State of Alaska
Department of Fish and Game
Nomination for Waters
Important to Anadromous Fish

Year of Revision

84-784

Anadromous Water Catalog Volume Western IV

USGS Quad Nunivak Island C-1

Name of Waterway Tunanak River North fork

Anadromous Water Catalog Number of Waterway

335-40-14760-2003

Change to _____ Atlas

_____ Catalog

X Both

Addition X

Deletion _____

Correction _____

Name addition:

USGS name _____

Local name _____

For Office Use

Nomination # _____

Regional Supervisor 11/1/84 Date

SPS 10/84

Drafted cp 10/84 Date

Species	Date(s) Observed	Spawning	Rearing	Migration
Pinks	24-26 July 1979	X		X
~~Coho~~				

Comments: Provide any clarifying information, including number of fish observed, location of fish survey data, etc.

Report Published By Lower Yukon/Kuskokwim Aquaculture Assn.
Reference Canton, James. An Evaluation of the Enhancement Potential of The Tununak River, Nelson Island, AK. Lower Yukon/Kuskokwim Aquaculture Association. 1982 add # 335-40-14760-2003

Attach a copy of a map showing location of mouth and upper points of each species, specific stream reaches identified for spawning or rearing, locations of barriers, such as falls. Attach a copy of the fish survey data, if available.

