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

Year of Revision

ALASKA DEPT. OF FISH & GAME

JAN 06 1993

REGION II HABITAT DIVISION

Anadromous Water Catalog Volume Southcentral - Region II

USGS Quad Valdez A-6 T09S R05W Sec 35, 33, 34, 27 & 28

Name of Waterway Tribs to Lowe River

Anadromous Water Catalog Number of Waterway 221-60-11370

Change to _____ Atlas

_____ Catalog

X Both

Addition X

Deletion _____

Correction _____

Name addition:

USGS name Canyon Slough

Local name Canyon Slough

For Office Use

Nomination # 93 [illegible]

Regional Supervisor _____ Date _____

Drafted _____ Date _____

Species	Date(s) Observed	Spawning	Rearing	Migration
Coho salmon				
Chum salmon				
Pink salmon				

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

Information from BLM TAPS fish stream list. Referenced to: Johnson R.L. and J. Rockwell Jr. 1981. List of streams and other waterbodies along the Trans-Alaska Oil Pipeline route. UDOT, AK Pipeline Office, Anch. Ak. (May 1, 1981)

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.

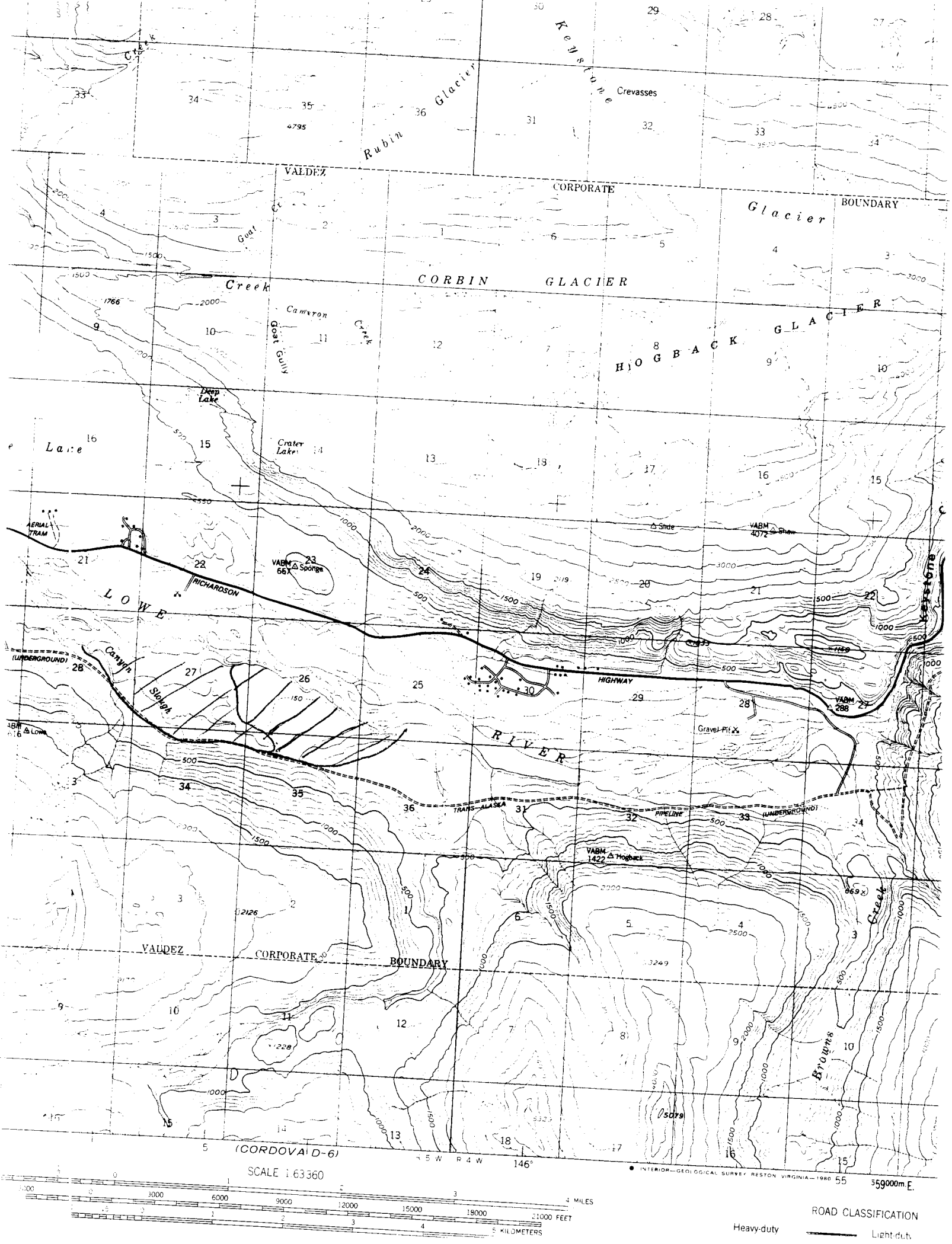
Name of Observer (please print) Johnson and Rockwell

Date: _____ Signature: _____

Address: _____

_____

Signature of Area Biologist: _____



INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1980

Thompson

BRANCH OF PIPELINE MONITORING
OPEN FILE REPORT - TAPS FISH STREAMS

[FISH STREAMS ALONG THE TRANS-ALASKA PIPELINE SYSTEM (TAPS): A COMPILATION OF SELECTED REFERENCES WITH CURRENT TAPS STATIONING]

SECOND EDITION

APRIL 1, 1987

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ALASKA STATE OFFICE - DIVISION OF MINERALS
BRANCH OF PIPELINE MONITORING
ANCHORAGE, ALASKA

MP / A/S	STREAM NAME(s) / Comments	FISH SPECIES	A:D:	JaFeMrApMaJuJlAuSeOcNoDe PERIOD OF SENSITIVITY	FIELD STATION G-5	MER T R SEC	REFER-ENCE
*784.8	(Clear Stream)	DV;PS;SS	Y	CCCCSSSSSSSSCCCCCCCCCCCC	4143700	C	AB E
			E		4145200	09S	
3	TAPS B/G;CMP		S		831+00	04W	
					816+66	33	
[redacted]				CCCCSSSSSSSujCCCCCCCCCCC	4165818	C	AB E
		RS;SS				09S	
3	TAPS B/G;CMP				610+00	05W	
						35	
[redacted]				CCCCSSSSSSSujCCCCCCCCCCC	4167900	C	AB E
		RS;SS				09S	
3	TAPS B/G;CMP				577+91	05W	
						35	
[redacted]				CCCCSSSSSSSSjlauCCCCCCCC	4172303	C	AB E
						09S	
2	TAPS B/G;CMP				545+15	05W	
						34	
[redacted]				CCCCSSSSSSSSjlauCCCCCCCC	4173035	C	AB E
						09S	
2	TAPS B/G;CMP				537+83	05W	
						34	
*79[redacted].5	Tributary CANYON SLOUGH	[redacted]		CCCCSSSSSSSSjlauCCCCCCCC	4174117	C	AB E
						09S	
2	TAPS B/G;LWC				527+01	05W	
						27	
[redacted]				CCCCSSSSSSSSjlauCCCCCCCC	4176212	C	AB E
						09S	
2	TAPS B/G;CMP				506+06	05W	
						28	
[redacted]				CCCCSSSSSSjuCCCCCCCCCCCC	4177685	C	AB E
						09S	
2	TAPS B/G;LWC				491+33	05W	
						28	
[redacted]				CCCCSSSSSSjuCCCCCCCCCCCC	4178086	C	AB E
						09S	
2	TAPS B/G;LWC				487+32	05W	
						28	
*791.9	(Tributary LOWE RIVER)	SS			4181441	C	B
						09S	
2	TAPS B/G;LWC				453+77	05W	
						28	
794.70	(Abercrombie Slough)	DS;PS;SS	Y	CCCCCCCCCCCCCClaCCCCCCCCC	4196000	C	AB E
			E			09S	
2	TAPS B/G;CMP		S		308+18	06W	
						24	
795.27	(Abercrombie Slough)	DS;PS;SS	Y	CCCCCCCCCCCCCClaCCCCCCCCC	4199000	C	AB E
			E			09S	
2	TAPS B/G;CMP		S		275+10	06W	
						24	

Canyon Slough Information

APL506+06 - (Grey Creek)
(A south tributary to Canyon Slough)

APL506+06
(Grey Creek)

BLM Photo
6911K

8/17/72

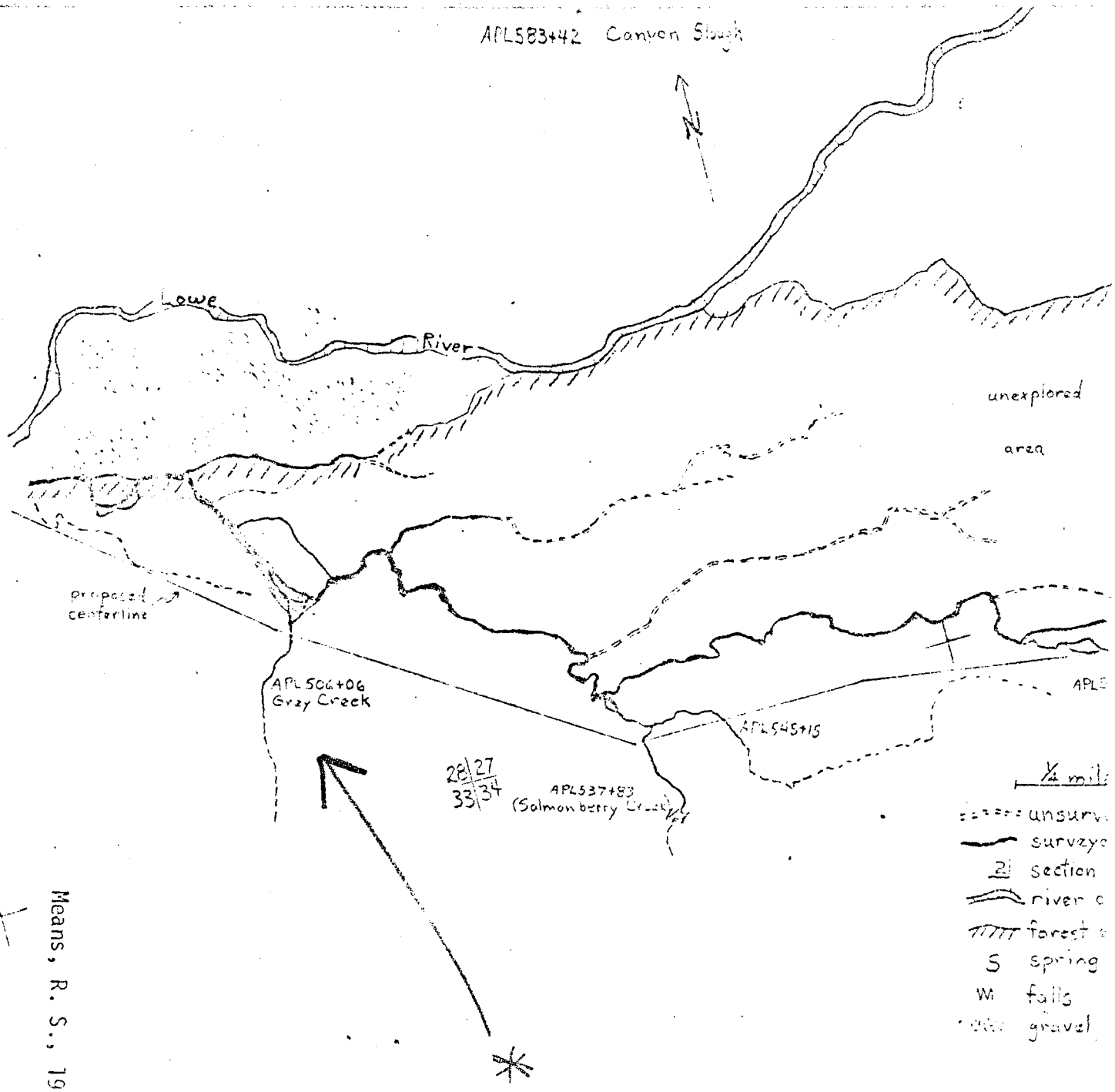
Looking downstream from steeper portion above pipeline crossing. (Kenneth Roberson) (T. 9 S., R. 5 W., sec. 28 of CRm.)

BLM Photo
6911M

8/17/72

The two mouths, one at extreme left (south) and other at right, empty into Canyon Slough here.

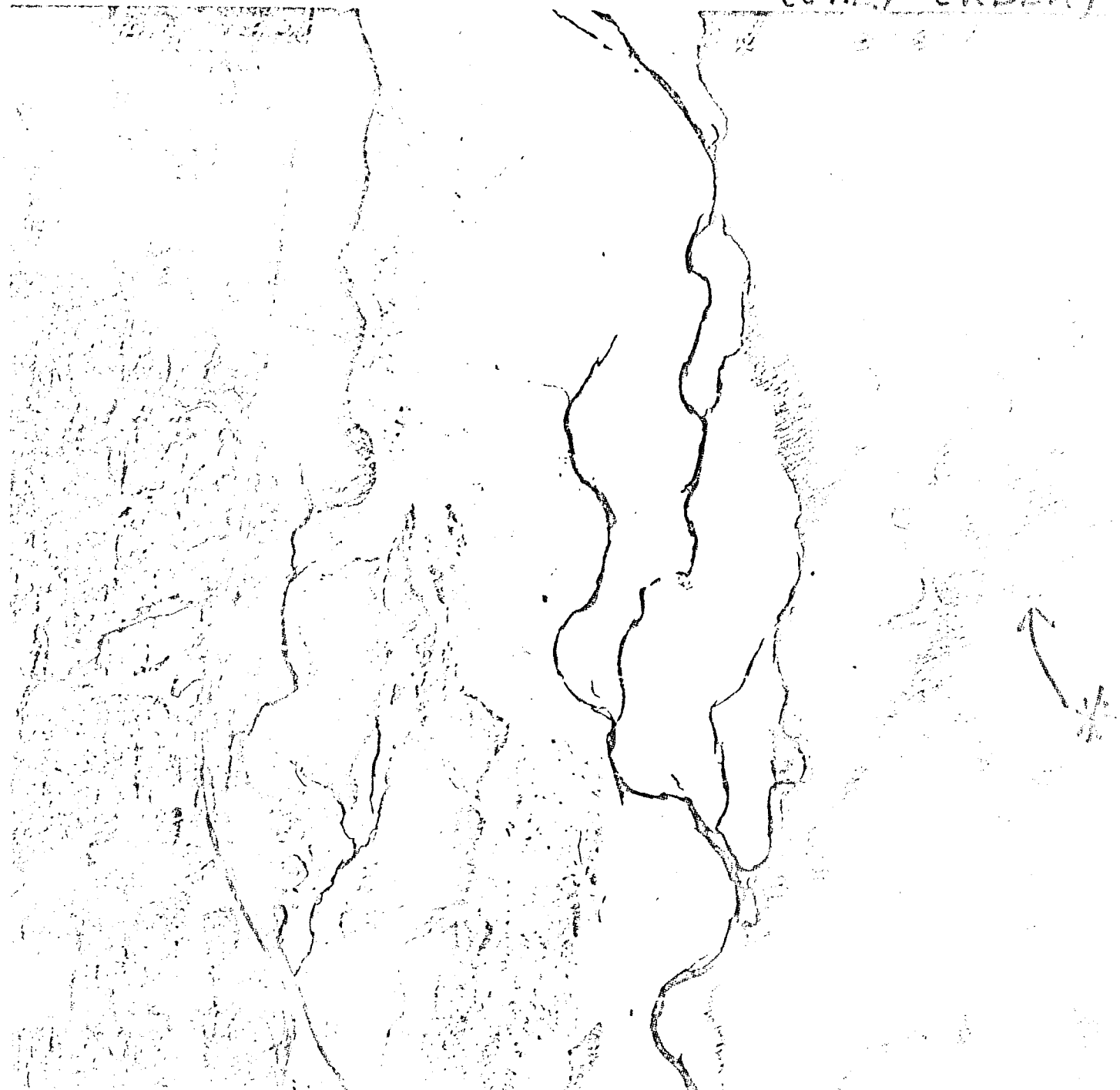
Rockwell, J. 1972d



Means, R. S., 1972b

A.2 of 3

APL506+06
(GRAY CREEK)



A 3 of 3

APL506+0[illegible]
(GREY CREEK)

MEMORANDUM State of Alaska

APL 506+06
Canyon Slough

APR 12 9 36 AM '71

RECEIVED
ANCHORAGE, ALASKA

TO: Jay Bergstrand and
Bob Wiebold
Habitat
Alaska Dept. of Fish and Game
Anchorage

FILE NO.

DATE 4/9

FROM: Ken Roberson
Commercial Fish
ADF&G
Glennallen

SUBJECT: Taps pipeline route crossings

I have just returned from a helicopter survey of the pipeline route from Valdez to Isabel Pass conducted on April 5 and 6. There are several areas which concern me along the route. Three locations along the line are far less than satisfactory to my way of thinking and one areas where a core sampling rig and a cat with blade down have crossed a major stream and left soil out on the ice.

Item #1 On the Lowe River flats Canyon Creek or Canyon Slough is crossed several times more than is necessary. The pipe would run in the creek for close to 100 yards or possibly more and cross it diagonally rather than straight away. I believe that with the least effort this particular problem could be eliminated by one jog and return to the present survey line.

Item #2 In the Area of T7S - R1E just north of the crossing of the Tonsina River in that section there is a spring area with good flow which is open essentially all winter and although it is not known to be producing fish at this time could be a potential roadside fishing area. The pipe route goes right through this area and could be moved a short distance to end this potential conflict.

