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October 20, 1981

Lewis Pamplin
Federal Inspector's Office
Pouch 6619
Anchorage, Alaska 99502

[redacted]

Dear Lew:

Enclosed is the data collected on the streams suggested for fall study by the Biological Working Group. Data collected on those streams prior to the fall season is included. This concludes the field work to be done along the gasline corridor by Special Studies. The final report along with observations on streams not suggested for study should be completed on schedule, by December 30, 1981.

Methods used are those used for the spring and summer season stream surveys. Water temperature was measured to the nearest °C with a mercury column pocket thermometer. Dissolved oxygen was measured to the nearest ppm using Hach kit chemicals. PH was measured to the nearest 0.1 pH unit using a VWR model 55 digital mini-pH meter supplied by NW-Fluor. Conductivity was measured using a YSI model 33 S-C-T meter. Bottom type, wetted width, stream depth, gradient, banks/soils, aquatic vegetation, cover, riparian vegetation and natural barriers are composite approximations determined visually within a corridor 200 m either side of Napline.

Discharge was taken from a stream reach near the NWA alignment selected for the most uniform flow and channel cross-sections free of obstructions. Depth and velocity measurement stations are in feet, measured from left to right bank waters edge. Depth was measured in feet using a wading rod with 0.1 ft divisions and velocity was measured in ft/s using a Marsh-McBirney model 201 portable current meter. Partial discharge cells between measurement stations were used to simplify calculations where unequal intervals were used.

Fish use was documented using visual observations and a variety of sampling gear including angling, seine, and electroshocking sampling. All fish were measured to the nearest millimeter fork length (GR, RW, HW, LC, LS, DV) or total length (BB, NP, CN).

Sincerely,

George V. Elliott

George V. Elliott
Fisheries Biologist

Enclosure

ARLIS
Alaska Resources Library & Information Services
Library Building, Suite 111
3211 Providence Drive
Anchorage, AK 99508-4614

By G. Elliott, P. Bach, J. McDonell Waterbody Dougherty Creek

Date 11 May 1981 EMG-RX # 103-1

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type soil, terrestrial vegetation/gravel & cobble below hwy. only

Wetted width — Depth — Gradient slight-moderate

Banks/Soils steep, up to 3ft. / loamy sand

Aquatic Vegetation — Cover —

Riparian Vegetation grass, spagnum moss, spruce, aspen

Barriers —

Drainage Structures/Conditions 36in CMP at hwy.

Ice Conditions —

Weather Partly cloudy, mild

Photographs 2-24 → u.s. toward hwy. 100ft above Napline /
3-1 → ds from Napline / 3-20 → ds across Napline (5/28)

Remarks No flow
No flow on 5/28

By Elliott, Kay & Johnson Waterbody Dougherty Creek

Date 17 July 1981 EMG-RX # 103-1

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation — Cover —

Riparian Vegetation *

Barriers —

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 11 May 1981 and other spring survey

No flow at NWA alignment

30 July 1981 - No flow at NWA alignment - Kay & Johnson

12 August 1981 - No flow at NWA alignment - Elliott, Kay & Johnson

28 August 1981 - No flow at NWA alignment - Kay & Johnson

10 September 1981 - No flow at NWA alignment - Elliott, Bach & McDonell

22 September 1981 - No flow at NWA alignment - Johnson & Bach

15 October 1981 - No flow at NWA alignment - Elliott & Breyman

No flow observed in this stream channel at AK. hwy. on numerous occasions throughout entire season in 1981.

By Elliott, McDonell, Bach Waterbody Unnamed Creek

Date 11 May 1981 EMG-RX # 105-2

Site Access On foot from Alaska highway

Color/Turbidity colorless/clear Temperature 4°C

D.O. 11ppm pH — Conductivity 35 µmhos

Bottom Type vegetative mat, organic detritus

Wetted width 3-4ft Depth 0.2-0.8ft Gradient slight

Banks/Soils

Aquatic Vegetation Absent Cover 90%

Riparian Vegetation Moss, alder, willow, spruce, aspen

Barriers Haines P/L right-of-way (see remarks)

Drainage Structures/Conditions 36in CMP at hwy

Ice Conditions None

Weather Partly cloudy, mild

Photographs 3-2 → us across Napline/3-3 → ds 100ft below Napline

Remarks At Haines pipeline right-of-way the stream lacks a distinct channel, shallow & broad flow through grass. Between Haines ROW & Napline, stream flow is spread out into several indistinct channels through an alder thicket. Single channel above Haines ROW & below Napline

By G. Elliott Waterbody Unnamed Creek

Date 17 July 1981 EMG-RX # 105-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs 12-1 → us at NWA alignment / 12-2 → us at Haines P/L ROW edge / 12-3 → us about 150 ft E of 12-2 / 12-4 → ds 100 ft. below NWA / 12-5 → ds to AK hwy CMP

Remarks * See previous survey on 11 May 1981

No flow at AK hwy.

Standing water at NWA alignment and Haines P/L ROW.

7/17/81 - Unnamed Creek (RX 105-2) looking upstream at Haines P/L ROW edge about 150 ft E of marker in lower photo. Most of "flow" enters ROW here.

7/17/81 - Unnamed Creek (RX 105-2 looking upstream at Haines P/L ROW edge.

