State of Alaska
Department of Fish and Game
Habitat and Restoration Division

Nomination for Waters Important to Anadromous Fish

Region: SOUTHWEST

USGS Quad: COLD BAY (B-2)

Anadromous Water Catalog Number of Waterway: 283-34-10560

Name of Waterway: NONE ☐ USGS Name ☐ Local Name

☒ Addition ☐ Deletion ☐ Correction ☐ Backup Information

For Office Use

Nomination #	04004		
Revision Year:	2005	Regional Supervisor	9/21/04 Date
Revision to: Atlas ____ Catalog ____ Both X		AWC Project Biologist	20 May 04 Date
Revision Code:	A-2	Drafted	11/19/04 Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
SOCKEYE SALMON	6-20-98		7 juvenile		☒
COHO SALMON	6-20-98		1 juv		☐
9-spine stickleback	6-20-98		1		☐
Sculpins sp.	6-20-98			21	☐
					☐

IMPORTANT: Provide all supporting documentation that this water body is important for the spawning, rearing or migration of anadromous fish, including: number of fish and life stages observed; sampling methods, sampling duration and area sampled; copies of field notes; etc. Attach a copy of a map showing location of mouth and observed upper extent of each species, as well as other information such as: specific stream reaches observed as spawning or rearing habitat; locations, types, and heights of any barriers; etc.

Comments: Sockeye were captured upstream of the mouth. There is a fairly large pond/lake upstream which we did not sample. The coho, sticklebacks, + sculpins were seined up at the mouth during low tide. We captured no coho salmon upstream.

Add new stream w/SR

ALASKA DEPT. OF FISH & GAME NOV 2 3 2003

Designated stream G on attached Map

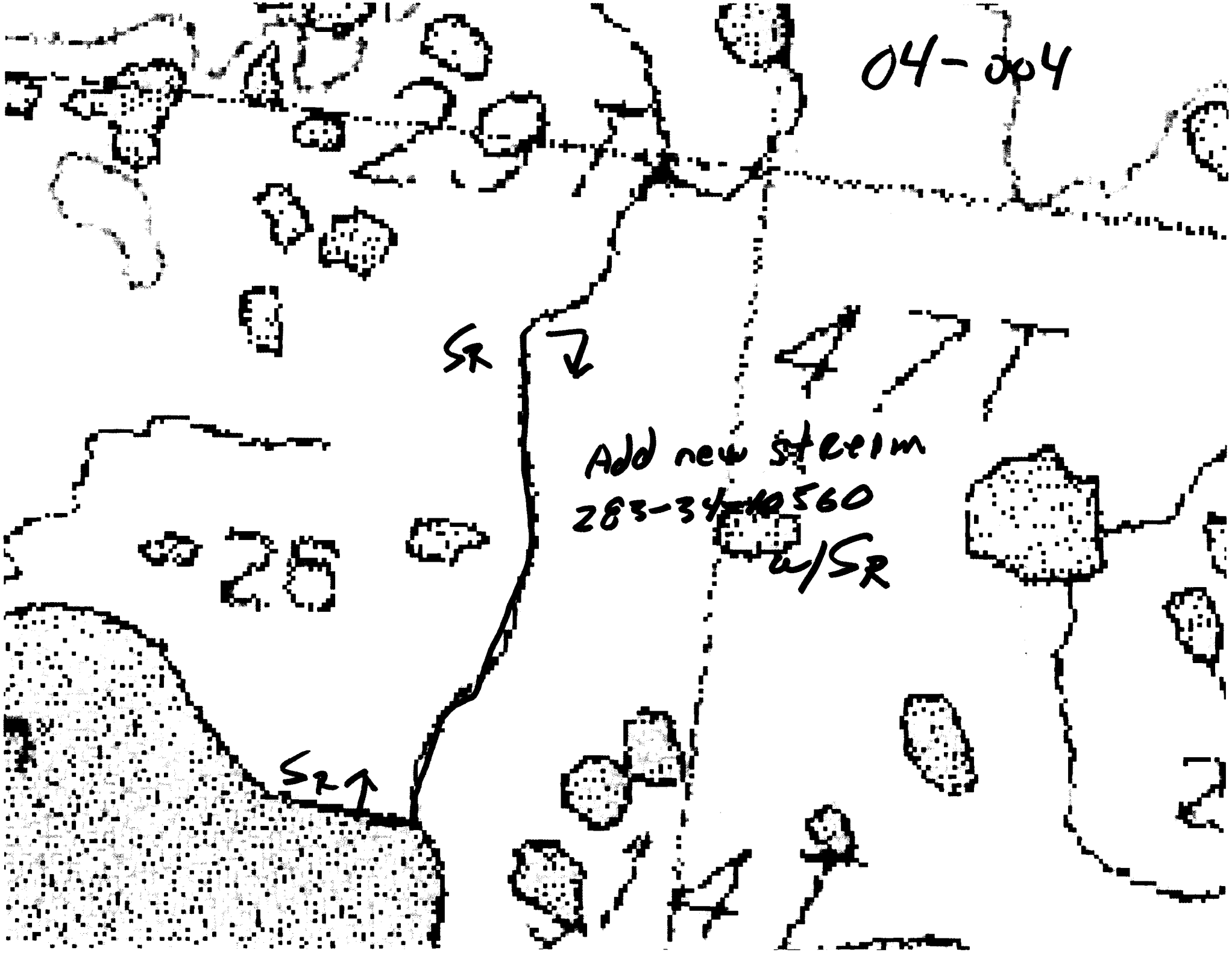
Name of Observer (please print): Kellie Whitton - Fishery Biologist 1-30-2001