Item #3 The crossing of the Little Tonsina River at T3S - R1E just south of the main Tonsina River has had several spruce trees fallen into the river by the survey crews. This is an anadromous fish stream and the material should be removed as soon as the ice is out of the area as it would be impossible to free the trees from the ice at this time.

Item #4 The Gulkana River at T8N - R12 E was crossed in an alignment no longer considered the prime route and during this winter at some time a contractor was in the area with a core sampler and a crawler tractor. A so called ice bridge was built and in addition large quantities of soil

APL 506 + 06
Canyon Slough

F3d

December 9, 1971

K. Robersnn
ADF&G

Stream Surveys - South

Status:

~~Routine survey and historical data have provided species and timing information for nearly all streams in this project area.~~

Helicopter surveys in conjunction with BLM personnel during the periods July 28-29, 1971 and September 13-15, 1971 were consentrated in the area south of Gulkana Airfield. Aerial counts and ground surveys were made of fish seen plus on the ground investigation of potential fish streams. Specifically Canyon Slough was determined to be a spawning area for silver salmon in the area of the right-of-way crossing and considerable debris was found to have been left in the stream from the right-of-way cutting.

~~Attached is a table which includes surveys of the area from the Little Tonsina River north conducted during the late summer and fall of 1971.~~

~~A basic survey has been made for each stream from VAldez Arm to Isabel Pass and although not all the required information for each stream has been acquired the relative value of each stream in terms of fish production has been determined to a level of major, minor and insignificant or nill.~~

~~Continued refinement of these data are planned with effort concentrated on those streams where little historical data or species and timing information has been gathered.~~

APL 506+06
(Grey Creek)

this survey constitutes the first determination of fish presence in Clear Creek.

On August 17, Rockwell Jr., Means, Johnson (BLM) plus Morgan, Zorich and T (APPLC) surveyed Canyon Slough and tributaries from the mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 14-18 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present: APL 506+06, 527+01, 527+83, 545+15, 577+91, 578+ (not shown on mosaic), 580+66, 584+47, 587+11, 592+31, 595+01, 596+27, 600+18, 601+80, and 603+ (several hundred feet in stream).

The centerline repeatedly follows the creek bed especially at APL 580+66, 584+47 and 603+ and at 584+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and rearing ground for the coho salmon and Dolly Varden trout. The placement of the centerline survey indicates disregard for the fish populations present in

APL506+06
(Grey Creek)

Chief, Division of Pipeline

December 5, 1972

In reply refer to:
6500 (SOS)

Fishery Biologist

Summary Report of Field Trip to Lowe River Tributaries
August 14-18, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no accquate maps exist.

Cooperative survey performed by BLM and ADF&G personnel was aided by ALPS helicopter, which ferried biologists across Lowe River.

Due to inclement weather, it was not possible to cross the river on August 15. Accordingly, the following north side streams were visited: Pit Creek and Salmon Slough by the Richardson Highway, and Robe River and City Limits Creeks just outside of Valdez.

Streams examined south of the Lowe include:

a. APL553+43 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL516+66 a small, clear stream just west of Browns Creek.
c. APL506+06 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL537+63 (Salmonberry Creek) (to falls).
e. APL545+15 (at crossing).
f. APL592+31 (all).
g. APL593+01 (all).
h. APL594+27 (all).
i. APL595+07 (all).
j. APL603+16 (all).
k. Canyon Slough (APL533+42) from its mouth to crossing at

August 17, 1972

0930 Started up glacial stream. This stream had two mouths on Canyon Slough, with the dividing fork about 150 yards upstream. In a number of small (also turbid) side pools, small salmonids were seen, but darted out into deep water on our approach.

0940 Width of stream above split was fifteen feet, depth six inches; rocks in stream were grapefruit size. Banks were very low on this alluvial fan portion of the stream. Continued on upstream; passed surveyed pipeline crossing.

0950 Turned back. Photo taken of highest point (6911K). Gradient steeper; banks were about four feet high. Vegetation were alders, devil clubs, and spruce. A number of salmonid fry were found in a side spring seepage channel just short of highest point reached; species not determined. Thought to be Dolly Varden trout.

Note: The number of this creek, APL 506+06, had been applied to Canyon Slough. This was an error, as it is definitely a tributary stream. We have named it "Grey Creek" because of its color, and because of the way it discolors Canyon Slough.

(See photos of Canyon Slough from mouth of Grey Creek (6911L) and the two mouths of Grey Creek (6911M).

1015 Arrived back at mouth.

APL527+01

APL 527+01

this survey constitutes the first determination of fish presence in Clear Creek.

On August 17, Rockwell Jr., Leans, Johnson (BLM) plus Morgan, Zorich and T (ADF&G) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present: APL ~~506+06~~, 527+01, 537+83, 565+15, 577+91, 578+ (not shown on mosaic), 580+66, 584+47, 588+11, 592+31, 593+01, 594+27, 600+18, 601+39, and 603+ (several hundred feet in stream).

The centerline repeatedly follows the creek bed especially at APL 580+66, 584+47 and 603+ and at 584+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and rearing

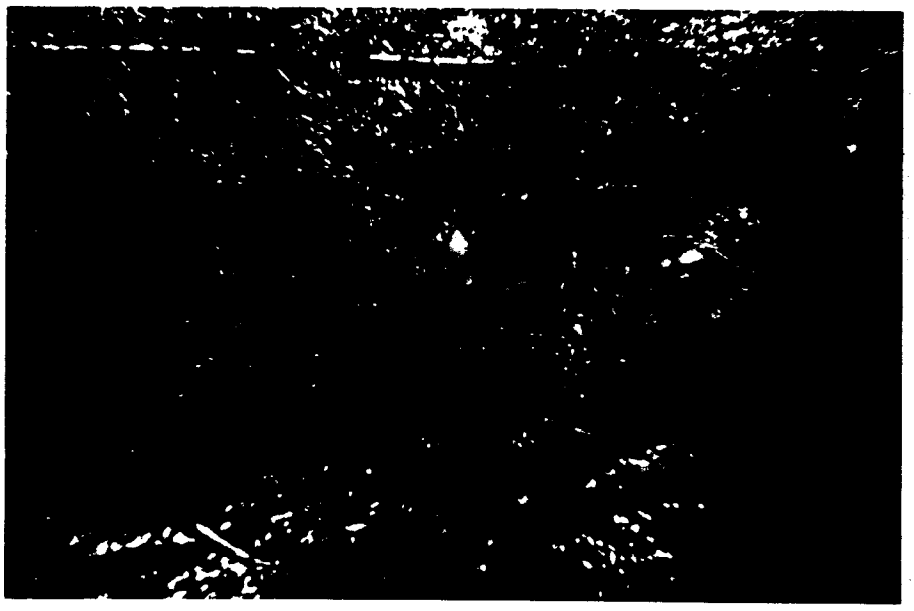
APL537+83 - (Salmonberry Creek)
(A south-side tributary to Canyon
Slough)

APL537+83
(Salmonberry
Creek)

BLM Photo
6911N

8/17/72

Looking east across stream at proposed pipeline crossing.
(Sam Means) (T. 9 S., R. 5 W., sec. 34 of CRm.)



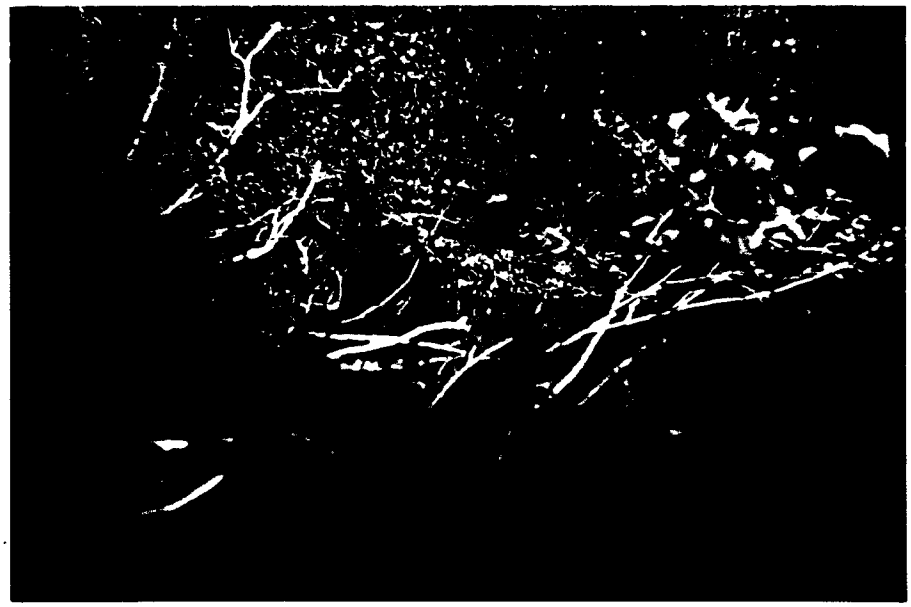
BLM Photo
69110

8/17/72

Looking upstream (south) from proposed pipeline crossing.

Rockwell, J. 1972d

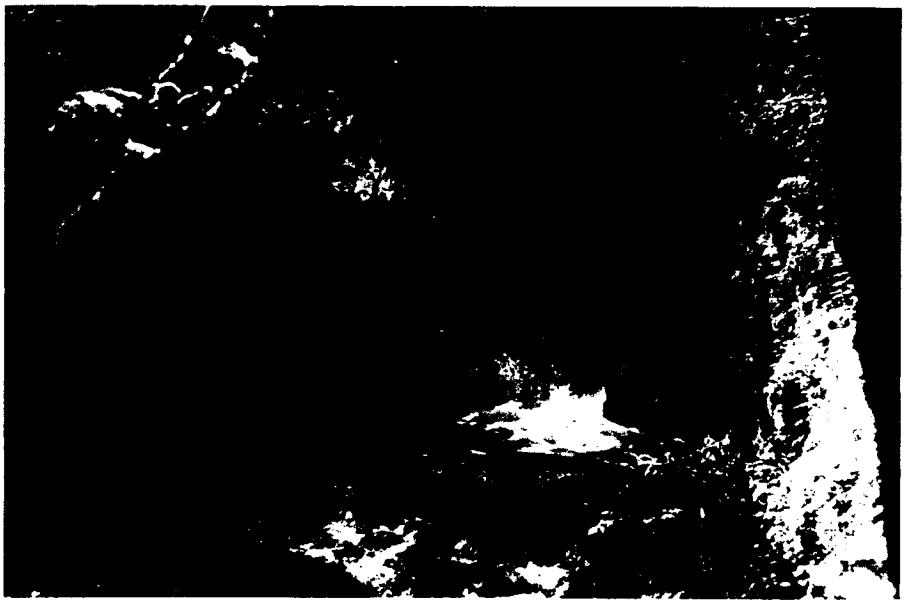
APL537+83
(Salmonberry
Creek)



BLM Photo
6911P

8/17/72

Looking downstream (north) from proposed pipeline crossing.
(T. 9 S., R. 5 W., sec. 34 of CRm.)

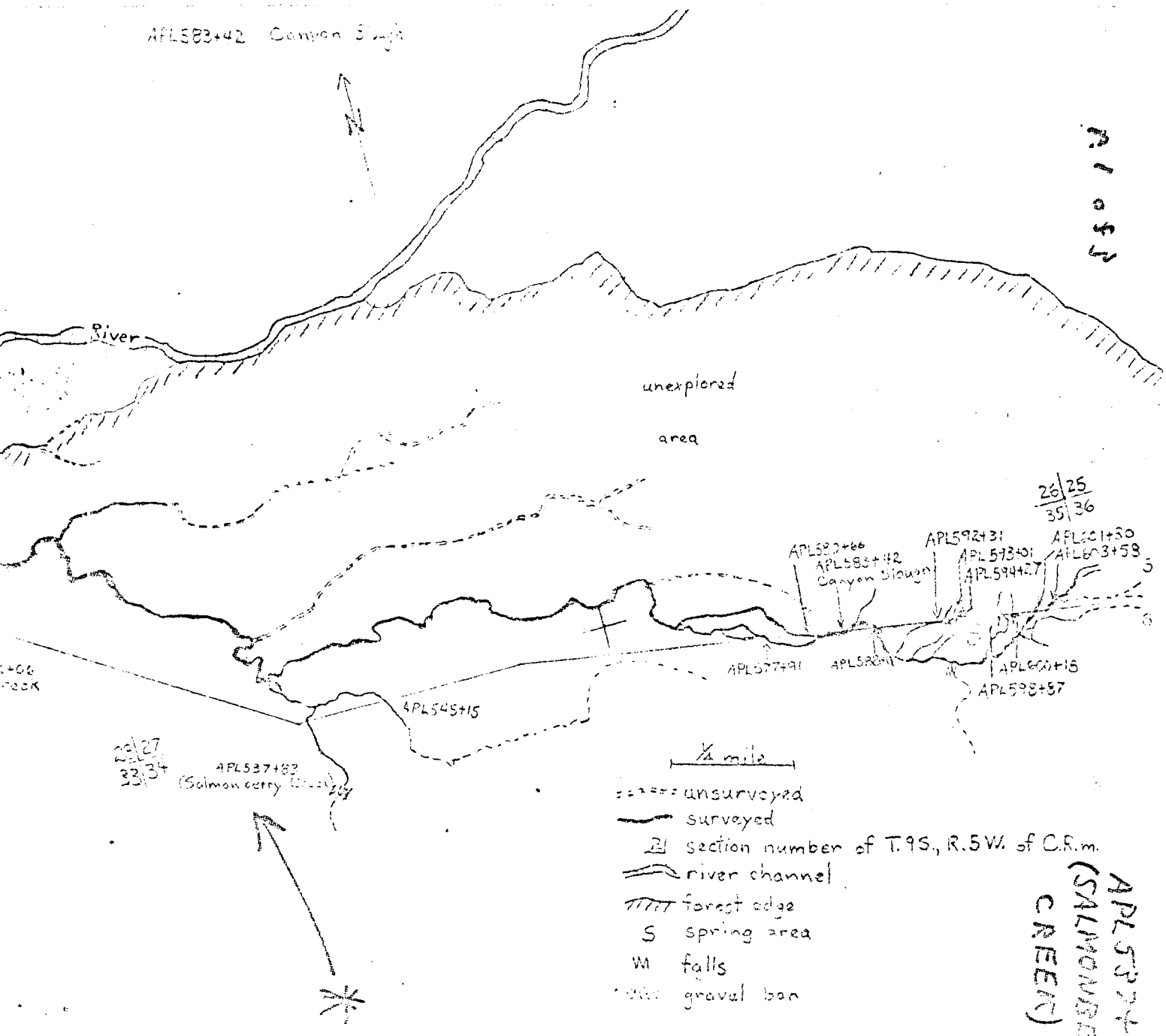


BLM Photo
6911Q

8/17/72

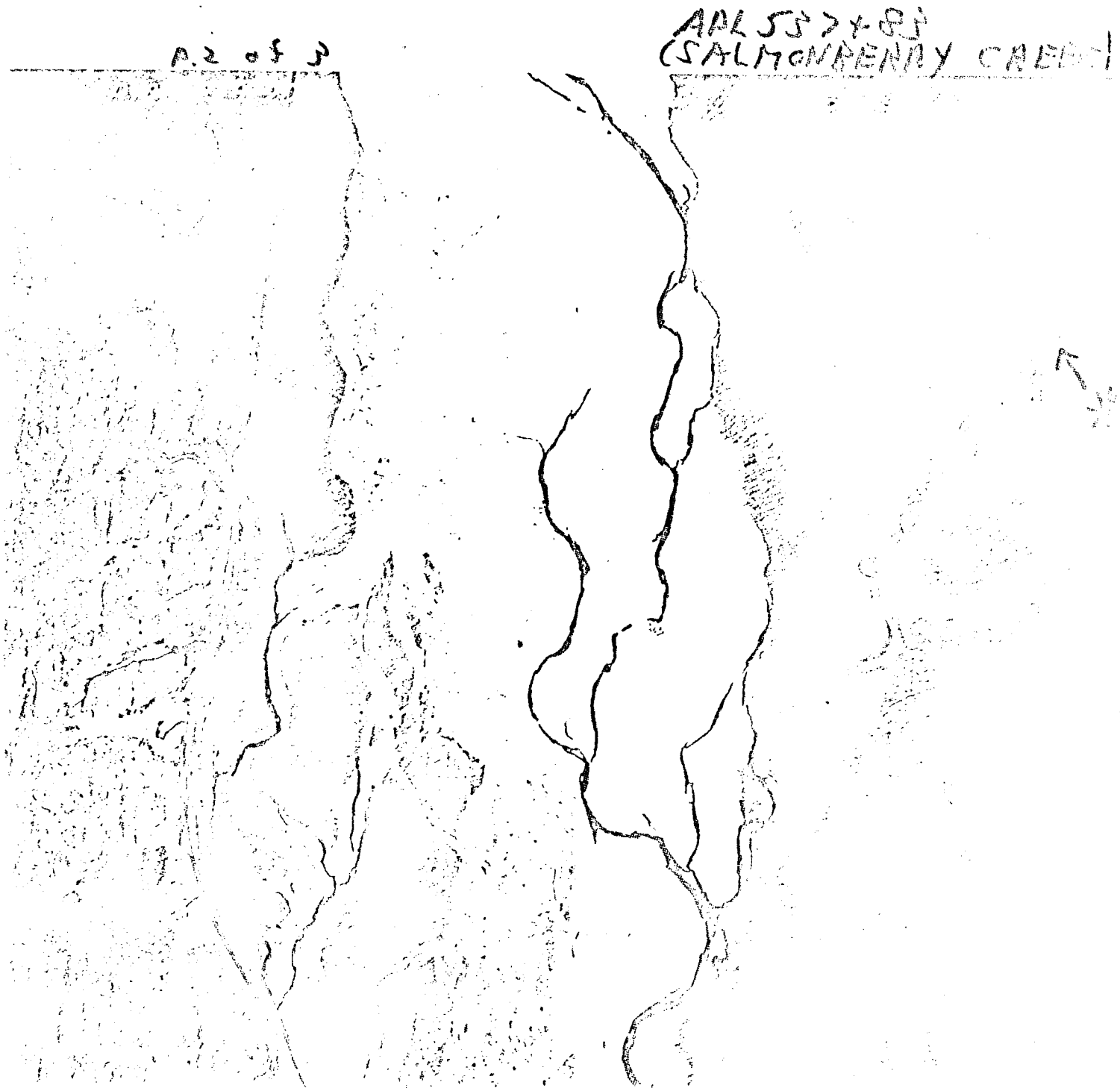
Terminal falls to fish migration.