7/17/81 - Unnamed Creek (RX 105-2) looking upstream at NWA alignment - standing water.

7/17/81 - Unnamed Creek (RX 105-2) looking downstream to Alaska highway CMP.

7/17/81 - Unnamed Creek (RX 105-2) looking downstream 100 ft below NWA alignment.

By Kay & Johnson Waterbody Unnamed Creek

Date 30 July 1981 EMG-RX # 105-2

Site Access Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 11 May 1981
No flow at AK. hwy.
12 August 1981 - No flow at AK. hwy. - Elliott, Kay & Johnson
28 August 1981 - No flow at AK hwy. - Kay & Johnson
10 September 1981 - No flow at AK. hwy. - Elliott, Bach & McDonell
23 September 1981 - No flow at AK hwy. - Johnson & Bach
15 October 1981 - No flow at AK hwy. - Elliott & Breyman.
No flow observed in this stream channel at AK. hwy. after 19 May 1981 on numerous other occasions in 1981.

By J. McDonell, P. Bach Waterbody Unnamed Creek

Date 8 May 1981 EMG-RX # 107-2

Site Access On foot from Alaska highway

Color/Turbidity slightly tannic/clear Temperature 0.5°c

D.O. 11 ppm pH — Conductivity 24 µmhos

Bottom Type fine gravel

Wetted width 4-17 ft. Depth 0.3-2 ft Gradient moderate

Banks/Soils

Aquatic Vegetation Present - Equisetum, marsh marigold, filimentous algae Cover 85%

Riparian Vegetation spagnum moss, spruce, willow

Barriers No natural barriers

Drainage Structures/Conditions 2 CMPs at hwy / rock dam at inlet

Ice Conditions thin surface ice, some bottom ice

Weather Warm, clear

Photographs 2-8 → us at Napline / 2-9 → ds at Napline

Remarks Napline realigned to 170m from AK hwy.
No fish observed
Canada geese in 1/4 acre pool 50m above highway

By Elliott Waterbody Unnamed Creek

Date 15 July 1981 EMG-RX # 107-2

Transect Location about 100 ft. upstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 2.3	0	0				
4	.4	.05	.025	.2	1.7	.009
5	.6	.2	.125	.5	1	.063
6	.7	.35	.275	.65	1	.179
7	.7	.4	.375	.7	1	.263
8	.7	.45	.425	.7	1	.298
9	.6	.45	.45	.65	1	.293
10	.5	.4	.425	.55	1	.234
11	.3	.3	.35	.4	1	.140
RBWE 12.5	0	0	.15	.15	1.5	.034

Calculations checked by GE Discharge 1.5 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 15 July 1981 EMG-RX # 107-2

Section Surveyed From 1000ft. below up to AK. hwy.

Fish present/Use none captured or seen

Gear/Effort Electroshocker / 1000 ft.

Species	Length	Remarks
		Tw = 10 °C

By Kay & Johnson Waterbody Unnamed Creek

Date 29 July 1981 EMG-RX # 107-2

Transect Location 10 ft. upstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.0	.4	.35				
1.3	.5	.4	.375	.45	.3	.051
1.6	.6	1.0	.7	.55	.3	.116
1.9	.6	1.4	1.2	.6	.3	.216
2.2	.55	.4	.9	.575	.3	.155
2.5	.6	.35	.375	.575	.3	.065
2.9	.55	.2	.275	.575	.4	.063
3.2	.5	.1	.15	.525	.3	.024
3.5	.4	.15	.125	.45	.3	.017
3.8	.35	.1	.125	.375	.3	.014
4.4	.3	.2	.15	.325	.6	.029
4.8	.3	.3	.25	.3	.4	.030
RBWE 5.1	0	0	.15	.15	.3	.007

Calculations checked by GE Discharge 0.8 cfs

Discharge _____ m^3/s

$T_w = 11.5\,°C$

By Kay E. Johnson Waterbody Unnamed Creek

Date 29 July 1981 EMG-RX # 107-2

Section Surveyed from 1000 ft. below to 150 ft above AK. hwy.

Fish present/Use NP / rearing

Gear/Effort Electro shocker / 1150 ft.

Tw = 11.5°C

Species	Length	Remarks
NP	76 mm	- captured in small pool 3 ft.
		below hwy CMP outlet.

By Elliott & Kay Waterbody Unnamed Creek

Date 11 August 1981 EMG-RX # 107-2

Transect Location 100 ft upstream from AK. hwy

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 3	0	0	0	.225	2	0
5	.45	0	.05	.575	1	.029
6	.7	.1	.15	.7	1	.105
7	.7	.2	.25	.675	1	.169
8	.65	.3	.25	.6	1	.150
9	.55	.2	.175	.525	1	.092
10	.5	.15	.075	.25	2.5	.047
RBWE 12.5	0	0				

Calculations checked by GE Discharge 0.6 cfs

Discharge _____ m^3/s

Tw = 10.5°C

By Elliott, Johnson & Kay Waterbody Unnamed Creek

Date 11 August 1981 EMG-RX # 107-2

Section Surveyed from AK hwy downstream about 200ft.

Fish present/Use NP / rearing

Gear/Effort Electroshocker / 200 ft.