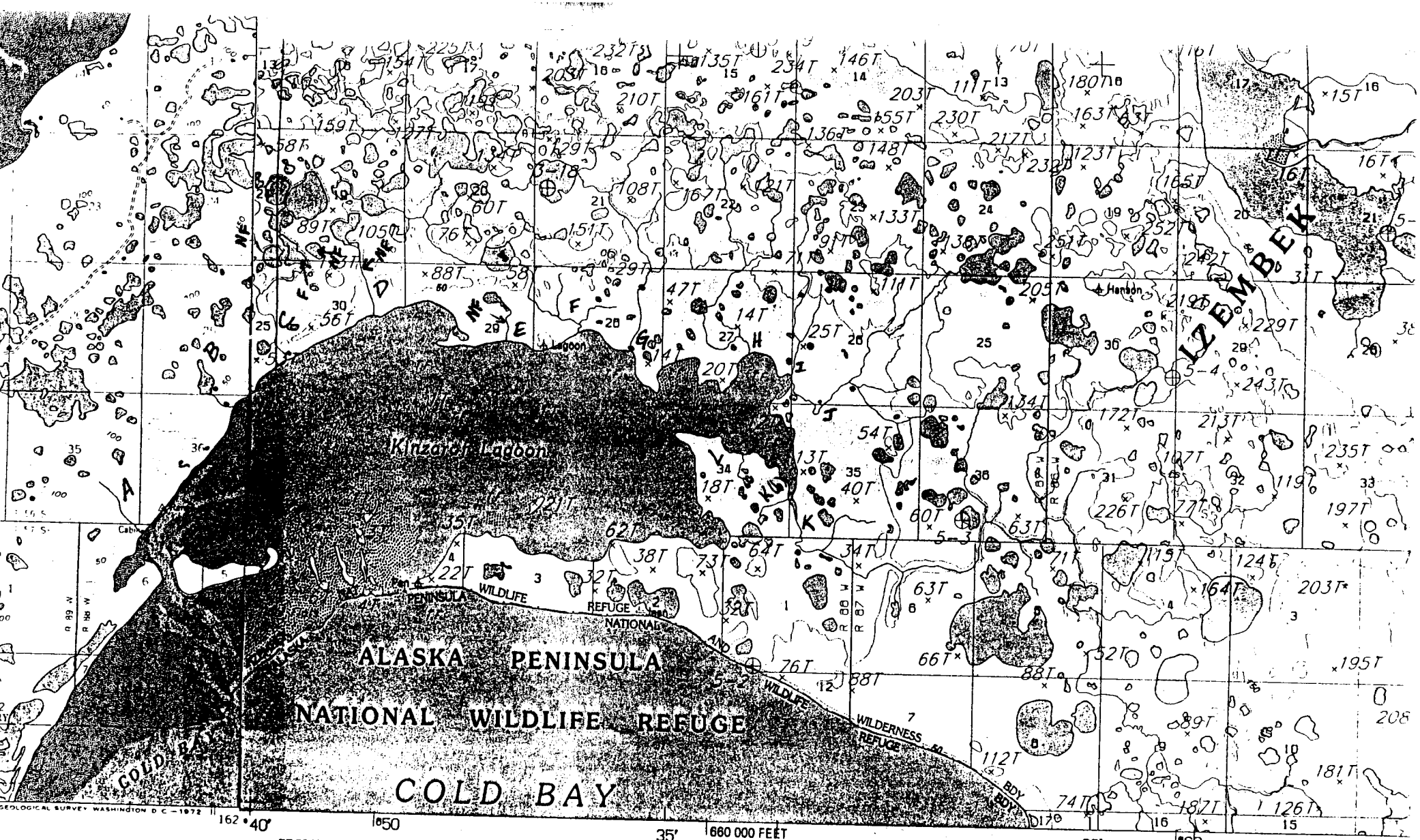
Signature: Date: ~~9/30/99~~

Address: USFWS - KGFRO P.O. Box 2777
King Salmon, AK 99613

This certifies that in my best professional judgment and belief the above information is evidence that this waterbody should be included in or deleted from the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes per AS 16.05.870.

Signature of Area Biologist: Revision 3/97


04-004
SR
Add new stream
283-34-10560
w/SR
SR



ROAD CLASSIFICATION

Unimproved dirt

COLD BAY (B-3), ALASKA
N5515-W16240/15X20

PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
CONTROL BY ..... USGS, NOS/NOAA
COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1987
MAP NOT FIELD CHECKED, MAP EDITED 1995
PROJECTION ..... UNIVERSAL TRANSVERSE MERCATOR
GRID: 5000-METER UNIVERSAL TRANSVERSE MERCATOR ..... ZONE 3
20,000-FOOT STATE GRID TICKS ..... ALASKA, ZONE 7
UTM GRID DECLINATION ..... 0°06' EAST
1995 MAGNETIC NORTH DECLINATION ..... 16° EAST
VERTICAL DATUM ..... NATIONAL GEODETIC VERTICAL DATUM OF 1929
HORIZONTAL DATUM ..... 1927 NORTH AMERICAN DATUM
To place on the predicted North American Datum of 1983, move the projection line 99 meters north and 130 meters east
Gray land lines represent unsurveyed and unmarked locations predetermined by the Bureau of Land Management, Folios S-28 and

NORTH

SCALE 1:63 360

CONTOUR INTERVAL 100 FEET
SUPPLEMENTARY CONTOUR INTERVAL 50 FEET
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATE 5 FEET

To convert meters to feet multiply by 3.2808

NF = No Fish
• = indicate approximate sampling locations

COLD BAY (B-2)

Kinzarof Lagoon Stream Surveys

Location: Izembek National Wildlife Refuge
Survey Dates: June 17, 1998 - June 25, 1998
Survey Crew: Kellie Whitton, Carla Davis, and Ethan Kohn

Twelve of the streams sampled in Kinzarof lagoon were initially selected from USGS Quads Cold Bay B-2 and B-3 (scale 1:63000). The streams were designated A - L beginning at the west end. An additional stream at the east end was added during the survey and designated K(b) (see attached map). The surveyed streams were the only ones identified on the quads, and no additional streams were found while surveying within the lagoon. The mouth of each stream is reported in UTM coordinates. Minnow traps and a small beach seine were used for fish sampling but, both gears were not always used in each stream. A copy of fish lengths and the numbers captured in all streams is attached. Discharge estimates are gross.