Rockwell, J. 1972d



APL583+42 Canyon Slough
N
River
unexplored
area
26 25
35 36
APL592+31
APL593+01
APL594+27
APL603+58
APL583+42
Canyon Slough
APL577+91
APL600+18
APL598+57
APL545+15
23 27
33 34
APL537+83
(Salmon Berry Creek)
1/4 mile
unsurveyed
surveyed
section number of T.9S., R.5W. of C.R.m.
river channel
forest edge
S spring area
W falls
gravel bar
APL537+83
(SALMONBERRY
CREEK)

ADL 537+83
(SALMONBERRY CREEK)



A3 of 3

APL 5374-83
(SALMONBERRY CREEK)

APL 537+85
(Salmon Berry Creek)

~~this survey constitutes the first determination of fish presence in Clear Creek.~~

On August 17, Rockwell Jr., Means, Johnson (BLM) plus Morgan, Zorich and T (ADF&G) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present:
APL ~~506+06, 507+07,~~ 527+83, ~~545+15, 572+61, 578+ (not shown on mosaic), 580+66, 581+47, 583+11, 592+03, 593+81, 601+07, 603+10, 601+30, and 603+ (several hundred feet in stream).~~

~~The centerline repeatedly follows the creek bed especially at APL 580+66, 581+47 and 603+ and at 601+47 and 583+11 a number of trees and considerable brush has been fallen into the stream.~~ The centerline from APL 527+01 to 603+ was walked in its entirety, ~~as well as many of the associated tributaries especially those especially affected by alignment of the slough at the centerline crossing.~~

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and felling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and rearing ground for the coho salmon and Dolly Varden trout. The placement of the centerline survey indicates disregard for the fish populations present in the stream as well as the already disturbed [illegible]

APL5374 23
(Salmonberry Creek)

Chief, Division of Pipeline

December 5, 1972

In reply refer to:
6560 (900)

Fishery Biologist

Summary Report of Field Trip to Lowe River Tributaries
August 14-16, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no adequate maps exist.

Cooperative survey performed by BLM and ADF&G personnel was aided by ALPS helicopter, which ferried biologists across Lowe River.

Due to inclement weather, it was not possible to cross the river on August 15. Accordingly, the following north side streams were visited: Pit Creek and Salmon Slough by the Richardson Highway, and Robe River and City Limits Creeks just outside of Valdez.

Streams examined south of the Lowe include:

a. APL553+43 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL616+66 a small, clear stream just west of Browns Creek.
c. APL556+05 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL537+63 (Salmonberry Creek) (to falls).
e. APL545+15 (at crossing).
f. APL592+31 (all).
g. APL593+01 (all).
h. APL596+27 (all).
i. APL598+07 (all).
j. APL603+16 (all).
k. Canyon Slough (APL553+42) from its mouth to crossing at Station 601+50.

August 17, 1972

1155 Started up Salmonberry Creek from Canyon Slough. (Note: The east fork of this creek appears to be the one on the map that bears the name of "Canyon Slough" and descends from a tarn on the mountain side.) The west fork is the larger stream and this one was named Salmonberry Creek because of the great profusion of salmonberries found along its banks. Twelve to 15 small Dolly Varden were found in one of the lower pools. Many fry were seen in the side sloughs.

1215 Came to brushed-out centerline. Stream 20 feet wide, average of 8 inches deep, running 10 cubic feet per second; clear, sandy bottom, some dead falls. Photos taken: across, 6911N; up, 6911O; down, 6911P. Stream temperature, 50°. Proceeded up to terminal falls. (See photo 6911Q.) Fish found to within 100 feet of falls, but not taken. Returned to centerline.

1310 Left Salmonberry Creek and walked east on brushed-out centerline.

APL545+15 - (A south-side tributary to Canyon Slough)

BLM Photo
6911R

8/17/72

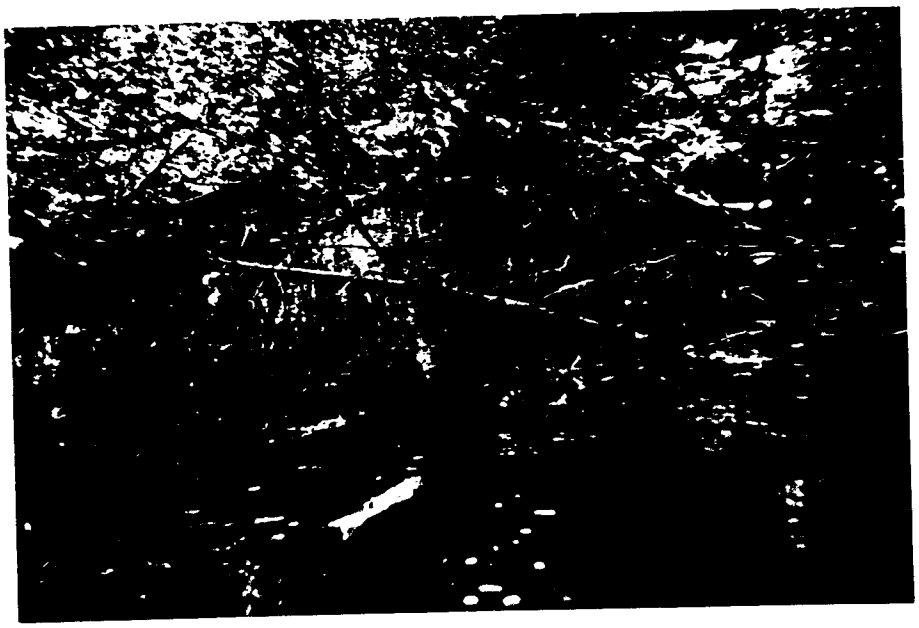
Looking east along proposed pipeline centerline and across stream. (T. 9 S., R. 5 W., sec. 34 of CRm.)

BLM Photo
6911S

8/17/72

Looking downstream (north) from proposed pipeline centerline crossing.

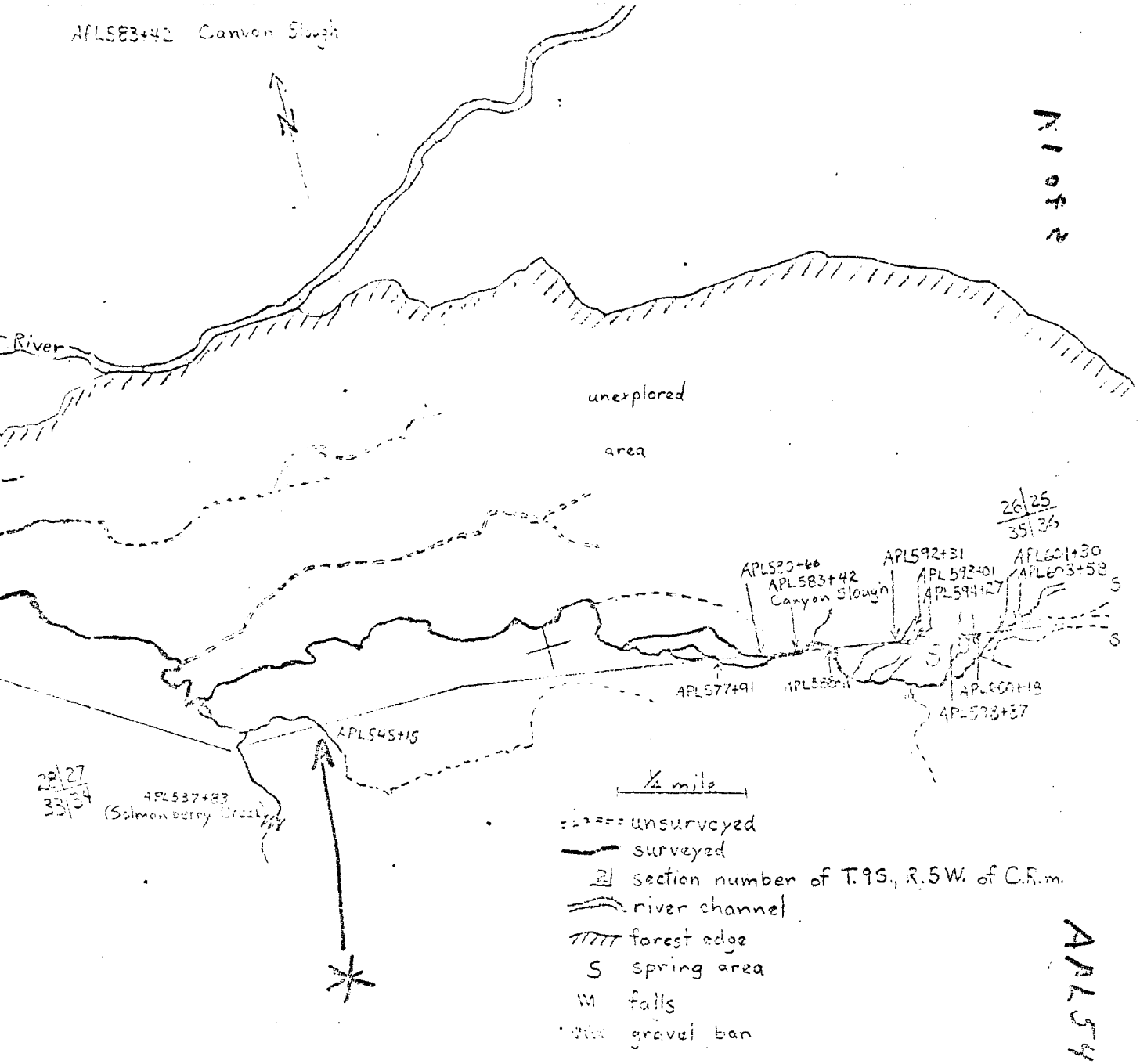
Rockwell, J. 1972d



BLM Photo
6911T

8/17/72

Looking upstream (south) from proposed pipeline center-line crossing. (T. 9 S., R. 5 W., sec. 34 of CRm.)


APL583+42 Canyon Slough
N
River
unexplored
area
26|25
35|36
APL592+31
APL583+42
Canyon Slough
APL577+91
APL545+15
29|27
33|34
APL537+83
(Salmonberry Creek)
½ mile
unsurveyed
surveyed
section number of T.9S., R.5W. of C.R.m.
river channel
forest edge
S spring area
falls
gravel bar

APL545+15

APL545+15

APL 545+15

this survey constitutes the first determination of fish presence in Clear Creek.

On August 17, Rockwell Jr., Evans, Johnson (BLM) plus Morgan, Zorich and T (APUC) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present: APL ~~506+06, 527+01, 527+82~~, 545+15, ~~577+91, 578+ (not shown on mosaic), 589+66, 584+47, 587+11, 592+31, 593+91, 594+97, 600+18, 601+39, and 603+ (several hundred feet in stream)~~.

The centerline repeatedly follows the creek bed especially at APL 589+66, 584+47 and 603+ and at 584+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and nursery ground for the coho salmon and Dolly Varden trout. The placement of the centerline survey indicates disregard for the fish populations present in the stream as well as the already displayed disregard for regulations regarding the placing of [illegible]

APL 545+15

Chief, Division of Pipeline

December 5, 1972

In reply refer to:
0500 (966)

Fishery Biologist

Summary Report of Field Trip to Lowe River Tributaries
August 14-16, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no adequate maps exist.

Cooperative survey performed by BLM and ADF&G personnel was aided by ALPS helicopter, which ferried biologists across Lowe River.

Due to inclement weather, it was not possible to cross the river on August 15. Accordingly, the following north side streams were visited: Pit Creek and Salmon Slough by the Richardson Highway, and Robe River and City Limits Creeks just outside of Valdez.

Streams examined south of the Lowe include:

a. APL 553+43 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL 610+00 a small, clear stream just west of Browns Creek.
c. APL 536+05 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL 537+63 (Salmonberry Creek) (to falls).
e. APL 545+15 (at crossing).
f. APL 592+31 (all).
g. APL 593+01 (all).
h. APL 594+27 (all).
i. APL [illegible] (all).

August 17, 1972

1320 Arrived at APL 545+15 from west walking along centerline. Photos: 6911R, looking east along proposed pipeline centerline and across stream; 6911S, looking downstream (north) from crossing; and 6911T, looking upstream from crossing. The stream at this point was 18 feet wide; temperature was 49° F., flow estimated at 6 cubic feet per second; bottom was sandy to muddy, banks were one to three feet high; many alder in stream, which was through a relatively heavy spruce forest. Although it was not checked out, this stream apparently drained across the flat forest floor from the steep mountain side. Cataracts could be heard, and it also appeared that a tributary drained from the east along the foot of the mountain. This stream could be the one the Geological Survey calls "Canyon Slough," and be the one that drains from the lake at 2950 feet elevation.

A number of coho salmon fry were found at the crossing.

1335 Left stream going east along surveyed centerline.

APL583+42 - Canyon Slough
(Supersedes APL506+06)

APL583+42
Canyon Slough

BLM Photo
6911L

8/17/72

Looking upstream (east) at point where Grey Creek (APL506+06) comes in (from right). Note clear water in background. (T. 9 S., R. 5 W., sec. 28 of CRM.)

Rockwell, J. 1972d

APL583+42
Canyon Slough

BLM Photo
6911U

8/17/72

Looking east along proposed centerline where it crosses one channel at APL577+91. (Mike Morgan in foreground.) (T. 9 S., R. 5 W., sec. 35 of CRm.)

BLM Photo
6911V

8/17/72

Looking downstream from crossing of proposed pipeline centerline at APL577+91. Note forking of this one-of-several channels.

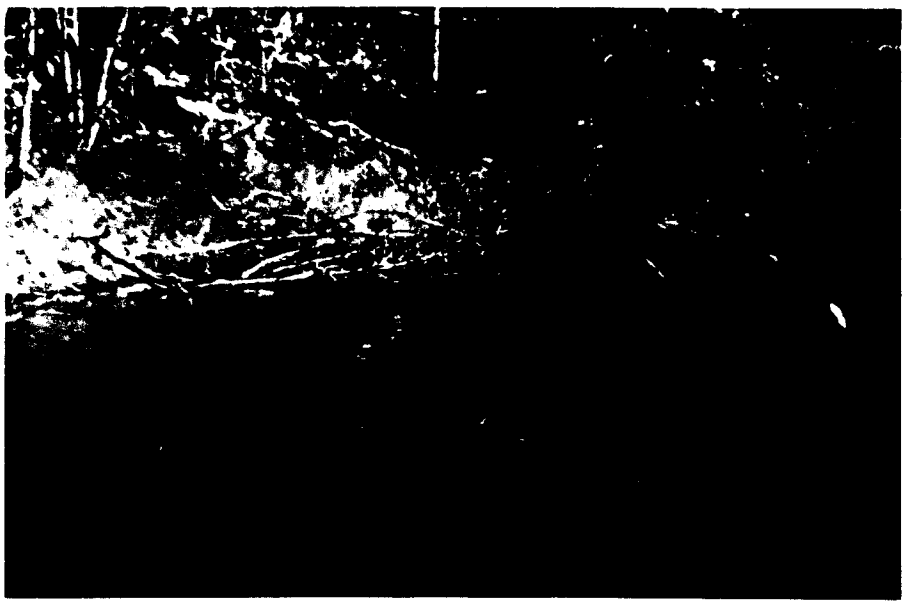
Rockwell, J. 1972d

APL583+42
Canyon Slough

BLM Photo
6911W

8/17/72

Looking upstream from crossing at APL577+91. This channel is the lesser of two. (T. 9 S., R. 5 W., sec. 35 of CRm.)



BLM Photo
6911X

8/17/72

Looking along proposed pipeline centerline crossing at APL580+66 (from west to east). This channel is the greater of two.

Rockwell, J. 1972d

APL583+42
Canyon Slough

BLM Photo
6911Y

8/17/72

Looking downstream from proposed pipeline crossing APL580+66. (T. 9 S., R. 5 W., sec. 35 of CRm.)

BLM Photo
6911Z

8/17/72

Looking upstream from proposed pipeline crossing APL580+66. At this point the stream separates into two channels.

Rockwell, J. 1972d

APL583+42
Canyon Slough

BLM Photo
6911A'

8/17/72

Looking upstream along centerline from APL583+42 (estimated edge of water) to where survey line crosses stream centerline at APL584+87. (T. 9 S., R. 5 W., sec. 35 of CRm.)

BLM Photo
6911C'

8/17/72

Looking upstream (east) along proposed centerline of pipeline where it enters water at APL601+30. (T. 9 S., R. 5 W., sec. 35 of CRm.)

