolook River incubation boxes. They also surveyed the Kametolook River for the presence of any fish. In the spring of 1999, about 75% of the glacial water that had been flowing into the Long Beach River changed course and began flowing into the Kametolook River. The additional flow nearly doubled the size of the Kametolook River and made extremely poor salmon survey conditions due to turbidity. They observed only three coho salmon immediately below the incubation box site, an additional six coho salmon in the main stem and five coho salmon in clear water tributaries. Jerry noted that in one clear tributary, where they saw only two sockeye and one coho salmon, he had observed 20 coho salmon about two weeks earlier. They also saw ten sockeye salmon in the main stem of the river.

On November 5, 1999, Jerry, Michael and Jim captured six female and 16 male coho in the stream reach just below the incubation boxes. They kept and placed in the holding pens all six females and 13 male coho salmon. They were surprised by this catch because they had only observed three salmon the previous day in this area. The glacial melt water made the survey conditions very poor.

During this trip Jim asked several people about the on-going coho salmon subsistence fishery. He was informed that fishing in Sleepy Hollow and Humpback Bay was slow while Anchor Bay and Ivan River fishing was generally good. One person said they had just returned from Chignik Lake with 96 "red" sockeye salmon from the Clark River and that their fishing partners had also taken about 100 fish each for a total of ~300 sockeye salmon. People also noted that the coho run to Ivanof was good with plenty of fish for that village. Jim returned to Kodiak, the evening of November 5.

On November 9, 1999, Jerry Yagie and Austin Shangin caught three female and seven male coho salmon and added these to the holding pens.

Jim returned to Perryville November 15th to assist with the egg harvest. On November 17th, he along with Jerry, Austin, and five junior and high school students (Boris Kosbruk, Alec Phillips, Harry (JR) Kosbruk, Ryan O'Domin and Jonathan Kosbruk) collected eggs and milt from the coho salmon that had been placed in the holding pens. They also collected kidney, ovarian, and genetic samples (these samples were put on ice and dropped off at USF&WS and ADF&G labs in Anchorage when Jim returned from Perryville). Standard delayed fertilization techniques were used and the fertilized eggs were placed in the incubation boxes. About 400 eggs from a singe female and milt from two males were held back for the school aquarium.

The following day, Jim McCullough met with the grade school and high school students that did not participate during the previous days egg take. As in past years of the project, using standard delayed fertilization techniques; the eggs were fertilized and added to the aquarium. Students got to watch the process and a discussion of the care of the eggs and aquarium followed.

Jim McCullough presented a paper in November on the Kametolook project at the annual meetings of the American Fisheries Society in Anchorage. In January 2000 Jim presented another paper of the project emphasizing the project's community involvement. The poster created for

the EVOS 10th annual conference in 1999 was displayed again at the 2000 annual workshop. In April Jim participated in a teleconference for the Chignik RPT and CRAA meeting and provided project status report of the project. In March/April, Lisa Scarbrough prepared a project proposal and DPD to the EVOS TC to request funding to continue the project in FY-2001 along with the annual report for FY-1999. Funding was granted.

The school aquarium-supervising teacher, Mike Looney reported that the fry in the aquarium died due to a fungus. On June 2, Jerry and Raymond Shangin checked the incubator boxes and noted that the fry were still there. They mended the projects' gillnet. On June 26, they checked the boxes again and noted 95-98% of surviving fry had left. Jim McCullough provided a project status report to the CRPT and CRAA in Chignik. Also the PSW issues were also briefly discussed during this meeting with another meeting planned for the following winter.

In September, 2000 Jerry, Austin Shangin, and Tom O'Domin made six separate trips up Kametolook River to conduct stream surveys for coho, cleaned egg boxes and saddles, moved intake box and egg box #1 to new location that would receive better water circulation (the previous year it had filled up with algae).

Project 01247 (October 1, 2000 – September 30, 2001)

Lisa Scarbrough prepared the annual project cooperative agreement between Perryville and ADF&G for their work on the project. Also in October local assistants, Jerry Yagie, Thomas O'Domin, and Austin Shangin conducted stream surveys, counting coho in upper reaches of Kametolook River, and reported the information to Jim McCullough. They made minor repairs to the intake boxes.

The first week in November 2000, Jim McCullough traveled to Perryville and assisted by local residents Jerry Yagie, Bruce Phillips, and Andrew Shangin surveyed Kametolook River's salmon escapement, set up net holding pens, captured and placed four female and eight male adult coho salmon into holding pens. Jim also cleaned and set up the coho salmon school aquarium, and met with a few households concerning their subsistence harvest efforts. Jim learned that in 1999, most of the Long Beach River water cut a new channel and flowed into the Kametolook River. The additional water was glacial and likely caused poor juvenile fish rearing conditions in the Kametolook River. In the spring of 2000 another flood caused most of this water to return to the Long Beach River. Several sloughs in the Kametolook River drainage that had been excellent rearing for juvenile coho salmon changed, some areas filled in with sand and new channels were cut. The recent changes probably improved the overall spawning and rearing conditions in the Kametolook River but the drastic changes from year to year may cause difficult spawning and rearing conditions. Nearby systems (Ivan, Anchor, Smokey Hollow, Ivanof and Humpback Bay) were reported by residents in 2000 to be generally good for pink and coho salmon; however, getting to these streams was at times difficult due to high surf (and inclement weather).

In early November, Jerry Yagie, and Andy Shangin looked for additional brood stock (in addition to the 12 previously captured) in the Kametolook River for the incubation boxes, but none were

found. Jim returned to Perryville on November 13 and on the 16th, Jim, Jerry, and Austin Shangin collected eggs from two ripe coho and milt from seven male coho. One female and one male were still green and released to spawn naturally in the river and one female had died in the holding pen. Standard delayed fertilization techniques were used and the fertilized eggs were placed in the incubation boxes. About 100 eggs from each female (250 eggs total) and part of the milt from three males were held back and used to fertilize the eggs for the school aquarium. Additional ripe salmon were not found and no biological samples were collected due to the few salmon available for sampling and kidney sample requirements were satisfied in 1999. The temperature loggers used to monitor the incubation boxes water temperature and the other loggers used to monitor other habitats were reported on (McCullough 2000, McCullough 2001). Jim instructed the head schoolteacher, Mike Looney, about caring for the school aquarium and the fertilized eggs.

Throughout the winter, Jerry Yagie and Andy Shangin made monthly trips to the incubation boxes to inspect the condition of the boxes and eggs. They had to scrub the intake boxes each trip due to algae deposits. The ADF&G staff analyzed commercial and subsistence harvest data from Perryville.

In mid-March, Jim McCullough met with the CRAA and the PSW in Anchorage to discuss the project and other potential restoration techniques. On March 13, 2001 the PSW, the CRAA and the ADF&G staff met concerning the Perryville's Kametolook River coho salmon run. The following consensus points between CRAA and PSW were reached at this meeting (Note: ADF&G acted as staff and although consensus might have been reached between CRAA and PSW on topics such as the need for a South Peninsula closure on about 20 August, this was not something ADF&G could agree to at the meeting, in part because of allocative issues).

- The Kametolook River coho run is highly important to Perryville village, culturally and subsistence wise;
- The EVOS project has provided excellent educational benefits to the village, and the field egg-incubation operation/technology is well suited to the Kametolook River habitat.
- The ~August 20th closure of the Perryville and Western Districts is reasonable but an absence of a similar commercial fishery closure in the Southeastern District of Area M fishery may be harming the Perryville coho salmon run; timing is inconsistent between the two areas;
- Chignik commercial fishers should continue with late season coho deliveries to the village;
- The village council's prohibition of instream coho fishing must be better enforced to insure escapement protection and;
- Current restoration efforts (EVOS project) must be augmented as annual coho escapements are at less than threshold level, and the run may well be genetically bottlenecked.

On March 30, 2001 CRAA filed two permit applications with ADF&G for an alternate egg supply (brood) source for the Kametolook River coho egg-incubation project and for relocating

fry to the system. Shortly thereafter, ADF&G Juneau headquarters informed them that these permits would be processed only after a disease-free brood stock is identified. A Fish Resource Permit Application was submitted March 23, 2001, proposing disease testing three neighboring coho systems as alternative brood sources for the Kametolook River run. Jim McCullough prepared an estimated budget for disease testing of neighboring coho systems, amounting to approximately $37,000, not including ADF&G staff time.

On April 4, 2001, a teleconference occurred between the CRAA consultant and the ADF&G pathology, genetics, and fish transport permit staff on restoration techniques and requirements for obtaining coho eggs or fry from other river systems and transporting them to Kametolook River, and possible resources to fund the field sampling costs.

In April, Lisa Scarbrough prepared the project proposal and budget request to the *Exxon Valdez* Trustee Council for additional project funding for FFY 2002. An extension was granted to August 15, for the completion of annual reports 00247 and 01247 (combined). The report was completed and submitted to the TC in August 2001.

In May, Jerry Yagie traveled to the egg boxes and cleaned the water intake boxes, and drilled new holes in them to improve water flow. Surviving fry were still present in the boxes, but a count was not done. The school aquarium cracked and the water leaked out killing all the fry it produced. Jerry and Alec Phillips Sr. traveled to the egg boxes in June and noted that all surviving fry had left the boxes for the Kametolook River. They cleaned the boxes, saddles and egg separators.

In July 2001, The CRAA applied for, and was granted, Fish Transport Permits to sample potential brood sources for the Kametolook River incubation project. Lisa Scarbrough wrote the annual report in August for FFY-2000 and 2001 (combined report) and purchased and sent a replacement aquarium to the Perryville School.

Project 02247 (October 1, 2001 – September 30, 2002)
(See Appendices K and L for detailed trip reports.)

October 2001:
Jim McCullough traveled from Kodiak via Anchorage to Perryville (Oct. 19-24). Ted Krieg (Division of Subsistence/ Dillingham) traveled from Dillingham to Perryville. Together they worked with Perryville residents Jerry Yagie and Chris Kosbruk. During their visit, they traveled to the Kametolook River and set up holding pens, cleaned incubator boxes, conducted a stream survey, netted 15 female and 17 male coho salmon and placed them live into the holding pens in the Kametolook River. At the school, Jim and Ted cleaned and set up the new replacement aquarium that was broken the year prior. They returned to Dillingham and Kodiak October 24.

October 30- 31, 2001:
Jim McCullough and Lisa Scarbrough attended a PSW meeting in Anchorage. Workgroup members included Chuck McCallum, Gerald Kosbruk, Andy Shangin, Marvin Yagie, John Lind,

Russell Shangin, Hazel Nelson, Paul Johnson, Matt Siemion, Ernie Carlson, Al Anderson, and Glenn Kalmakoff. Jim McCullough presented an update of the Kametolook coho salmon run status. Jim Fall presented a report on the customary and traditional subsistence salmon harvest in Perryville and the Westward Districts of the Chignik Management Area. The Workgroup approved a final report to the BOF based on Jim Fall's report. The Workgroup also made recommendations to the BOF regarding solutions for meeting the subsistence needs of the native village of Perryville.

November 4-9, 2001:
Jim McCullough (Kodiak) and Ted Krieg (Dillingham) met in King Salmon and traveled together to Perryville on November 4. On Nov 6, Jim and Ted surveyed the Three Star River as a possible egg take site for a school project, but found no fish available. On Nov. 7, they along with Jerry Yagie, Chris Kosbruk, and Mark Battaion did the egg take using eleven female and 15 male coho salmon. They also took about 500 eggs for the school aquarium project. Ted returned to Dillingham and Jim to Anchorage on Nov. 8. On Nov. 9, Jim dropped off biological samples to the federal genetics lab and the ADF&G pathology lab, traveled from Anchorage to Kodiak.

December 2001:
Jim McCullough authored a review of the Kametolook Coho Salmon Stock Status in preparation of the BOF meeting.

January 10, 2002:
Jim McCullough authored a review of the Kametolook coho salmon restoration project for Region IV management and research staff in preparation for the BOF meeting.

January 6-15, 2002:
Jim Fall presented the Customary and Tradition Use Worksheet to the BOF. Jim McCullough presented the Kametolook River Coho Salmon Restoration Project update to the BOF.

February 2002:
Jim McCullough requested funding through the Coastal Impact Assistance Program (CIAP) to continue the Kametolook River coho salmon egg take and to investigate other near by streams for use as egg donors. The Chignik Seiners Association also submitted similar grant applications.

April 20, 2002:
The Perryville teachers, Mark and Kristin Battaion, released about 300 fed fry from the school aquarium into the Kametolook River, about two miles upstream from the river mouth.

May 15, 2002:
Jim McCullough teleconference with ADF&G genetics staff concerning review of the CIAP applications. Jerry Yagie traveled to egg incubation boxes and found that the fry had left the incubation boxes and that the overall survival from green eggs to swim-up fry was about 98 percent.

June 2002:
The CRAA was granted a CIAP fund to take pathology and genetic samples of coho salmon in streams neighboring the Kametolook River in 2003 and for a Kametolook coho salmon egg take in 2003.

June 28, 2002:
Jim McCullough developed a "bare bones" budget ($11,500) for an egg take in the fall of 2002 utilizing existing ADF&G staff and regional general fund money, due to EVOS money no longer being available to fund continuation of the project beyond September 30, 2002.

July 10, 2002:
Jim McCullough traveled to Chignik Bay and updated the CRAA on the Kametolook project and the process and cost of developing a hatchery in Chignik Bay.

August 2002:
Applied for an extension of the ADF&G cooperative agreement with the Native Village of Perryville and ADF&G to allow an egg take this fall and was granted.

Project funding through the *Exxon Valdez* Oil Spill Trustee Council ends. Lisa Scarbrough and Jim McCullough will author the final report to the *Exxon Valdez* Trustee Council on this project.

FUTURE PROJECT GOALS

October 1, 2002- June 2003.
(Funded through general fund money from Region IV, Division of Commercial Fisheries, ADF&G.)

October/November 2002:
Jim McCullough and Ken Bouwens (ADF&G/Commercial Fisheries biologists from Kodiak) will travel to Perryville to set up school aquariums (the school purchased a second aquarium) and capture adult coho salmon for a future egg take.

November 2002:
Ken Bouwens will travel to Perryville and along with Jerry Yagie and some other village assistants will perform a typical egg take for the incubators and the school aquariums using the Kametolook River coho salmon run.

Winter/ Spring 2002/2003:
Perryville Village Council (Jerry Yagie) will monitor egg boxes and provide reports to ADF&G throughout the winter/Perryville School will care for school aquarium, provide reports to ADF&G and release surviving fry into Kametolook River in spring.

Fall/ Winter 2003/2004:

October 2003:
The CRAA, added by ADF&G, will get pathology and genetic samples from the Ivanof and Evan Rivers.

November 2003:
The CRAA, added by ADF&G, will have an egg take from the Kametolook River coho salmon run. Fertilized eggs will be placed in egg boxes as in past, and some added to Perryville school aquariums.

Perryville Village Council (Jerry Yagie) will monitor egg boxes throughout the winter and report to AFF&G survival rate etc. of egg boxes.

March 2003:
The CRAA/ADF&G/PSW will meet to evaluate project/discuss funding sources for project continuation/results of pathological and genetic tests from nearby systems and determine feasibility of transporting coho eggs to Kametolook egg boxes starting in fall/early winter of 2003 (necessary ADF&G permits will be required).

Beyond:
The Project will continue indefinitely as long as it's financially and biologically safe and possible, and deemed by above groups, that the Kametolook coho escapements are restored to historic levels and or sufficient to adequately provide subsistence opportunities for Perryville residents.

DISCUSSION

Egg Incubation Box:

On about April 5, 1997, local Perryville assistant, Gerald Kosbruk closed the test incubation project for brood year 1996 progeny. All live alevins (348 fish) were preserved and sent into Kodiak. From this incubation test no eggs or fish were released. All were sacrificed. From yolk sac observations, it is believed that had they lived, they would have developed into swimup fry in another two to three weeks and voluntarily released about 21-30 April. The team felt that the test project was successful in that it would have produced viable alevins. Mortality of eggs in this test was high, and the team would expect lower mortality in a production phase where the eggs were not confined to prevent a fry release. By confining the eggs the water flow was restricted and materials used in confining the eggs, galvanized iron, likely contributed to the high mortality.

In November 1997, two large instream incubation boxes were installed in the upper Kametolook River. When Jim McCullough was on site, he and village assistants attempted several egg takes. Only two ripe female coho salmon were caught. Ten subsequent trips made by local Perryville assistants at different stream locations and involving several sets per day were also generally

unsuccessful; only five additional partially spent females were captured. Their eggs were fertilized and added to the incubation boxes (Appendix DD). The problem was not in catching fish, but in catching ripe ones. Samples were taken for pathology and genetic testing from all coho salmon harvested for the project. They reinstalled and deployed thermographs at designated sites (McCullough 1999; Figures 4-6). In the spring of 1998, the boxes were checked and approximately 2,850 fry were recovered and released in the two landlocked lakes. Due to the low number of spawning pairs acquired in the fall egg take; the Fish Transport Permit required the fry be released in landlocked lakes rather than the Kametolook River.

In order to make the project successful, two adult salmon holding pens were installed and utilized in November of 1998 and annually since then. This way, adult salmon can be caught using a small mesh gill net (in order not to kill them), the catch can be sorted, with females placed in one pen and males in the second, and the fish can be held till they ripen. If additional fish are needed for the project, subsequent fishing trips can be made. Then ADF&G biologists and village assistants can conduct the egg take at one time using the ripe salmon. This technique has provided a more efficient egg take and has increased the number of eggs that were collected and placed in the incubation boxes and has also improved the fry production. Fry (an estimated 31,350) were first voluntarily released from the egg boxes into the Kametolook River in the spring of 1999. In 2000 the incubation box project produced about 17,100 fry and in 2001 another 5,700 fry. The low fry release in 2001 was a result of only two female coho salmon available in the fall 2000 egg take. In 2002, the incubation boxes produced about 31,350 fry (Table 1).

Perryville School Aquarium:

As part of the project, the ADF&G and the Perryville schoolteachers have operated a school aquarium annually since the winter of 1996/1997. With the aid of the Perryville students, coho salmon eggs and milt are collected at the same time as the Kametolook incubation box egg take occurs. Annually, the fertilized eggs (250-500) were placed into the school aquarium. The schoolteachers obtain the school project permits annually. The students and teachers also send annual reports on the project to the ADF&G.

In the spring of 1997, Don Preston, a Perryville teacher noted that the school aquarium had swimup fry on about 15 April. They had increased the water temperature above normal Kametolook River temperatures to insure the swimup fry stage would occur prior to other end-of-the-year school activities. The teacher thought the aquarium fry had about 600 temperature units (TU's). From the 200 eyed eggs that were placed in the school aquarium, about 125 survived to swimup fry stage. The fry were held and fed until May 22 when they were released into the Kametolook. The teacher felt that the project provided a good education aid.

In 1997/1998 and 1998/1999, the school aquarium project produced (approximately 150 in 1998 and 400 in 1999) swim-up fry that were released in the Kametolook River each May. Teacher Mike Browning, started the project in 1997 and Patricia Shoemaker took over supervising the student school aquarium project through the following spring of 1998. During the 1998/1999 Patricia Shoemaker and Patsy Chapple shared responsibility with the aquarium.

The school aquarium was also operated in 1999/2000 and 2000/2001. Teacher Mike Looney supervised the project during these two years. Unfortunately, during both of these winters the eggs/fry died due to a fungus in 1999/2000 and a crack in the glass aquarium in 2000/2001 that allowed all the water to escape. A new aquarium was purchased and installed in the school in September 2001 and about 400 eggs were used for the school project in the 2001/2003 school year. Mark Battaion, The Perryville teacher, reported that about 300 fry were released into the Kametolook River from this school project in the spring of 2002 (personal communication with J. McCullough).

Community Involvement:

Community involvement and the use of traditional and ecological knowledge from the local community of Perryville has proven to be an important component of the projects attempt to restore the Kametolook River coho salmon stock. The community has provided expertise in regards to historic and contemporary use of salmon in the region, escapement estimates prior to the start of the project, and historical and contemporary environmental and habitat changes. In addition, the community has imposed their own closure to the subsistence taking of coho salmon in the spawning reaches of the river as well as encouraging people to not fish the entire Kametolook River for any coho salmon until the river is rehabilitated. Instead, several residents are providing transportation to other nearby river systems for those that do not have the necessary equipment (skiff, boat, or 4-wheeler) to get there themselves to harvest salmon. The project also continues to provide on the job training of village assistants in genetic and pathological sampling, incubation box installation, egg takes and incubation techniques, and year-round monitoring of the environment.

Perryville Subsistence Workgroup:
March 12-14, 2001:
Jim McCullough met with the CRAA and the PSW in Anchorage to discuss the project and other potential restoration techniques. On March 13, 2001 the PSW, the CRAA, and the ADF&G staff met concerning the Perryville's Kametolook River coho run. The following consensus points between CRAA and PSW were reached at this meeting: (Note: ADF&G acted as staff and although consensus might have been reached between CRAA and PSW on topics such as the need for a South Peninsula closure on about 20 August consistent with the Western and Perryville Districts closure in the Chignik Management Area, this was not something ADF&G would agree to, in part because of allocative issues).

- The Kametolook River coho run is highly important to Perryville village, culturally and subsistence wise;
- The EVOS project has provided excellent educational benefits to the village, and the field egg-incubation operation/technology is well suited to the Kametolook River habitat.
- The ~August 20th closure of the Perryville and Western Districts is reasonable and a similar closure in the Southeastern District of Area M fishery is needed; timing is inconsistent;

- Chignik commercial fishers should continue with late season coho deliveries to the village;
- The village council's prohibition of instream coho fishing must be better enforced to insure escapement protection and;
- Current restoration efforts (EVOS project) must be augmented as annual coho escapements are at less than the threshold level, and the run may well be genetically bottlenecked.

Other Groups Associated with the Project:

Since 1997, commercial salmon fisheries in the Western and Perryville Districts of Chignik have been closed on about 20 August in an attempt to buildup this coho salmon run. Since the start of the project and through 2002, the Native Village of Perryville, CRAA, Chignik Seiners Association, and The CRPT continue to endorse the project and have agreed to this commercial fishery closure. In July 1999, two deliveries totaling approximately 1,000 coho salmon were made to Perryville residents by two Chignik commercial fishing permit holders that caught and collected the salmon from other commercial fishers near Mitrofania Island. These deliveries were a voluntary effort organized by Chuck McCallum, Chairman of the CRAA and co-chair of the PSW. This group was formed in 1999 to identify the subsistence concerns of the people of the village of Perryville and to try to find solutions to the low number of returning coho salmon to the Kametolook River (solutions in addition to the EVOS incubation box project). Members that make up PSW consist of representatives of Perryville subsistence users, the Chignik commercial fishers, and the ADF&G (workgroup staff).

The ADF&G Divisions of Subsistence and Commercial Fisheries conducted a research project in the winter of 1999 in Perryville. Household interviews were conducted in 1999 to learn more about the historic and contemporary use of all species of salmon by Perryville residents. A report was presented to the Alaska Board of Fisheries in October 1999 (Hutchinson-Scarbrough and Fall 1999). In 2000 no personal use salmon were delivered to Perryville from the commercial fleet because fishing closed in early August in the Western and Perryville Districts due to weak local pink and chum salmon returns; the commercial fishers had intended to deliver fish later in August. This procedure was intended to be repeated in 2001, however reportedly did not happen.

CONCLUSIONS

Coho salmon from the Kametolook River have historically and continue to be a culturally important subsistence food source for residents of Perryville on the south Alaska Peninsula. Coho salmon abundance in the Kametolook River has declined in recent years, attributed to habitat factors, fishing pressure, and effects of the *Exxon Valdez* oil spill. Prior to the start of the project, there was little salmon escapement data available for the Kametolook River, thus the initial escapement projections for the Kametolook River during 1998-2000 were mostly based on household surveys, key respondent interviews with Perryville subsistence users and subsistence salmon permit reports in 1996 and 1997. However, coho salmon escapements large enough to fill the incubation boxes to their designated capacity (200,000 green eggs) throughout the five

years of the project did not materialize (from 1997 to 2001, approximately 95,000 fry were released, the progeny of 37 females and 46 males) and the initial restoration time frame estimate was low.

Since 1997, commercial fishing in the Western and Perryville Districts of the Chignik Management Area closes on or about August 20 to increase coho salmon escapements in the Perryville area. The BOF established a harvest ceiling of 60,000 coho salmon between July 22 and July 31 in non-terminal areas in 2002. Further, the Perryville Village Council voluntarily closed the upper reaches of the Kametolook River to subsistence fishing in an effort to rebuild stocks.