Name of Observer (please print) Paul McCollum nom By Stewart Seaberg

Date: _____ Signature: Stewart Seaberg

Address: P.O. Box 863 Kodiak AK 99587

Signature of Area Biologist: Ron Regnart

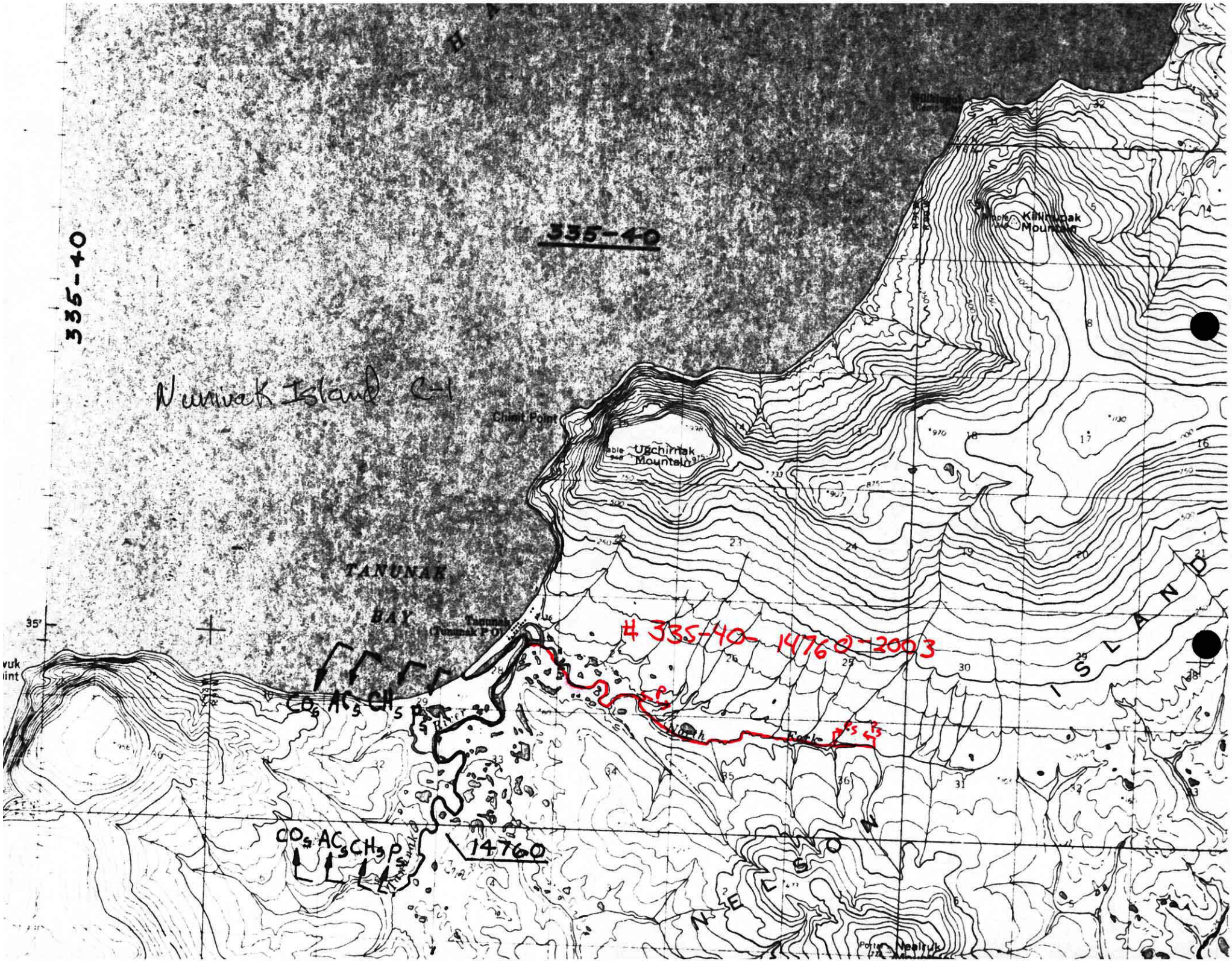
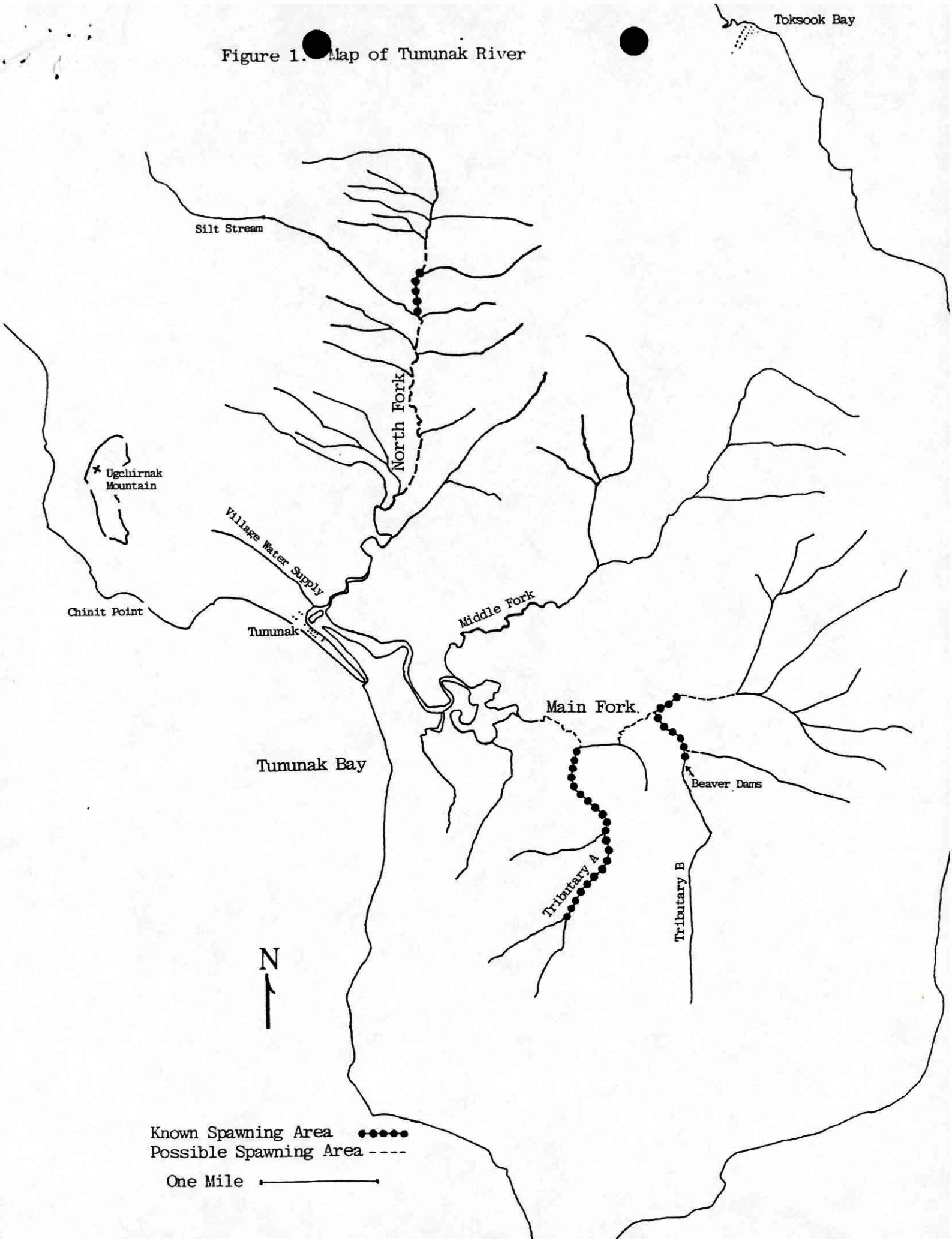