Rockwell, J. 1972d

APL583+42
Canyon Slough

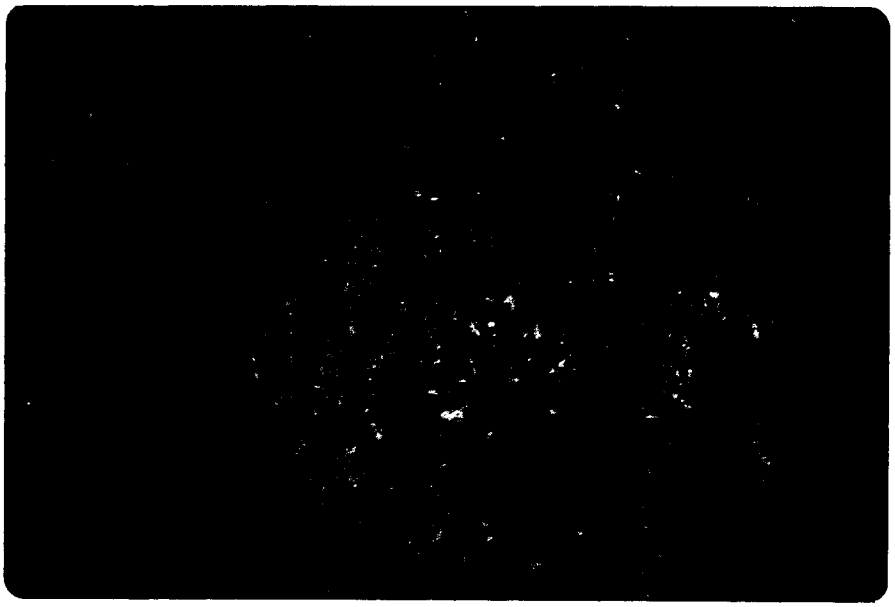
BLM Photo
6911B'

8/17/72

Fish barrier on principal south side stream between crossings at APL588+11 and APL601+30.

Rockwell, J. 1972d

APL 506 + 06
Canyon Slough



BLM Photo
33D9

(6/7/71)

Area of Crossings. Note multitude of spawning and nursery channels. (T. 9 S., R. 5 W., secs. 27 and 28 of the Copper River meridian)

Rockwell, J. and T.J. Charlton, 1971

APL 506 + 06
Canyon Slough

F3d

December 9, 1971

K. Robersnn
ADF&G

Stream Surveys - South

Status:

~~Routine survey and historical data have provided species and timing information for nearly all streams in this project area.~~

Helicopter surveys in conjunction with BLM personnel during the periods July 28-29, 1971 and September 13-15, 1971 were concentrated in the area south of Gulkana Airfield. Aerial counts and ground surveys were made of fish seen plus on the ground investigation of potential fish streams. Specifically Canyon Slough was determined to be a spawning area for silver salmon in the area of the right-of-way crossing and considerable debris was found to have been left in the stream from the right-of-way cutting.

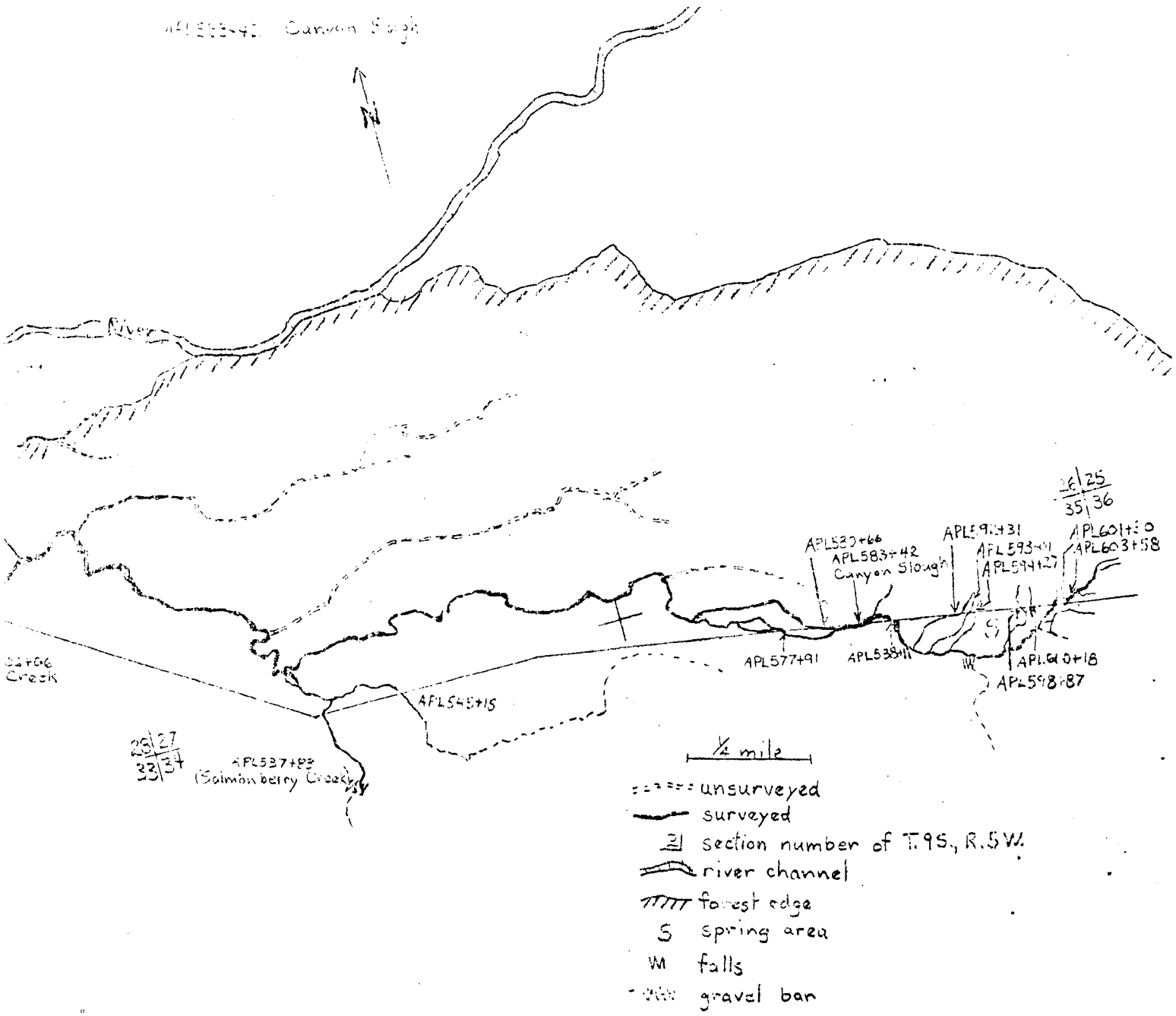
~~Attached is a table which includes surveys of the area from the Little Tonsina River north conducted during the late summer and fall of 1971.~~

~~A basic survey has been made for each stream from VAldez Arm to Isabel Pass and although not all the required information for each stream has been acquired the relative value of each stream in terms of fish production has been determined to a level of major, minor and insignificant or nill.~~

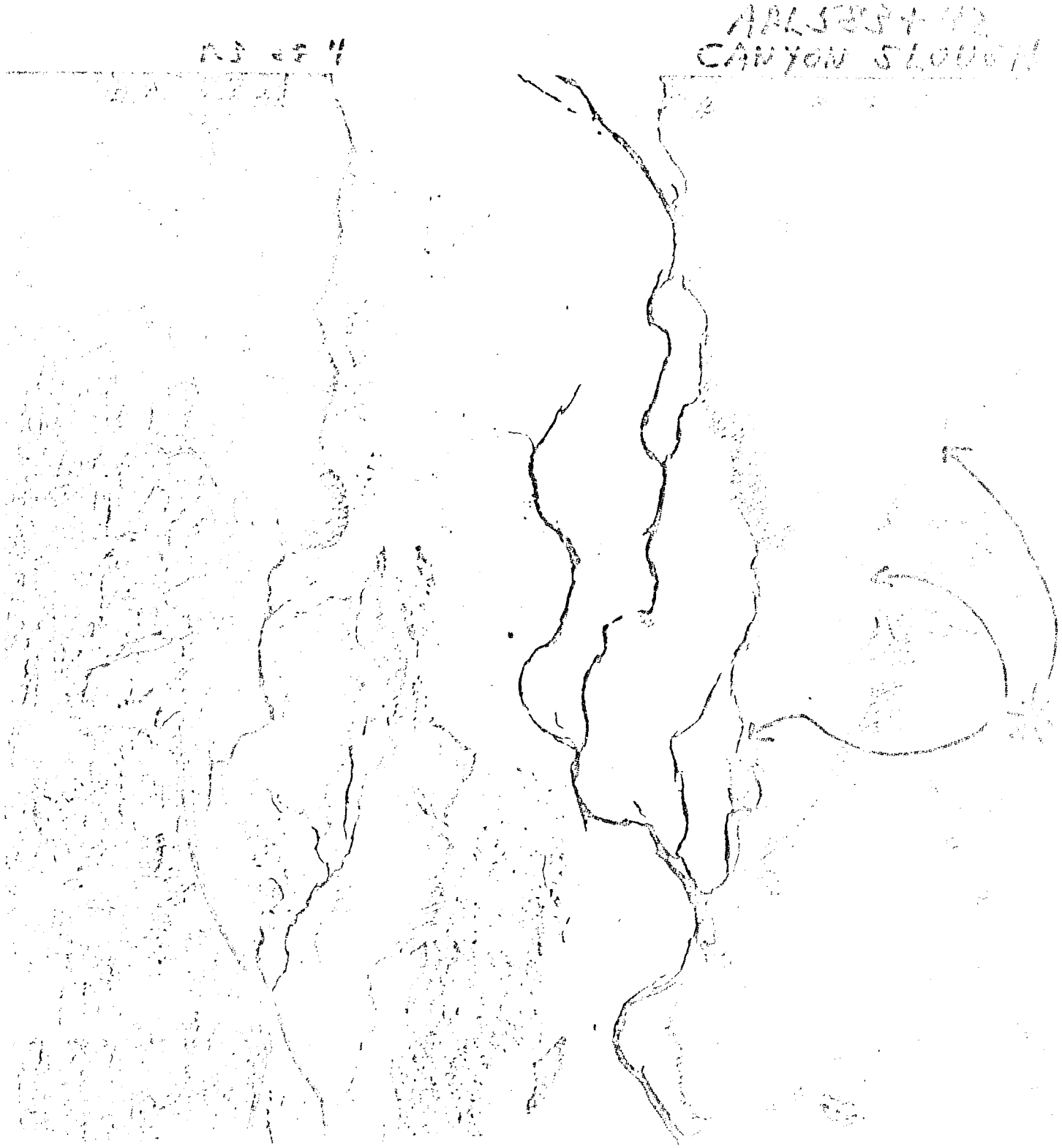
~~Continued refinement of these data are planned with effort concentrated on those streams where little historical data or species and timing information has been gathered.~~

OSSING TYPE	DRAINAGE	SLOPE	TAPS REMARKS	FISH SPECIES	TIMING OF MIGRATION	SURVEY STATUS	BIOLOGICAL NOTES
				SS	Note #16	A-2	II
				DV, SS, PS, DS, RS	Note #17	A-1	III
						3	I
						3	I
						3	I
						3	I
						3	
						3	I
						3	I
						3	
						3	
						3	
				PS	Note #18	A-1	II
				PS, DS	Note #19	A-1	II
						3	I
						3	I
				PS, DS	Note #20	A-1	III

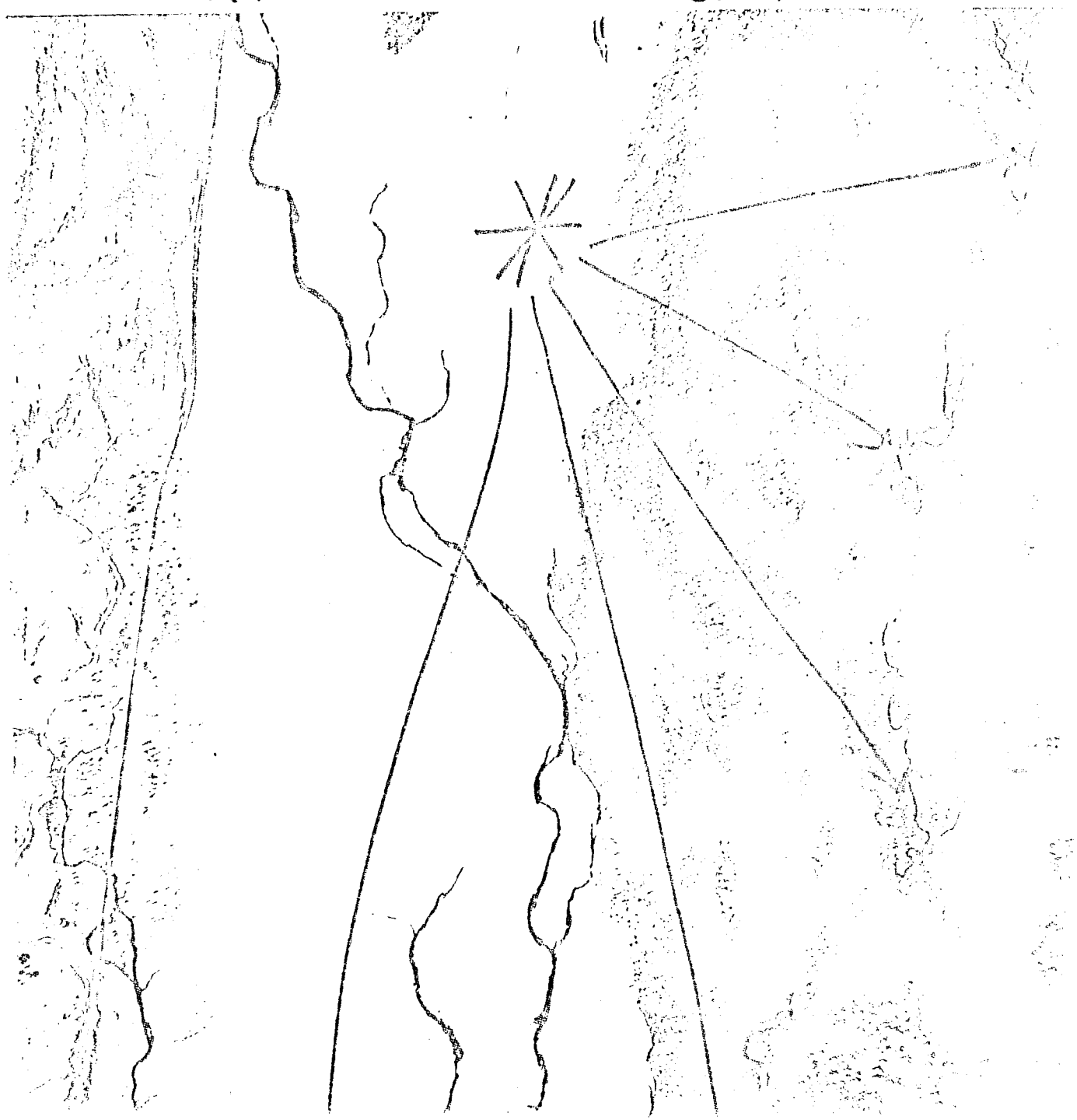
Ari 506106
Canyon Slough



Canyon Slough
N
River
Creek
APL583+42
Canyon Slough
APL583+66
APL593+31
APL593+41
APL594+27
APL601+30
APL603+58
26|25
35|36
APL577+91
APL538+11
APL610+18
APL598+87
APL545+15
28|27
33|34
APL537+83
(Salmonberry Creek)
1/4 mile
unsurveyed
surveyed
section number of T.9S., R.5W.
river channel
forest edge
S spring area
W falls
gravel bar


CANYON SLOUGH

APL583+42
CANYON SLOUGH



AAL583+10
CANYON SLOUGH

A 1 of 4

APL 583+42
Canyon Slough

September 17. 1972

0820 On west side 100 feet south of where Canyon Slough leaves the forest, a small channel one to two feet wide and less than one foot deep leaves the main channel. It courses northwest to empty back into the main channel of Canyon Slough. There were many small pools with 15-20 salmonid fry in most of them. Some pools were cut off from this channel and also contained fry. A collection determined that these were silver salmon. Algae growth was abundant.

ADL 506 + 06
Canyon Slough

F&G Stream	Date	Pink live	Pink dead	Chum live	Chum dead	Sockeye live	Sockeye dead	Coho live	Coho dead
Ck. crossing Dayville tide rd., South end of R. flats	8/3 G	340	710						
	8/4 A	100	u						
	8/11A	300	u						
	8/21A		50	u					
Abercrombie Ck.	7/22A	1	u						
	7/29A	none							
	9/14G	none	many						
	10/2 G			1				3	
	10/9 G			23	8			10	
Canyon Slough	7/22A	u 720	u						
	8/4 A	20	u						
	8/11	300							
	8/21A	none							
141 Ck. crossing Loop Rd. just N. of Hydrotrain dock	7/26G	875							
	8/7 G	510							
	8/23G	12	310						
142 2nd Ck. crossing Loop Rd. N. of Hydrotrain dock	7/26G	105							
	8/7 G	25							
	8/23G	none	33						
143 Siwash Ck.	7/29,30G	13,040							
	8/11G	4,170		120	(excluding W. distributary)				
	8/31G	122			(above highway only)				
	9/3 G	55		36				5	
	9/14G	17		26				10	
	9/28G			37				57	
	10/14G							10	
144 Ess Ck.	7/30G	none		(none seen at any time to date)					
	9/28G			32					
145 "City Limits Cr."	7/22A	650	u						
	7/30G	690	u						

APL 506 + 06
Canyon Slough

AY 054

More than 6,800 salmon were caught, including 4,488 pink, 2,098 coho, and 230 chum salmon. Approximately 3,300 anglers participated, of which 32 percent were local, 58 percent visiting Alaskans, and 10 percent non-resident. The mean catch of salmon was 0.63 per hour of effort. A few other species of fish were caught, including halibut and red snapper. Dungeness crabs were also commonly landed and some trips were made only to catch crabs. Also, tourists often fished for tomcod off the Valdez City Dock; the popularity of tomcod fishing was exemplified by a count of 39 anglers at noon on July 4th.