Tw = 10.5°C

Species	Length	Remarks
NP	97mm	- from 3ft downstream from AK hwy CMP
NP	90mm	- from 30ft " " " " "
		- another NP in this size
		range was seen about 40ft
		below the hwy.

By Kay & Johnson Waterbody Unnamed Creek

Date 25 August 1981 EMG-RX # 107-2

Transect Location 100 ft. upstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 2.0	0	0				
4.0	.35	.2	.1	.175	2.0	.035
4.8	.45	.3	.25	.4	.8	.080
5.6	.5	.4	.35	.475	.8	.133
6.4	.5	.4	.4	.5	.8	.160
7.2	.5	.45	.425	.5	.8	.170
8.0	.4	.35	.4	.45	.8	.144
8.8	.4	.1	.225	.4	.8	.072
9.3	.25	.2	.15	.325	.5	.024
RBWE 10.0	0	0	.1	.125	.7	.008

Calculations checked by GE Discharge 0.8 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 25 August 1981 EMG-RX # 107-2

Section Surveyed 200 ft. above & below Ak. hwy.

Fish present/Use NP / rearing

Gear/Effort Electroshocker / 400 ft.

Species	Length	Remarks
NP	106mm	- Both fish caught in scour pool
"	85	No other fish seen

By Bach & McDonell Waterbody Unnamed Creek

Date 8 September 1981 EMG-RX # 107-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 3.5°C

D.O. 11 ppm pH 6.3 Conductivity 38 umhos

Bottom Type Organic detritus & silt, gravel near AK hwy only

Wetted width * Depth * Gradient low

Banks/Soils slight/peat mat

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions * - see below

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 8 May 1981 and other spring surveys - photos included

2 CMP's at AK. hwy
72" carries all flow
48" overflow set higher - no flow

By Bach & McDonell Waterbody Unnamed Creek

Date 8 September 1981 EMG-RX # 107-2

Transect Location 150 ft. upstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 3.3	0	0				
3.7	.1	.05	.025	.05	.4	.001
4.0	.2	.4	.225	.15	.3	.010
4.3	.3	.6	.5	.25	.3	.038
4.6	.3	.9	.75	.3	.3	.068
4.9	.3	1.4	1.15	.3	.3	.104
5.2	.35	1.8	1.6	.325	.3	.156
5.5	.4	1.1	1.45	.375	.3	.163
5.8	.25	1.2	1.15	.325	.3	.112
RBWE 6.0	.1	0	.6	.175	.2	.021

Calculations checked by CE Discharge 0.7 cfs

Discharge _____ m^3/s

By McDonell & Bach Waterbody Unnamed Creek

Date 8 September 1981 EMG-RX # 107-2

Section Surveyed 300 ft below to 1000 ft above AK hwy.

Fish present/Use None seen or captured

Gear/Effort Electroshocker/1300 ft.

Species	Length	Remarks

By McDonell & Bach Waterbody Unnamed Creek

Date 16 September 1981 EMG-RX # 107-2

Section Surveyed 300ft. below up to AK.hwy.

Fish present/Use none captured or seen

Gear/Effort Electroshocker / 300ft.

Species	Length	Remarks
		Tw = 2°C

By Bach & Johnson Waterbody Unnamed Creek

Date 23 September 1981 EMG-RX # 107-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 2°C

D.O. 11 ppm pH 6.4 Conductivity 40 µmhos

Bottom Type - see 8 Sept. '81

Wetted width * Depth * Gradient *

Banks/Soils - see 8 Sept. '81

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions * & see 8 Sept '81

Ice Conditions pools with about 1/4 in.

Weather -

Photographs -

Remarks * See previous survey on 8 May 1981.

15 October 1981 - Stream ice covered at Ak. hwy. except for 10 ft. of open water just downstream from hwy. CMP. - Elliott & Breyman

By Bach & Johnson Waterbody Unnamed Creek

Date 23 September 1981 EMG-RX # 107-2

Transect Location 225 ft. upstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 7.0	0	0				
6.0	.2	.45	.225	.1	1.0	.023
5.7	.2	.6	.525	.2	.3	.032
5.4	.25	.3	.45	.225	.3	.030
5.1	.4	.25	.275	.325	.3	.027
4.8	.4	.35	.3	.4	.3	.036
4.5	.45	.15	.25	.425	.3	.032
4.2	.5	.2	.175	.475	.3	.025
3.9	.35	.7	.45	.425	.3	.057
3.6	.4	.2	.45	.375	.3	.051
RBWE 3.1	0	0	.1	.2	.5	.010

Calculations checked by GE Discharge 0.32 cfs

Discharge _____ m^3/s

By Johnson & Bach Waterbody Unnamed Creek

Date 23 September 1981 EMG-RX # 107-2

Section Surveyed AK. hwy downstream for about 100 ft.

Fish present/Use None captured or seen

Gear/Effort Electroshocker / 100 ft.

Species	Length	Remarks
		- Pools covered with about
		1/4 in ice & not entirely
		shocked.