335-40
335-40
Nunivak Island C-1
Chant Point
Uschimak Mountain
Kalimiak Mountain
TANUNAK BAY
Tanunak (Tununak P.O.)
335-40-14760-2003
North Fork
CO5 AC5 CH5 P5
CO5 AC5 CH5 P5
14760
NELSON ISLAND
Nealiuk

Figure 1. Map of Tununak River



State of Alaska
Department of Fish and Game
Nomination for Waters
Important to Anadromous Species

1984
Year of Revision

Approved

Regional Supervisor 10/3/84 Date

Drafted 9/10/84

ALASKA DEPT. OF FISH & GAME

SEP - 4 1984

HABITAT REGIONAL OFFICE

Name of Waterway Tununak River

AWC# of Waterway

AWC Volume & Number Western III

USGS Quad Nunivak IS C-1

Addition X
Deletion

Correction
Change

Change to
Atlas
Catalog
X Both

Species	Date(s) Observed	Spawning	Rearing	Migration
coho	summer 1982	X	X	X
pink	summer 1982	X	X	X
char	summer 1982	X	X	X

no

Comments: Provide any clarifying information, including number of fish observed, location of fish survey data, etc.

Please see "An Evaluation of the Enhancement Potential of the Tununak River, Nelson Island, Alaska," by James Cantor ADF&G contract # 1066. Includes maps and ~~flow~~ limnological information.

Backup for Nomo # 33540-14760-2003; ---2008; ---2042

Attach a copy of a map showing location of mouth and upper points of each species, specific stream reaches identified for spawning or rearing, locations of barriers, such as falls. Attach a copy of the fish survey data, if available.

Name of Observer (please print) Paul McCollum, James Cantor

Date: 8/29/84 Signature: not available

Address: Richard "Kim" Francisco
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LOWER YUKON/KUSKOKWIM
AQUACULTURE ASSOCIATION

AN EVALUATION OF THE ENHANCEMENT POTENTIAL OF THE TUNUNAK RIVER NELSON ISLAND, ALASKA

North fork + trib A + B

Prepared by the
Lower Yukon/Kuskokwim Aquaculture Association
under contract with the
Alaska Department of Fish and Game
Contract #1066
April - December, 1982

By James Cantor

SITE INVESTIGATION

Tununak River, Nelson Island, Alaska

Lower Yukon/Kuskokwim Aquaculture Association
prepared under contract with
Alaska Department of Fish and Game, FRED Division
Contract #82-1066
April- December, 1982

ABSTRACT:

The Tununak River, Nelson Island, Alaska, was examined by the Lower Yukon/ Kuskokwim Aquaculture Association during the summer of 1982 as a potential site for aquaculture development.

The main salmon species presently spawning in the Tununak River are pink salmon (Oncorhynchus gorbuscha) and coho salmon (Oncorhynchus kisutch). The most important spawning areas in the system occur on the two major tributaries to the main fork of the river. One of these tributaries is blocked by a beaver dam, preventing movement of salmon to upper segments of the stream.

Although total population figures are not known, villagers report that the pink and coho runs in the Tununak River have been increasing in recent years. Harvest of these salmon is accomplished with gill nets stretched completely across river channels. However, it is reported that fishing effort on the river has decreased and that demand for Tununak River salmon is low.

The site was not recommended for aquaculture development.

BACKGROUND:

The Tununak River is a small spring-fed system feeding into the Bering Sea on the western side of Nelson Island, Alaska. The river drains approximately forty square miles. The village of Tununak, population 299, is situated at the mouth of the Tununak River (see Figure 1).

The Tununak River has repeatedly been suggested as a site for an aquaculture project. Department of Fish and Game personnel in Bethel had reported that the river was depleted of salmon, probably through overfishing. The river had never been studied and no specific information regarding the system was available.

In 1979, the Lower Yukon/Kuskokwim Aquaculture Association applied for a permit for the release of hatchery fish into the Tununak River. The permit was denied due to a lack of information on the status of the natural salmon populations in the river.