SUMMARY

1. Only 13 percent of pink salmon in streams tributary to Port Valdez spawned intertidally.

2. Sixty-two percent of the chum salmon in streams tributary to Port Valdez spawned intertidally.

3. The only stream with large numbers of spawning salmon which would be vulnerable to an oil pipeline break is Canyon Slough on the south bank of the Lowe River.

4. Salmon fry in Port Valdez were concentrated at the west end of Port Valdez; the Jackson Point terminus site was not heavily utilized by fry.

5. Salmon fry remain in Port Valdez for only a short time before migrating out to Prince William Sound.

Submitted by:

Chester R. Mattson
Fishery Research Biologist

Approved by:

Theodore R. Merrell, Jr.
Coordinator, Ecological Programs

Charles DiCostanzo

NPL 506 for
Canyon Slough

P.3 of 4

Table 5.--Estimated escapements of Pink Salmon in Port Valdez Streams in 1971

Stream	ADF&G number	Date of maximum count	Type of survey	Maximum count	Estimated escapement
~~Shoreembie Creek~~	~~--~~	~~August 17~~	~~Ground~~	~~Many carcasses~~	~~250~~ 1/
~~Allison Creek~~	~~135~~	~~July 22~~	~~Aerial~~	~~275~~	~~300~~
~~Anderson Bay Creek~~	~~130~~	~~August 11~~	~~Aerial~~	~~75~~	~~100~~
Canyon Slough--					
Lowe River	--	July 22	Aerial	720	2,000 2/
~~City Limits Creek~~	~~145~~	~~July 30~~	~~Ground~~	~~690~~	~~680~~
Clear Creek	--	July 22	Aerial	Present	300
Dayville Flat Creek	--	August 3	Ground	1,050	1,300
Eight Mile Complex	--	July 31	Ground	290	400
Gulch Creek	131	September 1	Ground	268	1,000
Kaydas Creek	150	July 22	Ground	1,050	1,250
Loop Road #1	141	July 26	Ground	875	1,200
Loop Road #2	142	July 26	Ground	105	250
Mineral Creek System					
East Fork of Flat	--	July 22	Ground	250	400
Middle Fork of Flat	--	August 11	Ground	670	900
Cabin Fork of Flat	--	July 22	Ground	75	125
West Fork of Flat	--	July 22	Ground	125	200
Brush Creek	--	September 17	Ground	+200 carcasses	1,250 3/
Pit Creek	--	August 12	Ground	2,911	3,500
Robe River	--	July 22	Aerial	4,500	10,000
Salmon Slough	--	August 5-6	Ground	13,200	15,000
Sawmill Creek	133	July 22	Ground	1,060	1,500
Sawash Creek	143	July 29-30	Ground	13,040	15,000
~~Uno Creek~~	~~--~~	~~August 1~~	~~Ground~~	~~1~~	~~present~~
				41,380	57,175

~~3/ Survey made after spawners were dead.~~

2/ Heavy forest cover prevented good aerial counts, estimate could be quite conservative

A2. 054

APL 5[illegible]
Canyon Slough

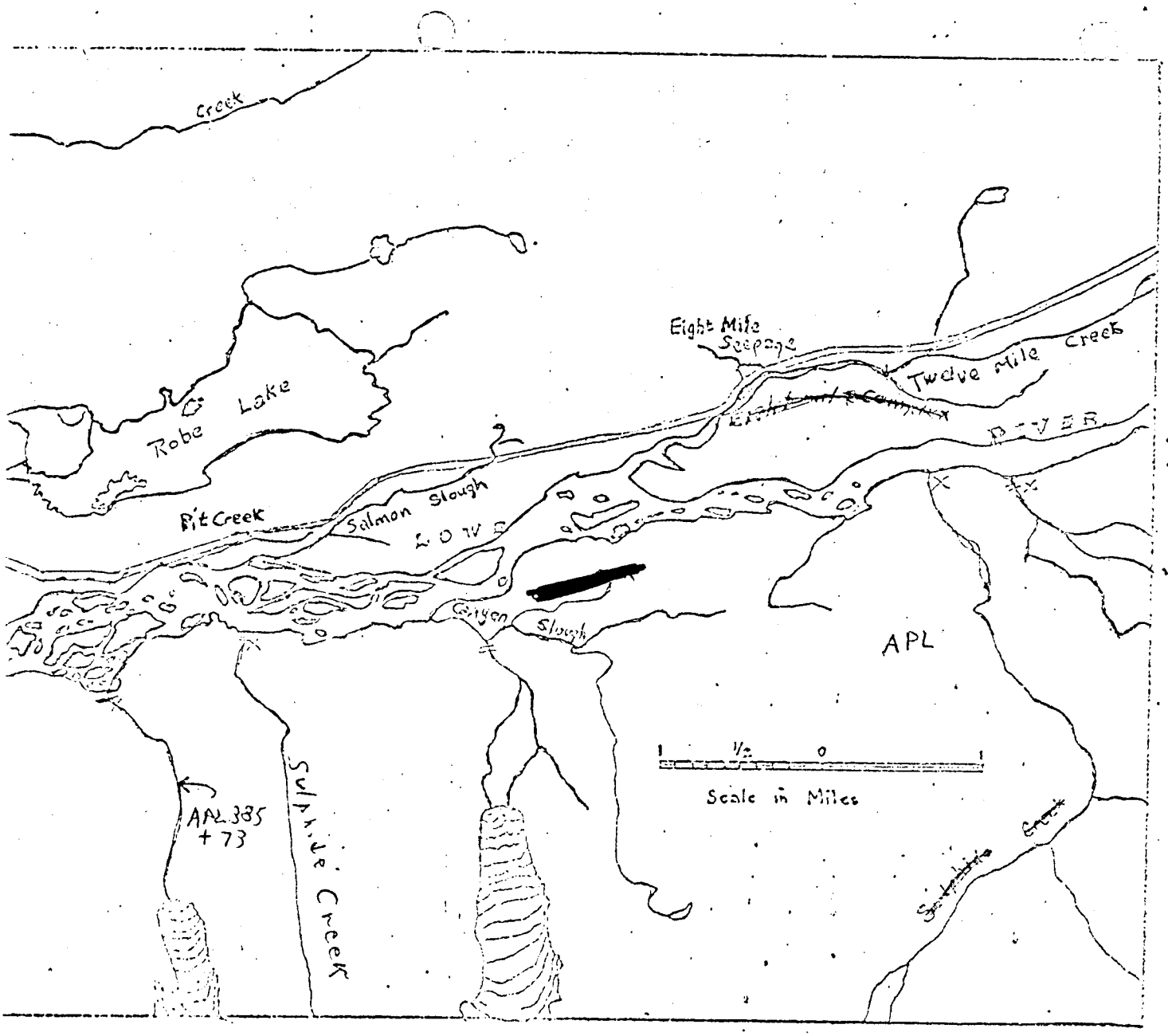
Table 4.--Summary of Maximum Salmon counts and Estimated Season's Escapement in 1971 into Port Valdez area Streams

Species	Totals of maximum counts during stream surveys	Estimated escapements
Pink	41,380	57,175
Chum	5,837	7,880
Coho	12,451	15,025
Sockeye	4,025	6,040
	63,693	86,120

Pink Salmon:

Table 5 shows the locations and dates of pink salmon surveys and estimated total escapements in Port Valdez streams. ~~Largest escapements (18,500 each) were in Siwash Creek and Salmon Slough. Lobe River, with 10,000 pink salmon followed in third place.~~ Sawmill Creek, expected to rank among the top producers, received only an estimated 1,500 pink salmon. Canyon Slough, a Lowe River south-bank tributary, was inaccessible to ground surveying and aerial counts were hindered by dense foliage; pink salmon are believed to have spawned here. ~~Twenty-three streams were found with pink salmon spawners.~~

The 1971 pink salmon escapements into Port Valdez were reportedly the best since 1961, based on opinions of several knowledgeable local residents. Prearthquake conditions in Siwash Creek were excellent for salmon spawning and 1961 and 1963 escapements were estimated at 61,060 and 15,300, respectively. The 1971 estimated escapement of 15,100 pink salmon was the best since the earthquake. During the earthquake, erupting sand geysers apparently caused a drastic reduction in the gravel bottom composition of Siwash Creek, thus reducing potential salmon production.



APL 583+42 Superb APL 506+66 Canyon Slough

Fig. 4

of salmon spawning tributaries of the Lowe River system

MEMORANDUM State of Alaska

APL ~~50 61 06~~
Canyon Slough
583.42

APR 12 9 36 AM '71

RECEIVED
ANCHORAGE, ALASKA

TO: [illegible] Day Bergstrand and [illegible]
Not [illegible]
Habitat
Alaska Dept. of Fish [illegible]
Anchorage

FILE NO.

DATE 4/9

SUBJECT Tap pipeline route crossings

FROM: Ken Roberson
Commercial Fish
ADFMG
Glennallen

~~I have just returned from a helicopter survey of the pipeline route [illegible] Valdez to Isabel Pass conducted on April 5 and 6. I [illegible] several areas which concern me along the route. Three locations along the line are far less than satisfactory to my way of thinking [illegible] one area where a [illegible] rig and a cat with blade down have crossed a major stream and left soil out on the ice.~~

Item #1 On the Lowe River flats Canyon Creek or Canyon Slough is crossed several times more than is necessary. The pipe would run in the creek for close to [illegible] yards or possibly more and cross it diagonally rather than straight [illegible]. I believe that with the least effort this particular problem could be eliminated by one jog and return to the present survey line.

~~Item #2 In the Area of T7S - R1E just north of the crossing of the Tonsina River in that section there is a spring area with good flow which is open essentially all winter and although it is not known to be producing fish at this time could be a potential roadside fishing area. The pipe route goes right through this area and could be moved a short distance to end this potential conflict.~~

~~Item #3 The crossing of the Little Tonsina River at T7S - [illegible] just south of the main Tonsina River has had several spruce trees fallen into the river by the survey crews. This is an anadromous fish stream and the material should be removed as soon as the ice is out [illegible] of the area as it would be impossible to free the trees from the ice at this [illegible].~~

~~Item #4 The Gulkana River at T8N - R12 E was crossed in an alignment no longer considered the prime route and during this winter at [illegible] time~~

APL 506+06
Canyon Slough

8) Canyon Slough - 3,000 pink salmon, 1 sockeye, silver salmon fry and Dolly Varden fry all present in the creek 7/28/71. A portion of the stream was glacial and a portion was clear. On 9/15/71 adult silver salmon were present in the stream in the area of the pipeline crossing and below, a few pink and chum salmon were noted at the creek mouth. Chum salmon were noted in a clear channel 200 yards from the mouth of Canyon Slough and directly out into the Lowe River flats. The pipeline route at 602+00 to 586+00 crosses Canyon Slough which contains silver salmon and the right of way continues along the stream crossing it several more times. The right of way location on this particular stream is objectionable and should be moved. In the area of station 586+00 there are a number of trees and logs etc that have been cut from the pipeline right of way and pushed into the stream (Canyon Slough). The above constitutes violation of the Anadromous Fish regulations and should be cleaned up as soon as can be accomplished.

9) Stream 665+13 On 7/28/71 the stream was a glacial gully washer with little potential to produce fish. No fish were seen. The stream is a single channel with rapid flow. On 9/15/71 no fish were seen and no potential areas located.

10) Stream 693+68 On 7/28/71 the stream was glacial and probably nearly dries up during periods of low flow, the stream a gully washer with no potential for spawning noted. On 9/15/71 no fish or potential were noted.

11) Stream 800+62 On 7/28/71 the stream was clear, no fish were noted. Bubbles were noted emitting from the stream bed in a number of places and could be N^2, O^2 or CO^2 etc. Gravel as potential spawning area looks okay but no fish seen.

12) Brown Creek - 7/28/71, The stream is a glacial gully washer, no fish or potential seen. On 9/13/71 no fish or potential was noted. Noted an impass to fish passage approximately one mile upstream from mouth.

13) Streams between Brown Creek and Lowe River through Keystone Canyon. No fish potential seen in any of the streams in this area.

14) Stream 1140+66 The stream dry at the pipeline crossing but downstream contain silver salmon 9/14/71. No fish observed on 7/29/71. Some potential for siltation from crossing to reach spawning area below the crossing.

15) Sheep Creek - No fish or potential for fish observed,

16) Twenty Seven Mile Creek - clear water, steep gradient with little or no potential for fish production. 7/29/71.

17) Worthington Glacier Streams - Glacial streams with little or no potential for fish production. 7/29/71.

APL 583+42
Canyon Slough

~~this survey constitutes the first determination of fish presence in Clear Creek.~~

On August 17, Rockwell Jr., Means, Johnson (BLM) plus Morgan, Zorich and T (ADF&G) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present: APL ~~506+06, 527+05, 537+83, 545+15~~, 577+91, 578+ (not shown on mosaic), 580+66, 584+47, 588+11, ~~592+31, 593+01, 594+27, 600+18,~~ 601+30, and 603+ (several hundred feet in stream).

The centerline repeatedly follows the creek bed especially at APL 580+66, 584+47 and 603+ and at 584+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

~~It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.~~

~~Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout,~~ Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and rearing ground for the coho salmon and Dolly Varden trout. ~~The placement of the centerline survey indicates disregard for the fish populations present in the stream as well as the already displayed disregard for regulations regarding~~

APL 580+42
Canyon Slough

~~Due to the encroachment by the main Lowe River in the lower portion of the Clear Stream which tends to leave debris, leaves and silt which settle out in the channels of Clear Stream.~~

~~APL 665+73: Stream glaciering , flowing over anchor ice and under other sections, portions of stream open. None of stream at crossing appeared to offer potential for fish and none were seen.~~

Canyon Slough: Dr. Rockwell and myself walked the centerline from APL 666+ to APL 612+ with no streams or crossings noted. At APL 612 a small seepage creek was located on the south side of the centerline which paralleled the line to the APL 603 area where it joins the main channel. At APL 608+ another stream was noted on the north side of the centerline and at that point seven (7) trees were found to have been fallen across the two streams. Both streams parallel the centerline flowing westward but never cross it. Both streams offer nursery area for Dolly Varden and coho fry and are accessible.

~~Continuing westerly the crossings as follows were examined along the centerline:-~~

~~APL 602+30 running about 0.1 cfs,no fish seen~~
~~APL 600+18 running less than 0.1 cfs, no fish seen~~
~~APL 594+27 running about 0.3 cfs, no fish seen~~
~~APL 593+01 running about 0.4 cfs, no fish seen~~
~~APL 592+31 running about 0.1 cfs, no fish seen~~

Continuing along the centerline to the area where significant debris and trees were noted in previous surveys APL 588+11, 584+47 and 580+66 The following observations were made:

APL 588+11: The stream had been cleared of nearly all debris related to the centerline survey and only two trunk sections of a popular remained near one stream bank. The stream was essentially free of obstruction and near its natural state.

APL 584+47: The stream in this area had been cleared of debris and logs with most of the material totally clear of the stream and in a position which would not likely be reintroduced by high water etc. Considerable effort appeared to have been expended by the clean up crew in this section.

APL 580+66: Little work was required in this area however the materials

APL506+06
Canyon Slough

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : Technical Staff Supervisor

DATE: October 8, 1971
(Supersedes draft of 7/23/7

FROM : Asst. Technical Staff Supervisor

In reply refer to:
6500 (980)

SUBJECT: Summary, Trip Report - Valdez to Prudhoe Bay
June 7-11, 1971

The primary purpose of trip was to gather data on selected streams along the pipeline route, and to make other pertinent observations. Travel was by Kenai Air Service Bell-Jet Ranger helicopter, piloted by Douglas Lewsader. Accompanying me were Dr. O. E. Dickason, Director; Alaska Operations Office, Environmental Protection Agency, and Mr. Thomas Charlton from Division of Oil and Hazardous Materials, Environmental Protection Agency, Washington, D.C.

A number of items of interest were reviewed; some may be covered in more detailed reports.

1. When asked about the latest feelings about the pipeline in Washington, Mr. Charlton, who had worked for industry as a pipeline engineer, said the pipeline would be built if those in authority were confident that the entire operation, or any part of it, could be brought to a complete halt any time the stipulations, approved designs, or procedures were violated, or as otherwise required. He pointed out that the pressures on individuals against shutting down a construction operation running into the hundreds of thousands of dollars a day would be extreme, but unless the Administration was convinced that shutdowns when and as required were feasible, then there would be no pipeline.

2. Mr. Charlton felt the most difficult area from the construction standpoint was above Keystone Canyon.

3. The spring areas on the Lowe River, downstream from Browns Creek, (T. 9 S., R. 4 W., secs. 27 and 28 of the Copper River meridian), i.e., APL506+06, appeared on June 7, 1971, to contain good salmon spawning beds and should be visited during the spawning season. Trees were tall, and one cottonwood measured 4 feet through. Air survey was not as good as

APL583+42
p. 1 of 2 Canyon Slough

Chief, Division of Pipeline — December 5, 1972

Fishery Biologist

In reply refer to:
6500 (980)

Summary Report of Field Trip to Lowe River Tributaries
August 14-18, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no adequate maps exist.