Some type of supplemental egg source will likely be needed to restore this run within the two life cycles initially visualized. In October 2002 EVOS funding for this project was complete. The Division of Commercial Fisheries will fund a 2002 egg take out of Region IV general funds because the ADF&G does not want a egg take gap to occur. In 2003 supplemental funding will be available through a CIAP grant through the CRAA and the Bristol Bay Native Association. These funds will allow the CRAA and the ADF&G to conduct pathology and genetic sampling in two neighboring coho systems in the hopes of being able to supplement the egg box project with another acceptable brood stock. The CIAP grant will also fund a Kametolook River coho salmon egg take in 2003. Currently no funding has been identified for any Kametolook River coho salmon restoration work in 2004 or beyond. CRAA and the ADF&G will continue to seek grants or other funding sources to continue this coho salmon run restoration project.

Project leaders will continue to work closely with the PSW. The incubator box project has been defined by the workgroup as the primary tool to assist with the salmon shortages. However, other solutions will continue to be discussed and implemented in future years until Perryville's subsistence salmon needs are satisfied.

Perryville community involvement is essential to help rehabilitate the coho salmon run in the Perryville area through education of the villagers so that they gain a better understanding of the life cycles and conservation of salmon. The ADF&G team will continue to assist with an educational process that focuses on teaching the community through the both the school children and adults. Results from all samples will continue to be shared with the school and community. In addition, the use of local traditional ecological knowledge has been and will continue to be an important source of information, especially considering the lack of baseline data available regarding salmon escapements in the Kametolook River.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the Perryville Village Council and the numerous community residents that have participated in the project. Jerry Yagie, the "Project Community Leader" deserves special thanks for he has been in charge of the fieldwork for the project since it's origin and without his interest, persistence, and hard work, the project would not have been possible. Cecilia Yagie has been responsible for administering the cooperative agreement between the

Village of Perryville and ADF&G by providing project expense accounts and field reports to ADF&G staff. Also early on in the project, Gerald Kosbruk and Dennis Shangin were essential at getting the project off the ground. Other Perryville residents must be credited for assisting the ADF&G with the project including: providing information regarding local knowledge of the Kametolook River and habitat, guiding and transportation, installing egg incubation boxes, capturing salmon and harvesting eggs, monitoring thermograph stations, and other year around maintenance of the project. In addition, thank you to all the many Perryville residents that also assisted with many of the duties just mentioned as well as providing the ADF&G staff while working in Perryville on the project with delicious meals of local subsistence foods. Just some of those that come to mind are: Boris Kosbruk, Frieda Kosbruk Sr., Gerald Kosbruk, Harry W. Kosbruk, Ignatius Kosbruk, Ivan Kosbruk, Moses Kosbruk Sr., Moses Kosbruk Jr., Tim Kosbruk, Bruce Phillips, David Phillips, Ralph Phillips, Andy Shangin, Austin Shangin, Daniel Shangin, Dennis Shangin, Effie Shangin, Michael Shangin, Tom O'Domin, Cecilia Yagie, and Polly Yagie. Thanks to the Perryville School, particularly teachers, Mark and Kristin Battaion, Mike Browning, Patsy Chapple, Mike Looney, Don Preston, and Patricia Shoemaker along with the high school students for their participation in the project and providing housing for the ADF&G staff.

Thanks to John Gliva, with the Department of Community and Regional Affairs for his support of the project at it's birth in 1996 when presented by Perryville as an idea for a community restoration project. John helped facilitate financial support through the EVOS Criminal Settlement Fund to finance the first year of the project (the assessment phase). Also, thanks to Rita Miraglia, Division of Subsistence oil-spill coordinator for her guidance at the start of the project.

Pete Velsko biologist with ADF&G, Nome Alaska was initially consulted for his expertise from work in Norton Sound with instream incubation boxes. Pete was extremely helpful at the start of the project with getting the project off the ground with his suggestions and traveling to Perryville/Kametolook River with other staff to locate an appropriate egg-incubation box site. Joe Sullivan and Bill Hauser with ADF&G, Division of Habitat and Restoration deserve a special thanks for providing their expertise to the project including: project planning, preparation, field work, and helping keep the project on track. Joe gets an extra pat on the back for preparing the Environmental Assessment for NEPA compliance. Had this not been done the continuation of the project would have not been possible. Dan Moore, Jim Seeb, ADF&G Geneticists, and ADF&G Tammy Burton and other ADF&G Pathology staff deserve recognition for their guidance and lab work for the project. Thanks to Dave Owen and George Pappas, Chignik Commercial Salmon Fisheries Area Management Biologists for providing ADF&G harvest and escapement data. The Division of Commercial Fisheries Regional Supervisors Denby Lloyd and Pete Probasco provided assistance at numerous meetings where Chignik commercial and subsistence harvest expertise was needed.

We also would like to acknowledge Jim Fall, Division of Subsistence Regional Program Manager, for his editorial assistance with annual project descriptions and budgets, annual reports and this final report. Thanks to administrative personnel, Deborah Boyd and Tom Taylor in

Administration, Melanie Bosch in Habitat and Restoration, Ana Lewis and Peggy Lewerenz in Subsistence, and for their assistance with the cooperative agreement and project budgets.

We are grateful to the crew on the ADF&G *R/V Resolution* for transporting the egg incubation boxes to Chignik with no charge to the project, and to Andy Shangin for using his boat to then move them to Perryville. Also thanks to the Kodiak Regional Aquaculture Association (Pillar Creek Hatchery staff) for training Perryville assistants, Jerry Yagie and Dennis Shangin in spawning and incubator maintenance techniques. Also thanks to Chuck McCallum and the Chignik Seiners and Regional Aquaculture Associations for their continued interest and support in the project and their assistance with helping to find solutions to Perryville's coho subsistence salmon needs.

In addition, thanks to Jeff Adams, Ron Hood, Jim Larson, and Orville Lind of the Alaska Peninsula/Becharof National Wildlife Refuge in King Salmon for their comments and cooperation in preparation of the Environmental Impact Statement. And last but not least thanks to the EVOS Trustee Council for their support by providing funding to continue with the project.

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APPENDICIES

Appendix A

UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION MEMORANDUM

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of restoring the Kametolook River coho salmon stock near Perryville, Alaska:

_____ is a categorical exclusion as provided by 516 DM 6 Appendix 1. No further documentation will be made.

_X_ is found not to have any significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

_____ is found to have special environmental conditions as described in the attached Environmental Assessment. The attached Finding of No Significant Impact will not be final nor any actions taken pending a 30-day period for public review. (40 CFR 1501.4(c)(2)).

_____ is found to have significant effects, and therefore a "Notice of Intent" will be published in the Federal Register to prepare an Environmental Impact Statement before the project is considered further.

_____ is denied because of environmental damage, service policy, or mandate.

_____ is an emergency situation. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents:

1. Environmental Assessment for the Kametolook River Coho Restoration Project.

2. Amendment #1 to the Kametolook River Coho Restoration Project.

3. Comments received from the US Fish and Wildlife Service.

Acting Regional Director — Date: 5/30/97

Initiator — Date: 5/27/97

Assistant Regional Director — Date: 5/30/97

Regional Environ. Coordinator — Date: 5-30-97

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

Appendix B

DEPARTMENT OF FISH AND GAME

HABITAT AND RESTORATION DIVISION

333 RASPBERRY ROAD
ANCHORAGE, ALASKA 99518-1599
PHONE: (907) 344-0541

FISH HABITAT PERMIT FG 97-II-0195

ISSUED: April 21, 1997
EXPIRES: December 31, 2003

Mr. Jim McCullough
Commercial Fisheries Management and Development Division
Department of Fish and Game
211 Mission Road
Kodiak, Alaska 99615

Dear Mr. McCullough:

Re: Salmon Egg Incubation Box - Kametolook River
Stream № 275-60-10100
Section 3, T. 49 S., R. 64 W., S.M.
SID GC-6

Pursuant to AS 16.05.870(b), the Alaska Department of Fish and Game (ADF&G) has reviewed your proposal to install and operate a low maintenance salmon egg incubation facility at the referenced location. The site is found on a headwaters tributary of the Kametolook River at a site about 4 miles northwest of the Village of Perryville, Alaska. Plans call for installing an 8 cubic foot, plywood head box on the streambed to collect water and direct it into a 1.5 inch diameter, 100 foot long plastic pipe. The 100 foot long pipe will discharge into a pair of plastic fish totes located downstream of the head box. The totes will contain substrate and fertilized salmon eggs and will be stocked annually with eggs harvested from locally captured fish. The water will circulate through the totes and will then discharge directly back into the stream. The fish totes will serve as incubation boxes and will be secured on the streambed using duckbill anchors. Neither the head box nor the incubation boxes span the entire width of the stream, thereby allowing for fish movements both upstream and downstream. Access to the site is provided by existing trails and all terrain vehicles. Vehicles will not be operated in the flowing waters of the Kametolook River. Plans call for incubating up to 100,000 eggs annually through two cycles of the coho salmon life history in an attempt to restore the coho salmon and possibly the chum salmon returns to the Kametolook River and provide local subsistence harvest opportunities for the local residents. At the completion of the project all egg incubation materials will be removed from the river and returned to Perryville for disposal.

11-K107LH

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injury is the department's negligence.

This permit decision may be appealed in accordance with the provisions of AS 44.62.330--44.62.630.

Sincerely,

Robert G. Bosworth, Deputy Commissioner

C. Wayne Dolezal

By: C. Wayne Dolezal
Habitat Biologist
Habitat and Restoration Division
(907) 267-2285

cc: L. Schwarz, ADF&G
D. Owen, ADF&G
L. Scarbrough, ADF&G
G. Gallis, FWP
G. Folger, FWP
T. Anderson, AEB

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Appendix C

FISH TRANSPORT PERMIT

Applicant	Organization	
James N. McCullough	Alaska Dept. Of Fish and Game	
Mailing Address	Phone	Species
211 Mission Rd, Kodiak, AK 99615	(907) 486-1813	Coho
Stock Origin/Original Donor Stock	Proposed Stocking Location	
Kametolook River near Perryville	Three Star River near Perryville	

Project summary - Summary statement of precisely what is being proposed.

As part of EVOS restoration efforts, coho salmon eggs will be collected (maximum 200,000) from the Kametolook River and raised in two streamside incubation boxes to provide for the stocking of fry into the Kametolook River. If fry are produced in excess to Kametolook River stocking requirements, excess fry will be stocked into Three Star River to provide additional subsistence opportunities.

Permit# EVOS

For Department Use Only

✓ State Fish Transport Permit — FTP Number 97A0044

Consistent with facility/project plans — Yes ✓ No ____

__ Private Nonprofit Hatchery Fish Transport Permit

Consistent with PNP permit — Yes ____ No ____

Requires Permit Alteration prior to review — Yes ____ No ____

Continuation of project — Yes ____ No ____

New Project — Yes ____ No ____

Other - ____ — Yes ____ No ____

Status

Forms Complete — Yes ✓ No ____ Date 5/1/97

Disease History Complete — Yes ____ No ✓ Date 5/5/97

In review process — DATE Path 5/1 Rep 5/6 Hdg 6/17

Returned to applicant — DATE 6/24/97

~ Samples required at egg take

5 AAC 41.005. PERMIT REQUIRED. (a) No person may transport, posses, export from the state, or release into the waters of the state, any live fish unless the person holds a fish transport permit issued by the Commissioner of his authorized designee.

The Fish Transport Permit (FTP) is the single document, approved by the Commissioner of Alaska Department of Fish and Game (ADF&G), that allows for movements of fish and eggs on an interstate and intrastate basis.

STAFF RECOMMENDATIONS PERMIT NO. 97A0044

SIGNATURE PAGE

Comments

	Agree	Disagree	Date	Comments Provided Yes	Comments Provided No
1. Fish Health Services Pathologist - Commercial Fisheries Management and Development Division (CFM&D)					
Signature Theodore R. [illegible]	✓		5/9/97	✓	
Incomplete					
2. Regional Resource Development Biologist - CFM&D					
James McCullough	✓		5/7/97	✓	
3. Regional Supervisor - CFM&D					
[illegible]	✓ * WITH THE FOLLOWING CONDITIONS STATED IN THE COMMENTS		5/12/97	✓	
4. Regional Supervisor - Division of Sport Fish					
[illegible] for Doug McBride	✓		6/11/97	✓	
5. Principal Geneticist - CFM&D					
6. Chief, Technology and Development - CFM&D					
[illegible]	✓		6/13/97	✓	
7. Director - CFM&D					
[illegible]	✓		6/16/97		✓
8. Commissioner	Approval		Disapproval	Date	
[illegible]	✓			6-20-97	

[illegible]

FISH TRANSPORT PERMIT

Permit No. 97A0044

Applicant/Organization: James N. McCullough, ADF&G Date: 26 March, 1997

Project Leader: Jim McCullough & Lisa Scarbrough Telephone No. 486-1813

Effective Period: July 1997 - July 2003 (7/1/97 — 7/31/03) Species: Coho

Transport Date(s): Eggs collected September-November; transport April-May

Stock Origin/Original Donor Stock: Kametolook River

Maximal Number Allowed: 200,000 green eggs

Incubation and Rearing Location(s): Streamside incubation box Kametolook

Release Location: Three Star River

Purpose and Benefits: This stocking location would be used if eggs are collected in excess to Kametolook River stocking levels. By stocking Three Star River additional subsistence opportunities would be created in the Perryville area.

Evaluation Plans: Production will be monitored through subsistence harvest permits. A specific report is not required to report evaluation of the production, however, annual review and reports for EVOS projects are required.

Is release site landlocked? No

Native Stocks present, their status, and effects of the proposed action on them: The river contains three spine stickleback, Dolly Varden, and a few pink and coho salmon. In 1996, observers indicated that about 30 adult coho salmon attempted to enter the river. We expect coho stocking will not have a substantial effect on other fish species.

Permit No. 97A0044

History of previous transports of this stock: None

Disease history of stock to be transported: 32 adult coho samples were collected during 9/30/96 - 10/2/96 Pathology report from 11/8/96 is attached.

Description of proposed egg-take methods: The eggtake will be conducted following Statewide salmon culture SOP, which includes individual egg containers (disinfected) per female, spring water which should be free of IHNV, betadine disinfection of each container of fertilized eggs.

Isolation measures planned to control disease during transport, including description of container, water source, and method and plan for transport: Ripe coho salmon eggs and milt will be collected from the Kametolook River within one to two miles downstream of the incubation box location. Eggs will be transported by 4-wheeler to the incubation site where delayed fertilization techniques will be used. Eggs will be seeded into disinfected incubation boxes. During swimup, fry will be collected from the incubation boxes and transported by 4-wheeler to the river in disinfected plastic buckets with an air supply. The water source for all rearing and transportation aspects of the project will be the Kametolook River.

Source of water for rearing and proposed effluent discharge location: Kametolook River

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FISH TRANSPORT PERMIT

Applicant	Organization	
James N. McCullough	Alaska Dept. Of Fish and Game	
Mailing Address	Phone	Species
211 Mission Rd, Kodiak, AK 99615	(907) 486-1813	Coho
Stock Origin/Original Donor Stock	Proposed Stocking Location	
Kametolook River near Perryville	Sicken and Sandy Lakes Perryville	

Project summary - Summary statement of precisely what is being proposed.

As part of EVOS restoration efforts, coho salmon eggs will be collected (maximum 200,000) from the Kametolook River and raised in two streamside incubation boxes to provide for the stocking of fry into the Kametolook River. If fry are produced in excess to Kametolook River stocking requirements, excess fry will be stocked into Sicken and Sandy Lakes (landlocked) to provide additional fishing opportunities.

Permit# EVOS Plans/Project

For Department Use Only

✓ State Fish Transport Permit — FTP Number 97A0043

Consistent with facility/project plans — Yes ✓ No ___

__ Private Nonprofit Hatchery Fish Transport Permit

Consistent with PNP permit — Yes ___ No ___

Requires Permit Alteration prior to review — Yes ___ No ___

Continuation of project — Yes ___ No ___

New Project — Yes ___ No ___

Other - ___ — Yes ___ No ___

Status

Forms Complete — Yes ✓ No ___ Date 5/1/97

Disease History Complete — Yes ___ No ✓* Date 5/5/97

In review process — DATE Path 5/1 Reg II 5/6 Hdq 6/17

Returned to applicant — DATE 6/24/97

*Sampler required at egg take

5 AAC 41.005. PERMIT REQUIRED. (a) No person may transport, posses, export from the state, or release into the waters of the state, any live fish unless the person holds a fish transport permit issued by the Commissioner of his authorized designee.

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97A0043

STAFF RECOMMENDATIONS PERMIT NO. _____

SIGNATURE PAGE

Comments

	Agree	Disagree	Date	Comments Provided Yes	Comments Provided No
1. Fish Health Services Pathologist - Commercial Fisheries Management and Development Division (CFM&D)					
Signature Theodore R Meyers	✓		5/5/97	✓	
Incomplete					
2. Regional Resource Development Biologist - CFM&D					
James McCullough	✓		5/7/97		✓
3. Regional Supervisor - CFM&D					
[illegible]	✓ * WITH THE FOLLOWING CONDITIONS STATED IN THE COMMENTS		5/12/97	✓	
4. Regional Supervisor - Division of Sport Fish					
Larry Peltz for Doug McBride	✓		6/16/97	✓	
5. Principal Geneticist - CFM&D					
[illegible]	✓		6/13		
6. Chief, Technology and Development - CFM&D					
7. Director - CFM&D					
[illegible]	✓		6/18/97		✓
8. Commissioner	Approval	Disapproval	Date		
[illegible]	✓		6-20-97		

FISH TRANSPORT PERMIT

Permit No. 97A0043

Applicant/Organization: James N. McCullough, ADF&G Date: 26 March, 1997

Project Leader: Jim McCullough & Lisa Scarbrough Telephone No. 486-1813

7/01/97 - 7/31/03

Effective Period: July 1997 - July 2003 Species: Coho

Transport Date(s): Eggs collected September-November; transport April-May

Stock Origin/Original Donor Stock: Kametolook River

Maximal Number Allowed: 200,000 green eggs

Incubation and Rearing Location(s): Streamside incubation box Kametolook

Release Location: Sicken and Sandy Lakes

Purpose and Benefits: These stocking locations would be used if eggs are collected in excess to Kametolook River stocking levels. By stocking the lakes fishing opportunity would be created in the Perryville area.

Evaluation Plans: Production will be monitored through subsistence harvest permits. A specific report is not required to report evaluation of the production, however, annual review and reports for EVOS projects are required.

Is release site landlocked? Yes

Native Stocks present, their status, and effects of the proposed action on them:

The lakes currently contain only three spine stickleback. We expect the coho stocking will decrease the numbers of stickleback found in the lakes.

Permit No. 97A0043

History of previous transports of this stock: None

Disease history of stock to be transported: 32 adult coho samples were collected during 9/30/96 - 10/2/96 Pathology report from 11/8/96 is attached.

Description of proposed egg-take methods: The eggtake will be conducted following Statewide salmon culture SOP, which includes individual egg containers (disinfected) per female, spring water which should be free of IHNV, betadine disinfection of each container of fertilized eggs.

Isolation measures planned to control disease during transport, including description of container, water source, and method and plan for transport: Ripe coho salmon eggs and milt will be collected from the Kametolook River within one to two miles downstream of the incubation box location. Eggs will be transported by 4-wheeler to the incubation site where delayed fertilization techniques will be used. Eggs will be seeded into disinfected incubation boxes. During swimup, fry will be collected from the incubation boxes and transported by 4-wheeler to the lakes in disinfected plastic buckets with an air supply. The water source for all rearing and transportation aspects of the project will be the Kametolook River.

Source of water for rearing and proposed effluent discharge location: Kametolook River

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FISH TRANSPORT PERMIT

Applicant	Organization	
James N. McCullough	Alaska Dept. Of Fish and Game	
Mailing Address	Phone	Species
211 Mission Rd, Kodiak, AK 99615	(907) 486-1813	Coho
Stock Origin/Original Donor Stock	Proposed Stocking Location	
Kametolook River near Perryville	Long Beach River near Perryville	

Project summary - Summary statement of precisely what is being proposed.

As part of EVOS restoration efforts, coho salmon eggs will be collected (maximum 200,000) from the Kametolook River and raised in two streamside incubation boxes to provide for the stocking of fry into the Kametolook River. If fry are produced in excess to Kametolook River stocking requirements, excess fry will be stocked into Long Beach River to provide additional subsistence opportunities.

Permit# EVOS

For Department Use Only

✓ State Fish Transport Permit — FTP Number 97A0045

Consistent with facility/project plans — Yes ✓ No ____

__ Private Nonprofit Hatchery Fish Transport Permit

Consistent with PNP permit — Yes ____ No ____

Requires Permit Alteration prior to review — Yes ____ No ____

Continuation of project — Yes ____ No ____

New Project — Yes ____ No ____

Other - ____ — Yes ____ No ____

Status

Forms Complete — Yes ✓ No ____ Date 5/1/97

Disease History Complete — Yes ____ No ✓* Date 5/5/97

In review process — DATE Path 5/1 Reg 5/6 Hdq 6/17

Returned to applicant — DATE 6/24/97

*Samples required at egg take

5 AAC 41.005. PERMIT REQUIRED. (a) No person may transport, posses, export from the state, or release into the waters of the state, any live fish unless the person holds a fish transport permit issued by the Commissioner of his authorized designee.

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STAFF RECOMMENDATIONS PERMIT NO. 97A0045

SIGNATURE PAGE

Comments

	Agree	Disagree	Date	Comments Provided Yes	Comments Provided No
1. Fish Health Services Pathologist - Commercial Fisheries Management and Development Division (CFM&D)					
Signature Theodore R Rogers	✓		5/5/97	✓	
Incomplete					
2. Regional Resource Development Biologist - CFM&D					
James M Cullough	✓		5/7/97	✓	
3. Regional Supervisor - CFM&D					
[illegible]	✓	* WITH THE FOLLOWING CONDITIONS STATED IN THE COMMENTS	5/12/97	✓	
4. Regional Supervisor - Division of Sport Fish					
Larry Peltz for Doug McBride	✓		6/16/97	✓	
5. Principal Geneticist - CFM&D					
6. Chief, Technology and Development - CFM&D					
[illegible]	✓		6/15/97	✓	
7. Director - CFM&D					
[illegible]	✓		6/15/97		✓
8. Commissioner	Approval	Disapproval	Date		
[illegible]	✓ with conditions as above		6-20-97		

FISH TRANSPORT PERMIT

Permit No. 97A0045

Applicant/Organization: James N. McCullough, ADF&G Date: 26 March, 1997

Project Leader: Jim McCullough & Lisa Scarbrough Telephone No. 486-1813

Effective Period: July 1997 - July 2003 (7/1/97 - 7/31/03) Species: Coho

Transport Date(s): Eggs collected September-November; transport April-May

Stock Origin/Original Donor Stock: Kametolook River

Maximal Number Allowed: 200,000 green eggs

Incubation and Rearing Location(s): Streamside incubation box Kametolook

Release Location: Long Beach River

Purpose and Benefits: This stocking location would be used if eggs are collected in excess to Kametolook River stocking levels. By stocking Long Beach River additional subsistence opportunities would be created in the Perryville area.

Evaluation Plans: Production will be monitored through subsistence harvest permits. A specific report is not required to report evaluation of the production, however, annual review and reports for EVOS projects are required.

Is release site landlocked? No

Native Stocks present, their status, and effects of the proposed action on them: The river contains Dolly Varden, and a few coho and chum salmon. In 1996, we observed one chum salmon and about 200 fingerling coho salmon and about 100 Dolly Varden fingerlings in the river. We expect coho stocking would not have a substantial effect on other fish species.

Permit No. 97A0045

History of previous transports of this stock: None

Disease history of stock to be transported: 32 adult coho samples were collected during 9/30/96 - 10/2/96 Pathology report from 11/8/96 is attached.

Description of proposed egg-take methods: The eggtake will be conducted following Statewide salmon culture SOP, which includes individual egg containers (disinfected) per female, spring water which should be free of IHNV, betadine disinfection of each container of fertilized eggs.