Stream A: (E646764 N6128132) This stream is located at the west end of the lagoon. The USGS topo map shows a cabin at the mouth of the stream, but it is no longer standing. However, there was a fair amount of wooden debris scattered around and in the stream. This stream is very small, approximately 75 cm at the widest point. Most of the stream runs underground and is less than 15 cm wide. In some areas it becomes a small trickle running through the grass. It appears that most of the water seeps in laterally from the tundra. Minnow traps were used to sample this creek because there were no areas suitable for seining. Three baited traps were set for approximately 6 hours and no fish were captured. In addition, no fish were seen while walking the banks. Approximate discharge: 0.022 m^3/sec.

Access: Direct boat access from the shoreline.

A minnow trap was set in a small pond located between stream A and B, but no fish were captured after several hours.

Stream B: (E647933 N6129757) This stream is approximately 35-60 cm wide and originates in a fairly large pond which appears deepest on the west side. The entire stream is approximately 0.5 km in length and does not go underground at any time. The mouth of the stream has a fair amount of wooden debris from some type of man-made structure. Fish in the stream were captured with a small 10 ft. beach seine. Nine sockeye, 16 three-spine sticklebacks, one nine-spine stickleback and four unidentified sculpin were captured. One minnow trap was set in the lake and examined less than one hour later. Both species of stickleback were captured but several sockeye (0+ and older) were observed swimming outside the minnow trap. Two small sockeye (0+) were captured with a dipnet to verify identification. Approximate discharge: 0.053 m^3/sec

Access: Shoreline access by boat is near Stream A and then a hike along the bluff or shoreline. There is a fairly good game trail along the bluff. The stream is very short so access for sampling

is fairly easy.

Sampling Recommendations: Minnow traps are not effective for sockeye salmon and therefore other sample gears are necessary. The system is very short and areas within the stream could be seined effectively. Within the lake, seining the shoreline may be possible if the bottom is not too soft. To measure outmigration, a small trap could be placed at the lake outlet. This would probably be easier than at the mouth of the stream which is full of wood debris. Adult escapement counts may be difficult once the fish enter the lake.

Stream C: (E648573 N6130424) This is a very nice little stream with some nice riffles and pools in the lower part of the drainage. Further upstream the banks and bottom are dirt. It is higher gradient than either Stream A or B, but not much wider than B. We attempted to seine a group of fairly large salmonids (smolt) approximately 40 m upstream of the mouth, but most of the fish were lost when they were blown out of the net. All salmonids captured were larger than 45 mm. Five large sockeye (45-100 mm) were captured as well as one large unidentified salmonid (151 mm), three nine-spine sticklebacks, and nine three-spine sticklebacks. The unidentified salmonid had square parr marks that were evenly split by the lateral line, all of the ventral fins were white, the adipose was clear with a dark leading edge, there were no obvious spots in the dorsal or caudal fins although they had a fair amount of pigment, and the lower gums were black (Chinook Salmon?). During additional sampling upstream later in the week we did not locate additional large salmonids. I assume they left following the precipitation event between trips. In addition, two small dolly varden char (<50 mm) were captured during the second trip. Most of the fish caught during this time were smaller than the first visit.

During the second visit, we hiked to the first small lake on the stream. Fish are present because we saw fish swim out along the shorelines as we walked past. The only species we identified from the shoreline were sticklebacks (both species) and coho. The lake just west of there did not appear to have any fish as none were seen from the shoreline. We also checked the lake to the east, and saw no fish. The two lakes without fish do not appear to be connected to the main stream. Approximate discharge: 0.081 m^3/sec.

Access: Boat access is at Stream A and then a hike on foot along the bluff or shoreline. Shoreline access may become limited by mud and decaying eel grass. We used the game trail on the bluff.