Cooperative survey performed by BLM and ADF&G personnel was aided by ALPS helicopter, which ferried biologists across Lowe River.

Due to inclement weather, it was not possible to cross the river on August 15. Accordingly, the following north side streams were visited: Pit Creek and Salmon Slough by the Richardson Highway, and Robe River and City Limits Creeks just outside of Valdez.

Streams examined south of the Lowe include:

a. APL853+43 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL816+66 a small, clear stream just west of Browns Creek.
c. APL596+06 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL537+83 (Salmonberry Creek) (to falls).
e. APL545+15 (at crossing).
f. APL592+31 (all).
g. APL593+01 (all).
h. APL594+27 (all).
i. APL595+07 (all).
j. APL600+18 (all).
k. Canyon Slough (APL583+42) from its mouth to crossing at Station 601+30.

Items c, d, and e are south side tributaries of Canyon Slough. All contain [illegible] north side feeders

AR-583+12
Canyon Slough

only a few feet from the water. In two instances the angle between the stream centerline and pipeline centerline is small, so that the proposed line will run down the stream for a considerable distance, i.e., 100 yards at 584+47 and about 75 yards starting at 601+30. Young silver salmon were found throughout this area and in Clear Stream. The value of this spawning area has not been computed independently, but Lentz (1971) reports that in the Frazer River in British Columbia, where it has been computed, each acre is capable of producing salmon annually valued at more than $100,000, and that in Oregon the "cost of building artificial spawning channels . . . . has ranged between $120,000 and $470,000 per acre not including maintenance costs."

Tentative maps made from aerial photos are being revised as a result of information obtained from on-the-ground observations. It is hoped that further surveys will provide the opportunity to complete the mapping of the complex stream system in this area.

See also:

Rockwell, Julius, Jr.
1972d Photographs of pipeline streams on the south side of the Lowe River, August 16 and 17, 1972. U.S. Department of the Interior. Bureau of Land Management. Alaska State Office. 555 Cordova Street. Anchorage, Alaska. 21 pp.

1972e Detailed trip report: Lowe River Tributaries, August 14-18, 1972. Ibid. 29 pp.

Means, R. Sam
1972b Detailed report of trip to Lowe River tributaries, August 14-18, 1972, including air photos and map revisions. Ibid. 15 pp.

Johnson, R. L.
1972c Field Survey of Robe River. Ibid. 2 pp.

Roberson, Kenneth
1972a Letter report of trip to Lowe River, August 14-17, 1972.

August 17, 1972

0820 Landed on gravel bar in Lowe River and walked to where Canyon Slough first reaches edge of forest, and then turns west and reenters it. Water was glacial in color but not as turbid as the Lowe. Stream was 50-60 feet wide and 1-3 feet in depth with deeper holes. On east side a clear stream, 6 feet wide and 1 foot deep, runs in bed of Lowe between exposed gravel bar and forest bank and enters Canyon Slough at this point. The forest on the east bank of the slough is predominantly spruce with cottonwood mixed in and with increasing amounts of alder near the water. About 400 feet upstream on the east side, a clear 10-foot tributary enters and about 200 feet farther on another comes in. Upstream from this point there is an island in the main stream with the east channel appearing to carry all the water (20 feet wide, 3-6 feet deep and swift). At the upper end of this channel water was clear on the east (right) and glacial on west (left) side. There is a sharp (90°) bend in the stream at this point. (See extreme lefthand side of photo 6911L.)

The alluvial fan of Grey Creek, which enters Canyon Slough at the 90° bend, has filled in the west channel around the island and has dammed the slough to form a four to six foot deep pool. (See photo 6911L.)

At the northwest corner of this pool, four adult chum salmon were seen. They were highly colored but not worn at all, and were quite spooky, darting downstream into the glacial-colored water.

0930 Left to check out Grey Creek.

1015 Returned to Canyon Slough. Took photos of mouth of Grey Creek on Canyon Slough. (See photo 6911M.) Met with others.

1040 Continued survey.

1125 Between two and three hundred feet upstream from the right angle turn in the stream an additional channel leaves the

foot deep, and with a good flow. It was walked out and flows back into the main stream just below the island mentioned above. It has no tributaries. It is separate from the other tributary that comes from the east through the woods 200 feet farther downstream. Returned around loop and went up north bank of slough. Crossed next tributary, fourteen feet wide, and passed island. This area with good five to six foot deep pools and good riffle areas. Small tributary on north side and then a large one.

1155 Several bends farther up reached fork in stream by open area that appeared to be a clearing. The south fork is called "Canyon Slough" on the USGS map in Dictionary of Alaska Place Names; it drains a tarn near the 2950 foot level on the mountain side. The north fork is the main stream here, and it is substantially larger than the south fork. For our purposes we will call the north fork "Canyon Slough," and the south fork we will call "Salmonberry Creek" (APL 537+83), because of the profusion of salmonberries found along its banks. Rockwell and Means left Canyon Slough to explore Salmonberry Creek.

1410 Returned to Canyon Slough. Arrived at proposed centerline crossing at APL 577+91. The centerline approached the crossing from south at an acute angle and paralleled the stream and was close to it for a considerable distance before the crossing was reached. This crossing was one of two distinct channels running through the forest. Each channel had its well-defined banks and no evidence of recent overflow. The nature of these banks and the trees on them indicated a stable flow. Photos taken of the crossing were: 6911U, looking east across channel along centerline; 6911V, looking downstream (west) from crossing and at fork where this channel further divides into two others; and 6911W, looking upstream (southeast) from crossing. Water was clear; bottom was sand and

1425 Arrived at crossing at APL 580+66. Width here is thirty feet. Estimated 35 cubic feet per second flow. Temperature 42° F. (5° C.). Sand and gravel bottom, mostly sand. Between crossings at APL 577+91 and APL 580+66, proposed centerline is well within the stipulated 300 foot buffer strip required for streams. Photos of stream at this crossing: 6911X, looking along brushed out centerline, east across stream; 6911Y, looking downstream (north) from crossing; 6911Z, looking upstream (east southeast) from crossing to where stream separates into two channels.

1443 Left crossing at APL 580+66. Walked centerline to next crossing, which started about 100 yards further east. This portion of the centerline was virtually on the edge of the main stream of Canyon Slough.

1448 Reached edge of water at APL 583+42 (as measured from previous stake with tape). The centerline of stream at this crossing is given as 584+87 on the mosaic. (TAPS Drawing, "Prudhoe Bay to Valdez, 48" oil pipeline alignment map, Drawing No. AL-00-G2, sheet 3 of 138 [Rev. 6 of 1-5-72] .") It is assumed that the pipeline centerline reaches the opposite shore at about 586+32, which would be a 100-yard crossing of a stream 50 feet wide. Photo 6911A' shows view along proposed centerline at this point on the north side looking east along centerline. On the opposite shore, the centerline goes up over a rocky knoll and crosses back to the north side of the Slough at APL 588+11. Checked north side of stream between these two crossings and found no tributaries.

Note: Because station APL 583+42 is the edge of the water of this first pipeline centerline crossing of the whole of Canyon Slough as a single channel, it will be the number used to designate this stream (in lieu of APL 506+06 which had

which did not reach the centerline. APL 598+87 and APL 600+18 unite to form a single tributary of Canyon Slough. (See notes on these two.)

At this point the stream was near the mountain side, and a tributary from the south side ran from a waterfall: Photo 6911B.

Between falls tributary and next crossing, stream, flowing southwest, is narrower, 10-14 feet, swifter, and with deeper pools and gravel riffles. Alders on bank and overhanging into stream. Many springs along banks. Spruce and cottonwoods mainly lacking here. Small silver salmon in side spring areas.

1600 Reached crossing at APL 601+30. Stream runs along pipeline centerline between 601+30 and 603+58, a distance of 228 feet. The stream at this point is eight to twelve feet wide, clear, and with gravel bottom. Banks two to three feet high with no signs of recent flooding. Many spring areas along sides. Photo 6911C', looking upstream along centerline (east) from APL 601+30.

1615 Left Canyon Slough to go to Lowe River.

APL 583+42

Canyon Slough

November 7, 1972

0815 - Left Valdez airport in Alyeska helicopter with Mr. Franklin of Alyeska and with Mr. Kenneth Roberson and Charles Morgan of the ADFG. Flew over mouth of Canyon Slough and then east along pipeline centerline. Only one open channel was seen in the Lowe River. It was out some distance from the forested edge of the bare gravel, braided area. Canyon Slough flowed through a channel of its own for a short distance to reach this main channel of the Lowe. In this short distance was a pool of 50 spawning cohoe salmon. We did not land.

1105 - Roberson and I (on foot) reached station 612 from the east on the brushed out centerline. Here 36.2°F spring was observed about 10 or 15 feet south of the centerline.

1120 - At station 610 a 37° F spring was found on the north side of the centerline, also about 10-20 feet from it. The waters of both streams ran parallel to the narrow brushed-out centerline and at station 608 they were 30 feet apart with the centerline in the middle. The volume of each flow was about one cubic foot per second. These streams continued on and neither one crossed the proposed centerline.

1130 - We met Mr. Franklin at the crossing of Canyon Slough at about station 602 and continued west along the centerline.

1215 - The centerline crosses Canyon Slough again at station 588+. It was observed that most of the trees that had been felled into the stream here by earlier surveying crews had been removed. North and east of the stream at this point the land is perfectly flat. South and west the bank rises rapidly to a rocky knoll.

1225 - Going up and over this knoll, the line immediately enters Canyon Slough again and proceeds down the middle of it to about station 582 or 81. The trees that had been felled into the stream at this point had also been removed. We proceeded down the centerline to station 570. From the stake I paced off 150 feet to the stream. One hundred feet upstream from this

adjacent to the line was 20 c.f.s. today. Apparently the fish remnents were from the last of the run for the season. The stream at this point had intermittent riffles of good gravel, no bare gravel bars, banks 2 to 3 feet above the water, alder and poplar on the north side, and spruce mostly on the south side. The width was about 40 feet; depth, 6 inches; gravel egg-size, and the water was very clear.

1315 - Back at station 600 it was observed that algae was growing profusely and a red deposit was on the rocks in the stream. Roberson and I concluded that the removal of branches and trees from that which had been felled into the stream had been satisfactory.

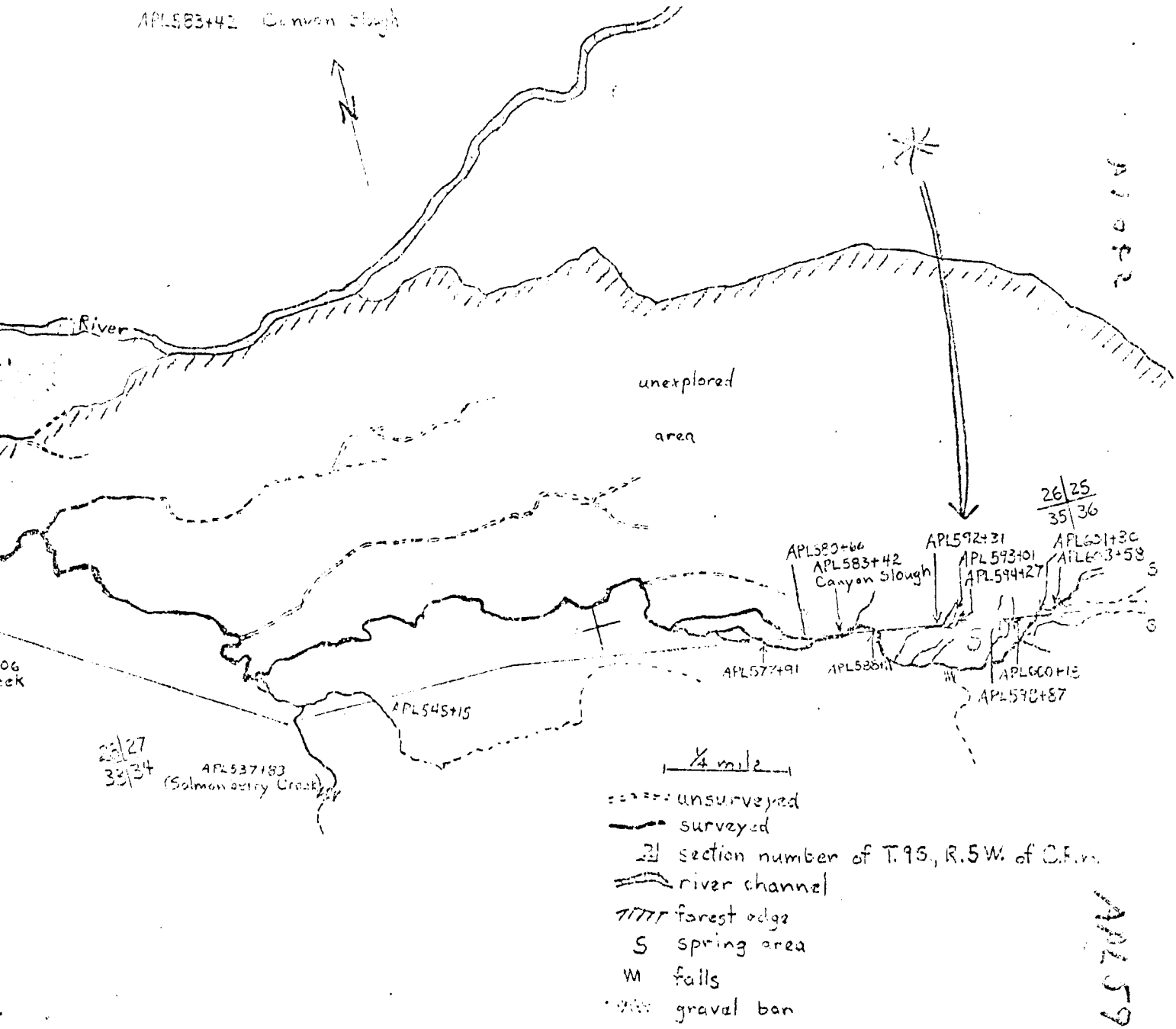
1330 - Took off for Valdez airport, stopping at the mouth of Canyon Slough to pick up Morgan who had surveyed the downstream portion of the slough.

APL591

August 17, 1972

1530 Went up north-side tributary of Canyon Slough 75 feet to where the small feeder disappeared. It was two feet wide and one foot deep, with almost no flow at the mouth. Algae growth was heavy. Stream had a complete canopy of alder. No fish seen. This stream does not cross proposed centerline.

APL592+31 - (A north-side feeder to Canyon Slough)


APL583+42 Canyon Slough
N
River
unexplored
area
26 25
35 36
APL580+66
APL583+42
Canyon Slough
APL592+31
APL593+01
APL594+27
APL601+30
APL603+58
S
S
APL577+91
APL588+11
APL600+18
APL598+87
APL545+15
23 27
33 34
APL537+83
(Salmon berry Creek)
1/4 mile
unsurveyed
surveyed
section number of T.9S., R.5W. of C.R.M.
river channel
forest edge
S spring area
W falls
gravel bar

APL 592+31

APL 592+31

this survey constitutes the first determination of fish presence in Clear Creek.

On August 17, Rockwell Jr., Means, Johnson (BLM) plus Morgan, Zorich and T (APRC) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present:
APL ~~506+06, 527+01, 537+82, 545+35, 577+91, 578+ (not shown on mosaic), 580+66, 584+47, 587+11~~, 592+31, ~~593+91, 594+27, 600+18, 601+30, and 603+ (several hundred feet in stream).~~

The centerline repeatedly follows the creek bed especially at APL 580+66, 584+47 and 603+ and at 584+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and as the ground for the coho salmon and Dolly Varden trout. The placement of the centerline survey indicates disregard for the fish populations present in

APLS 92 AP1

due to the encroachment by the main Lowe River in the lower portion of the Clear Stream which tends to leave debris, leaves and silt which settle out in the channels of Clear Stream.

APL 665+73: Stream glaciering , flowing over anchor ice and under other sections, portions of stream open. None of stream at crossing appeared to offer potential for fish and none were seen.

Canyon Slough: Dr. Rockwell and myself walked the centerline from APL 666+ to APL 612+ with no streams or crossings noted. At APL 612 a small seepage creek was located on the south side of the centerline which paralleled the line to the APL 603 area where it joins the main channel. At APL 608+ another stream was noted on the north side of the centerline and at that point seven (7) trees were found to have been fallen across the two streams. Both streams parallel the centerline flowing westward but never cross it. Both streams offer nursery area for Dolly Varden and coho fry and are accessible.

Continuing westerly the crossings as follows were examined along the centerline:

APL 602+30 running about 0.1 cfs,no fish seen
APL 600+18 running less than 0.1 cfs, no fish seen
APL 594+27 running about 0.3 cfs, no fish seen
APL 593+01 running about 0.4 cfs, no fish seen
APL 592+31 running about 0.1 cfs, no fish seen

Continuing along the centerline to the area where significant debris and trees were noted in previous surveys APL 588+11, 584+47 and 580+66 The following observations were made:

APL 588+11: The stream had been cleared of nearly all debris related to the centerline survey and only two trunk sections of a popular remained near one stream bank. The stream was essentially free of obstruction and near its natural state.

APL 584+47: The stream in this area had been cleared of debris and logs with most of the material totally clear of the stream and in a position which would not likely be reintroduced by high water etc. Considerable effort appeared to have been expended by the clean up crew in this section.