Isolation measures planned to control disease during transport, including description of container, water source, and method and plan for transport: Ripe coho salmon eggs and milt will be collected from the Kametolook River within one to two miles downstream of the incubation box location. Eggs will be transported by 4-wheeler to the incubation site where delayed fertilization techniques will be used. Eggs will be seeded into disinfected incubation boxes. During swimup, fry will be collected from the incubation boxes and transported by 4-wheeler to the river in disinfected plastic buckets with an air supply. The water source for all rearing and transportation aspects of the project will be the Kametolook River.

Source of water for rearing and proposed effluent discharge location: Kametolook River

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FISH TRANSPORT PERMIT

Applicant	Organization	
James N. McCullough	Alaska Dept. Of Fish and Game	
Mailing Address	Phone	Species
211 Mission Rd, Kodiak, AK 99615	(907) 486-1813	Coho
Stock Origin/Original Donor Stock	Proposed Stocking Location	
Kametolook River near Perryville	Kametolook River near Perryville	

Project summary - Summary statement of precisely what is being proposed.

As part of EVOS restoration efforts, coho salmon eggs will be collected (maximum 200,000) from the Kametolook River and raised in two streamside incubation boxes to provide for the stocking of fry into the Kametolook River. The resultant adult production from this project is expected to produce up to 3,000 adults for harvest in the subsistence fishery in the Perryville area.

Permit# EVOS Project

For Department Use Only
FTP Number 97A0043

✓ State Fish Transport Permit
Consistent with facility/project plans Yes ✓ No ___

__ Private Nonprofit Hatchery Fish Transport Permit
Consistent with PNP permit Yes ___ No ___
Requires Permit Alteration prior to review Yes ___ No ___

Continuation of project Yes ___ No ___

New Project Yes ___ No ___

Other - ___ Yes ___ No ___

Status

Forms Complete Yes ✓ No ___ Date 5/1/97

Disease History Complete Yes ___ No ✓* Date 5/5/97

In review process DATE Path 5/1 Reg 5/6 Hdq 6/17

Returned to applicant DATE 6/24/97

*Samples required at eggtake to complete disease history

5 AAC 41.005. PERMIT REQUIRED. (a) No person may transport, posses, export from the state, or release into the waters of the state, any live fish unless the person holds a fish transport permit issued by the Commissioner of his authorized designee.

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STAFF RECOMMENDATIONS

PERMIT NO. 97A0043

SIGNATURE PAGE

Comments

	Agree	Disagree	Date	Comments Provided Yes	Comments Provided No
1. Fish Health Services Pathologist - Commercial Fisheries Management and Development Division (CFM&D)					
Signature Theodore B Meyers	✓		5/5/97	✓	
Incomplete					
2. Regional Resource Development Biologist - CFM&D					
James H Cullen Jr	✓		5/7/97		✓
3. Regional Supervisor - CFM&D					
[illegible]	✓ * WITH THE FOLLOWING CONDITIONS STATED IN THE COMMENTS		5/12/97	✓	
4. Regional Supervisor - Division of Sport Fish					
Tony Pedot for Doug McBride	✓		6/16/97	✓	
5. Principal Geneticist - CFM&D					
6. Chief, Technology and Development - CFM&D					
[illegible]	✓ conditional		6/12/97	✓	
7. Director - CFM&D					
[illegible]	✓		6/18/97		✓
8. Commissioner	Approval	Disapproval	Date		
[illegible]	✓ with conditions as shown		6.20.97		

FISH TRANSPORT PERMIT

Permit No. 97A0042

Applicant/Organization: James N. McCullough, ADF&G Date: 26 March, 1997

Project Leader: Jim McCullough & Lisa Scarbrough Telephone No. 486-1813

7/1/97 - 7/31/03

Effective Period: July 1997 - July 2003 Species: Coho

Transport Date(s): Eggs collected September-November transport not required

Stock Origin/Original Donor Stock: Kametolook River

Maximal Number Allowed: 200,000 green eggs

Incubation and Rearing Location(s): Streamside incubation box Kametolook

Release Location: Kametolook River

Purpose and Benefits: Production of about 3,000 adults for subsistence harvest.

Evaluation Plans: Production will be monitored through subsistence harvest permits. A specific report is not required to report evaluation of the production, however, annual review and reports for EVOS projects are required.

Is release site landlocked? No

Native Stocks present, their status, and effects of the proposed action on them: The Kametolook River contains Dolly Varden and sockeye, coho, pink and chum salmon. All salmon were found downstream of the incubation site, 2 Dolly's were observed above the project site. In 1996, adult salmon estimates included about 100 sockeye, 200 coho, 13,383 pink and 30 chum salmon. This is a restoration project, thus we assume any effect of increased coho numbers will reflect conditions prior to the 1989 oil spill.

Permit No. 97A0042

History of previous transports of this stock: None

Disease history of stock to be transported: 32 adult coho samples were collected during 9/30/96 - 10/2/96 Pathology report from 11/8/96 is attached.

Description of proposed egg-take methods: The eggtake will be conducted following Statewide salmon culture SOP, which includes individual egg containers (disinfected) per female, spring water which should be free of IHNV, betadine disinfection of each container of fertilized eggs.

Isolation measures planned to control disease during transport, including description of container, water source, and method and plan for transport: Ripe coho salmon eggs and milt will be collected from the Kametolook River within one to two miles downstream of the incubation box location. Eggs will be transported by 4-wheeler to the incubation site where delayed fertilization techniques will be used. Eggs will be seeded into disinfected incubation boxes. Fry will voluntary move from the incubation box to the Kametolook River. The water source for all aspects of the project will be the Kametolook River.

Source of water for rearing and proposed effluent discharge location: Kametolook River

Appendix D

Complete Disease History Search

Accession #		Begin Date	End Date	Brood Year	Brood Stock	Species	Age	Hatchery Name	Other
19970033	SC	09/30/1996	10/02/1996	WILD	KAMETOLOOK R	COHO	ADULT	ADFG ANCHORAGE	

Disease	# Pos	# Sampled	Percent
A. SAL	0	32	0.0%
Y.RUCK (ERM I)	0	32	0.0%
BKD ELISA	14	32	43.8%
Y.RUCK (ERM II)	1	32	3.1%

Diagnosis

NONE

Recommendation

Submit 28 kidneys and 60 ovarian fluids to complete disease history.

19980043	SC	11/05/1997	11/12/1997	WILD	KAMETOLOOK R	COHO	ADULT	ADFG KODIAK	4 X 2 fish/pool.

Disease	# Pos	# Sampled	Percent
A. SAL	0	17	0.0%
Y.RUCK (ERM I)	0	17	0.0%
IHNV	0	8	0.0%
VHSV	0	8	0.0%
BKD ELISA	0	17	0.0%
Y.RUCK (ERM II)	0	17	0.0%

Diagnosis

NONE

Recommendation

Submit 52 ovarian fluids and 43 kidneys to complete the disease history.

19990053	SC	11/11/1998	11/11/1998	WILD	KAMETOLOOK R	COHO	ADULT	ADFG KODIAK	3 X 3, 1 X 2 fish/pool.

Disease	# Pos	# Sampled	Percent
A. SAL	0	18	0.0%
Y.RUCK (ERM I)	0	18	0.0%
BKD ELISA	2	18	11.1%
IHNV	0	11	0.0%
VHSV	0	11	0.0%
Y.RUCK (ERM II)	0	18	0.0%

Diagnosis

NONE

Recommendation

NONE

Accession #		Begin Date	End Date	Brood Year	Brood Stock	Species	Age	Hatchery Name	Other
20000040	SC	11/17/1999		WILD	KAMETOLOOK R	COHO	ADULT	ADFG KODIAK	

Disease	# Pos	# Sampled	Percent	Diagnosis	Recommendation
BKD ELISA	4	26	15.4%	Moderate prevalence of high level Rs Antigen	Submit another 48 ovarian fluids to complete the disease histroy on this stock.
A. SAL	0	28	0.0%		
Y.RUCK (ERM I)	0	28	0.0%		
Y.RUCK (ERM II)	0	28	0.0%		
IHNV	0	1	0.0%		
VHSV	0	1	0.0%		

20020034	SC	11/07/2001	11/07/2001	WILD	KAMETOLOOK R	COHO	ADULT	ADFG KODIAK	

Disease	# Pos	# Sampled	Percent	Diagnosis	Recommendation
VIRUS	0	4	0.0%	No virus detected.	Submit 36 ovarian fluids to complete the disease history.

D-2

ACCESSION NO: 97-0033

ALASKA DEPARTMENT OF FISH AND GAME
FISH PATHOLOGY SECTION, CFM&D DIVISION
333 RASPBERRY ROAD, ANCHORAGE, AK 99518-1599

REPORT OF LABORATORY EXAMINATION

LOT (YEAR, STOCK, SPECIES): Kametolook River coho salmon, Oncorhynchus kisutch

FACILITY: ADFG Anchorage Subsistence

CONTACT PERSON/ADDRESS: Lisa Scarborough, 333 Raspberry Road, Anchorage AK 99518

SAMPLE DATE: 09/30/96 - 10/2/96 **DATE SAMPLE RECEIVED:** 10/04/96

SPECIMEN TYPE: kidneys **LIFE STAGE:** adult **STATE:** frozen

NUMBER IN SAMPLE: 32 **WILD:** Yes

HISTORY/SIGNS:

REASON FOR SUBMISSION: Disease history development

FINAL REPORT DATE: 11/08/96

CLINICAL FINDINGS:

FAT: 0/32 positive for Aeromonas salmonicida
0/32 positive for Yersinia ruckeri Type I
1/32 positive for Yersinia ruckeri Type II, not confirmed in culture

ELISA: 14/32 positive for Renibacterium salmoninarum (Rs). Mean optical density values of ≥ 0.065 were considered positive for the Rs antigen.
Range of OD values - 13/14 positives ≥ 0.065 ≤ 0.146
Fish # 5 OD value = 0.578

COMMENTS/RECOMMENDATIONS: A high prevalence of low-level Rs antigen was detected in the kidney tissues submitted. An exception was one kidney (#5) with a high optical density indicating the presence of greater levels of Rs antigen.

Please submit another 28 kidneys and 60 ovarian fluids to complete the disease history for this stock.

FISH HEALTH INVESTIGATOR(s): Geesin, Burton, Meyers

TECHNICAL ASSISTANCE: Starkey, Short, Lipson

COPIES TO: FY97, Misc., Burkett, Meyers

ACCESSION NO: 98-0043

ALASKA DEPARTMENT OF FISH AND GAME
FISH PATHOLOGY SECTION, CFM&D DIVISION
333 RASPBERRY ROAD, ANCHORAGE, AK 99518-1599

REPORT OF LABORATORY EXAMINATION

LOT (YEAR, STOCK, SPECIES): Kametoolik River coho salmon, Oncorhynchus kisutch

FACILITY: ADFG – Kodiak

CONTACT PERSON/ADDRESS: Jim McCullough, ADFG-CFMD, 211 Mission Road, Kodiak AK 99615

SAMPLE DATE: 11/5/97 – 11/12/97 **DATE SAMPLE RECEIVED:** 11/7/97 – 11/18/97

SPECIMEN TYPE: Kidney tisssues/ovarian fluids **LIFE STAGE:** Adult **STATE:** Unfrozen, refrigerated

NUMBER IN SAMPLE: 17 kidneys, 8 ovarian fluids **WILD:** Yes

REASON FOR SUBMISSION: Update disease history

FINAL REPORT DATE: 1/23/98

CLINICAL FINDINGS:

FAT: 0/17 positive for Aeromonas salmonicida
0/17 positive for Yersinia ruckeri Type I
0/17 positive for Yersinia ruckeri Type II

ELISA: 0/17 positive for Renibacterium salmoninarum (Rs). Mean optical density values ≥ 0.068 were considered positive for the Rs antigen.

VIROLOGY: 0/8 (4 X 2 ovarian fluid pools) positive for virus. Ovarian fluids processed by quantal assay on EPC and CHSE-214 cell lines at 15°C for 14 days and blindpassaged for an additional 14 days. Minimum level of detection = 5 infectious particles/ml of pooled sample. Cells pretreated with PEG to enhance viral infectivity.

COMMENTS/RECOMMENDATIONS: No viral or bacterial pathogens were detected in the samples submitted. Please submit 52 ovarian fluids and 43 kidneys to complete the updated disease history for this fish stock.

FISH HEALTH INVESTIGATOR(s): Burton, Geesin, Follett, Meyers

TECHNICAL ASSISTANCE: Starkey, Short, Van Houten

COPIES TO: FY98, Misc., Meyers, Simpson, Lisa Scarbrough (Subsistence – Anchorage)

ACCESSION NO: 99-0053

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES - FISH PATHOLOGY SECTION
333 RASPBERRY ROAD, ANCHORAGE, AK 99518-1599 - Phone (907)267-2244/fax 267-2462

REPORT OF LABORATORY EXAMINATION

LOT (YEAR, STOCK, SPECIES): Kametolook River coho salmon, Oncorhynchus kisutch

FACILITY: ADFG Kodiak

CONTACT PERSON/ADDRESS: Jim McCullough, ADFG, 211 Mission Road, Kodiak, Alaska 99615

SAMPLE DATE: 11/11/98 **DATE SAMPLE RECEIVED:** 11/13/98

SPECIMEN TYPE: Ovarian fluids & kidneys **LIFE STAGE:** Adult **STATE:** Unfrozen/refrigerated

NUMBER IN SAMPLE: 11 ovarians, 18 kidneys **WILD:** Yes

REASON FOR SUBMISSION: Disease History Development.

FINAL REPORT DATE: 1/20/99

CLINICAL FINDINGS

FAT: 0/18 positive for Aeromonas salmonicida
0/18 positive for Yersinia ruckeri Type I
0/18 positive for Yersinia ruckeri Type II

ELISA: 2/18 kidneys positive for Renibacterium salmoninarum (Rs). Mean optical density values of ≥ 0.068 were considered positive for the Rs antigen. See attached data.

VIROLOGY: 0/11 (3x3, 1x2 fish/pool) positive for virus. Ovarian fluids processed by quantal assay on EPC and CHSE-214 cell lines at 15°C for 14 days and blindpassaged for an additional 14 days. Minimum level of detection = 5 infectious particles/ml of pooled sample. Cells pretreated with PEG to enhance viral infectivity.

COMMENTS/RECOMMENDATIONS: A low prevalence of Rs antigen was detected in the samples submitted. No other bacterial or viral pathogens were detected. Submit another 49 ovarian fluids and 10 kidneys to complete the disease history on this stock.

FISH HEALTH INVESTIGATOR(s): Burton, Follett, Meyers

TECHNICAL ASSISTANCE: Starkey, Lipson

COPIES TO: FY99, Misc., Meyers, Scarbrough, Simpson

ACCESSION NO: 2000-0040

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES - FISH PATHOLOGY SECTION
333 RASPBERRY ROAD, ANCHORAGE, AK 99518-1599 - Phone (907)267-2244/fax 267-2462

REPORT OF LABORATORY EXAMINATION

LOT (YEAR, STOCK, SPECIES): Kametolook River coho salmon, Oncorhynchus kisutch

FACILITY: ADF&G Kodiak

CONTACT PERSON/ADDRESS Jim McCullough, ADF&G, Commercial Fisheries Division, 211 Mission Road, Kodiak, AK 99615

SAMPLE DATE: 11/17/99 **DATE SAMPLE RECEIVED:** 11/19/99

SPECIMEN TYPE: Ovarian fluids, kidneys **LIFE STAGE:** Adult **STATE:** Unfrozen/refrigerated

NUMBER IN SAMPLE: 8 ovarian fluids, 28 kidneys **WILD:** Yes

REASON FOR SUBMISSION: Establish disease history.

FINAL REPORT DATE: 1/27/00

CLINICAL FINDINGS

FAT: 0/28 positive for Aeromonas salmonicida
0/28 positive for Yersinia ruckeri Type I
0/28 positive for Yersinia ruckeri Type II

ELISA: 4/26 positive for Renibacterium salmoninarum (Rs). Mean optical density values of ≥ 0.068 were considered positive for the Rs antigen. See attached results.

VIROLOGY: 0/1 positive for virus. Ovarian fluid processed by quantal assay on EPC and CHSE-214 cell lines at 15°C for 14 days and blindpassaged for an additional 19 days. Minimum level of detection = 5 infectious particles/ml sample. Cells pretreated with PEG to enhance viral infectivity.

COMMENTS/RECOMMENDATIONS: A moderate prevalence of high level Rs antigen was detected in the samples submitted. No other bacterial or viral pathogens were found. Although 8 ovarian fluid samples were submitted, 7 of them were not usable as they contained only eggs. Please submit another 48 ovarian fluids to complete the disease history on this stock. No additional kidney samples are necessary at this time.

FISH HEALTH INVESTIGATOR: Burton, Meyers

TECHNICAL ASSISTANCE: Starkey, Glass

COPIES TO: FY2000, Misc., Meyers, Scarbrough, Simpson

ACCESSION NO: 2002-0034

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES - FISH PATHOLOGY SECTION
333 RASPBERRY ROAD, ANCHORAGE, AK 99518-1599 - Phone (907)267-2244/Fax 267-2194

REPORT OF LABORATORY EXAMINATION

LOT (YEAR, STOCK, SPECIES): Kametolook River coho salmon, Oncorhynchus kisutch

FACILITY: ADFG Kodiak

CONTACT PERSON/ADDRESS: Jim McCullough, ADFG, Commercial Fisheries, 211 Mission Rd., Kodiak, AK 99615-6399

SAMPLE DATE: 11/07/01 **DATE SAMPLE RECEIVED:** 11/09/01

SAMPLE TYPE: Ovarian fluids **LIFE STAGE:** Adult **STATE:** Unfrozen/refrigerated

NUMBER IN SAMPLE: 11 submitted, 7 QNS **WILD:** Yes

REASON FOR SUBMISSION: Disease history.

FINAL REPORT DATE: 2/5/02

CLINICAL FINDINGS

VIROLOGY: 0/4 positive for virus. Ovarian fluids processed by quantal assay on EPC and CHSE-214 cell lines at 15°C for 14 days and blindpassaged for an additional 14 days. Minimum level of detection = 5 infectious particles/ml of sample. Cells pretreated with PEG to enhance viral infectivity.

COMMENTS/RECOMMENDATIONS: No virus was detected in the samples submitted. Although eleven ovarian fluids were submitted, seven of them were not usable due to small amounts of ovarian fluid present. All samples contained eggs. Please submit 36 ovarian fluids to complete the disease history on this stock.

FISH HEALTH INVESTIGATOR: Burton

TECHNICAL ASSISTANCE: Evans

COPIES TO: FY2002, Misc., Meyers

Appendix E

Native Village of Perryville
P.O. Box 101, Perryville, Alaska 99648

February 28, 1996

Mr. James Fall
Regional Program Manager
333 Raspberry Road
Anchorage, Alaska 99518

Dear Mr. Fall

I am writing to on behalf of the Village Council for the Native Village of Perryville.

In regards to the proposal that was sent to from Lisa, on the Coho Enhancement Project in the Kametolook River. The Council has gone over it and approves of the proposal.

Also to let you know, Jerry Yagie will be the Project Co-ordinator for the village. Any questions please feel free to give us a call.

Signed,

Harry W. Kosbruk

Harry W. Kosbruk
Village Council-
Vice President

Native Village of Perryville
P.O. Box 101
Perryville, AK 99648
Phone: (907) 853-2203
Fax: (907) 853-2230

February 18, 1997

ADF&G
Division of Subsistence
333 Raspberry Road
Anchorage, AK 99518

Dear Lisa and Jim,

The Native Village of Perryville would like to thank you for the presentation that gave the community more knowledge about the ways of salmon. We also continue to support the Kametalook Salmon Enhancement Project. Through attendence of the last meeting, more knowledge was gained on the Salmon population in the area. Through that, maybe, people will choose thier fishing spots more wisely. Again, we thank you very much for coming and you are always welcome here in Perryville.

Sincerely,
Perryville Village Council

STATE OF ALASKA
Appendix F

TONY KNOWLES, GOVERNOR

DEPARTMENT OF FISH AND GAME

DIVISION OF SUBSISTENCE

333 RASPBERRY ROAD
ANCHORAGE, ALASKA 99518-1599
PHONE: (907) 267-2353
FAX: (907) 349-4712

Perryville Village Council
Gerald Kosbruk, President
P.O. Box 101
Perryville, Alaska 99648

November 17, 2001

Dear Gerald,

Please sign and date all 3 copies of Amendment 7 to the Perryville/ ADF&G Cooperative Agreement for the EVOS-Kametolook Coho Restoration Project for Federal Fiscal Year 2002. Then ASAP, please return all copies including one copy of the project description for FFY-02 to Tom Taylor at ADF&G in the enclosed self addressed envelope. Once all listed parties sign the agreements, you will be mailed back one of the original copies for your files.

Your contract with ADF&G for FFY-02 (October 1, 2001 through September 30, 2002) will provide $9,800.00 to your community for your work on the Kametolook coho project for that time period. Please note that this amount is slightly increased from last year. This means that there is more money available to pay people from your community to assist Jerry Yagie and ADF&G on the project and receive training.

This will be the last year that the incubation project will be funded through the EVOS Trustee Council. As you are aware, the Perryville Subsistence Workgroup along with The Chignik Aquaculture Association and ADF&G and Perryville Village Council are hoping to secure additional funding so the project can continue beyond September 2002.

If you have any questions, please feel free to call.

Sincerely,

Lisa Scarbrough

Lisa Scarbrough
Subsistence Resource Specialist II
(907) 267-2396

COPY

11-K103LH

printed on recycled paper by C.D.

AMENDMENT 7
to a
Cooperative Agreement
between the Alaska Department of Fish and Game
and the Native Village of Perryville

This agreement is being amended pursuant to Article II and Attachment 1, Item 12 of the original Agreement, dated August 26, 1997.

I. Background

The Exxon Valdez Oil Spill (EVOS) Trustee Council has approved the continuation of this project and funding which started in Federal Fiscal Year 97 (FFY 97), for FFY 02. The FFY 02 Detailed Project Description (DPD) has been approved by the Chief Scientist and Trustee Council, and NEPA requirements have been satisfied by a Finding of No Significant Impact by the US Fish and Wildlife Service in May, 1997. The DPD is attached and made a part of this amendment. The following reflect the changes to this agreement for the FFY 02 DPD.

II. Period of Performance

The period of performance for work performed on the FFY 2002 DPD is October 1, 2001 through September 30, 2002. Contingent upon project and funding approval from the EVOS Trustee Council and subject to authorized appropriation, this agreement may be amended for additional one year periods. Any additional work will be authorized by written amendments signed by both parties.

III. Covenants of the Native Village of Perryville

Delete Item 6. This item described an activity that took place in FFY 97 (training for project assistants at the Pillar Creek hatchery) which will not be repeated in FFY 02.

IV. Covenants of the Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development

Delete Item 5. Orientation and instruction in egg take techniques at the Pillar Creek hatchery will not take place in FFY 02.

V. Budget

For FFY 02, as approved by the EVOS Trustee Council, funds in the amount of $9,800.00 have been allocated to support the activities of the Native Village of Perryville as reflected in the budget in the detailed project description.

VII. Financial Arrangements

For work performed on the FFY 02 DPD, the Native Village of Perryville will be paid an amount not to exceed $9,800.00.

Invoices shall be submitted for work performed on the FFY 02 DPD at quarterly intervals with the final invoices received by ADF&G no later than November 30, 2002.

All other terms and conditions of the original agreement remain in effect.

This amendment is affirmed by the parties shown below.

For the Native Village of Perryville

Gerald Kosbruk, President

12-2-01

Date

For the Alaska Department of Fish and Game

Mary C. Pete, Director
Division of Subsistence

12/11/01

Date

Doug Mecum, Director
Division of Commercial Fisheries Management and Development

12/17/01

Date

Kevin Brooks, Director
Division of Administration

12.19.01

Date

Appendix G

Oceanside Corporation
c/o 4015 Northstar St.
Anchorage, AK 99503

September 26, 1997

Native Village of Perryville
P.O. Box 101
Perryville, AK 99648

This notice gives permission to the village of Perryville to post signs on Oceanside land at or around the Kametolook River system. These signs are to prevent fishing in the spawning ground and ensure future populations of fish native to this river system. This is as requested verbally by Gerald Kosbruk, president, Native Village of Perryville, on this date.