From 24-26 July, 1979, Paul McCollum of the Aquaculture Association surveyed the Tununak River. He discovered five small mesh gill nets stretched entirely across the river on both the Main and the North Forks. In addition, he reported a funnel fishtrap on the Main Fork. Two pink salmon were observed on the Main Fork. No other salmon were spotted on any portions of the river, although

--The North Fork: The North Fork is navigable for approximately one mile above town. On 29 July, 1982, two miles above town, the Fork was 14 feet wide with an average depth of 12 inches. Flow was calculated to be 36 ft^3/second. On this date, the waters of the North Fork were extremely muddy with almost no visibility. Much of this silt load seemed to come from a tributary stream near the top of the Fork (see "Silt Stream", Figure 1). Above this stream, the water clears. A hundred yards upstream, the Fork narrows to two to three feet.

--The Main Fork: The Main Fork is navigable nearly up to Tributary A. On 24 July, 1982, immediately downstream of Tributary A, the river was 23½ feet wide with an average depth of 17.5 inches. Flow was calculated to be 84 ft^3/second (see Table 1). The water was clear and the bottom was composed of one to three inch diameter gravel.

Between Tributaries A and B, the Main Fork narrows to four to five feet, and flows deep and swift. This is the point that villagers have used to set fish traps. Above Tributary B, the Main Fork slows and the gravel is surrounded by silt and algae. Immediately upstream of Tributary B, flow was calculated to be 18 ft^3/second (see Table 1), on 24 July, 1982. One quarter of a mile upstream from Tributary B, the Main Fork narrows to one to three feet with occasional wider, deep pools. Three-fourths of a mile above Tributary B, the Main Fork is no longer large enough to provide any salmon habitat.

—The Middle Fork: The Middle Fork is approximately 10 feet wide at its mouth and too shallow to navigate. The stream bottom in the lower 1½ miles of the Middle Fork is muddy. Beaver dams block streams feeding into the Middle Fork and, on 24 July, 1982, beaver were observed at the junction of the Middle and the Main Forks.

—Tributary A: Tributary A is clear and swift flowing with a clean gravel bottom over its entire length. One and one quarter miles above its mouth the stream was 8 feet 9 inches wide with an average depth of 8 inches, on 24 July, 1982. Flow was calculated to be 21 ft^3/second (see Table 1).

--Tributary B: Tributary B is blocked by an extensive system of beaver dams located 1/2 to 3/4 miles above its mouth. During the first part of the summer this system contained at least six dams, which appeared to block upstream migration by salmon. By early October, three of the dams had been washed out, releasing one of the two ponds formed by the system. It is unknown if the washout was caused by man or nature, although none of the villagers spoken to knew about the damage. It is estimated from map examinations that the slope of the tributary in the region of the dams is 75 ft/mile. On 6 October, 1982, below the beaver dams, the width of the tributary was 12 feet 3 inches with an average depth of 9.5 inches. Flow was calculated to be 25 ft^3/second (see Table 1).

Spawning Habitat (see Figure 1): The greatest concentration of spawning salmon in the Tununak system occurs in Tributary B, downstream of the beaver dams. Spawning habitat is described by stream in the following paragraphs.

—The North Fork: None of the tributaries to the North Fork appear to provide significant spawning areas. A hundred yards of good spawning area is utilized upstream from the "silt stream." Below this stream, the Fork has a good gravel bottom; however, the water is muddy and it is unknown how much of this area is utilized for spawning or where the gravel bottom gives way to mud.

--The Main Fork: Up to one-half mile below Tributary A, the bottom of the Main Fork is mostly muddy. Tidal mud banks extend as far as one and one-half miles upriver from the mouth. The one-half mile sections below both Tributaries A and B have clean gravel bottoms and may support spawning activity. In both these sections, pink salmon were observed migrating upstream. No spawning activity was observed. The one-quarter mile section upstream of Tributary B provides some spawning habitat; however, the gravel is slightly silt- and algae-covered and only a small number of pink salmon were observed choosing this fork. It is not known if the stream section upstream of this area provides an spawning habitat. The stream is narrow, occasionally choked with bushes, with an unknown bottom composition.

--The Middle Fork: No salmon were observed in the lower reaches of the Middle Fork. Villagers report that few salmon utilize this fork.