APL 580+66: Little work was required in this area however the materials were removed which had been a result of the centerline cut except for one large popular log too large for the crew to remove. It was placed well to one side of the stream and should not be a problem.

APL 572+31

Chief, Division of Pipeline

December 5, 1972

In reply refer to:
6500 (9[illegible])

Fishery Biologist

Summary Report of Field Trip to Lowe River Tributaries
August 14-15, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no accepate maps exist.

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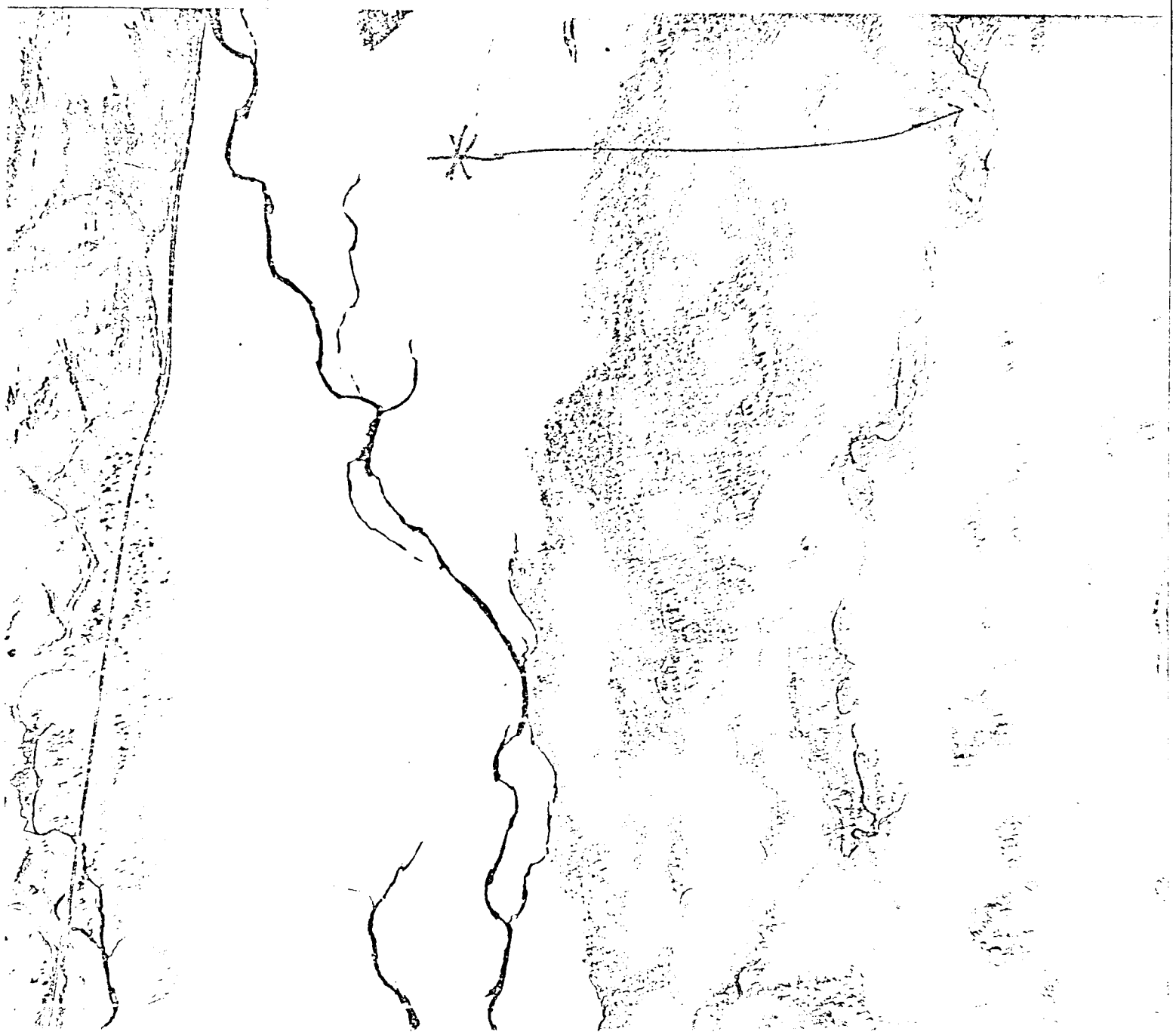
Streams examined south of the Lowe include:

a. APL[illegible]443 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL[illegible]466 a small, clear stream just west of Browns Creek.
c. APL[illegible]486 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL[illegible]463 (Salmonberry Creek) (to falls).
e. APL[illegible]415 (at crossing).
f. APL[illegible]431 (all).
g. APL[illegible]401 (all).
h. APL[illegible]427 (all).
i. APL[illegible]467 (all).
j. APL[illegible]416 (all).

APL 592+31

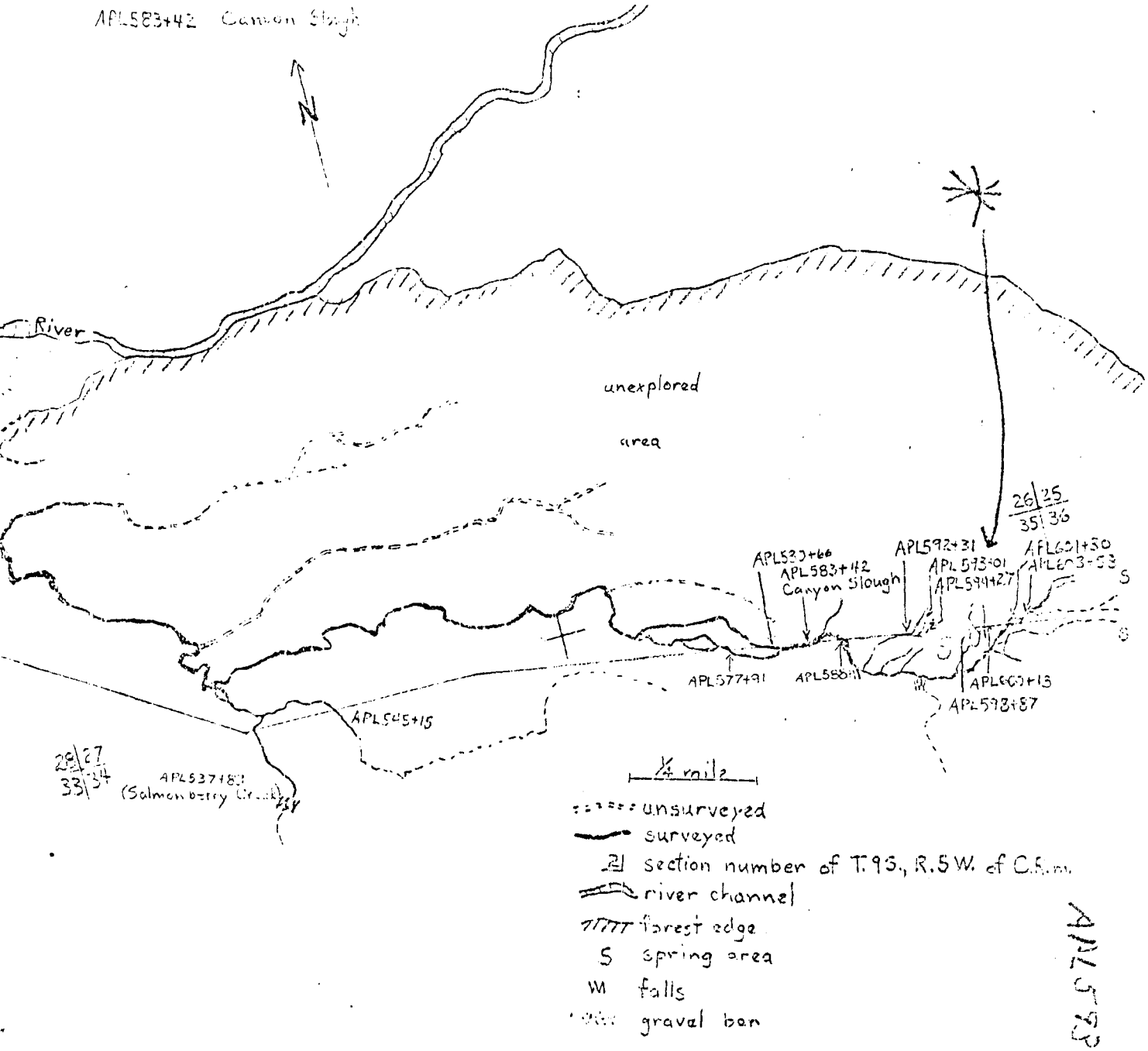


NOV 7 1972

APL 592+31

1159 - APL592+31 is a small, leaf-choked tributary of APL 594+27. It is unlikely that it carries many fish.

APL593+01 - (A north-side feeder to Canyon Slough)


APL583+42 Canyon Slough
N
River
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26 25
35 36
APL583+66
APL583+42
Canyon Slough
APL592+31
APL593+01
APL594+27
APL601+50
APL603+53
S
APL577+91
APL588+11
APL600+13
APL598+87
APL545+15
29 27
33 34
APL537+81
(Salmonberry Creek)
1/4 mile
unsurveyed
surveyed
section number of T.9S., R.5W. of C.S.M.
river channel
forest edge
S spring area
W falls
gravel bar

APL583+01

APL 580+01

~~this survey constitutes the first determination of fish presence in Clear Creek.~~

On August 17, Rockwell Jr., Means, Johnson (BLM) plus Morgan, Zorich and T (ADF&G) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 596+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present:
APL ~~596+06, 527+01, 537+82, 545+15, 577+91, 578+ (not shown on mosaic), 580+66, 584+47, 588+11, 592+31,~~ 593+01, ~~594+27, 600+18, 601+39, and 603+ (several hundred feet in stream).~~

The centerline repeatedly follows the creek bed especially at APL 580+66, 584+47 and 603+ and at 584+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and rearing

APL 595+01

due to the encroachment by the main Lowe River in the lower portion of the Clear Stream which tends to leave debris, leaves and silt which settle out in the channels of Clear Stream.

APL 665+73: Stream glaciering , flowing over anchor ice and under other sections, portions of stream open. None of stream at crossing appeared to offer potential for fish and none were seen.

Canyon Slough: Dr. Rockwell and myself walked the centerline from APL 666+ to APL 612+ with no streams or crossings noted. At APL 612 a small seepage creek was located on the south side of the centerline which paralleled the line to the APL 603 area where it joins the main channel. At APL 608+ another stream was noted on the north side of the centerline and at that point seven (7) trees were found to have been fallen across the two streams. Both streams parallel the centerline flowing westward but never cross it. Both streams offer nursery area for Dolly Varden and coho fry and are accessible.

Continuing westerly the crossings as follows were examined along the centerline:

APL 602+30 running about 0.1 cfs, no fish seen
APL 600+18 running less than 0.1 cfs, no fish seen
APL 594+27 running about 0.3 cfs, no fish seen
APL 593+01 running about 0.4 cfs, no fish seen
APL 592+31 running about 0.1 cfs, no fish seen

Continuing along the centerline to the area where significant debris and trees were noted in previous surveys APL 588+11, 584+47 and 580+66 The following observations were made:

APL 588+11: The stream had been cleared of nearly all debris related to the centerline survey and only two trunk sections of a popular remained near one stream bank. The stream was essentially free of obstruction and near its natural state.

APL 584+47: The stream in this area had been cleared of debris and logs with most of the material totally clear of the stream and in a position which would not likely be reintroduced by high water etc. Considerable effort appeared to have been expended by the clean up crew in this section.

APL 580+66: Little work was required in this area however the materials

APL5[illegible]+01

Chief, Division of Pipeline — December 5, 1972

In reply refer to:
6500 (9[illegible])

Fishery Biologist

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Streams examined south of the Lowe include:

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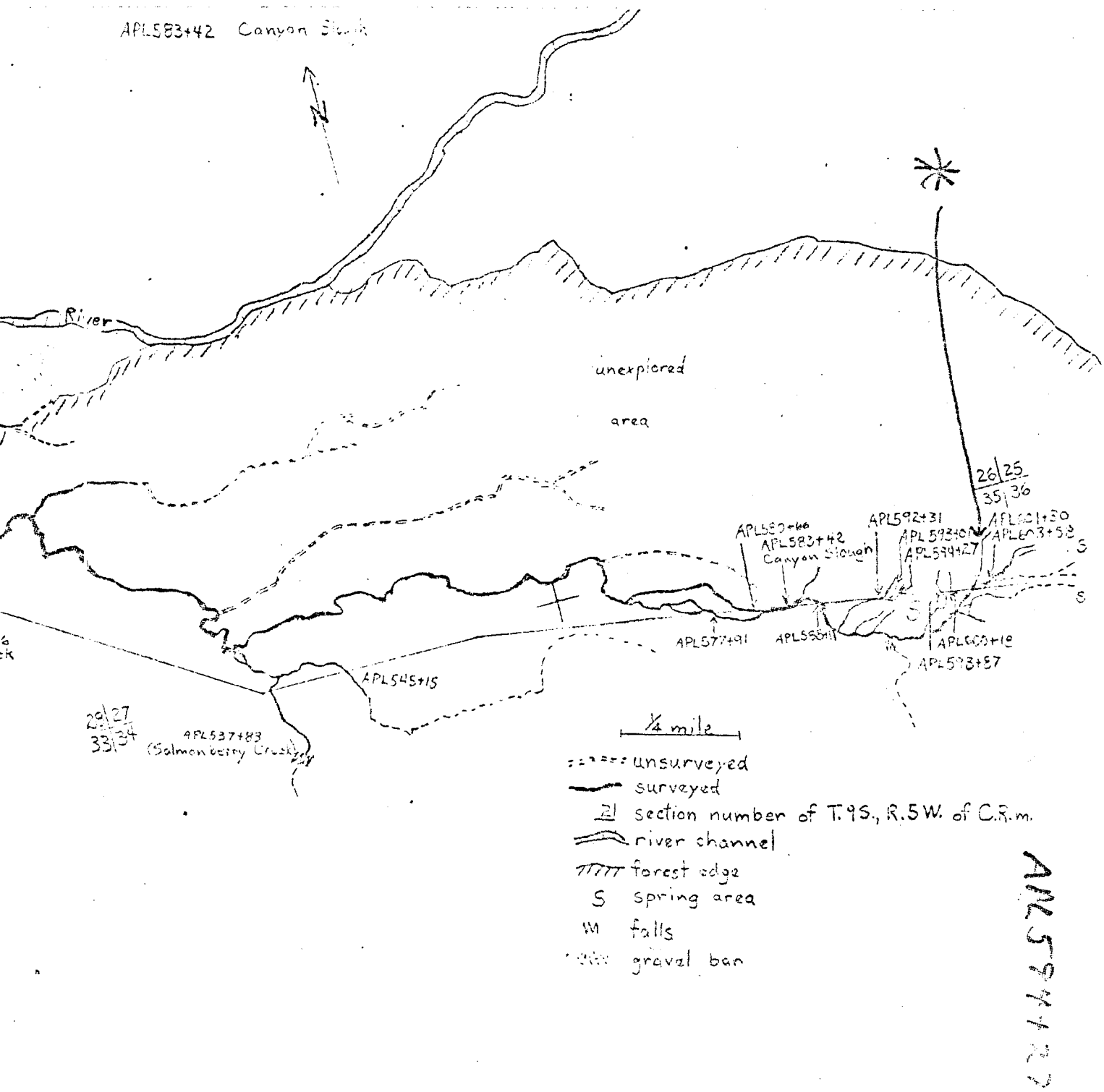
c. APL[illegible]+66 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL537+63 (Salmonberry Creek) (to falls).
e. APL545+15 (at crossing).
f. APL592+31 (all).
g. APL593+01 (all).
h. APL[illegible] (all)

NOV 7 1972

APL 593+01

1155 - This stream, APL 593+01, is a tributary of APL 594+27; they join 20 feet downstream from crossing and about 10 feet south of the centerline itself. Water was running as in summer. Water temperature was 36°F.

APL594+27 - (A north-side feeder to Canyon Slough)


APL583+42 Canyon Slough
N
River
unexplored
area
26|25
35|36
APL592+31
APL583+42
Canyon Slough
APL577+91
APL545+15
29|27
33|34
APL537+83
(Salmonberry Creek)
S
S
1/4 mile
unsurveyed
surveyed
21 section number of T.9S., R.5W. of C.R.m.
river channel
forest edge
S spring area
falls
gravel bar

APL594+27

APL 594+27

this survey constitutes the first determination of fish presence in Clear Creek.

On August 17, Rockwell Jr., Means, Johnson (BLM) plus Morgan, Zorich and T (APRCO) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present:
APL ~~506+06, 527+01, 537+83, 545+45, 577+91, 578+ (not shown on map), 580+66, 581+47, 588+11, 592+31, 593+01~~, 594+27, ~~600+18, 601+30, and 603+ (several hundred feet in stream).~~

The centerline repeatedly follows the creek bed especially at APL 580+66, 581+47 and 603+ and at 581+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon [illegible]

APL 594+27

due to the encroachment by the main Lowe River in the lower portion of the Clear Stream which tends to leave debris, leaves and silt which settle out in the channels of Clear Stream.

APL 665+73: Stream glaciering , flowing over anchor ice and under other sections, portions of stream open. None of stream at crossing appeared to offer potential for fish and none were seen.

Canyon Slough: Dr. Rockwell and myself walked the centerline from APL 666+ to APL 612+ with no streams or crossings noted. At APL 612 a small seepage creek was located on the south side of the centerline which paralleled the line to the APL 603 area where it joins the main channel. At APL 608+ another stream was noted on the north side of the centerline and at that point seven (7) trees were found to have been fallen across the two streams. Both streams parallel the centerline flowing westward but never cross it. Both srrams offer nursery area for Dolly Varden and coho fry and are accessible.