Mary Fajen
president

Appendix H

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME

P.O. Box 25526
JUNEAU, ALASKA 99802-5526

Permit No. P-01-029

Expires 6/30/2002

CLASSROOM INCUBATION PROJECT PERMIT
(For Scientific/Educational Purposes)

This permit authorizes **Mark Battaion** *(signature required on page 2 for permit validation)*
person
of **Perryville School** at **P.O. Box 113, Perryville, AK 99648**
agency or organization address
to conduct the following activities from **October 1, 2001** to **June 30, 2002** in accordance with AS 16.05.930 and AS 16.05.340(b).

Purpose: To allow the permittee to transport, hold alive, and rear to fry stage live salmon eggs in a classroom recirculating aquarium. Students will be introduced to the life cycle of salmon, reproduction, spawning, and environmental niche. Students will also learn responsibility in caring for the eggs/fry, and gain understanding of the role of salmon in the their cultural history.

Species: Coho salmon, 500 eggs.

Egg-Take Location: Kametolook River.

Final Disposition: Released only at egg-take location.

-Continued on Back-

REPORT DUE June 30, 2002. The report shall include species, numbers, dates, and locations of collection and disposition, and if applicable, sex, age, and breeding condition, and lengths and weights of fish. The report shall also include other information as may be required under the contingencies section.

GENERAL CONDITIONS, EXCEPTIONS AND RESTRICTIONS

1. This permit must be carried by person(s) specified during approved activities who shall show it on request to persons authorized to enforce Alaska's fish and game laws. This permit is nontransferable and will be revoked or renewal denied by the Commissioner of Fish and Game if the permittee violates any of its conditions, exceptions or restrictions. No redelegation of authority may be allowed under this permit unless specifically noted.
2. No specimens taken under authority hereof may be sold or bartered. All specimens must be deposited in a public museum or a public scientific or educational institution unless otherwise stated herein. Subpermittees shall not retain possession of live animals or other specimens.
3. The permittee shall keep records of all activities conducted under authority of this permit, available for inspection at all reasonable hours upon request of any authorized state enforcement officer.
4. Permits will not be renewed until detailed reports, as specified above, have been received by the department.
5. UNLESS SPECIFICALLY STATED HEREIN, THIS PERMIT DOES NOT AUTHORIZE the exportation of specimens or the taking of specimens in areas otherwise closed to hunting and fishing; without appropriate licenses required by state regulations; during closed seasons; or in any manner, by any means, at any time not permitted by those regulations.

Division of Commercial Fisheries

Division of Sport Fish

Deputy Director
Division of Commercial Fisheries
Alaska Department of Fish and Game

Authorized Personnel:

Mark Battaion; Jim McCullough; Kristin Hathhorn; students.

Contingencies:

1) **Jim McCullough** (Regional Resource Development Biologist, Kodiak, 907-486-1813) must be contacted **prior** to you engaging in egg take or release activities. Area Management Biologists have the right to specify methods for collecting, as well as limiting the collections of any species, and the number of specimens collected by time and area.
2) All unattended collecting gear must be labeled with the permittee's name, telephone number, and permit number.
3) Standard gamete disinfection techniques must be followed. Effluent from aquarium tanks will be either disinfected or discharged into a sewage treatment facility.
4) This permit will fulfill the requirements of 5 AAC 41.005 – 41.060 pertaining to fish transport permits (FTPs).
5) Progeny from 500 eggs or less will be released at place of origin or destroyed.
6) *A copy of this permit, including any amendments, must be made available at all field collection sites and project sites for inspection upon request by a representative of the department or a law enforcement officer.*
7) Issuance of this permit does not absolve the permittee from compliance in full with any and all other applicable federal, state, or local laws regulations, or ordinances.
8) **A report of collecting activities, referenced to this fish resource permit number, must be submitted to the Alaska Department of Fish and Game, Division of Commercial Fish, PO Box 25526, Juneau, AK 99802-5526, attention Jamie Barlow(465-6149; Jamie_Barlow@fishgame.state.ak.us), by December 31st and June 30th of the current school year.** This report should include:
    a) A description of the egg take; the number of eggs incubated.
    b) Measure and record daily temperatures.
    c) Keep cumulative log of temperature unit development.
    d) Note on temperature unit log when the eggs are eyed, when hatching begins and ends, and when fry "swim up" in the tank.
    e) Note the date the fry are released/sacrificed.

    Please provide this information in the enclosed report forms supplemented with your own written report or student work.
9) **PERMIT VALIDATION requires permittee's signature agreeing to abide by permit conditions before beginning collecting activities:**

_____
Signature of Permittee

cc: Jim McCullough, RRDB
Fish and Wildlife Enforcement
CF Division Files
Len Schwarz

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME

P.O. Box 25526
JUNEAU, ALASKA 99802-5526

Permit No. P-02-019

Expires 6/30/2003

CLASSROOM INCUBATION PROJECT PERMIT
(For Scientific/Educational Purposes)

This permit authorizes **Mark Battaion** *(signature required on page 2 for permit validation)*
person
of **Perryville School** at **P.O. Box 113, Perryville, AK 99648**
agency or organization address

to conduct the following activities from **September 1, 2002** to **June 30, 2003** in accordance with AS 16.05.930 and AS 16.05.340(b).

Purpose: To allow the permittee to transport, hold alive, and rear to fry stage live salmon eggs in a classroom recirculating aquarium. Students will be introduced to the life cycle of salmon, reproduction, spawning, and environmental niche. Students will also learn responsibility in caring for the eggs/fry, and gain understanding of the role of salmon in the their cultural history.

Species: Coho salmon, 500 eggs.

Egg-Take Location: Kametolook River.

Final Disposition: Released only at egg-take location, or in a land-locked lake approved by ADFG.

-Continued on Back-

REPORT DUE June 30, 2003. The report shall include species, numbers, dates, and locations of collection and disposition, and if applicable, sex, age, and breeding condition, and lengths and weights of fish. The report shall also include other information as may be required under the contingencies section.

GENERAL CONDITIONS, EXCEPTIONS AND RESTRICTIONS

1. This permit must be carried by person(s) specified during approved activities who shall show it on request to persons authorized to enforce Alaska's fish and game laws. This permit is nontransferable and will be revoked or renewal denied by the Commissioner of Fish and Game if the permittee violates any of its conditions, exceptions or restrictions. No redelegation of authority may be allowed under this permit unless specifically noted.
2. No specimens taken under authority hereof may be sold or bartered. All specimens must be deposited in a public museum or a public scientific or educational institution unless otherwise stated herein. Subpermittees shall not retain possession of live animals or other specimens.
3. The permittee shall keep records of all activities conducted under authority of this permit, available for inspection at all reasonable hours upon request of any authorized state enforcement officer.
4. Permits will not be renewed until detailed reports, as specified above, have been received by the department.
5. UNLESS SPECIFICALLY STATED HEREIN, THIS PERMIT DOES NOT AUTHORIZE the exportation of specimens or the taking of specimens in areas otherwise closed to hunting and fishing; without appropriate licenses required by state regulations; during closed seasons; or in any manner, by any means, at any time not permitted by those regulations.

Steven G. McGee
Division of Commercial Fisheries

Geron Bruce
Deputy Director
Division of Commercial Fisheries
Alaska Department of Fish and Game

Division of Sport Fish

Authorized Personnel:

Mark Battaion; Jim McCullough; Kristin Hathhorn; students.

Contingencies:

1) **Jim McCullough** (Regional Resource Development Biologist, Kodiak, 907-486-1813) must be contacted **prior** to you engaging in egg take or release activities. Area Management Biologists have the right to specify methods for collecting, as well as limiting the collections of any species, and the number of specimens collected by time and area.
2) All unattended collecting gear must be labeled with the permittee's name, telephone number, and permit number.
3) Standard gamete disinfection techniques must be followed. Effluent from aquarium tanks will be either disinfected or discharged into a sewage treatment facility.
4) This permit will fulfill the requirements of 5 AAC 41.005 – 41.060 pertaining to fish transport permits (FTPs).
5) Progeny from 500 eggs or less will be released at place of origin, into a departmentally approved land-locked lake, or destroyed.
6) *A copy of this permit, including any amendments, must be made available at all field collection sites and project sites for inspection upon request by a representative of the department or a law enforcement officer.*
7) Issuance of this permit does not absolve the permittee from compliance in full with any and all other applicable federal, state, or local laws regulations, or ordinances.
8) **A report of collecting activities, referenced to this fish resource permit number, must be submitted to the Alaska Department of Fish and Game, Division of Commercial Fish, PO Box 25526, Juneau, AK 99802-5526, attention Jamie Barlow(465-6149; Jamie_Barlow@fishgame.state.ak.us), by December 31st and June 30th of the current school year.** This report should include:
    a) A description of the egg take; the number of eggs incubated.
    b) Measure and record daily temperatures.
    c) Keep cumulative log of temperature unit development.
    d) Note on temperature unit log when the eggs are eyed, when hatching begins and ends, and when fry "swim up" in the tank.
    e) Note the date the fry are released/sacrificed.

    Please provide this information in the enclosed report forms supplemented with your own written report or student work.
9) **PERMIT VALIDATION requires permittee's signature agreeing to abide by permit conditions before beginning collecting activities:**

_____
Signature of Permittee

cc: Jim McCullough, RRDB
Fish and Wildlife Enforcement
CF Division Files
Len Schwarz

Appendix I

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME

CLASSROOM INCUBATION PROJECT

Report #1 Due December 31 RECEIVED JAN 07 2002

Mark Battaion (Name of Instructor) Lake&Peninsula School District, Perryville Sch (Organization or School)

Po Box 113 (Mailing Address) Perryville, AK 99648 (City, State, Zip Code)

Telephone: 907-853-2210 **(work)** 907-853-2200 **(home)** E-mail bathbat@Yahoo.com

Species: [X] coho [ ] chum [ ] pink [ ] other _____

 # Eggs Received: 250 **Stage Received:** [X] green* [ ] eyed

Current Stage: [X] green [ ] eyed [ ] hatch [ ] alevin [ ] fry

Mortality to Date: 7 **Estimate % Survival (Live eggs/total received)** _____

Water Exchange Intervals: [ ] weekly [ ] monthly [ ] <1 x/week [X] <1 x/month

Accumulated Thermal Units to Date: 195

What educational activities have you done in regards to your incubation project? Explain: Students do the monitoring of the eggs - twice daily. An Alutiiq cultural unit is currently being planned. The importance of Salmon to the Alutiiq culture will be emphasized. A planned release will take place at the end of the cultural unit.

Note: student reports, art, etc., are appreciated.

Problems experienced during your project to date: Power outages have tripped breakers that control the water cooling units.

Assistance available from local biologist or other teachers incubating eggs? [X] yes [ ] No

I certify that the statements made in this report are true and that I have followed the guidelines as originally specified in my approved permit.

Mark E. Battaion
Signature

12/24/01
Date

*NOTE: If you did your own eggtake, please describe the procedure on the back of this form. Incude information about the date, place, equipment used, participants, success, and other pertinent information.

The egg take was done with the assistance of Jim McCullough (ADF&G) and Ted Kreig along with locals Jerry Vogel, Chris Kosbruk and myself. This took place at the headwaters of the Kametolook River. The methods used were those which F&G biologist Jim McCullough has used in past egg takes. The eggs are placed into zip lock bags as is the milt. At the incubation sight the eggs and milt are mixed in small bottles with the fertilized eggs being gently placed in the holding pens. This project has been done in previous years with funds provided by Exxon Valdez reclamation funds.

Mark E. Dattan

Egg take date: 11/4/01 ?

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME

CLASSROOM INCUBATION PROJECT

Report #2 (Due end of school year)

Mark Battaion
(Name of Instructor)

Lake + Peninsula School Dist (Perryville school)
(Organization or School)

Po Box 103
(Mailing Address)

Perryville, AK 99648
(City, State, Zip Code)

Telephone: 907-853-2210 **(work)** 907-853-2200 **(home)** E-Mail hathbat@Yahoo.com

Species: [X] coho [ ] chum [ ] pink [ ] other _____

 # Eggs Received: 400 **Estimate % Survival (Live eggs/total received)** 300%

Water Exchange Intervals: [ ] weekly [ ] monthly
[ ] <1 x/week [X] <1 x/month

Accumulated Thermal Units to Critical: 435

Eyed: 174 **Alevin (hatch):** 300 **Emergence (fry):** _____

Fish were: [ ] Destroyed at end of project
[ ] Sacrificed for experimentation
[X] Released into a landlocked lake
Name of lake: 2nd Lake
Date released: 4-03-02
[ ] Released into drainage of origin
Name of stream/river: _____
Date released: _____

Problems experienced during your project: No real problems. Power outages were the biggest problems

What educational activities have you done in conjunction with your incubation project since the last reporting period? Explain: We ~~the~~ are currently teaching a unit on all 5 species of salmon, their life cycles and a dissection of adult coho fish. Release was an all-school event.

I certify that the statements made in this report are true and that I have followed the guidelines as originally specified in my approved permit.

Mark Battaion
Signature

4-22-02
Date

· ΘΘZηΘκσ γλΗλλΔ

Lisa Scarbrough

From: Kristin Hathhorn [hathbat@yahoo.com]
Sent: Tuesday, March 05, 2002 9:53 AM
To: Jim McCullough
Subject: their alive

Hi Jim
Just want to update you on the haps with the fish.
All seems to be going fine. They are definitely
growing and are more active. They disappear when the
light comes on. We received some fish food and a very
nice letter from Gary Byrne explaining the feeding
process, amounts etc. Thank him for us or if you have
his e-mail, I'd like to send him a thank you. Our
Alutiiq culture week is set for the end of March and
hopefully the little darlings will be ready to be
released. The only problem is they keep asking "are
you my daddy?"
I really have no answer for them. Take Care, Mark and Kristin

---

Do You Yahoo!?
Try FREE Yahoo! Mail - the world's greatest free email!
http://mail.yahoo.com/

Lisa Scarbrough

From: Jim McCullough [jim_mccullough@fishgame.state.ak.us]
Sent: Thursday, March 28, 2002 2:09 PM
To: Kristin Hathhorn; Lisa B Scarbrough
Subject: Re: Them fish

jim_mccullough.vcf

Mark,

It sounds as if they are getting close to their first solid food.

I would not keep them for more than a week on solid food in the aquarium. The closed circuit tank just can't handle the fish feces and uneated food.

It is up to you as to where their release site should be, either the lake or the river would be fine. Of course the lake is closer. Will the ice be off both the lake and the river? or is it already? The lake is likely warmer, which would be good for an early release if you can not wait for them to develop anymore or feed them for awhile. Also the students might appreciate the stocking there cause then they might be more attached to the fish and being able to catch "one they raised". If you have one or two thermometers available I would put one in the stocking site and the other in the transport bucket. When the temperatures come close to being equal they could be released. Also look for a calm, sheltered spot, one with brush or other vegetation growing out of the water that is very close. They need to hide and get away from predators from above and below. Under the aquarium was a battery operated aerator. It is best to fire up that baby and let them have a well oxygenated water for the transfer from the
tank to the stocking site. Also a dark bucket is less stressful than a white or clear transfer vessel. But the white ones are OK if something darker is not available. They are pretty tough, probably already going to the tattoo parlor for piercing and tattoos. If they promise to go on to good colleges or trade schools I'll put in a grant request for their tuition (that is for the fish not the students).

Jim Mc

Kristin Hathhorn wrote:
>
> Hi Jim,
> Just wanted to keep you up dated on the fish. They
> haven't yet started to swim around, but they are
> getting close I think. Their egg sacks are getting
> smaller and they seem more active. I'm going to be
> gone for a couple of week and would like some
> suggestions to pass on to Kristin on how to release
> the fish if I'm gone. You mentioned placing the
> bucket'o fish in the lake and waiting until the water
> temps are about the same. Is that right? Can they be
> released even if they aren't yet eating in the tank?
> Still have some yoke sack left? Any special
> requirements they would have? I told them if they go
> to "schools" F&G will pay for their education.
> Thanks, Mark and Kristin
>
> _____
> Do You Yahoo!?
> Yahoo! Movies - coverage of the 74th Academy Awards®
> http://movies.yahoo.com/

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

Appendix J

DEPARTMENT OF FISH AND GAME

COMMERCIAL FISHERIES MANAGEMENT AND DEVELOPMENT DIVISION

P.O. BOX 25526
JUNEAU, ALASKA 99802-5526
PHONE: (907) 465-4210

June 22, 1995

Lisa Scarbrough
ADF&G, Subsistence Division
333 Raspberry Road
Anchorage, AK 99518-1599

Dear Lisa:

The state of Alaska initiated a statewide salmon rehabilitation and enhancement program in the early 1970s to counteract depleted and depressed subsistence, commercial, and sport salmon fisheries. Alaska statutes (AS 16.10.375-470) authorized (1) establishment of designated salmon production regions throughout the state; (2) development of regional planning teams (RPTs) composed of an equal number of representative from the fisheries divisions of ADF&G and qualified regional aquaculture associations (RAAs) as well as ex-officio members from other interested parties; and (3) development and amendment of a comprehensive salmon plan for each region to be undertaken by the respective RPT. The purpose of the comprehensive plan is to identify salmon production goals, objectives, and strategies and generally make recommendations to the commissioner of ADF&G on all salmon-related projects occurring in each region.

As you are aware, the Subsistence Division is one of the many agencies involved Chignik's regional salmon enhancement and rehabilitation program planning, which is at best described as a partnership relationship requiring extensive cooperation among state, federal, regional, and local agencies/organizations. It was through the efforts of you and John Gliva (Department of Community and Regional Affairs planner) that brought the Chignik RPT's attention to the subsistence resource/restoration project funding available to regional communities (i.e., Perryville, Chignik Lagoon, Chignik Lake, and Ivanof Bay) through the auspices of the Exxon Valdez Trust Council. During the fall 1994 meeting of the Chignik RPT in Anchorage, subsistence needs for each community were discussed, and you and Mr. Gliva were made aware that a significant component of the salmon rehabilitation and enhancement program was the acquisition of related scientific data (e.g., run timing, run strength, water quality parameters, etc.) as well as strategies designed to bring depressed runs of wild stocks to their historic high numbers (e.g., instream incubators).

During your report to the Chignik RPT during our spring 1995 meeting in Chignik Bay you noted that the community of Chignik Lake had proposed the following subsistence related projects: (1) extending Chignik River Weir for four weeks in order to get better counts on late run sockeye and coho salmon that are relied on for subsistence use; (2) installing a weather station to acquire needed information concerning juvenile fish habitat during the winter; and (3)

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hiring Chignik Lake residents to make winter salmon counts along the Clarks River, which is a major spawning area for late run sockeyes. These proposed projects would provide much needed information that would allow ADF&G to do a better job managing the salmon resource in that area; and, in turn, it would benefit subsistence fishermen during the fall. Additionally, you noted that Perryville residents had proposed (4) an instream incubation project on the Kametolook River to return its run of wild stock cohos to historic highs. This strategy involves using the wild coho stock indigenous to that river system as brood stock, placing their eggs in instream incubation boxes, and increasing egg-to-fry survivals from the approximate 10% that would occur if no intervention had taken place to about 70%. The purpose behind this project is to establish a self-sustaining run of coho salmon into that system.

These project proposals that Chignik Lake and Perryville have submitted to the Exxon Valdez Trust Council are contained in the comprehensive salmon plan for the Chignik region, have been reviewed by CRPT, and have been approved by the commissioner of ADF&G. The public benefit of implementing these projects would primarily accrue to subsistence fishermen in Chignik Lake and Perryville, although benefits would naturally accrue to sport and commercial fishermen as well. For these reasons, at their spring 1995 meeting in Chignik Bay, the Chignik Regional Planning Team extended their support by officially endorsing the four projects.

If you have further questions, please call me at (907) 465-6156 or write me at the address provided above.

Sincerely yours,

Sid O. Morgan
Planner
Planning and Development

cc: Bob Burkett
Kevin Duffy
John Gliva
CRPT members

Appendix K

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

MEMORANDUM

TO:	Jim Fall Regional Program Manager Division of Subsistence Anchorage	DATE: PHONE: FAX:	October 29, 2001 (907) 486-1813 (907) 486-1841
AND:	Denby S. Lloyd Regional Supervisor Commercial Fisheries Division Region IV - Kodiak		
FROM:	Jim McCullough Regional Finfish Research Biologist Commercial Fisheries Division Region IV - Kodiak	SUBJECT:	Perryville Field Trip 19 - 24 October 2001

Jim McCullough participated in a field trip on 19 through 24 October, to Perryville, Alaska. The purpose of the trip included: 1) the capture and holding of adult coho salmon for a November egg take, 2) cleaning and set up the Kametolook River instream incubators, 3) cleaning and set up of the Perryville school incubation aquarium, and 4) stream survey of the Kametolook River.

On Friday evening, 19 October I traveled from Kodiak and stayed overnight in Anchorage to catch the flight the next morning to King Salmon and Perryville.

On Saturday, 20 October I traveled from Anchorage to King Salmon. I met Ted Krieg, Division of Subsistence, in King Salmon and we traveled to Perryville. We arrived in Perryville in the afternoon and stayed in the village school housing. We checked in with Jerry Yagie concerning our plans for the project. We also located the new acrylic school aquarium and discussed the school project with the teachers and the teachers' aid. The school administration will not allow students to travel by 4-wheeler this year so their participation in the project will be limited to classroom studies.

On Sunday, 21 October Jerry, Chris Kosbruk, Ted, and I traveled to the upper Kametolook River. We cleaned the incubator boxes and adjusted the anchors that hold them in the stream channel. I downloaded the air and water temperature recorders. We set up the holding pens in the spring

area above the incubator boxes and surveyed the salmon escapement in the Kametolook River. We observed about 20 coho and 2 sockeye salmon in the stream reach just below the incubator boxes; and an addition 34 coho, 3 sockeye, and 4 pink salmon scattered in the remainder of the main stem and the lower portion of several tributaries. Because the river water level was high and the water was turbid, I expanded the indexed count of 54 coho salmon by three to estimate the total coho salmon escapement at 162 fish. In the stream reach that George Pappas had earlier in the year observed about 50 coho salmon, we did not see any, they had apparently moved upstream from that location.

On Monday, 22 October we again traveled to the upper Kametolook River. We captured 16 female coho salmon, 25 male coho salmon, and about 5 sockeye salmon. We placed 15 female and 17 male coho salmon in the holding pens for the November egg take.

On Tuesday, 23 October Ted and I cleaned and set up the school aquarium, making sure that the water filter and air systems were working.

On Wednesday, 24 October Ted returned to Dillingham and I returned to Kodiak.

cc: Patti Nelson Rod Campbell Lisa Scarbrough George Pappas
Mike Daigneault Ted Krieg Ken Bouwens

Appendix L

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

MEMORANDUM

TO: Jim Fall
Regional Program Manager
Division of Subsistence
Anchorage

DATE: November 26, 2001

PHONE: (907) 486-1813
FAX: (907) 486-1841

AND: Denby Lloyd
Regional Supervisor
Commercial Fisheries Division
Region IV - Kodiak

FROM: Jim McCullough
Regional Finfish Research Biologist
Commercial Fisheries Division
Region IV - Kodiak

SUBJECT: Perryville Field Trip
November 4 - 9, 2001

Jim McCullough participated in a field trip on 4 through 9 November 2001, to Perryville, Alaska. The purpose of the trip included: 1) a coho salmon egg take from the Kametolook River, 2) placing fertilized eggs in the incubation boxes and in the school aquarium, 3) collecting biological attributes from the coho salmon used in the egg take, and 4) winterizing the holding pens and other equipment.

On Sunday evening, 4 November I traveled from Kodiak and stayed overnight in Anchorage to catch the flight the following morning to King Salmon and Perryville.

On Monday, 5 November I traveled from Anchorage to Perryville via King Salmon. I met with Ted Krieg in King Salmon and we traveled on to Perryville and stayed at a house owned by the village. We checked in with Jerry Yagie concerning our plans for the egg take. We also met with the schoolteachers and discussed the school salmon aquarium project. Students are not allowed to use 4-wheelers for school field trips so taking them to the upper Kametolook River egg take site was not possible. We were informed that if a spawning pair of coho salmon could be found in the Three Star River a school field trip could be arranged using the schools 4-wheel drive pickup.

On Tuesday, 6 November the weather prevented an egg take. Ted and I rented 4-wheelers and surveyed the Three Star River as a possible egg take site for the school aquarium project. We

failed to observe any coho and had to rely on eggs from the upcoming Kametolook River egg take. We met with several villagers and discussed the restoration project, the dynamics of the rivers in the Perryville valley, and the different rivers salmon runs. Several subsistence fishers indicated that the coho salmon runs to systems in Anchor and Humpback Bays, nearby streams, appeared to be good this year.