--Tributary A: Salmon spawn along nearly the entire length of Tributary A, although in much lesser numbers than Tributary B. On 23-24 July, 1982, thousands of eulachons (candlefish) were observed spawning in this tributary. Eulachons were not observed to spawn in any other sections of the Tununak system.

-Tributary B: Tributary B is not utilized above the beaver dams, although the stream does seem to have approximately one and one-half miles of suitable habitat in this region. Below the dams, the tributary meanders. In most sections, the gravel is slightly silt- and algae-covered. The lowest one-quarter of a mile contains clean gravel bottoms. Most of the salmon spawning activity in the Tununak system seems to take place in this short segment of Tributary B between the beaver dams and the mouth of the tributary.

The Bering Sea: During low tide, the entire Tununak Bay is drained of water. Plankton analysis just outside of the Bay and along the cliffs to the north reveal normal densities (see Appendix 1). Although one sample is clearly not definitive (Tununak's frequently poor weather prevented the taking of further samples,) this may indicate that salt-water feed for juveniles does exist in concentrations similar to other regions of the state.

Low Flow Investigation: During the period of this investigation, the weather was clear with temperatures ranging from 0-20°F. The snow was apparently deeper than is common. Most of the snowfall had occurred from February to April. The river was extremely difficult to find under this snowcover. A hole was dug on the Middle Fork at a spot located by a local resident; however, the river was not discovered.

A hole was successfully drilled into the river on the Main Fork approximately one and three-quarters of a mile upstream from the river mouth.

Date: 19 April, 1982 Time: 8:00 a.m.
Snow Depth: 4 feet
Ice Thickness: 4 feet 10 inches (ice was slightly grainy and supersaturated with water)
Water Depth: 7 inches
Water Temperature: 2°C
D.O.: 14 ppm (Hach kit-28 drops)
Taste: Fresh
Clarity: Slightly murky and green when observed down hole; clear in collecting bottle
Flow: Unable to determine

With the decline of the dogteam as a form of transportation, salmon are no longer harvested extensively for dogfood. Using modern transportation and equipment, villagers are able to range farther for food, harvesting all five species of salmon with drift and gill nets in the Bering Sea. Pink salmon are also caught in the Ikalugtulik River, approximately seven miles northeast of the village. In addition, villagers obtain salmon from Kuskokwim River villages in exchange for seal oil.

Although fishing effort has declined on the Tununak River, pink and coho salmon are still harvested from this system using gill nets stretched completely across the river. Villagers report that the flesh of these fish, caught so near to their spawning grounds, is generally deteriorated and is not considered particularly delectable.

Local sources (Bob Hooper, Dick Lincoln) claim that salmon have never been a major or preferred part of the Tununak diet. Numbers of salmon caught per family are relatively low. Dick Lincoln reported catching 16 king salmon from the Bay. He felt that this was sufficient to meet his needs. Victor Kanrilak took 15 pinks in mid-August from the Tununak River and Andy Charlie harvested "about 40" cohos from the river. Other villagers reported similar catches, while many said that they had not tried to harvest any salmon.

Other subsistence resources include*:

Herring: The major subsistence crop for the village is herring. The village has voted to not open a commercial herring fishery in order to protect this important resource. Herring are caught in set nets on the west side of Tununak Bay and on the north side of the bay near Chinit Point. The Alaska Department of Fish and Game has been conducting a study of herring populations at Tununak.

Seal: A very important resource, seals are hunted in the ice just outside Tununak Bay. Seals are captured for their meat, hides, and oil (a staple in the local diet). Products made from the hides are used locally and sold outside the village.

Muskox: Muskox were transplanted into the region about ten years ago and have become an important food item. In the late winter, muskox is eaten in many houses and complaints are frequently heard that people are tired of the meat and wish for a change of diet. The recent availability of muskox has probably helped reduce the villagers' need for salmon.

Halibut: Halibut are caught for subsistence use by jigging, and recently, for commercial and subsistence purposes, using longline techniques. Halibut generally range between 10 and 40 pounds.

Smelt: Smelt are harvested and dried for subsistence use. Eulachons, which spawn in the Tununak River, are usually not harvested.

Tomcod: Tomcod are caught along the coast to the north of town. This investigator caught over 100 tomcod in two hours, ice-fishing along the coast about 4½ miles north of town. Ten others were fishing the same spot with equal returns. During the spring, at high tide, children fish for tomcod along the beach in front of town using rod and reel.

*Although villagers were not questioned in depth about these resources, an attempt was made to list them in approximate order of importance.