By Elliott, Buck, McDonell Waterbody Chief Creek

Date 6 May 1981 EMG-RX # 102-4

Site Access On foot from Alaska highway

Color/Turbidity Brown / moderate Temperature 0.5°C

D.O. 13ppm pH — Conductivity 26 µmhos

Bottom Type silt & sand, some gravel

Wetted width 10-20 ft Depth 1->3ft Gradient low

Banks/Soils 2ft. incised / sandy soil

Aquatic Vegetation Absent Cover 75%

Riparian Vegetation Grass, rose, Aspen, cottonwood, spruce, willow

Barriers none

Drainage Structures/Conditions hwy bridge / no barrier

Ice Conditions None

Weather High clouds, mild

Photographs 1-31 → us at Napline / 1-32 → ds ca ½ mi below Napline / 1-33 → us ca. 150 ft above hwy.

Remarks Away from disturbed areas near the highway and Haines pipeline right-of-way, the stream is uniformly in an incised channel with 2-3 ft grassy banks. Heavy tree and brush growth on both banks. Visually surveyed stream for ca ½ mi downstream from Napline - no fish seen but visibility poor. Appears to be excellent fish habitat

By J. McDonell Waterbody Chief Creek

Date 22 June 1981 EMG-RX # 108-4

Site Access On foot from Alaska highway

Color/Turbidity _____ Temperature _____

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs 4-22 → downstream across NWA alignment

Remarks _____

6/22/81 - Chief Creek (RX 108-4) looking downstream from NWA alignment.

By Elliott Waterbody Chief Creek

Date 15 July 1981 EMG-RX # 108-4

Transect Location 30 ft. upstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 3.6	0	0				
6	.3	.15	.075	.15	2.4	.027
8	.5	.2	.175	.4	2	.140
9	.5	.8	.5	.5	1	.250
10	.4	.7	.75	.45	1	.338
11	.5	.6	.65	.45	1	.293
12	.5	.35	.475	.5	1	.238
13	.4	.3	.325	.45	1	.146
RBWE 15.2	0	0	.15	.2	2.2	.066

Calculations checked by GE Discharge 1.5 cfs

Discharge _____ m^3/s

By Johnson & Kay Waterbody Chief Creek

Date 16 July 1981 EMG-RX # 108-4

Section Surveyed From 1000 ft below up to Ak. hwy.

Fish present/Use None seen or captured

Gear/Effort Electro shocker / 1000 ft.

Species	Length	Remarks

By Kay & Johnson Waterbody Chief Creek

Date 28 July 1981 EMG-RX # 108-4

Transect Location 150 ft. downstream from AK hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.0	0	0				
2.0	.25	.2	.1	.125	1.0	.013
2.5	.4	.7	.45	.325	.5	.073
3.0	.45	.75	.725	.425	.5	.154
3.5	.5	.55	.65	.475	.5	.154
4.0	.7	.25	.4	.6	.5	.120
4.5	.7	.35	.3	.7	.5	.105
5.0	.5	.4	.375	.6	.5	.113
5.5	.4	.4	.4	.45	.5	.090
RBWE 5.8	0	0	.2	.2	.3	.012

Calculations checked by GE Discharge 0.8 cfs

Discharge _____ m^3/s

$T_w = 17°C$

By Kay & Johnson Waterbody Chief Creek

Date 28 July 1981 EMG-RX # 108-4

Section Surveyed from AK. hwy downstream about 2000ft.

Fish present/Use GR / rearing

Gear/Effort Electroshocker / 2000ft

Tw = 17°C

Species	Length	Remarks
GR	262mm	- only fish captured or seen
		- water very turbid.

By Elliott, Kay & Johnson Waterbody Chief Creek

Date 11 August 1981 EMG-RX # 108-4

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers * no flow

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 6 May 1981
No flow at AK hwy
Isolated pools for 2000 ft below NWA alignment visually checked for stranded fish - none seen.

By Johnson & Kay Waterbody Chief Creek

Date 28 August 1981 EMG-RX # 108-4

Site Access Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers * no flow

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 6 May 1981
No flow at AK. hwy.

4 September 1981 - No flow at AK hwy. - Bach & McDonell
21 September 1981 - No flow at AK hwy. - Johnson & Bach
15 October 1981 - No flow at AK hwy: Elliott & Breyman

By Elliott, McDonell, Bach Waterbody Unnamed Creek

Date 12 May 1981 EMG-RX # 111-1

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type Leaf litter & terrestrial vegetation

Wetted width — Depth — Gradient steep

Banks/Soils —

Aquatic Vegetation — Cover —

Riparian Vegetation —

Barriers

Drainage Structures/Conditions 18in. circular wooden culvert at hwy/ severely misaligned

Ice Conditions —

Weather partly cloudy, warm

Photographs —

Remarks No indication of any water flow this year.

Highway culvert ca. 20 ft. above thalweg on side hill, ca. 50 ft S. of channel

AHMP - 1345.8

By J. McDonell Waterbody Unnamed Creek

Date 19 June 1981 EMG-RX # 111-1

Site Access On foot from Alaska highway

Color/Turbidity _____ Temperature _____

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs 4-13 → "us" about 200 ft. above Ak. hwy.

Remarks _____

6/19/81 - Unnamed Creek (RX 111-1) looking "upstream" 200 ft above Alaska highway.