On Wednesday, 7 November Jerry Yagie, Chris Kosbruk, Mark Battaion, and I collected eggs from eleven female coho and milt from fifteen male coho salmon. Four females had escaped from the holding pen, one female had mistakenly been placed in the male holding pen where it had spawned, and one male had died in the holding pen. Standard delayed fertilization techniques were used and the fertilized eggs were placed in the incubation boxes. We held back about 300 eggs from one female and part of the milt from two males for the school aquarium. We also collected fin clips for genetic analysis and ovarian fluids for pathology analysis. We surveyed the stream reach where we had acquired the brood stock and observed about 50 salmon, about 45 of which were coho salmon, spawning. The water level was lower and the water was clearer than the survey conditions we encountered in late October. The holding pens and other equipment that were no longer needed were winterized at Jerry Yagie's house. In the afternoon, again using typical delayed fertilization techniques we fertilized about 300 eggs and placed them in the school aquarium. We were able to meet with all the students and teachers in the afternoon and had a short course on salmon life cycles and habitat preferences.

On Thursday, 8 November we returned to King Salmon where Ted continued on to Dillingham and I continued on to Anchorage. I arrived in Anchorage to late in the evening to drop off the biological samples to the labs.

On Friday, 9 November I dropped off the ovarian samples to the ADF&G lab and the genetic samples to the United States Fish and Wildlife lab. In the afternoon I returned to Kodiak.

cc: Lisa Scarbrough Ted Krieg Patti Nelson Rod Campbell George Pappas
Ken Bouwens Mike Daigneault Chuck McCallum

TABLES

Table 1. Kametolook River coho salmon egg takes, 1997-2002.

		School Aquarium		Incubation Boxes			Estimated
Brood Year[a]	Year Released	Eggs Taken	Fry Released	Adults[b]	Eggs	Fry Released[c]	Adult Escapement
1996	1997	250	125	2	3,000	2,850 [d]	200
1997	1998	300	150	14[e]	10,000	9,500	724
1998	1999	500	400	18	33,000	31,350	148
1999	2000	250	0	12[f]	18,000	17,100	No estimate
2000	2001	250	0	9	6,000	5,700	85
2001	2002	400	300	26	33,000	31,350	162

[a] Eggs from brood year 1996 would be released as fry in 1997 and so forth.

[b] Using brood year, 1996: 1 female and 1 male; 1997: 2 full and 5 partial females and 7 males; 1998: 11 females and 7 males; 1999: 6 females and 6 males; 2000: 2 females and 7 males; 2001: 11 females and 15 males.

[c] Number of eggs was estimated from the actual number of females used and assuming that each contained 3,000 eggs. The fry were release was estimated by assuming that the survival from the egg swim up fry was 95%.

[d] Fry were released into two landlocked lakes near Perryville.

[e] Two full females and five partially spent females were used for the egg take.

[f] Nine females and 20 males were caught Nov. 5-9 and put into the holding pens. On Nov. 18 when the egg take occurred, it was noted that the females holding pen zipper was open and all females had escaped. Six more females were then caught and eggs removed and fertilized by 6 of the 20 males held in the male holding pen. The remaining males were released alive to find mates and spawn naturally in the Kametolook River.

FIGURES

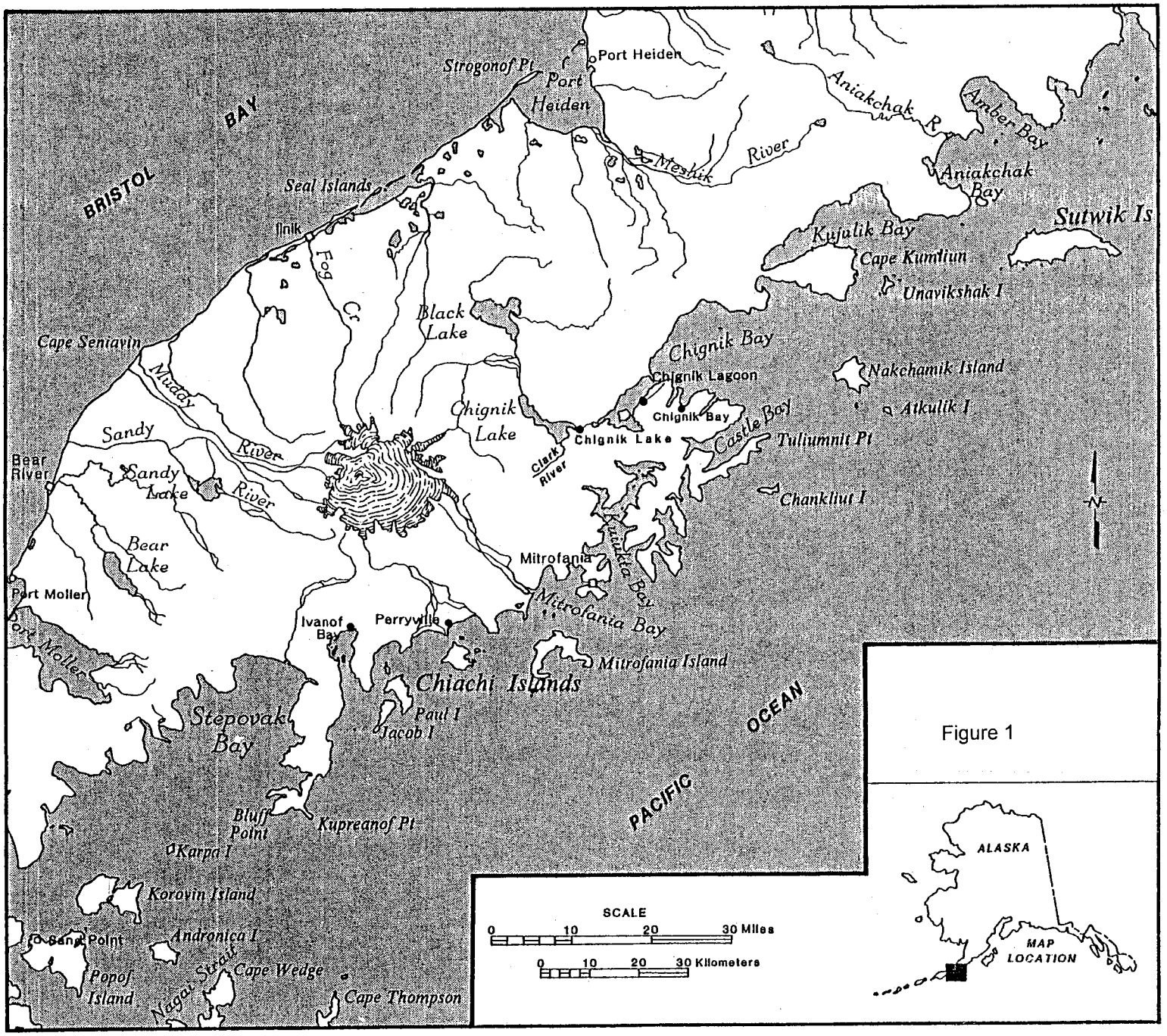

BRISTOL BAY
Strogonof Pt
Port Heiden
Port Heiden
Aniakchak R
Amber Bay
Meshik River
Aniakchak Bay
Sutwik Is
Seal Islands
Ilnik
Fog Cr
Kujulik Bay
Cape Kumlun
Unavikshak I
Black Lake
Cape Seniavin
Chignik Bay
Chignik Lagoon
Nakchamik Island
Atkulik I
Muddy
Chignik Lake
Chignik Bay
Castle Bay
Tuliumnit Pt
Sandy
River
Clark River
Chignik Lake
Bear River
Sandy Lake
River
Chankliut I
Bear Lake
Kujulik Bay
Mitrofania
Port Moller
Mitrofania Bay
Ivanof Bay
Perryville
Port Moller
Mitrofania Island
Chiachi Islands
Stepovak Bay
Paul I
Jacob I
OCEAN
PACIFIC
Bluff Point
Kupreanof Pt
Karpa I
Korovin Island
Sand Point
Andronica I
Popof Island
Nagai Strait
Cape Wedge
Cape Thompson
SCALE
0 10 20 30 Miles
0 10 20 30 Kilometers
ALASKA
MAP LOCATION

Figure 1

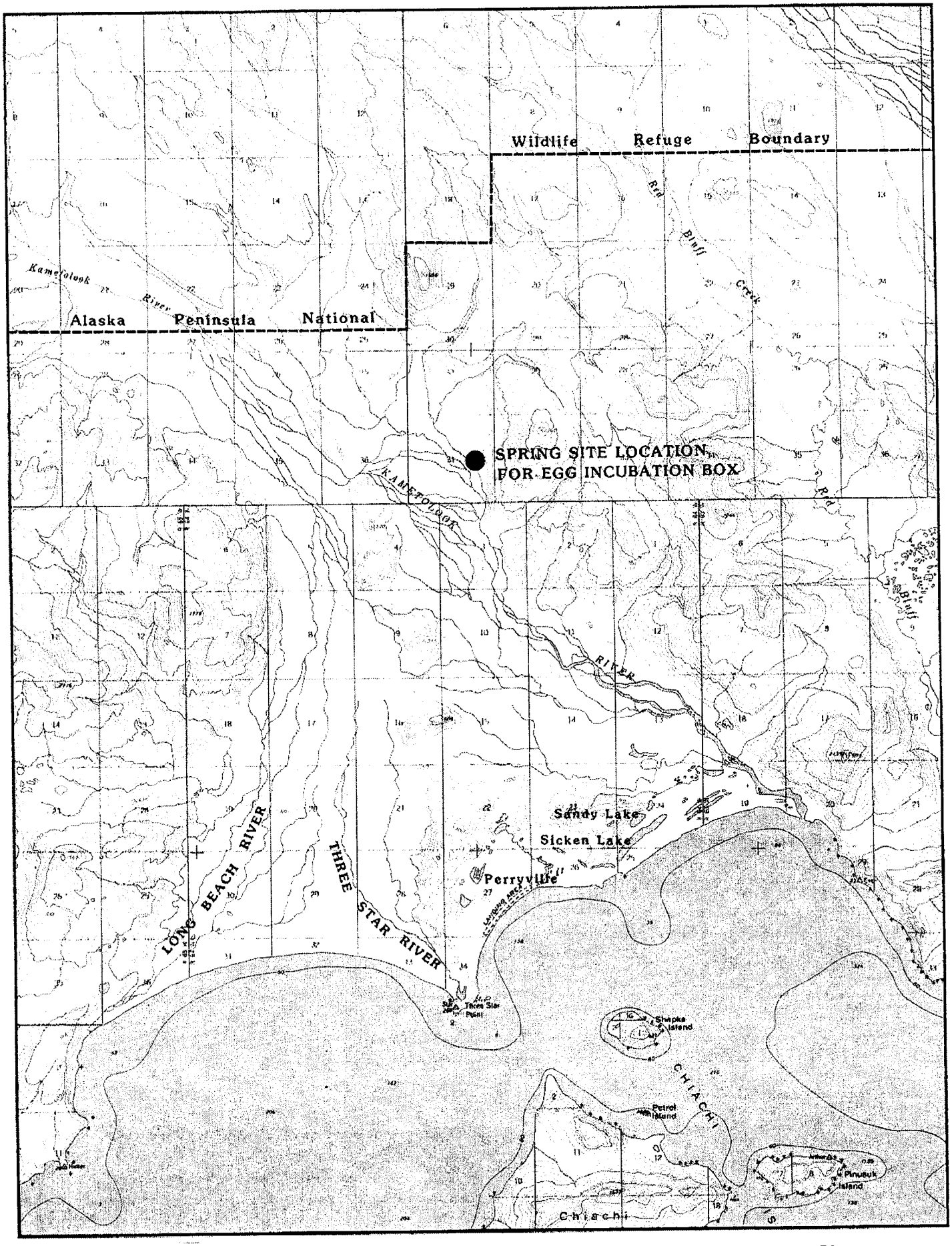


Figure 2 Perryville/Kametolook River Coho Salmon Restoration Project Site

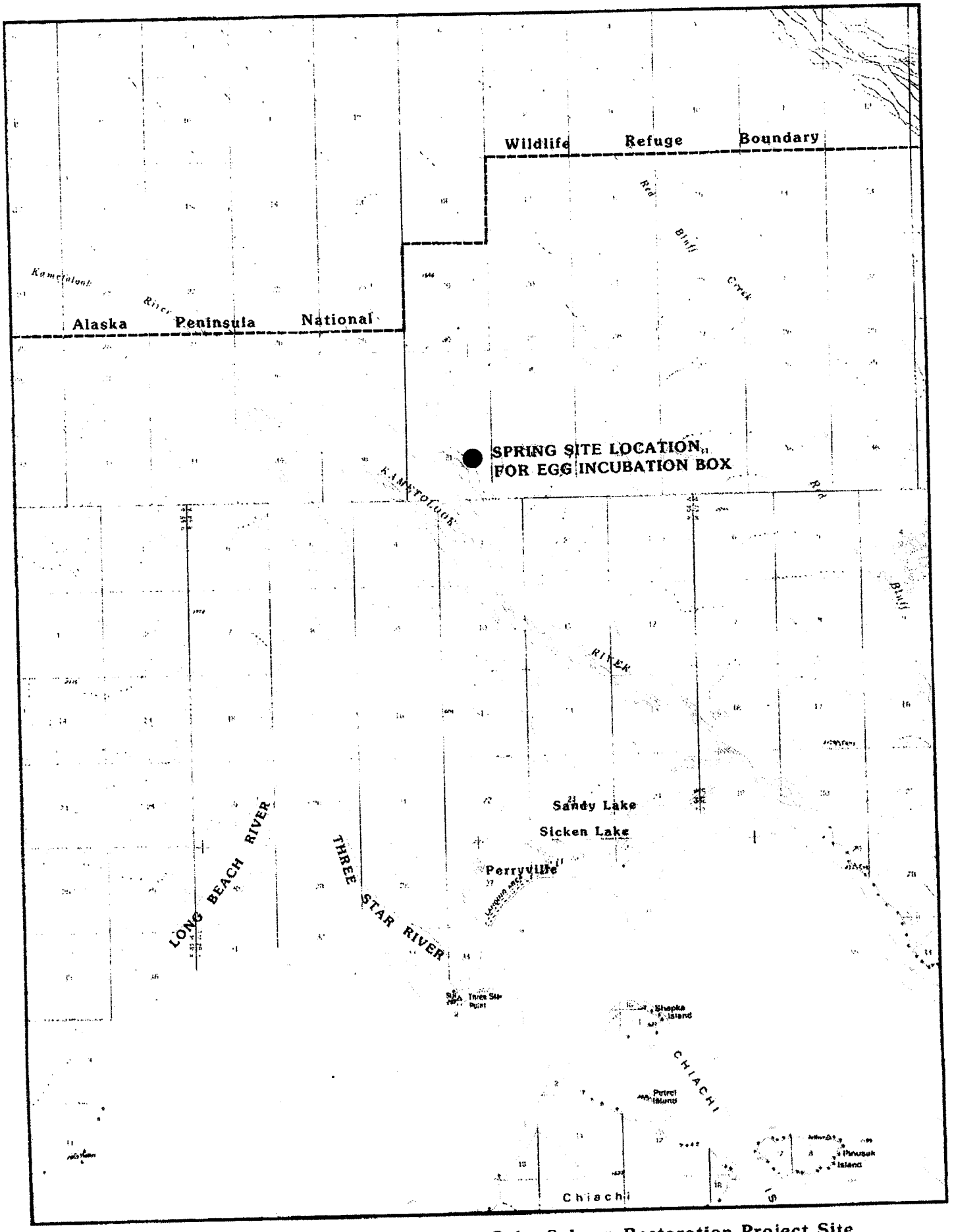


Figure 2 Perryville/Kametolook River Coho Salmon Restoration Project Site

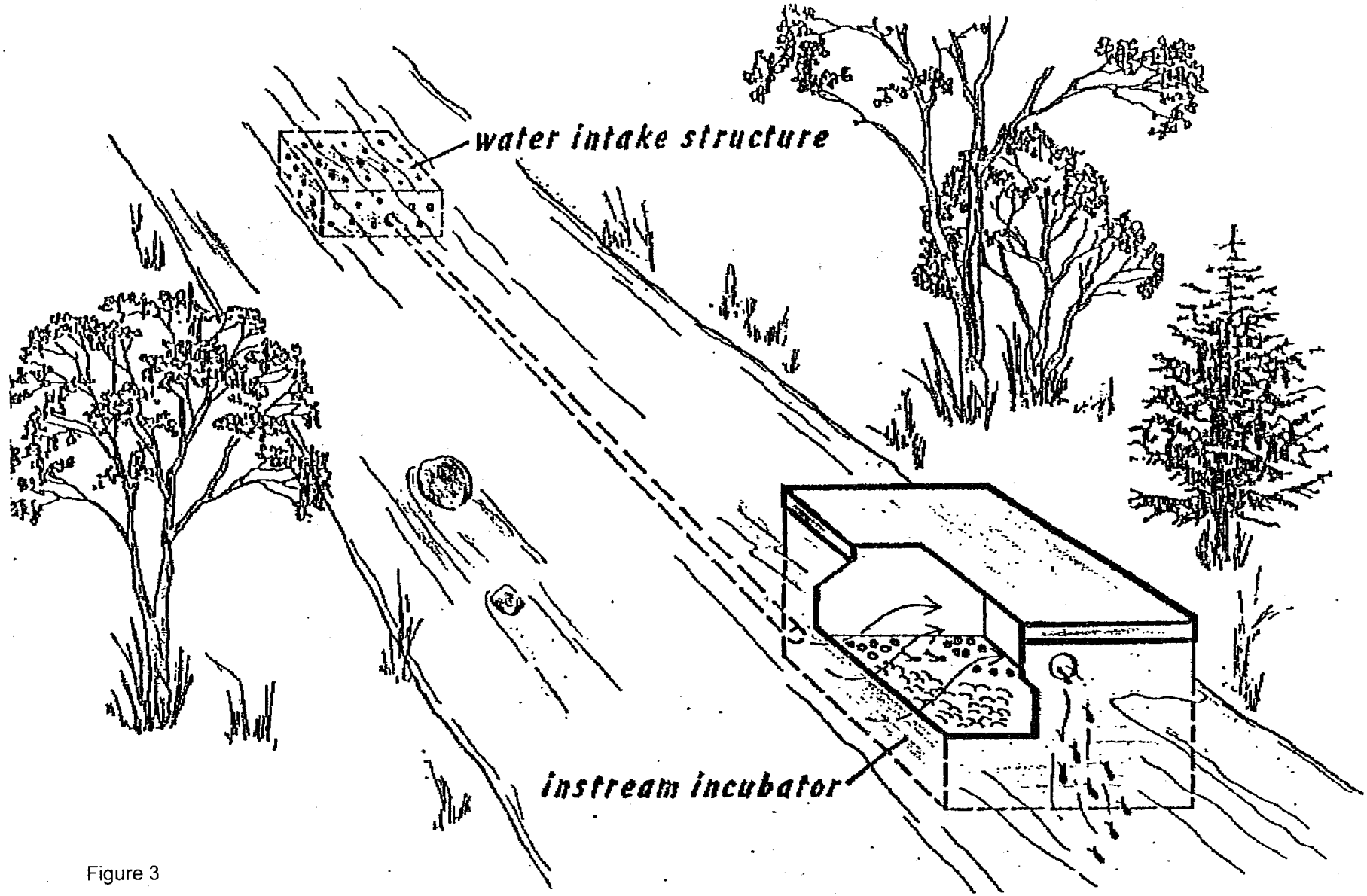
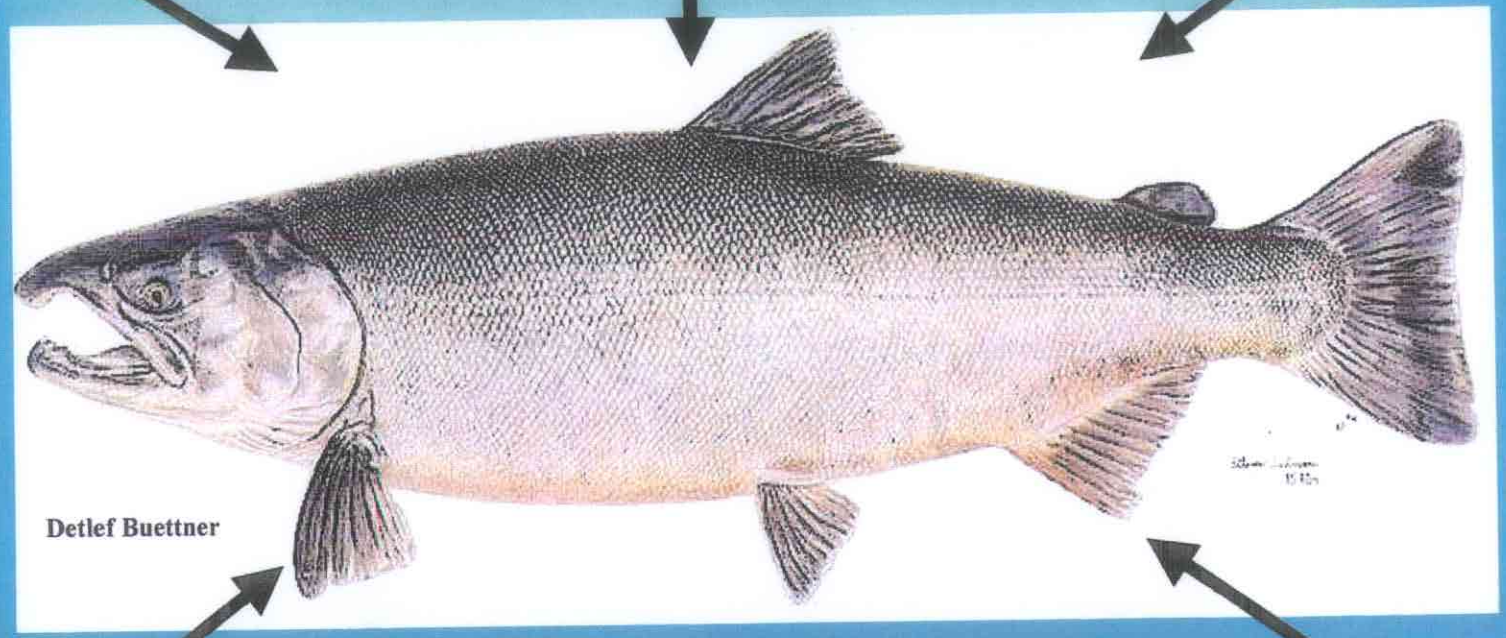


Figure 3

The INSTREAM INCUBATOR (streamside incubator or hatch box) is an incubator designed to incubate salmon eggs and alevins (small fish) under conditions similar to those in natural spawning beds. The incubators are usually positioned in the stream or on the stream bank. Water is directed downstream through a pipeline which supplies the eggs with a continuous flow of oxygen-enriched water. Once fertilized eggs have been placed in the incubator, little maintenance is required. The eggs develop through the winter in a protective environment. In spring the young fry migrate out of the incubator to begin their long migration out to sea before returning as adults.