Continuing westerly the crossings as follows were examined along the centerline:

~~APL 601+30 running about 0.1 cfs, no fish seen~~
~~APL 600+18 running less than 0.1 cfs, no fish seen~~
APL 594+27 running about 0.3 cfs, no fish seen
~~APL 593+01 running about 0.4 cfs, no fish seen~~
~~APL 592+31 running about 0.1 cfs, no fish seen~~

Continuing along the centerline to the area where significant debris and trees were noted in previous surveys APL 588+11, 584+47 and 580+66 The following observations were made:

APL 588+11: The stream had been cleared of nearly all debris related to the centerline survey and only two trunk sections of a popular remained near one stream bank. The stream was essentially free of obstruction and near its natural state.

APL 584+47: The stream in this area had been cleared of debris and logs with most of the material totally clear of the stream and in a position which would not likely be reintroduced by high water etc. Considerable effort appeared to have been expended by the clean up crew in this section.

APL 580+66: Little work was required in this area however the materials

APL 537+27

Chief, Division of Pipeline — December 5, 1972

In reply refer to:
6500 (SO)

Fishery Biologist

Summary Report of Field Trip to Lowe River Tributaries
August 14-18, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no accquate maps exist.

Cooperative survey performed by BLM and ADF&G personnel was aided by ALPS helicopter, which ferried biologists across Lowe River.

Due to inclement weather, it was not possible to cross the river on August 15. Accordingly, the following north side streams were visited: Pit Creek and Salmon Slough by the Richardson Highway, and Robe River and City Limits Creeks just outside of Valdez.

Streams examined south of the Lowe include:

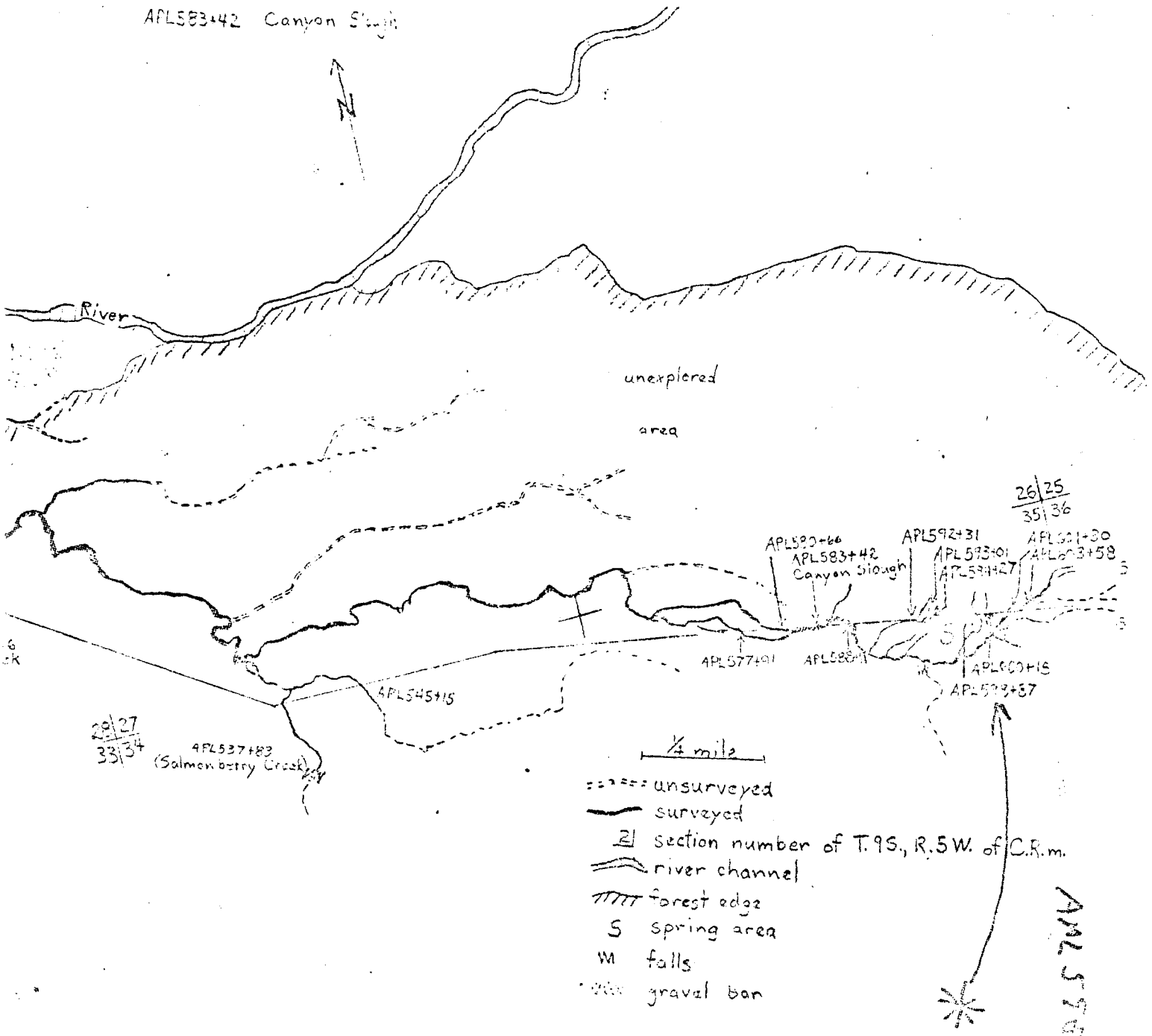
a. APL853+43 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL816+66 a small, clear stream just west of Browns Creek.
c. APL836+06 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL537+63 (Salmonberry Creek) (to falls).
e. APL545+15 (at crossing).
f. APL582+31 (all).
g. APL593+01 (all).
h. APL594+27 (all).
i. APL5[illegible]+67 (all).
j. [illegible] (all)

APL 594+27

November 7, 1972

1150 - Reached APL 594+27. This stream was flowing and the water temperature was 36 degrees F. After crossing, stream flowed west parallel to centerline and a short distance from it.

APL598+87 - (A north-side feeder to Canyon Slough)



APL583+42 Canyon Slough
N
River
unexplored
area
26|25
35|36
APL580+66
APL583+42
Canyon Slough
APL592+31
APL593+01
APL594+27
APL601+30
APL603+58
APL577+91
APL588+11
APL600+15
APL598+87
APL545+15
29|27
33|34
APL537+83
(Salmonberry Creek)
1/4 mile
unsurveyed
surveyed
section number of T.9S., R.5W. of C.R.m.
river channel
forest edge
S spring area
falls
gravel bar

APL 578+87

Chief, Division of Pipeline — December 5, 1972

In reply refer to:
6500 (900)

Fishery Biologist

Summary Report of Field Trip to Lowe River Tributaries
August 14-18, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no accquate maps exist.

Cooperative survey performed by BLM and ADF&G personnel was aided by ALPS helicopter, which ferried biologists across Lowe River.

Due to inclement weather, it was not possible to cross the river on August 15. Accordingly, the following north side streams were visited: Pit Creek and Salmon Slough by the Richardson Highway, and Robe River and City Limits Creeks just outside of Valdez.

Streams examined south of the Lowe include:

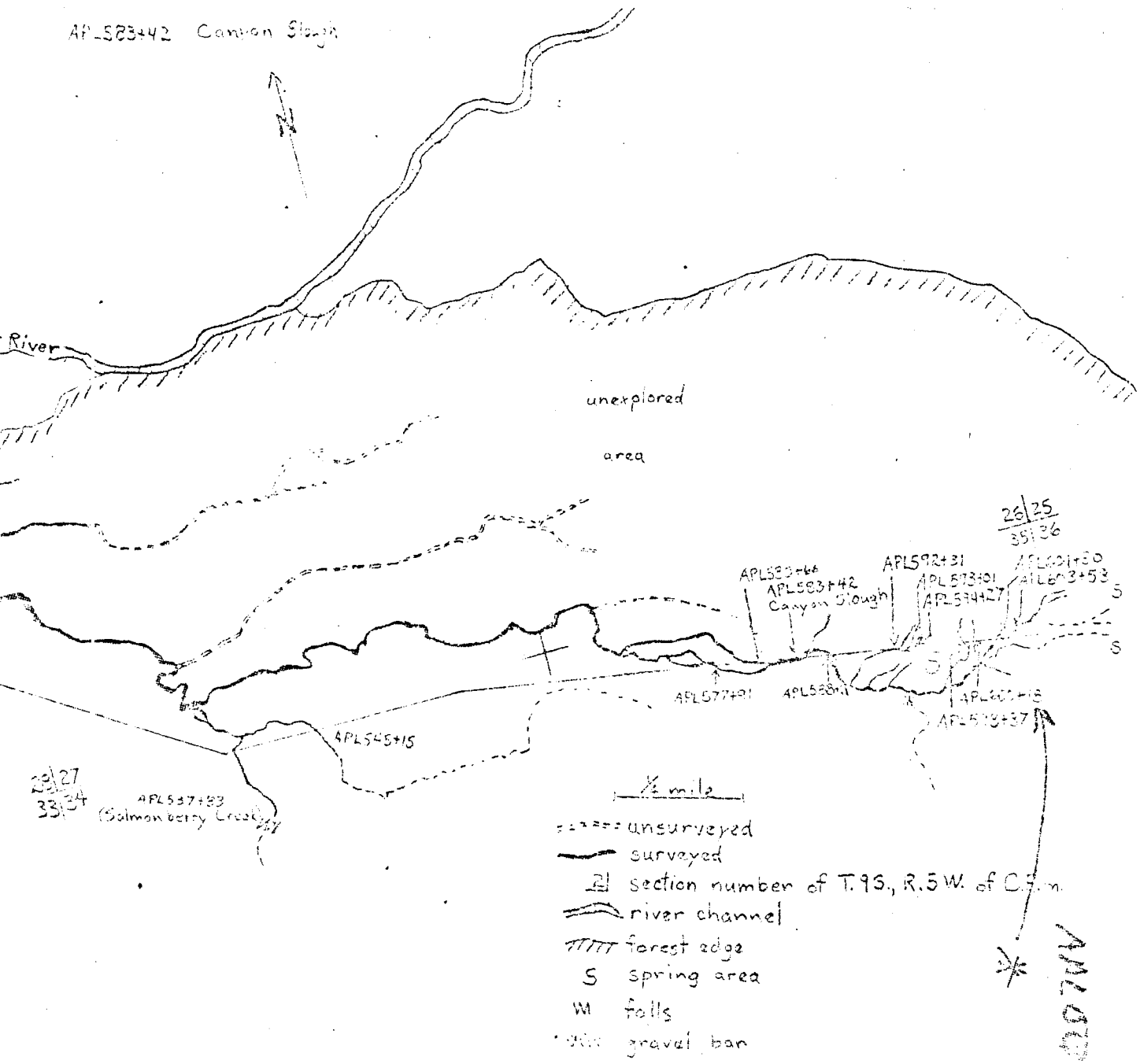
a. APL853+43 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL810+66 a small, clear stream just west of Browns Creek.
c. APL836+06 (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL537+63 (Salmonberry Creek) (to falls).
e. APL545+15 (at crossing).
f. APL522+31 (all).
g. APL592+01 (all).
h. APL506+27 (all).
i. APL583+57 (all).
j. APL[illegible]+16 (all).

August 17, 1972

1550 Water not running in stream at pipeline crossing.

Unproductive.

APL600+18 - (A north-side feeder to Canyon Slough)



APL583+42 Canyon Slough
River
unexplored
area
26|25
35|36
APL583+42
Canyon Slough
APL592+31
APL577+91
APL545+15
28|27
33|34
APL537+83
(Salmonberry Creek)
1/4 mile
unsurveyed
surveyed
section number of T.9S., R.5W. of C.F.m.
river channel
forest edge
S spring area
W falls
gravel bar

APL 500+18

this survey constitutes the first determination of fish presence in Clear Creek.

On August 17, Rockwell Jr., Means, Johnson (BLM) plus Morgan, Zorich and I (ADFAS) surveyed Canyon Slough and tributaries from its mouth to the last centerline crossing upstream. Near its mouth the stream is approximately 25-30 feet wide, 10-16 inches deep and 50°F. The stream is partially glacial for the first quarter mile, the glacial water source is a tributary to Canyon Slough crossed by the centerline survey at APL 506+06 which enters adjacent to the above mentioned station. Dolly Varden trout and coho salmon fry and fingerlings are found throughout the various tributaries of Canyon Slough. The lower mile of the slough contained adult chum salmon. Canyon Slough is crossed repeatedly by the centerline survey with 13-14 significant channels crossed which contain fish. The generally slow flowing tributaries which harbor the Dolly Varden trout and coho salmon fry and fingerlings apparently serve as nursery grounds as well as spawning grounds for both species (coho salmon observed spawning in these areas in September of 1971 by Rockwell and Roberson).

Channels at the following crossings were noted to have fish present: APL ~~506+06, 527+01, 537+83, 545+15, 577+91, 578+ (not shown on mosaic), 580+66, 584+47, 588+11, 592+31, 593+01, 594+27,~~ 600+18, ~~601+30, and 603+ (several hundred feet in stream).~~

The centerline repeatedly follows the creek bed especially at APL 580+66, 584+47 and 603+ and at 584+47 and 588+11 a number of trees and considerable brush has been fallen into the stream. The centerline from APL 527+01 to 603+ was walked in its entirety as well as many of the associated tributaries especially those potentially affected by alterations of the stream at the centerline crossing.

It is readily apparent from these and previous surveys of Clear Creek and Canyon Slough that little regard was paid to the fish resources of the area by the survey crews especially when out of sight from the public. Frequent dropping of trees directly into the stream at the centerline crossing, dumping of brush in to the stream and falling of trees to serve as dry walkways the opposite creek bank was noted and should be rectified.

Clear Creek serves as a rearing and apparently spawning ground for Dolly Varden trout, Canyon Slough serves as spawning ground for pink, chum and coho salmon plus Dolly Varden trout (some species observed in previous surveys) and rearing ground for the coho salmon and Dolly Varden trout. The placement of the centerline survey indicates disregard for the fish populations present in

APL 600+18

due to the encroachment by the main Lowe River in the lower portion of the Clear Stream which tends to leave debris, leaves and silt which settle out in the channels of Clear Stream.

APL 665+73: Stream glaciering , flowing over anchor ice and under other sections, portions of stream open. None of stream at crossing appeared to offer potential for fish and none were seen.

Canyon Slough: Dr. Rockwell and myself walked the centerline from APL 666+ to APL 612+ with no streams or crossings noted. At APL 612 a small seepage creek was located on the south side of the centerline which paralleled the line to the APL 603 area where it joins the main channel. At APL 608+ another stream was noted on the north side of the centerline and at that point seven (7) trees were found to have been fallen across the two streams. Both streams parallel the centerline flowing westward but never cross it. Both streams offer nursery area for Dolly Varden and coho fry and are accessible.

Continuing westerly the crossings as follows were examined along the centerline:

APL 602+30 running about 0.1 cfs, no fish seen
APL 600+18 running less than 0.1 cfs, no fish seen
APL 594+27 running about 0.3 cfs, no fish seen
APL 593+01 running about 0.4 cfs, no fish seen
APL 592+31 running about 0.1 cfs, no fish seen

Continuing along the centerline to the area where significant debris and trees were noted in previous surveys APL 588+11, 584+47 and 580+66 The following observations were made:

APL 588+11: The stream had been cleared of nearly all debris related to the centerline survey and only two trunk sections of a popular remained near one stream bank. The stream was essentially free of obstruction and near its natural state.

APL 584+47: The stream in this area had been cleared of debris and logs with most of the material totally clear of the stream and in a position which would not likely be reintroduced by high water etc. Considerable effort appeared to have been expended by the clean up crew in this section.

APL 580+66: Little work was required in this area however the materials were removed which had been a result of the centerline cut except for one large popular log too large for the crew to remove. It was placed well beyond the side of the stream and should not be a problem.

APL 600478

Chief, Division of Pipeline

December 5, 1972

In reply refer to:
6500 (900)

Fishery Biologist

Summary Report of Field Trip to Lowe River Tributaries
August 14-15, 1972

Purpose of trip was to inspect pipeline-crossed tributaries on south side of Lowe River. Surveys immediately west of Browns Creek and the Canyon Slough complex are important because of the magnitude of their salmon runs and because no adequate maps exist.

Cooperative survey performed by BLM and ADF&G personnel was aided by ALPS helicopter, which ferried biologists across Lowe River.

Due to inclement weather, it was not possible to cross the river on August 15. Accordingly, the following north side streams were visited: Pit Creek and Salmon Slough by the Richardson Highway, and Robe River and City Limits Creeks just outside of Valdez.

Streams examined south of the Lowe include:

a. APL853+43 Browns Creek (at crossing).
b. Lower half of "Clear Stream," APL810+66 a small, clear stream just west of Browns Creek.
c. APL[illegible] (Grey Creek) (formerly labeled "Canyon Slough," in error) (lower 1/2 mile).
d. APL537+63 (Salmonberry Creek) (to falls).
e. APL[illegible]+15 (at crossing).
f. APL[illegible]+31 (all).
g. APL[illegible]+01 (all).
h. APL[illegible]+27 (all).
i. APL[illegible]+07 (all).

August 17, 1972

1555 This stream is a small north-side tributary to Canyon Slough. Small, leaf-choked, and full of brush, it is not considered a productive fish stream. No fish were found in it.

1600 Left.