Sampling Recommendations: Both seines and minnow traps could be used in this system. Because we did not catch many large fish during the second trip, I think that larger salmonids may rear in upstream lakes particularly the larger ones further upstream than we sampled. Seining lake shorelines may be possible because most of them appear to be fairly shallow. If production is of interest, a small trap could be put in just upstream of the mouth to determine smolt outmigration.

Stream D: (E649511 N6131090) This stream does not appear to have any fish in it. It is just a

rusty brown trickle that is less than 20 cm wide in most areas. The pond shown on the USGS topo is not really connected. It is possible that at higher water it could be connected. No fish were observed in the lake (pond) or the stream. Approximate discharge: 0.01 m^3/sec.

Access: Shoreline access is limited because of dense eel grass beds along most of the north shore of the Lagoon. We accessed it from a the small cove just east of the mouth. However, to get into the cove you must get across the eel grass beds. Otherwise, hiking from Stream A or F are the most likely alternatives.

Stream E: (E651239 N6130861) This stream does not appear to contain any fish. The pond at the top is now just a swampy green meadow. The stream itself is a very small brown trickle (<15 cm wide). No fish were observed in the entire stream and it looks unlikely that anything could make it upstream because it is so narrow. Approximate discharge: 0.008 m^3/sec.

Access: Similar access as for Stream D.

Stream F: (E652096 N6131097) The ADF&G anadromous stream number is 283-34-~~500~~ 10500. At the mouth of this stream is a very small rustic cabin built in the early 1900's. It could provide shelter, but the floor is very rotten and has fallen through in several spots. The mouth of this stream is fairly wide (1- 1.5 m) but the banks and bottom are muddy. The gradient increases as you go up the main channel but eventually flattens out further upstream. We sampled the creek in several areas downstream from the first small lake. The lake was a very nice area for birds because half of it was covered with grass. The only fish seen near the lake were sticklebacks. However, further downstream we found more fish in the scattered pools. The species identified were coho and sockeye salmon and three and nine-spine sticklebacks. In one 3 m long seine haul we captured over 120 coho, three nine-spine sticklebacks, and one sockeye. All salmonids were young-of-year. There are well worn bear trails along the stream banks. Approximate discharge: 0.5 m^3/sec.

We also checked the tributary that flows in from the east near the mouth of the mainstem. It is a small rusty (tannic) looking stream, but we saw a few sticklebacks and coho salmon in the lower reaches. I assume that it is just used for rearing because suitable spawning habitat was not evident.

Access: There may be direct boat access at the mouth of this stream, but we never tried it. We accessed it from the small cove west of here because that is where we were camped.

Sampling Recommendations: Both seines and minnow traps could be used to sample fish in this creek. There are several lakes further up the drainage that should be sampled if the bottoms are not too soft or deep. They could be sampled using minnow traps and shoreline seining. An outmigration trap could probably be put in at the mouth of the stream because it is fairly deep. The bottom may be soft so further upstream may be better.

Stream G: (E652670 N6130844) Very few fish were captured in this stream. We tried seining in a couple of areas and captured no fish, only one unusual aquatic insect (Isopod). Downstream of there we captured seven sockeye salmon. We also did a seine haul at the mouth during low tide. We captured one nine-spine stickleback, 1 coho salmon, and 21 unidentified sculpins (very small). If sockeye are the primary species in this system, then I recommend sampling in the lake that is 3-4 km upstream of the mouth. The coho captured in the estuary may not be from this stream as we captured none while sampling upstream. This stream is very narrow with heavily overgrown banks. The banks and the bottoms are dirt with little gravel evident in the areas that we checked. Seining in this stream was not very effective in the areas that we walked. Minnow traps would work if coho were present. Approximate discharge: 0.033 m^3/sec.

Access: If boat access is available at Stream F, then I assume that you can access this creek from the same point and then just hike the shoreline or tundra.

Stream H: (E654220 N6131055) This stream was pretty small and portions of it went underground. No fish were seen as far as the first small lake. The stream is very narrow and overgrown which makes seining pretty ineffective. The small lake was full of weeds and appears to be good waterfowl habitat. There may be something further upstream near the larger lake but we did not get up that far. Approximate discharge: 0.033 m^3/sec.