Figure 4

Kametolook Coho Restoration Plan



5 AAC 15.357 Chignik Salmon Management Plan

Fleet: Personal Use Coho Deliveries to Perryville

Self Imposed Kametolook River Subsistence Fishing Closure

EVOS Instream Incubator Project

EVOS School Aquarium Project

PHOTOS: PROJECT PHOTOGRAPHS

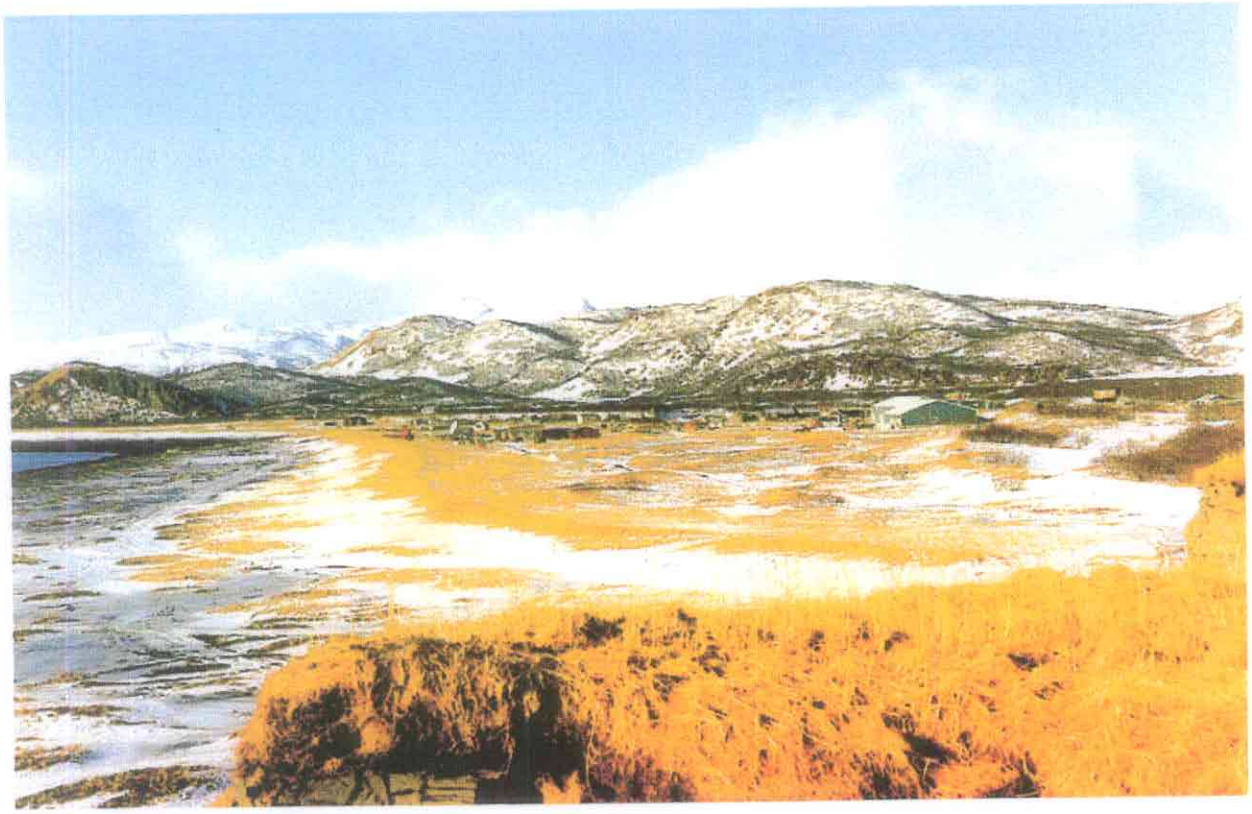


Photo 1: View of Village of Perryville looking west.

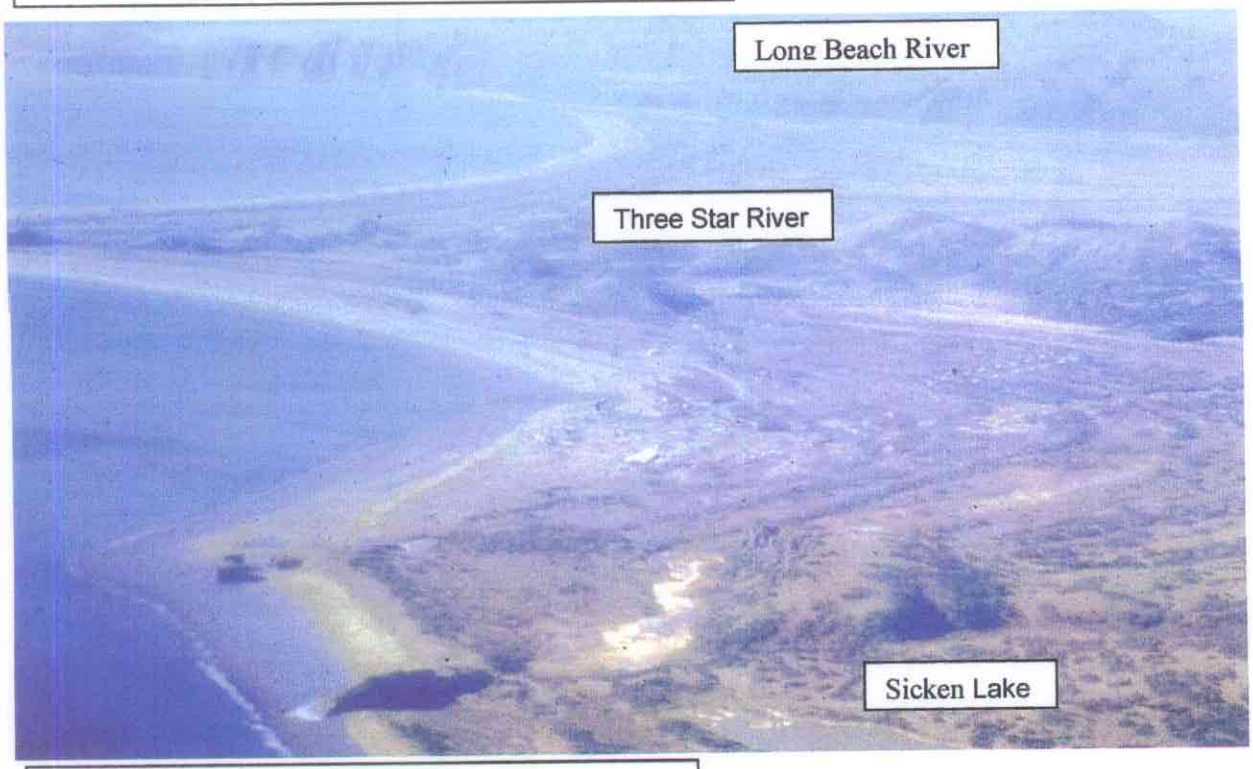


Photo 2: Aerial view of Perryville looking west.

Photo 3: Aerial View of Perryville houses, and "Town Creek".

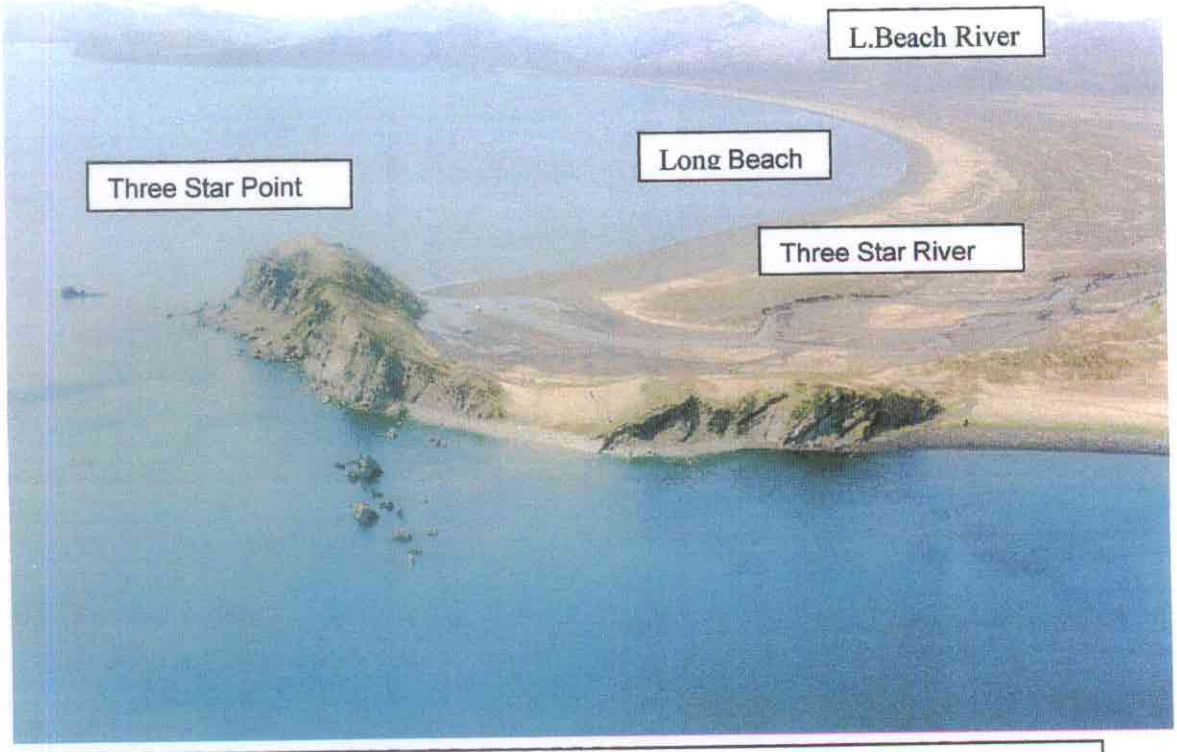


Photo 4: Aerial view of Three Star Point, Three Star River and Long Beach.

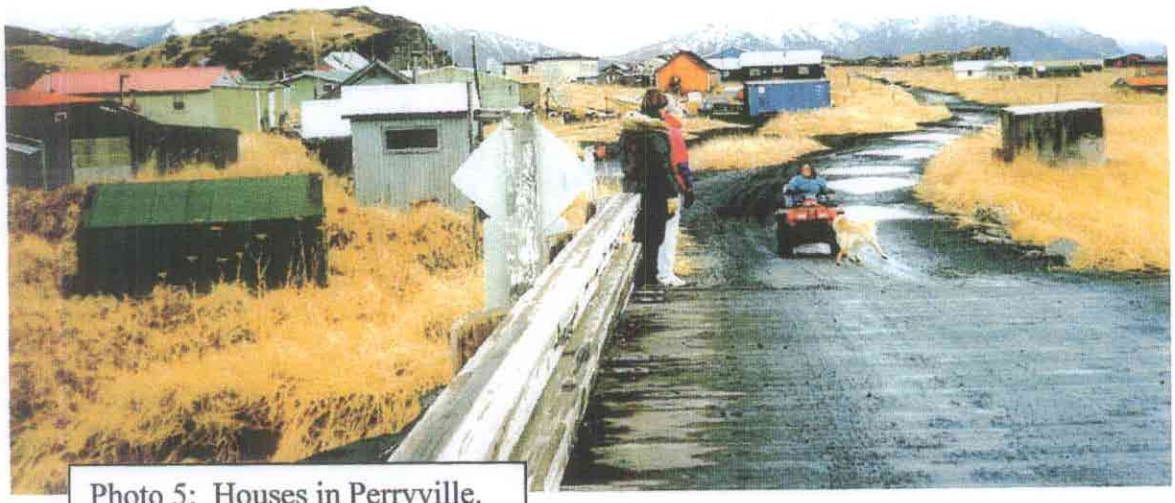


Photo 5: Houses in Perryville.

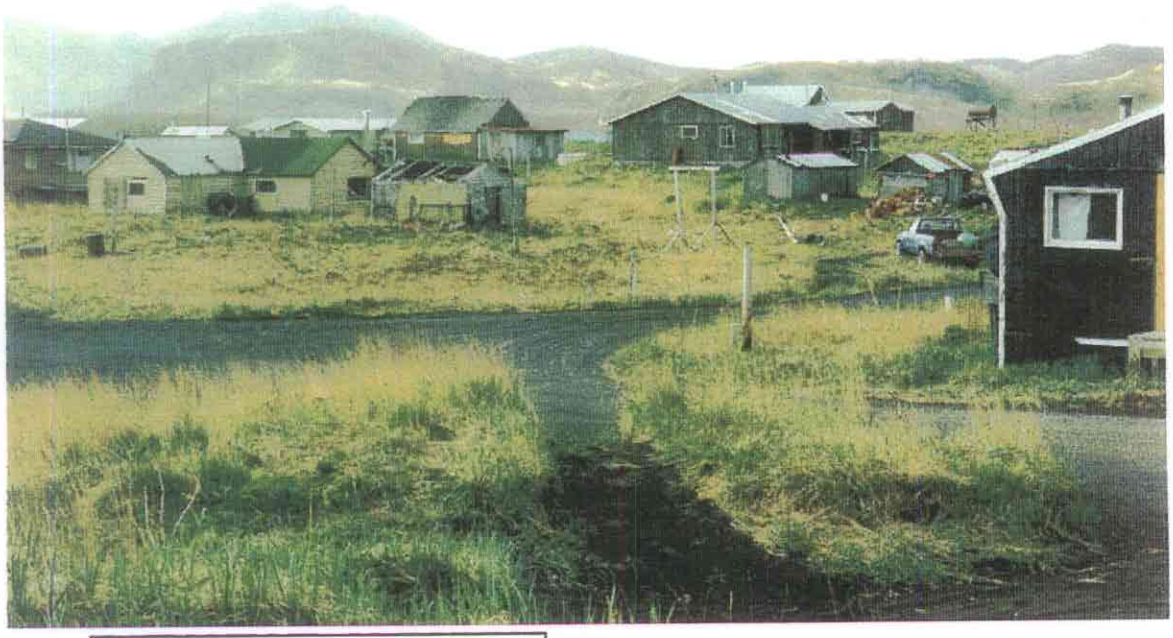


Photo 6: Houses in Perryville.

Photo 7: Aerial view of Kametolook River drainage near egg box site.

Photo 8: Aerial view of Kametolook River looking south toward mouth.

Photo 9: ADF&G representative, Jim McCullough attends Perryville village meeting to describe and discuss project.

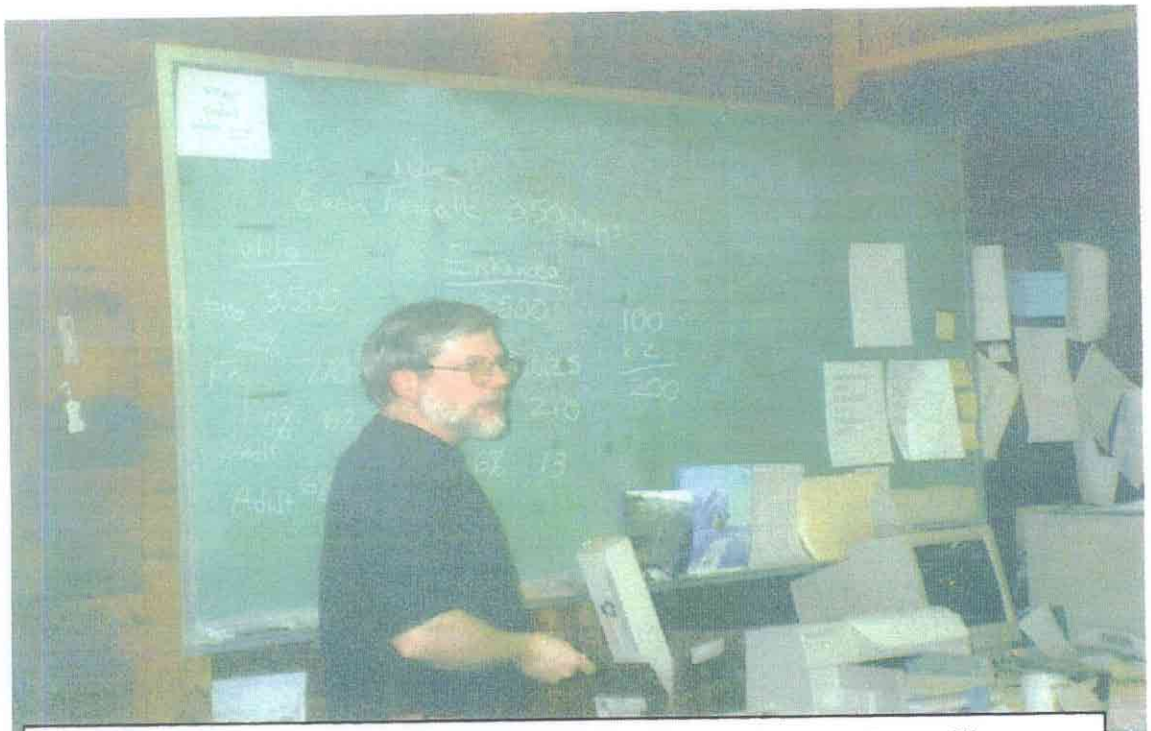


Photo 10: Jim McCullough describes coho egg box project at a Perryville village meeting.

Photo 11: Effie Shangin and Lisa Scarbrough (ADF&G). Effie was one of the village elders who generously shared her knowledge about local subsistence traditions. She also provided us with open door hospitality and never ending delicious home cooked Native foods.

Photo 12: Gerald Kosbruk, President of Perryville Village Council provides assistance to Jim McCullough at mouth of Kametolook River.

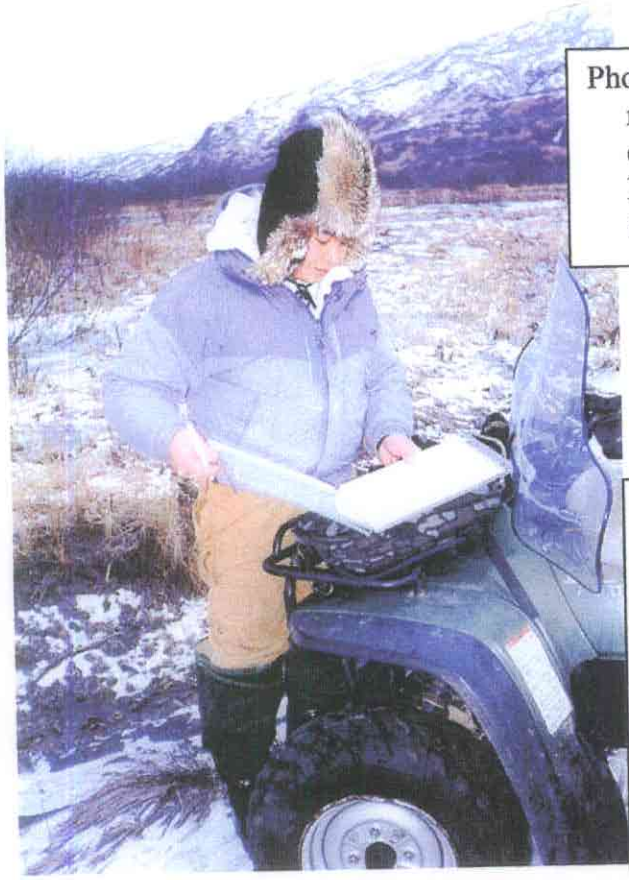


Photo 13: (left) Gerald Kosbruk keeps records during a winter habitat survey and checks thermograph sites. The project heavily relied on Perryville community involvement.

Photo 14: (below) Moses (left) and Ignatius Kosbruk guided ADF&G staff up the Kametolook River as well as other nearby drainages early in the project. Traditional and ecological knowledge shared particularly by Perryville elders was a major and significant component of the project particularly in determining the most appropriate restoration method for coho salmon in the Kametolook River.

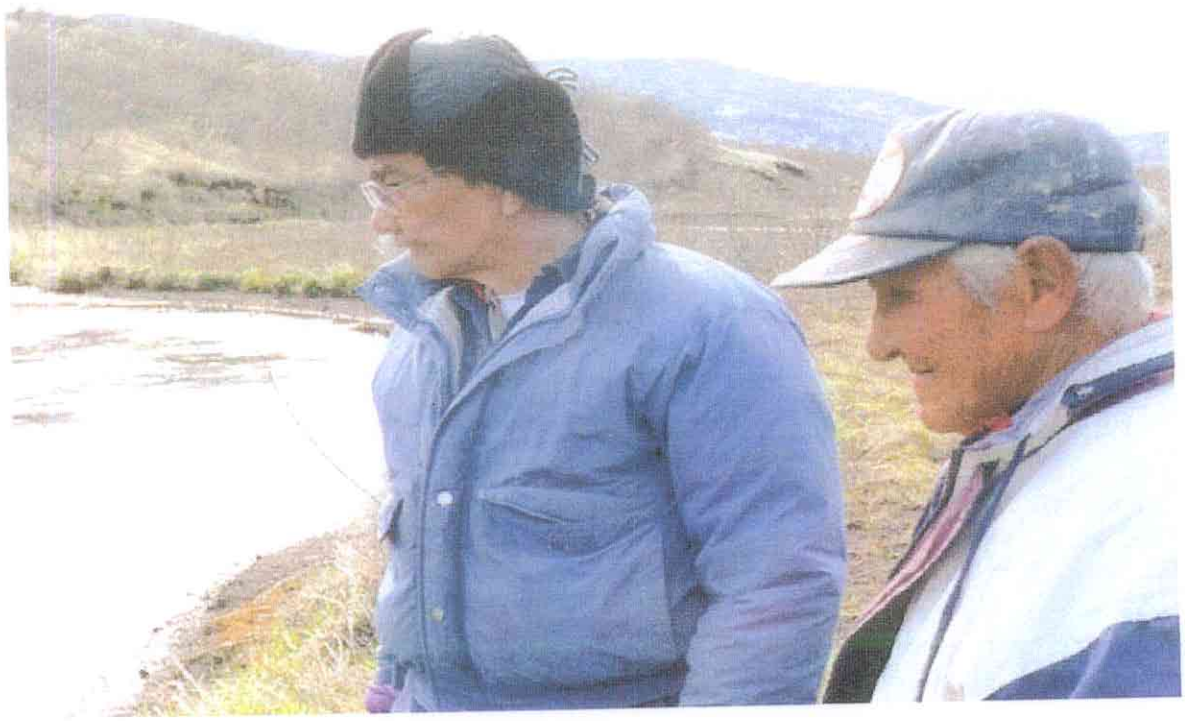


Photo 15: Bill Hauser, David Phillips, Ignatius Kosbruk and Pete Velsko conducted habitat surveys of the valley early in the project. 4-wheelers are the usual method of access to the Kametolook River or the valley behind Perryville. Before the invention of all terrain vehicles, Perryville people walked or boated to this country.

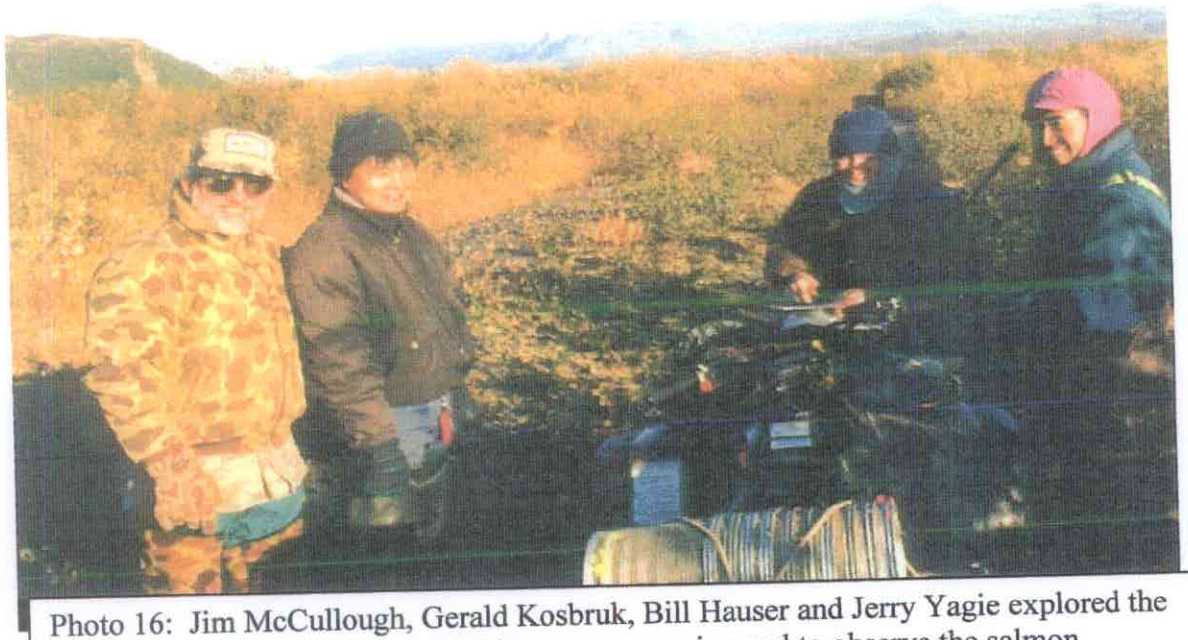


Photo 16: Jim McCullough, Gerald Kosbruk, Bill Hauser and Jerry Yagie explored the valley to describe any changes that were occurring and to observe the salmon spawning and rearing habitat in Kametolook as well as Three Star and Long Beach River drainages.