By G. Elliott Waterbody Unnamed Creek

Date 15 July 1981 EMG-RX # 111-1

Site Access Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils —

Aquatic Vegetation — Cover —

Riparian Vegetation —

Barriers

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 12 May 1981 and other spring surveys - photos included.
No flow at AK hwy.
28 July 1981 - No flow at AK. hwy. - Kay & Johnson
11 August 1981 - No flow at AK. hwy. - Elliott, Kay & Johnson
28 August 1981 - No flow at AK. hwy. - Kay & Johnson
4 September 1981 - No flow at AK. hwy. - Bach & McDonell
21 September 1981 - No flow at AK hwy. - Bach & Johnson
No flow or evidence of flow observed in this drainage at AK. hwy on numerous other occasions throughout the entire season in 1981.
17 October 1981 - No flow at AK. hwy. - Elliott & Breyman

By Elliott, Bach, McDonell Waterbody Unnamed Creek

Date 6 May 1981 EMG-RX # 111-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 1°C

D.O. 11 ppm pH — Conductivity 72 µmhos

Bottom Type 5% sand, 95% gravel

Wetted width 5-10 ft Depth 0.5-2 ft Gradient moderate

Banks/Soils incised up to 4 ft / sandy loam

Aquatic Vegetation Absent Cover 40%

Riparian Vegetation moss, grass, willow, spruce, aspen

Barriers see remarks

Drainage Structures/Conditions wood box culvert at hwy / probable barrier

Ice Conditions None

Weather Overcast, warm

Photographs 2-1 → us 50 ft above Napline / 2-2 → us at Napline
2-3 → ds. 50 ft. below Napline.

Remarks Hwy culvert has sloped wooden apron at outlet. Water is shallow and high velocity across apron.

Several fallen logs in channel below hwy produce 1-1.5 ft falls – possible barrier to small fish.

Visually surveyed stream from 100 ft above Napline to confluence with Tanana River (ca 3/4 mi) – no fish observed.

AHMP 1344.0 (+ ca 200 ft)

By J. McDonell Waterbody Unnamed Creek

Date 22 June 1981 EMG-RX # 111-2

Site Access On foot from Alaska highway

Color/Turbidity _____ Temperature _____

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs 4-21 → ds 50ft below NWA alignment

Remarks _____

6/22/81 - Unnamed Creek (RX 111-2) looking downstream 50 ft below NWA alignment.

By G. Elliott Waterbody Unnamed Creek

Date 15 July 1981 EMG-RX # 111-2

Site Access Alaska highway

Color/Turbidity – Temperature –

D.O. – pH – Conductivity –

Bottom Type *

Wetted width – Depth – Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers * no flow

Drainage Structures/Conditions * 4ft. x 6ft. wooden box culvert

Ice Conditions –

Weather –

Photographs –

Remarks * See previous survey on 6 May 1981 and other spring surveys - photos included.
28 July 1981 - No flow at AK hwy. - Kay & Johnson
11 August 1981 - No flow at AK. hwy. - Elliott, Kay & Johnson
28 August 1981 - No flow at AK hwy. - Kay & Johnson
4 September 1981 - No flow at AK hwy - Bach & McDonell
21 September 1981 - No flow at AK hwy. - Bach & Johnson
17 October 1981 - No flow at AK hwy - Elliott & Breyman

By J. McDonell & P. Bach Waterbody Unnamed Creek

Date 8 May 1981 EMG-RX # 111-3

Site Access On foot from Alaska highway

Color/Turbidity colorless/clear Temperature 5°C

D.O. 11 ppm pH — Conductivity 29 µmhos

Bottom Type silt

Wetted width 2-3 ft. Depth 0.5-3 ft. Gradient slight-moderate

Banks/Soils low banks / organic

Aquatic Vegetation Absent Cover 60%

Riparian Vegetation Spagnum moss, spruce

Barriers Haines pipeline right-of-way?

Drainage Structures/Conditions hwy CMP / perched ca. 75 ft

Ice Conditions None

Weather Partly cloudy, warm

Photographs 2-20 → ds across Napline / 2-21 → S.E along Haines ROW across stream

Remarks Stream crosses Haines ROW at several locations with no visible channels. Forms single channel before entering hwy CMP. No fish observed

By G. Elliott Waterbody Unnamed Creek

Date 15 July 1981 EMG-RX # 111-3

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature –

D.O. – pH – Conductivity –

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers

Drainage Structures/Conditions * – see below

Ice Conditions –

Weather –

Photographs –

Remarks * See previous survey on 8 May 1981 and other spring surveys – photos included

– There are three culverts in this drainage

1) 2ft circular wooden culvert – AHMP 1343.5 – all flow through here this date.

2) 2ft CMP 1450ft. to NW. of #1

3) 1.5ft circular wooden culvert 1600ft to NW of #1 over flow from #1 to here on 10 June 1981.

– Most of flow from channel paralleling hwy from SE; trickle flow from channel aligned with culvert #1 from W.