Access: If access is possible at F, that is one alternative. We accessed it by boat on the point south of Stream G. There does not appear to be good boat access into the inlet at the east end of the Lagoon.

I would recommend setting minnow traps above the first small lake and maybe up in the larger lake at the top of the drainage if it is still there. There may also be areas upstream that are suitable for seining.

Stream I: (E654806 N6130661) We accessed this stream across the tundra from stream H. We started on the west fork. This stream appears to have extensive underground channels because it is just a series pieces of channel that disappear into deep holes. There was a fairly large salmonid (>150 mm) sitting in the one we started at, but it disappeared before we could identify it. My guess is a dolly varden char or coho salmon. Before heading downstream, we crossed over to a small lake at the top of the East fork and walked down to the confluence of the two forks. The only fish we saw were sticklebacks (three-spine). We set a minnow trap at the confluence in a deep pool, but after a few hours all we caught were sticklebacks and a leech. However, in the mainstem of the system, we used the seine and captured both coho and sockeye salmon. The stream is deeply incised making seining difficult from the banks. Approximate discharge: 0.067 m^3/sec.

Access: The best access is from the point near Stream G. It does not look like there is boat access into the inlet. The shoreline can get a little muddy at times, but is not bad until you get close to the stream. The other option is the tundra along the bluff. Just watch out for hidden

holes.

Sampling Recommendations: I would try additional minnow trapping in some of the holes and the lake (if it is still there) on the west fork. If there is one large salmonid, there may be others. Neither fork has areas that are very good for seining. It was difficult in the mainstem because the stream is so incised. There may be areas further upstream that can be seined.

Stream J: (E654771 N6130407) The lower end of this stream is fairly wide (3 m) but mud banks and bottom did not allow us to seine. We moved upstream to find areas that were easier. We caught coho, sculpins and sockeye. After that we moved up to the first fork on the map and seined both channels. There were small coho in the tributary on the right (looking upstream) and sockeye and one coho salmon (parr) and sticklebacks in the mainstem. There were areas in the mainstem fork that had some fairly nice substrate, but it was patchy. Most of the area that we surveyed had mud banks and bottoms. In many areas the streams were incised and narrow. There were well worn bear trails and two partially eaten fish carcasses (*Cottidae* spp.) on the banks. We saw three additional dead sculpins (> 14 inches) near the mouth of the stream. Approximate discharge: 0.6 m^3/sec. May be stream # 283-34-10600

Access: This streams is not very accessible by boat. We left the boat at the point near Stream G and hiked around to the mouth. In most places there is a trail along the bluff and in many areas the shoreline has good walking conditions. Watch out for hidden holes.

Sampling Recommendations: I would suggest continuing upstream to determine whether there are greater numbers of salmonids rearing in the large lake (approx. 3 km upstream) on the mainstem. Minnow traps will work for coho almost anywhere, but finding areas to seine for sockeye may be difficult.

Stream K: (E655000 N6128800) This is the largest stream (2 - 4 m wide), and is located at the east end. The ADF&G anadromous stream number is 283-34-10700. The lower end of the stream is quite deep with mud banks and bottom. There are well worn bear trails along the banks but no fish carcasses were seen at this time. We began seining in a shallow riffle where the bottom was sand and gravel, but most fish were caught as we moved into deeper water. We captured coho and sockeye salmon, three-spine sticklebacks and dolly varden char. Sockeye were the primary species caught at the lower site. Our second seine began at the first tributary on the west side of the stream and continued up the mainstem for approximately 100 yards. Dolly varden were the most abundant salmonid, but we also captured coho and sockeye salmon and one sculpin. Dolly varden were captured mostly in riffles while salmon were captured in deeper areas. The substrate at the second site was mostly cobble and coarse gravel. Approximate discharge: 1.87 m^3/sec

Access: Boat access is at the point near the mouth of the inlet. The inlet has extensive eel grass beds and is too shallow for boat access. We camped on the south point, but there may be less

exposed camp sites on the opposite point. Shoreline access may be possible from this point, but we hiked across the tundra. A long term project on this stream would be challenging unless some other form of access is possible (i.e. helicopter). There are several large lakes upstream that might be used to land a float plane (depth and current size unknown).