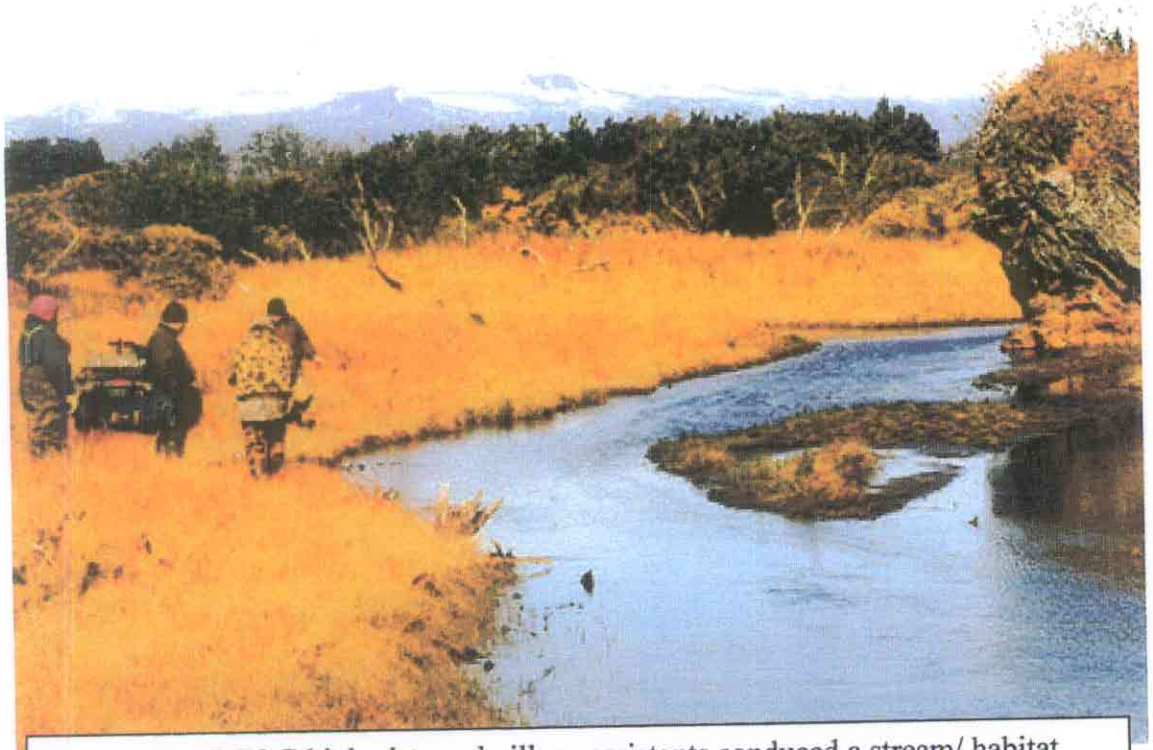


Photo 17: ADF&G biologists and village assistants conduced a stream/ habitat survey of the Three Star River. Mt. Veniaminof, an active volcano is in the background.

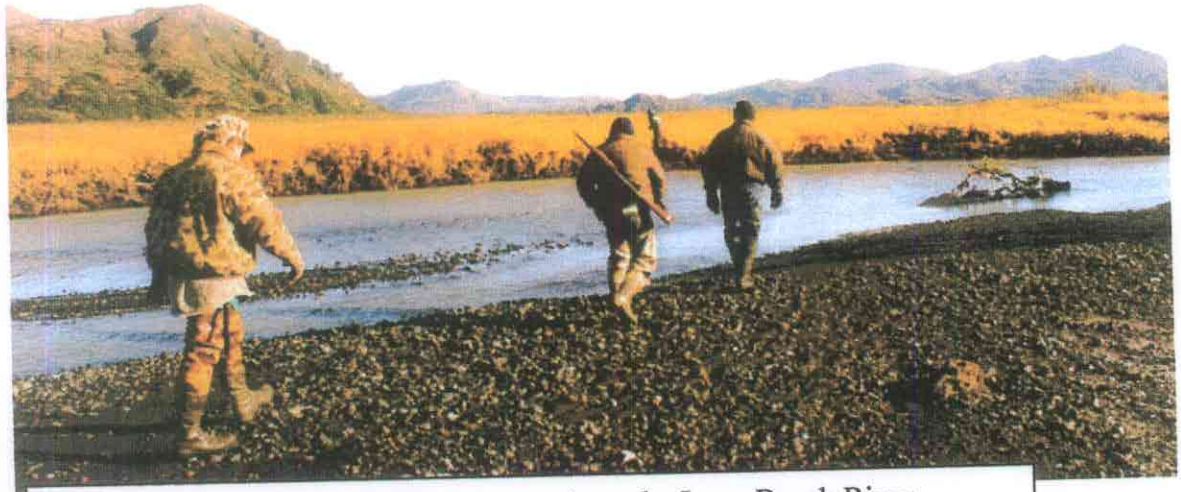


Photo 18: Conducting a habitat survey along the Long Beach River.

Photo 19: Bill Hauser checks one of the many thermograph sites on the Kametolook River.

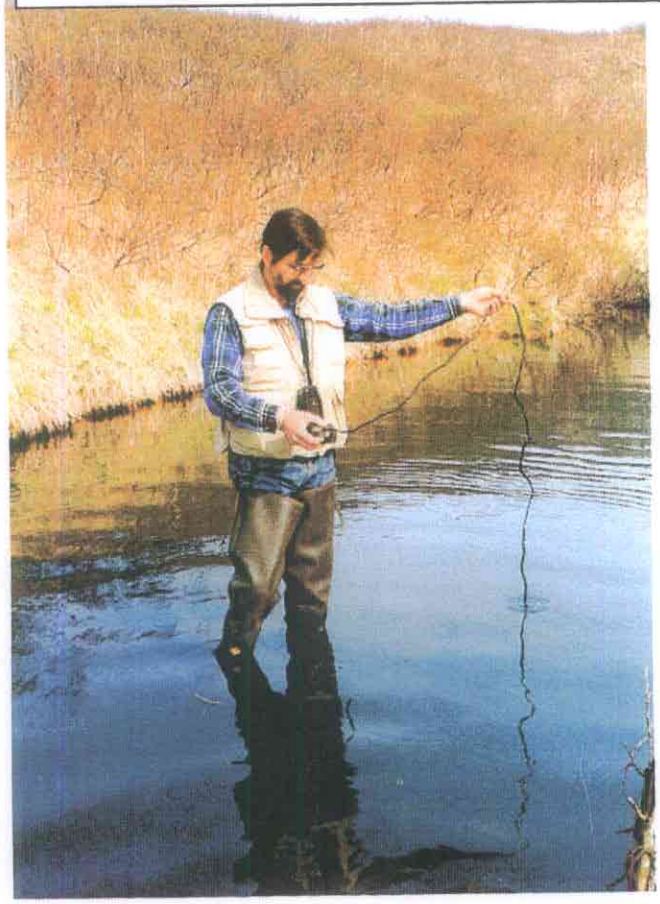


Photo 20: Pete Velsko checks the temperature of the spring in the Kametolook River in May. The incubators were placed just below this spring, which is located about 8 miles up the Kametolook River from its mouth, and 11 miles from Perryville.

Photo 21: Spring site in winter. Although a lot of the river system is unusable, we found a spring area with stable banks, good water flows and oxygen levels and an almost constant water temperature where the incubation boxes were placed.

Photo 22: Intake box for egg incubators. The box is sunk in the stream and a 2- inch waterline is connected.

Photo 23: Pete Velsko (ADF&G) stands in front of a test incubation box he built and installed in the Kametolook River in 1996. It was used the first year of the project and was successful at rearing fry. It was replaced in 1997 with two larger production egg incubation boxes.

Photo 24: Harry W. Kosbruk stands next to the two production egg boxes that replaced the successful test box starting in 1996 when necessary collection permits were secured to move into the production phase of the project.

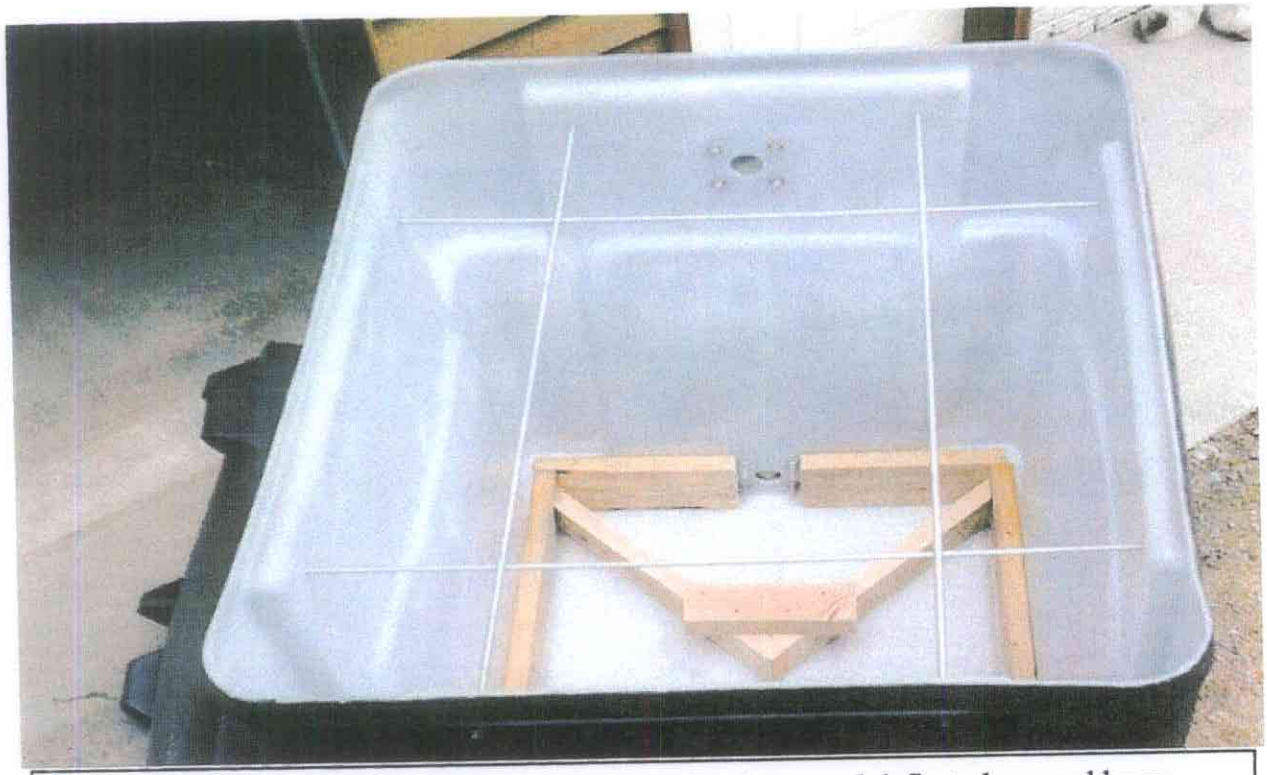


Photo 25: Water is piped into the bottom of each incubator and deflected upward by an internal wood frame and perforated aluminum plate (not shown) and then out a drain in the top. Metal rods keep the boxes strong (i.e., protection from bears).

Photo 26: Every November before the egg harvest, the incubation boxes are cleaned and prepared for the new eggs. Here Gerald Kosbruk and Jim McCullough are preparing the saddles (a bed for the eggs) for the egg boxes.

Photo 27: Adult coho salmon were caught in the Kametolook River every fall using gill nets.

Photo 28: Perryville residents assisted with the fish capture. Once coho salmon are caught in the net they are seined to the beach. This is also the primary method Perryville residents use to catch coho for subsistence.

Photo 29: Live salmon are gently removed from gill net and quickly loaded into tubs of water.

Photo 30: Mark Battaion and Jerry Yagie gently place live coho in a tub of fresh water and will quickly transport them via 4-wheeler to the net holding pens.

Photo 31: Two net holding pens were used to separate and hold female and male coho until ripe and ready for egg harvest. Pens are placed in the Kametolook River.

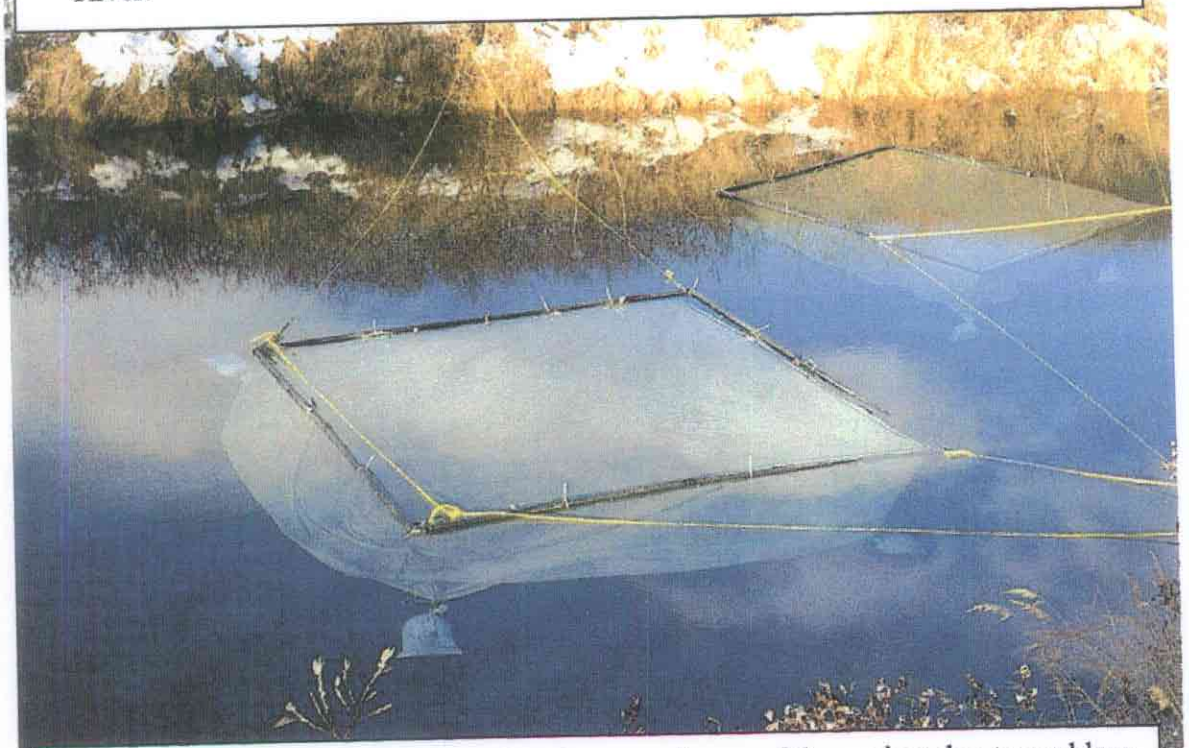
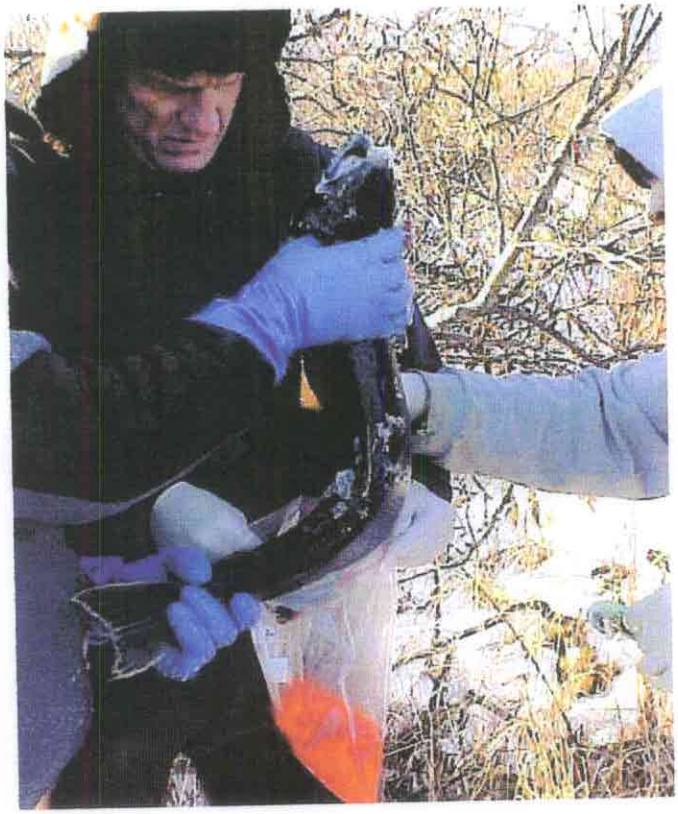


Photo 32: Net pens were used starting the second year of the project due to problem with capturing ripe fish at time of egg harvest.

Photo 33: Melvin Chya (from Pillar Creek Hatchery) and Jerry Yagie pull out the net holding pens and prepare to remove the captured Kametolook River coho salmon for the egg harvest.

Photo 34: After salmon are removed from the net pens, local assistants and ADF&G prepare the salmon for the egg harvest and biological sampling. The fish are then given away to Perryville residents to be eaten.

Photo 35: Ted Krieg removes the ripe eggs out of a coho salmon.



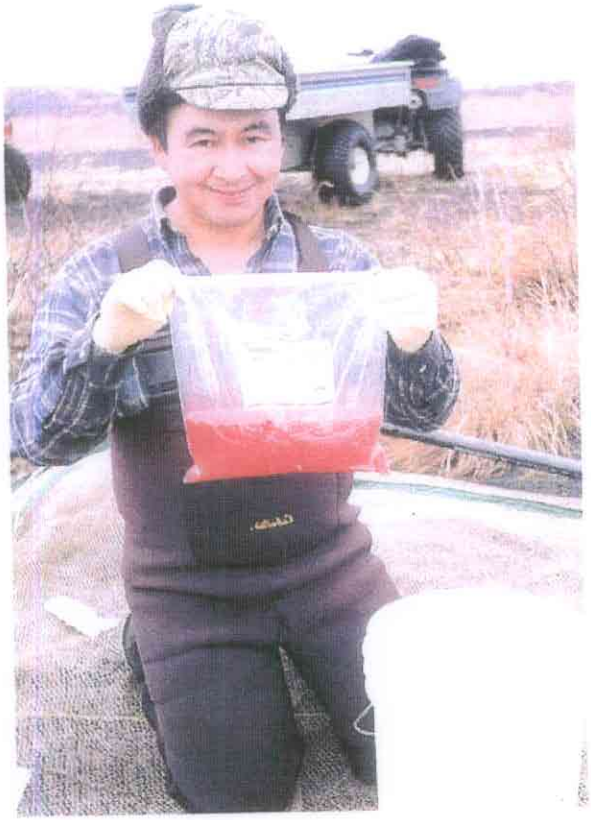


Photo 36: Jerry Yagie holds a bag of coho salmon eggs harvested for the Kametolook River egg incubation boxes.

Photo 37: Milt is removed from a male coho salmon.

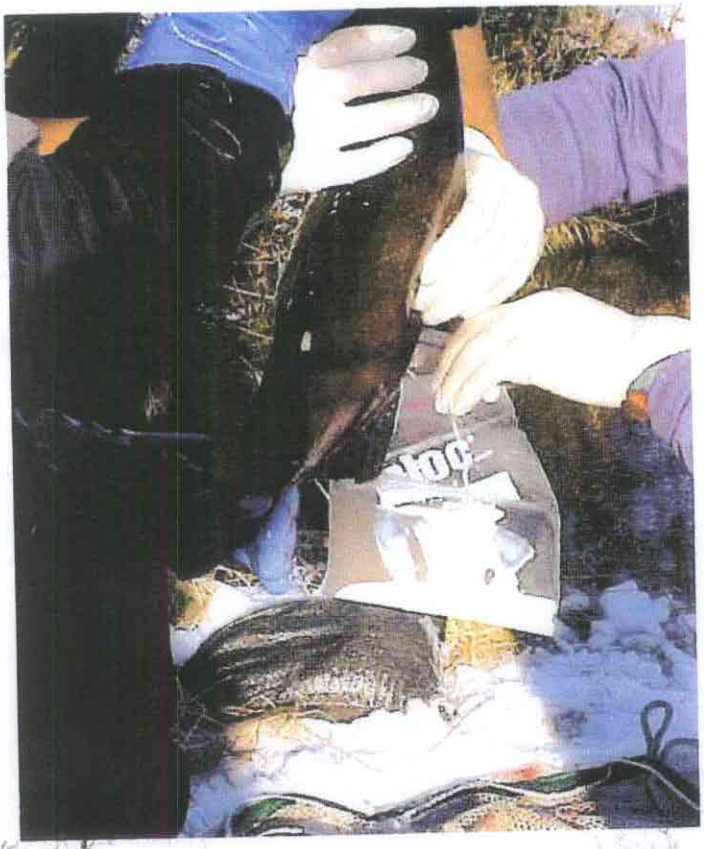


Photo 38: Eggs and milt were not mixed until they were transported to the egg incubation box location. Joe Sullivan prepares to add the milt to the eggs. Gerald Kosbruk and Jerry Yagie assisted.

Photo 39: The eggs and milt were transported separately to the egg box site. Shown are several Perryville High School students adding milt to the eggs for fertilization.

Photo 40: Melvin Chya, Jerry Yagie and Austin Shangin mix the eggs and milt for fertilization.

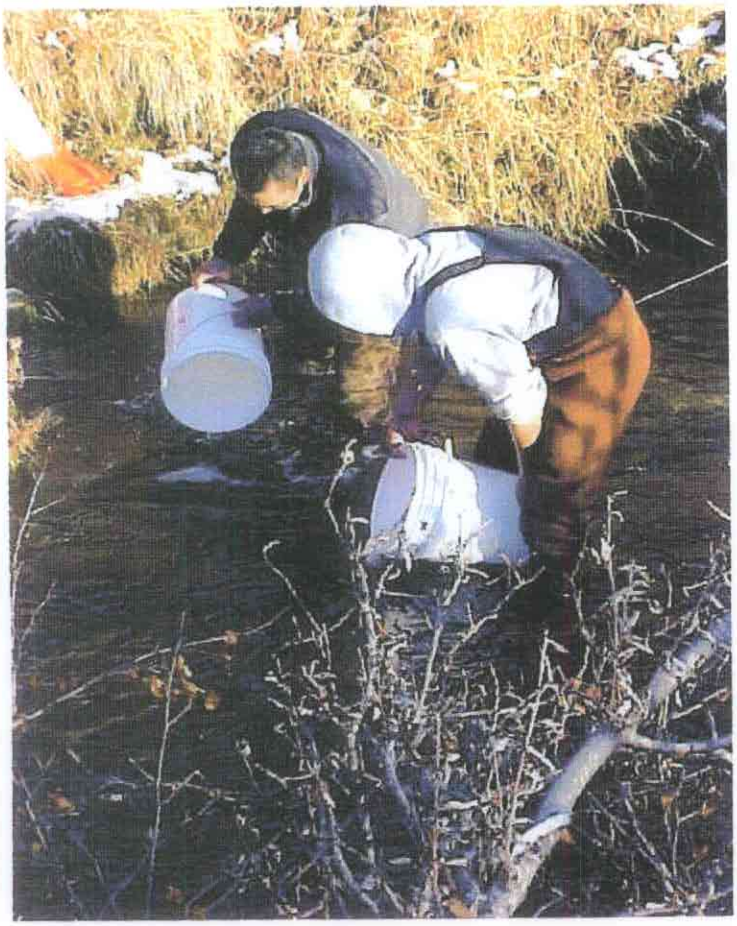


Photo 41: After fertilization, the eggs are rinsed in the river.

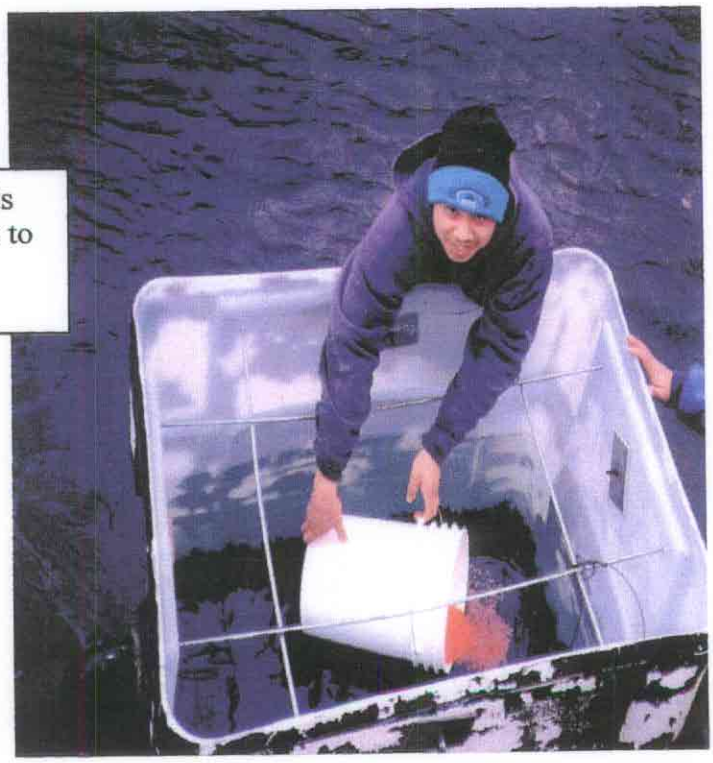


Photo 42: Austin Shangin adds fertilized coho salmon eggs to one of the instream egg incubators.