By Elliott Waterbody Unnamed Creek

Date 15 July 1981 EMG-RX # 111-3

Transect Location 100 ft. downstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE .7	0	0				
1.0	.3	.15	.075	.15	.3	.003
1.4	.4	.4	.275	.35	.4	.039
1.8	.4	.3	.35	.4	.4	.056
2.2	.3	.3	.3	.35	.4	.042
2.8	.2	.35	.325	.25	.6	.049
3.4	.1	.2	.275	.15	.6	.025
RBWE 4.0	0	0	.1	.05	.6	.003

Calculations checked by GE Discharge 0.22 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 28 July 1981 EMG-RX # 111-3

Site Access Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers * no flow

Drainage Structures/Conditions see survey on 15 July '81

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 8 May 1981 and other spring surveys - photos included
No flow at AK. hwy.
11 August 1981 - No flow at AK. hwy. - Elliott, Kay & Johnson
28 August 1981 - No flow at AK hwy. - Kay & Johnson
4 September 1981 - No flow at AK hwy. - Bach & McDonell
9 September 1981 - photographs - Elliott
5-1 → us 100 ft below AK hwy
5-2 → us to hwy culvert outlet (#1 on 15 July)
21 September 1981 - No flow at AK. hwy. - Bach & Johnson
17 October 1981 - No flow at AK. hwy. - Elliott & Breyman

9/10/81 - Unnamed Creek (RX 111-3 looking upstream to Alaska highway culvert outlet.

9/10/81 - Unnamed Creek (RX 111-3 looking upstream 100 ft below Alaska highway.

By Bach & McDonell Waterbody Sheep Creek

Date 8 May 1981 EMG-RX # 111-4

Site Access On foot from Alaska highway

Color/Turbidity colorless/clear Temperature 15°C

D.O. 5 ppm pH — Conductivity 165 µmhos

Bottom Type Sand, gravel

Wetted width 2-4 ft. Depth 0.1-0.6 ft Gradient moderate

Banks/Soils incised to 4 ft / sandy loam

Aquatic Vegetation Absent Cover 40%

Riparian Vegetation Grass, alder, willow, spruce

Barriers None

Drainage Structures/Conditions AK hwy bridge / no barriers

Ice Conditions None

Weather Clear, warm, slight breeze

Photographs 2-17 → us. at Napline / 2-18 → ds at Napline

Remarks Stream channelized from Napline downstream to ca 200 ft below hwy bridge. No fish observed

By Elliott Waterbody Sheep Creek

Date 15 July 1981 EMG-RX # 111-4

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers * no flow

Drainage Structures/Conditions * and see below

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 8 May 1981 and other spring surveys - photos included.
- There are at least three drainage structures at the AK hwy
1) bridge - AHMP 1342.2 - all flow observed during spring runoff in this channel
2) 2.5 ft circular wooden culvert about 900 ft SE of bridge
3) 4 ft CMP about 1350 ft SE of bridge
- No flow at AK hwy this date.

By Kay & Johnson Waterbody Sheep Creek

Date 28 July 1981 EMG-RX # 111-4

Site Access Alaska highway

Color/Turbidity – Temperature –

D.O. – pH – Conductivity –

Bottom Type *

Wetted width – Depth – Gradient *

Banks/Soils *

Aquatic Vegetation – Cover *

Riparian Vegetation –

Barriers * no flow

Drainage Structures/Conditions see survey on 15 July '81

Ice Conditions –

Weather –

Photographs –

Remarks * See previous survey on 8 May 1981 and other spring surveys - photos included.
- No flow at AK hwy.
11 August 1981 - No flow at AK hwy. - Elliott, Kay & Johnson
28 August 1981 - No flow at AK hwy. - Kay & Johnson
4 September 1981 - No flow at AK hwy. - Bach & McDonell
21 September 1981 - No flow at AK hwy. - Bach & Johnson
17 October 1981 - No flow at AK hwy. - Elliott & Breyman

By McDonell, Bach Waterbody Unnamed Creek

Date 8 May 1981 EMG-RX # 111-5

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type Sand, gravel, cobble

Wetted width — Depth — Gradient moderate

Banks/Soils steep, 3-5ft. / loamy

Aquatic Vegetation — Cover 5%

Riparian Vegetation Aspen, spruce, willow

Barriers —

Drainage Structures/Conditions Two wooden box culverts at AK hwy / one blocked by debris.

Ice Conditions —

Weather Clear, warm.

Photographs 2-10 → u.s. at Napline / 2-11 → ds. at Napline

Remarks No flow - channelized ca. 300 ft. above and below hwy.

By G. Elliott Waterbody Unnamed Creek

Date 15 July 1981 EMG-RX # 111-5

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation — Cover —

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions * and see below

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 8 May 1981 & photos.

- There are at least 4 channels with drainage structures at the AK. hwy

1) 2 side by side 4ft x 6ft wooden box culverts - AHMP 1340.9 - one nearly filled with gravel.

2) 4ft. CMP about 150ft SE of #1

3) 2ft. CMP about 600ft NW of #1

4) 2.5ft circular wooden culvert about 800ft NW of #1

- No flow at AK. hwy. this date.

By Kay & Johnson Waterbody Unnamed Creek

Date 28 July 1981 EMG-RX # 111-5

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation — Cover —

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions * and survey on 15 July 1981

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 8 May 1981
-No flow at AK hwy
11 August 1981 - No flow at AK hwy - Elliott, Kay, Johnson
28 August 1981 - No flow at AK hwy - Kay & Johnson
4 September 1981 - No flow at AK hwy - Bach & McDonell
21 September 1981 - No flow at AK hwy - Bach & Johnson
No flow observed in these channels at AK hwy on numerous other occasions throughout entire season in 1981.
17 October 1981 - No flow at AK hwy - Elliott & Breyman

By McDowell & Bach Waterbody Moonlake Tributary

Date 1 June 1981 EMG-RX # 113-2

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type Cobble

Wetted width — Depth — Gradient Steep

Banks/Soils 2-3 ft & steep / sandy loam

Aquatic Vegetation — Cover

Riparian Vegetation Alder, spruce, birch, moss

Barriers

Drainage Structures/Conditions 4ft x 6ft wooden culvert at hwy / completely filled with sand & cobble

Ice Conditions None

Weather Partly clear, mild, light breeze

Photographs 3-23 → us across NWA alignment / 3-24 → ds from NWA alignment

Remarks No flow. Recent rains produced flow in all streams in this area except Moonlk. Trib. No flow has been observed in this channel this season.