Sampling Recommendations: This stream appears to be fairly productive and we only sampled the lower portion. This drainage is very extensive and further sampling upstream might identify important rearing areas. Minnow traps will work in most areas, and a seine is very effective in others. Electrofishing is another alternative because the stream is wide enough for a netter and the shocker. Measuring outmigration or escapement would not be difficult with a small trap near the mouth of the stream.

Stream K(b): (E654772 N6129103) This stream is very shallow in most areas. We spotted no fish in the stream or in the pond at the top. We set a minnow trap in the pond for several hours but caught nothing. There was really no place to seine because the stream was deeply incised and very narrow. The stream goes underground in many areas. Approximate discharge: 0.01 m^3/sec.

Stream L: (E954222 N6129662) This stream is also very small and very short. We set a minnow trap in the first pond but after three hours we only caught two nine-spine sticklebacks. The stream is not suitable for seining because it is narrow and incised. No other fish were seen in the ponds or in the stream. Approximate discharge: 0.015 m^3/sec.

Access: Both stream K(b) and L can be accessed from the point near the mouth of the inlet. A hike across the tundra is probably better than shoreline access which may get muddy.

Logistics:

Sampling Kinzarof Lagoon proved to be logistically challenging. Traveling to and from Cold Bay on a daily basis is not recommended because the weather is too unpredictable. You would spend many days waiting for the wind to stop blowing. To sample efficiently, camping is the best option. Access points are limited and extensive hiking is required to access most of the streams. Our camping spots were not planned, so there may be sites that provide more protection from the wind. There is an old cabin located at the mouth of Stream F, and this would probably be the most centralized location. However, we never attempted to get to shore at this point so we do not know if access is possible. I believe that a float plane could land at the east end of the lagoon and go to shore at one on the two points. Another option is near the cabin on Stream F, but this would need to be verified.

Access in Cold Bay was from the put in point behind the Refuge Headquarters or Trout Creek. Traveling to the Lagoon can be challenging in rough water. The large tidal flat on the north shoreline extends out a mile in some areas so it is necessary to keep your distance from the shore to avoid hitting it. It is much easier to see at low tide, but putting the boat in at Cold Bay is easier at high tide. Traveling in the lagoon is also challenging because of shallow water and

extensive eel grass beds. See the attached map for details. Stay away from the north shore once you get past the big rusty fuel tank. It is best to stay fairly close to the sand bars extending out from the barrier islands.

Sampling:

We used minnow traps and seines for sampling, but electofishing gear might work in some areas as long as there are no restrictions in a wilderness area. Some streams are so incised and undercut that it might be difficult to get into the streams to shock and net. I definitely think it would work along many of the lake shorelines.

To quantify the juvenile population, I would recommend concentrating on Stream K because it is the largest system and appears to have the greatest potential. A smolt trap could be used to quantify smolt production within the entire drainage and would require the least amount of time for sampling. Additional sampling could be done throughout the drainage to identify important rearing areas. A population estimate of dolly varden may be possible because there appear to be a fairly large number of older fish. Some kind of CPUE sampling could be done in the other streams to determine their contribution to the entire system. A two or three-pass removal of representative reaches in all streams with Electrofishing equipment might also provide some type of juvenile population estimate within each stream. Three streams that might warrant additional consideration are Streams C, F, and J.

Quantifying adult salmonid populations might be more time intensive because there are more than one species in most of the streams. Escapement dates will vary for different species; therefore, sampling may take longer. Again I would concentrate on Stream K because it is the largest stream and the only stream that might be worth putting an adult weir on (although that seems like overkill for this small stream). Weekly stream counts may be sufficient for the other systems, because walking these streams is pretty time intensive and daily counts would require several people. Again, a population estimate of dolly varden may be possible.