Photo 43: After the fertilized eggs are added to the egg boxes, they are closed up and tightly secured for the winter. Each box has a double walled outfall that is insulated against freezing. As the fry develop, they voluntarily use the outfall to exit the incubation box in the spring and start life in the Kametolook River.

Photo 44: One of the requirements for the project was to take ovarian, kidney and genetic samples of coho from the Kametolook River. Perryville high school students are shown wiping down each fish with an antibacterial agent prior to collecting samples.

Photo 45: Austin Shangin collects an ovarian sample from a coho salmon.

Photo 46: Austin Shangin removes the kidney from a coho salmon for analysis.

Photo 47: Austin Shangin holds a kidney sample he collected. Each sample is put into a whirl pack for pathological analysis by ADF&G in Anchorage.

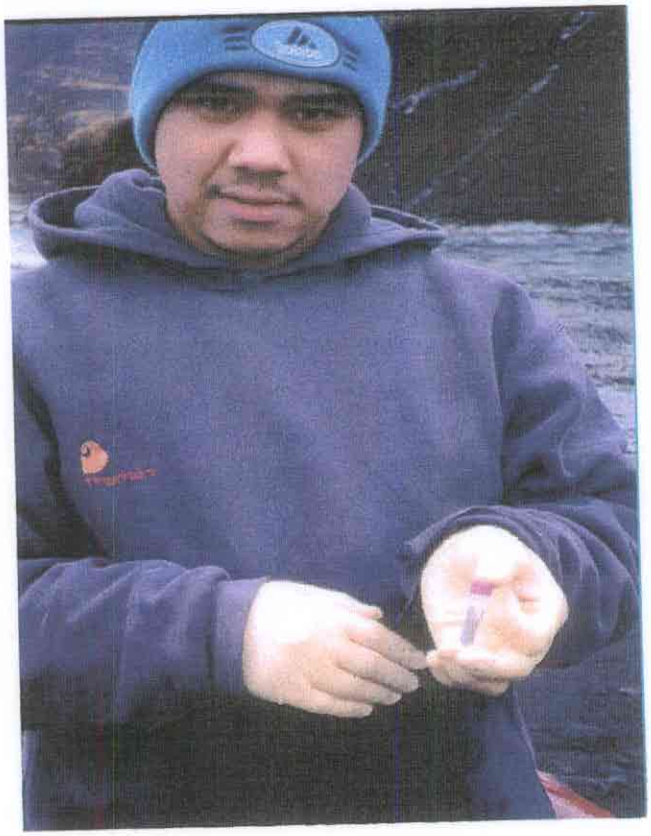


Photo 48: Austin Shangin shows a fin clip sample he collected for USF&WS genetic baseline data on coho salmon.

Photo 49: After egg take and biological samples were collected from the coho salmon used for the project, the remainder of the fish was given to local Perryville residents for consumption. Here Tim Shangin fillets one of the salmon he will take back to Perryville and share with others.

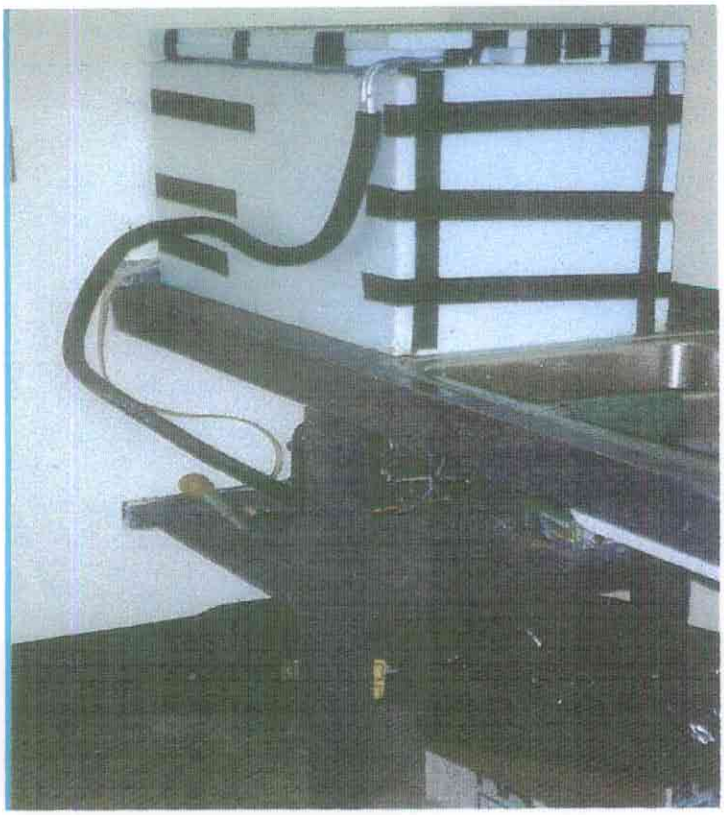


Photo 50: One major component of the project was an educational project with the local Perryville school where salmon life history could be studied via on site field trips (high school students) with ADF&G and the use of an aquarium that was set up to incubate coho salmon eggs in the classroom, where all school aged children could observe.

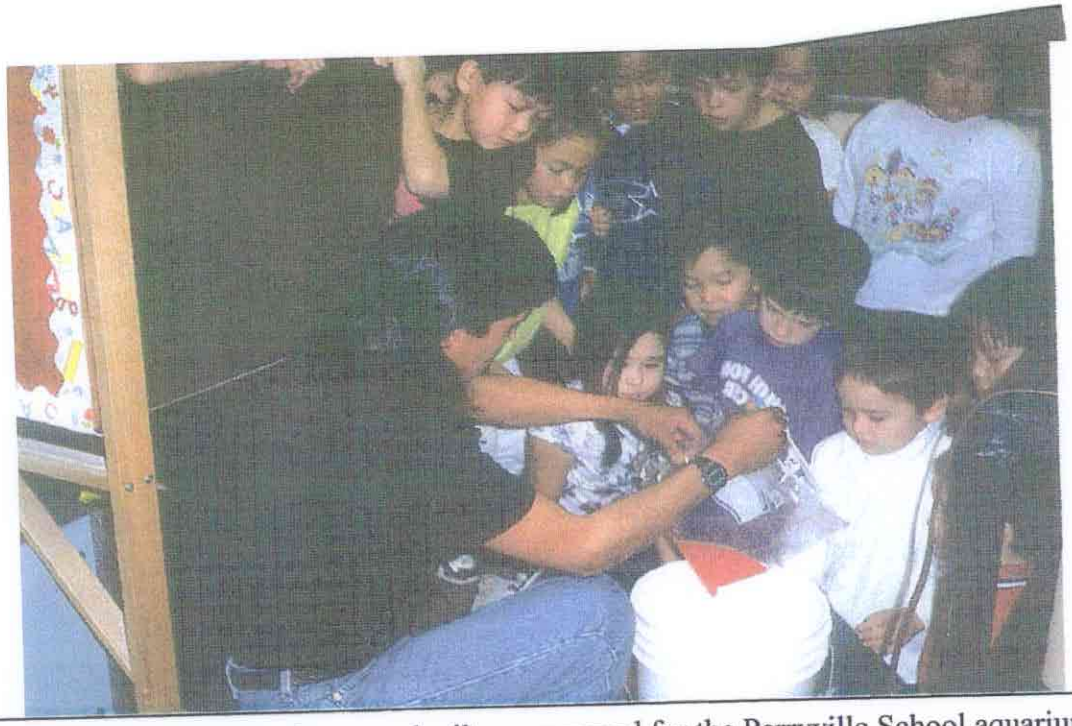


Photo 51: A small amount of eggs and milt are reserved for the Perryville School aquarium. Melvin Chya demonstrates to the Perryville elementary students how the coho salmon eggs that will be added to their school aquarium are fertilized.

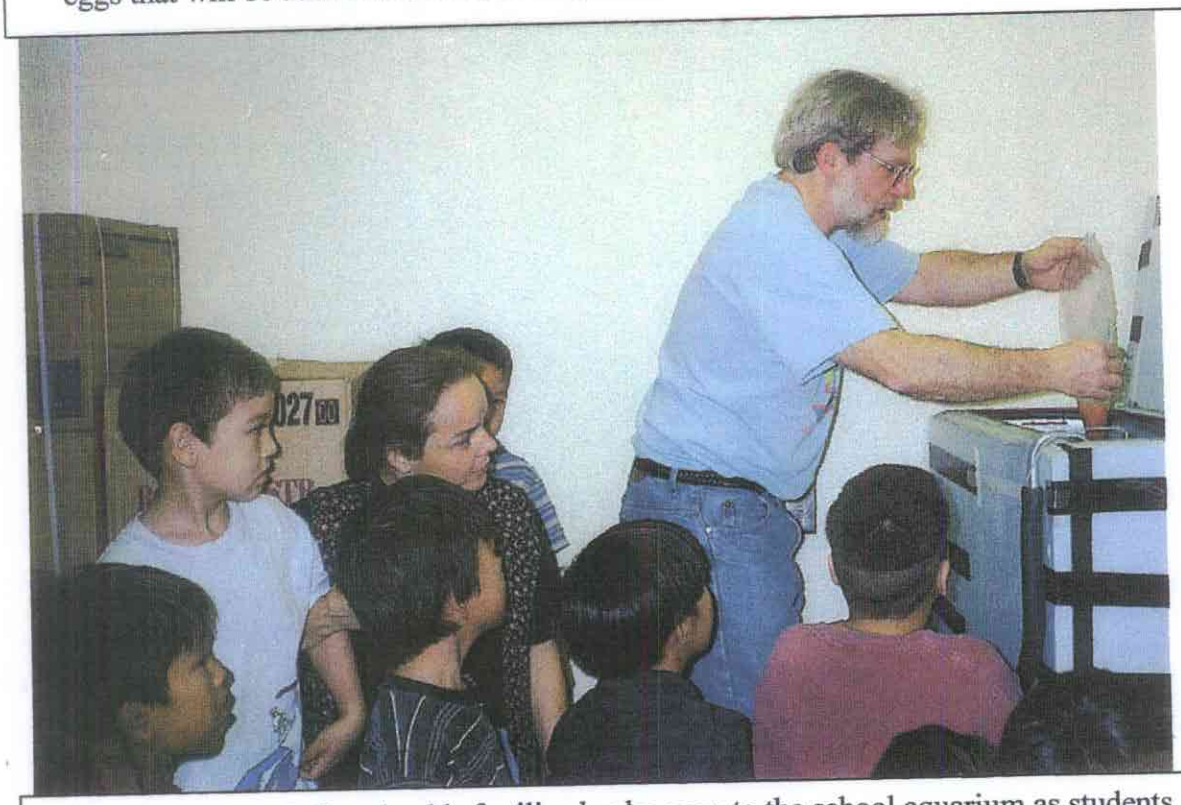


Photo 52: Jim McCullough adds fertilized coho eggs to the school aquarium as students watch.

Photo 53: Coho fry produced from one of school egg aquarium projects. These fry were removed and released into the Kametolook River in the spring.

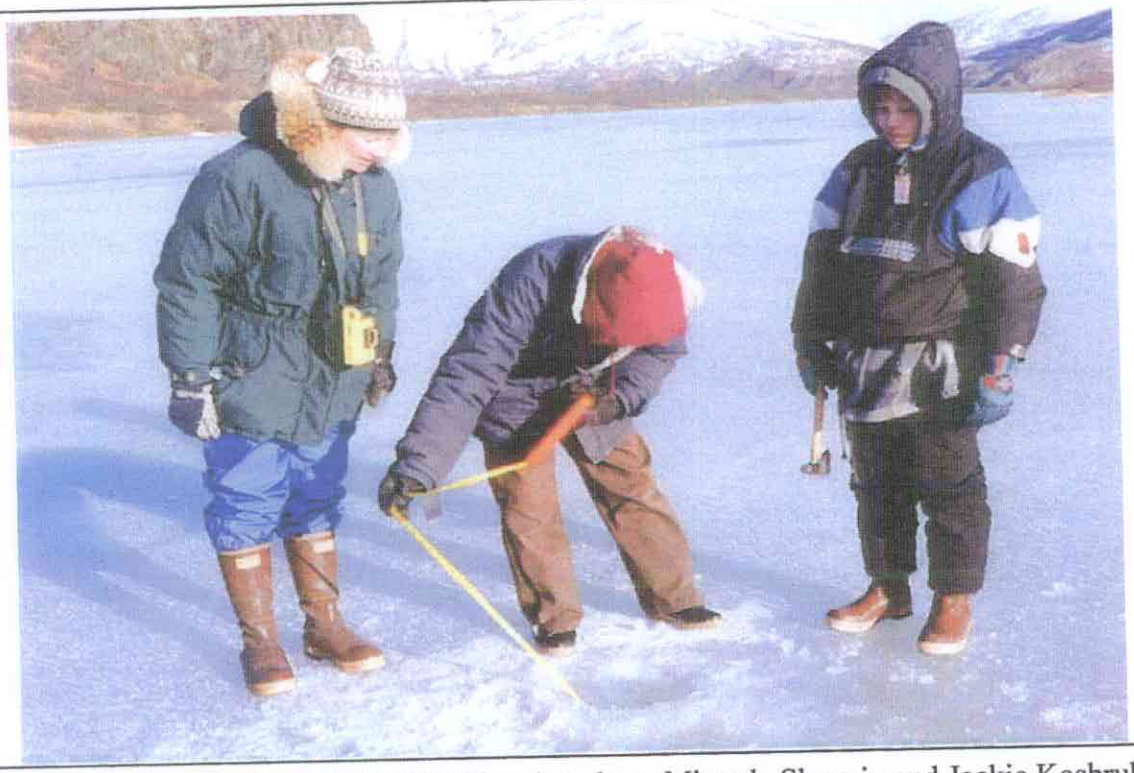


Photo 54: Lisa Scarbrough (ADF&G) and students Miranda Shangin and Jackie Kosbruk measure depth and oxygen content of Sicken Lake (January 1997), one of two local land locked lakes to determine if the lakes might be able to sustain coho fry from the school aquarium if released there in the spring. Fry were released from the test incubation box into this lake in the spring of 1997.

Photo 55: Another important investigation before any fry could be released into the Kametolook River was to try to determine if the run was lower than historic levels due to habitat changes. Minnow traps were set in normally productive juvenile coho habitat to help determine if the habitat was fully utilized. Here some high school students were able to learn some scientific sampling techniques.

Photo 56: Once juvenile fish were caught, the Perryville High School students learned from Jim McCullough (ADF&G) how to count scales to age them.

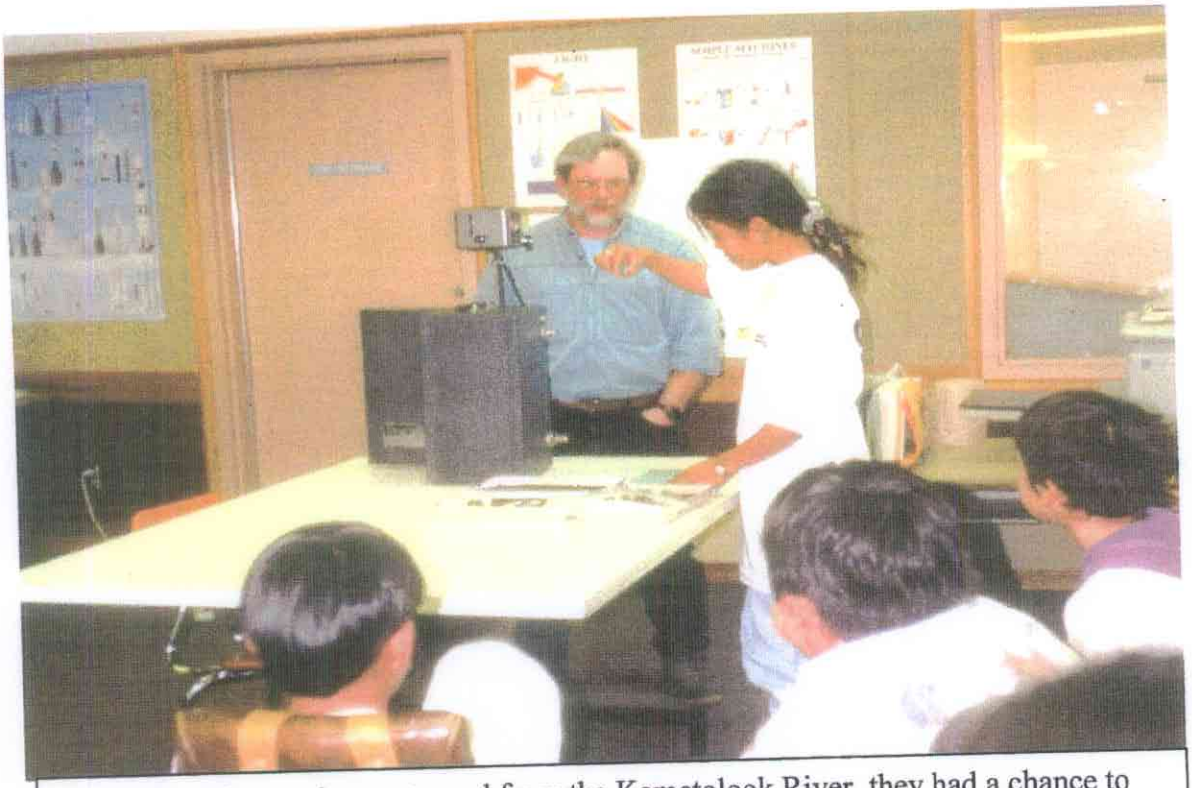


Photo 57: After students returned from the Kametolook River, they had a chance to dissect some of the juvenile fish and explain to their classmates and younger students what they learned on the fieldtrip.

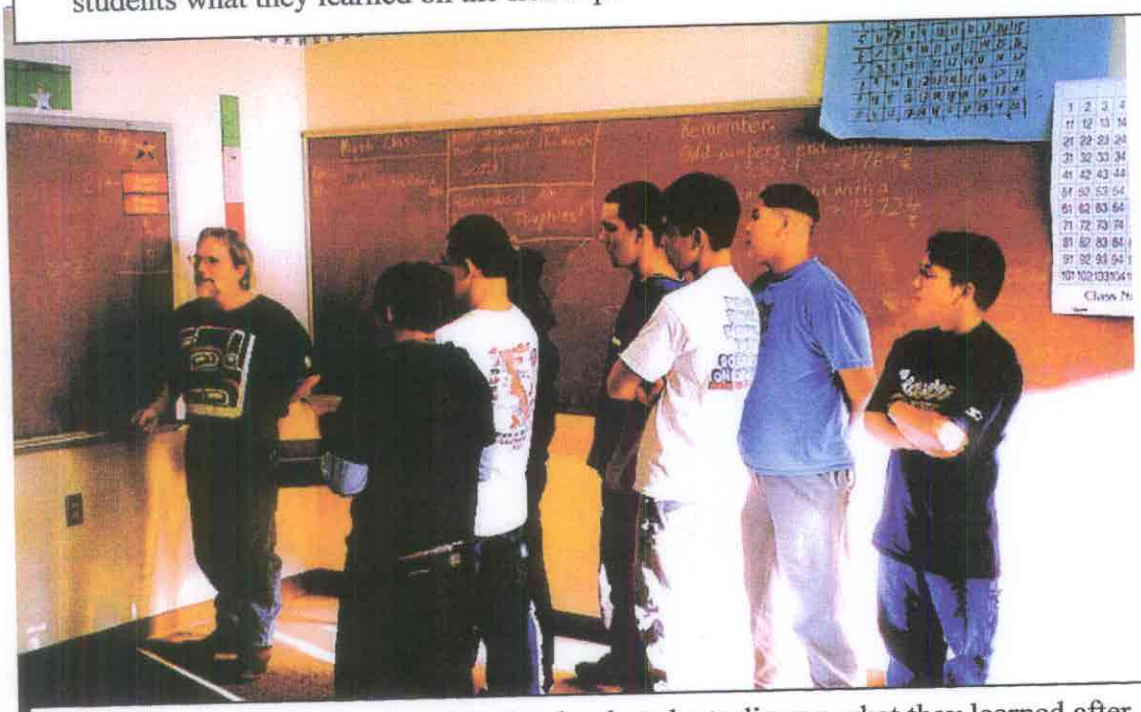
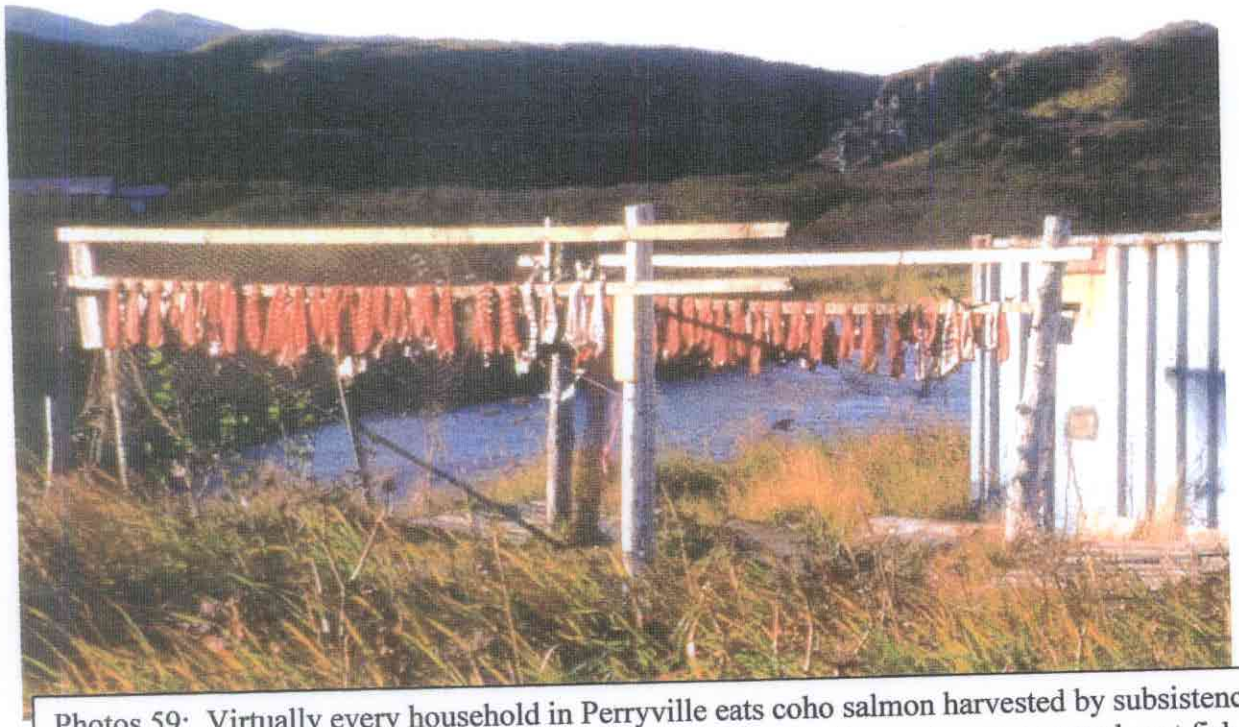


Photo 58: Jim McCullough and high school students discuss what they learned after their participation on one of the field trips to the Kametolook River where they assisted with the egg harvest and took biological samples of captured coho salmon.



Photos 59: Virtually every household in Perryville eats coho salmon harvested by subsistence methods. Ocean bright fish are salted, smoked or frozen. Spawning or spawned- out fish are dried, frozen, salted, and smoked. The heads are boiled and eaten as well. The dried fish are often eaten with brown bear fat or seal oil.

Photos 60: The main goal of the project was to rehabilitate the coho salmon run so that once again the Kametolook River will have enough local fish for the local people of Perryville and the local bears, eagles etc.