Stream channelized from hwy. to NWA alignment.

By Bach & McDonell Waterbody Moon Lake Tributary

Date 9 June 1981 EMG-RX # 113-2

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation — Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions 4ft x 6ft wooden box culvert at hwy for each of two channels.

Ice Conditions None

Weather Clear, warm

Photographs —

Remarks * See previous survey on 1 June 1981 describes east channel, both are very similar. Both channels dry on this date. Flow reported in both channels on evening of 8 June following heavy rain causing flooding across highway at east channel. Evidence of some flow following upstream side of highway from blocked culvert at east channel to inlet of culvert at west channel

By G. Elliott Waterbody Moonlake Tributary

Date 14 July 1981 EMG-RX # 113-2

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation — Cover —

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous surveys on 1 & 9 June 1981 - photos included in spring report.
- No flow at AK. hwy.
28 July 1981 - No flow at AK. hwy. - Kay & Johnson
10 August 1981 - No flow at AK. hwy. - Elliott, Kay & Johnson
24 August 1981 - No flow at AK. hwy - Kay & Johnson
8 September 1981 - No flow at AK. hwy. - Bach & McDonell
13 September 1981 - No flow at AK hwy - surface flow goes subterranean about 1.5 mi above hwy - McDonell
21 September 1981 - No flow at AK. hwy. - Bach & Johnson
No flow observed in these channels at AK. hwy. ~~on~~ numerous other occasions throughout entire season in 1981 except report of flow on 8 June.
17 October 1981 - No flow at AK. hwy. - Elliott & Breyman.

By J. Kay & M Johnson Waterbody Unnamed Creek

Date 12 May 1981 EMG-RX # 121-1

Site Access On foot from Alaska highway

Color/Turbidity Light brown/clear Temperature 0°C

D.O. 12 ppm pH — Conductivity 40 µmhos

Bottom Type Organic detritus

Wetted width 0.5-5 ft Depth 0.2-2.5 ft Gradient Low

Banks/Soils Gentle, steep at Haines Row only/organic mat

Aquatic Vegetation Present-sedge, Equisetum Cover 95%

Riparian Vegetation Grass, willow, spruce

Barriers probable - spread out flow through muskeg.

Drainage Structures/Conditions Circular Wood culvert at hwy/sharp drop inside

Ice Conditions ca. 15% ice covered

Weather Partly cloudy

Photographs 10-15 → ds ca. 300 ft below hwy/10-16 Napline
10-17 → ds ca 200 ft below Napline

Remarks Flow at Napline appears to be slightly greater than at hwy.

Throughout much of stream course between hwy & Napline, stream flow is spread out through tussock tundra/muskeg. Wetted width undefined in muskeg areas. Channel well defined, incised at Napline & several reaches through muskeg.

- Hwy culvert 24in x 57 ft.

By Kay E. Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 121-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 5.5°C

D.O. — pH — Conductivity —

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather —

Photographs —

Remarks * See previous survey on 12 May 1981 and other spring surveys - photos included

3 July 1981 - flow at AK hwy.
21 July 1981 - Tw = 8°C, lowest flow yet, velocity will not register on current meter.
31 July 1981 - Very low flow at AK hwy.
17 August 1981 - Tw = 7°C - low flow at NWA alignment
28 August 1981 - Low flow at AK. hwy.

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 121-1

Transect Location 6 ft downstream from Haines P/L

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.4	0	0				
1.9	.55	.02	.01	.275	.5	.001
2.2	1.0	.02	.02	.775	.3	.005
2.5	1.05	.02	.02	1.025	.3	.006
2.8	1.0	.02	.02	1.025	.3	.006
3.1	.9	.05	.035	.95	.3	.010
3.4	.9	0	.025	.9	.3	.007
RBWE 3.8	.9	0	0	.9	.4	0

Calculations checked by G.E Discharge 0.035 cfs

Discharge _____ m^3/s

Tw = 5.5°C

By Kay & Johnson Waterbody Unnamed Creek

Date 3 September 1981 EMG-RX # 121-1

Site Access On foot from Alaska highway

Color/Turbidity Light brown/clear Temperature 4°C

D.O. 7 ppm pH 6.1 Conductivity 45 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather –

Photographs –

Remarks * See previous survey on 12 May 1981
No fish seen for over 200 ft. below NWA alignment.
Water level very low

4 September 1981 – Tw = 5°C – low flow at AK hwy.
11 September 1981 – Unable to find mouth at Tanana River during float trip. No visible flow enters river in area where mouth should be.

By Elliott, Kay & Johnson Waterbody Unnamed Creek

Date 15 September 1981 EMG-RX # 121-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 3.5°C

D.O. — pH — Conductivity —

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather —

Photographs 5-5 → ds 150ft below NWA alignment/5-6 → us across Haines P/L ROW/5-7 → us 150ft above NWA/5-8 → us as 5-7 only 15ft. to left.

Remarks * See previous survey on 12 May 1981

By Kay & Johnson Waterbody Unnamed Creek

Date 15 September 1981 EMG-RX # 121-1

Transect Location 6 ft. downstream from Haines P/L

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.3	.3	0				
			.05	.425	.4	.009
1.7	.55	.1				
			.1	.525	.2	.011
1.9	.5	.1				
			.125	.5	.2	.013
2.1	.5	.15				
			.225	.5	.2	.023
2.3	.5	.3				
			.3	.5	.2	.030
2.5	.5	.3				
			.3	.475	.2	.029
2.7	.45	.3				
			.325	.45	.2	.029
2.9	.45	.35				
			.35	.525	.2	.037
3.1	.6	.35				
			.325	.5	.2	.033
3.3	.4	.3				
			.15	.25	.3	.011
RBWE 3.6	.1	0				

Calculations checked by GE Discharge 0.23 cfs

Discharge _____ m^3/s

Tw = 3.5°C

9/15/81 - Unnamed Creek (RX 121-1) looking downstream 150 ft below NWA alignment.

9/15/81 - Unnamed Creek (RX 121-1) looking upstream across Haines pipeline ROW.

9/15/81 - Unnamed Creek (RX 121-1) looking upstream 150 ft above NWA alignment (left "channel").

9/15/81 - Unnamed Creek (RX 121-1) looking upstream 150 ft above NWA alignment (right "channel")

By Johnson & Bach Waterbody Unnamed Creek

Date 28 September 1981 EMG-RX # 121-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 0°C

D.O. 10ppm pH – Conductivity 35 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions 1/2 in. ice across entire stream

Weather Cloudy, light snow, no wind

Photographs –

Remarks * See previous survey on 12 May 1981

No fish have been observed during visual inspections of this stream at each visit for the entire season in 1981.

By Johnson & Bach Waterbody Unnamed Creek

Date 28 September 1981 EMG-RX # 121-1

Transect Location 10 ft. downstream from Haines P/L

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 4.9	0	0				
4.2	.3	.2	.1	.15	.7	.011
3.8	.25	.4	.3	.275	.4	.033
3.4	.2	.75	.575	.225	.4	.052
3.0	.35	.25	.5	.275	.4	.055
2.7	.3	.25	.25	.325	.3	.024
2.4	.3	.25	.25	.3	.3	.023
2.1	.3	.35	.3	.3	.3	.027
RBWE 1.8	.3	.25	.3	.3	.3	.027

Calculations checked by PB Discharge 0.25 cfs

Discharge _____ m^3/s

By Elliott & Breyman Waterbody Unnamed Creek

Date 16 October 1981 EMG-RX # 121-1

Site Access Alaska highway

Color/Turbidity _____ Temperature 0°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions See remarks

Weather Clear & cold.

Photographs –

Remarks Flow up somewhat over level on 28 September. Mostly ice-covered at Ak. hwy.

By J Kay & M. Johnson Waterbody Unnamed Creek

Date 15 May 1981 EMG-RX # 121-2

Site Access On foot from Alaska highway

Color/Turbidity colorless / clear Temperature 3.5°C

D.O. 9 ppm pH — Conductivity 40 µmhos

Bottom Type Organic detritus

Wetted width 0.2 - 1 ft. Depth 0.1 - 0.5 ft. Gradient Low

Banks/Soils gradual slope

Aquatic Vegetation Absent Cover 20%

Riparian Vegetation Grass, willow, aspen, spruce

Barriers None

Drainage Structures/Conditions circular wood culvert 18 in x 71 ft at hwy.

Ice Conditions None

Weather Partly cloudy

Photographs —

Remarks Well defined stream channel.
Hwy culvert is not perched & well placed.
An overflow CMP with no flow is ca. 30 ft south of the wooden culvert.
Access restricted to Alaska hwy ROW

6/5/81 - Unnamed Creek (RX 121-2) looking downstream from Alaska highway.

6/5/81 - Unnamed Creek (RX 121-2) looking downstream 50 ft above Alaska highway.

6/5/81 - Unnamed Creek (RX 121-2) looking SE along Haines pipeline ROW. 121-3 crosses ROW behind low ridge in background.

6/5/81 - Unnamed Creek (RX 121-2) looking upstream 75 ft above NWA alignment.

By Kay & Johnson Waterbody Unnamed Creek

Date 23 June 1981 EMG-RX # 121-2

Site Access Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 15 May 1981 and other spring surveys

No flow at AK. hwy. this date.

25 June 1981 - No flow at AK. hwy.

30 June 1981 - No flow at AK. hwy.

3 July 1981 - No flow at AK. hwy.

21 July 1981 - No flow at AK. hwy.

31 July 1981 - No flow at AK. hwy.

17 August 1981 - No flow at AK. hwy.

28 August 1981 - No flow at AK. hwy.

By Kay & Johnson Waterbody Unnamed Creek

Date 3 September 1981 EMG-RX # 121-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature —

D.O. — pH — Conductivity —

Bottom Type Organic detritus, silt

Wetted width 0-10 ft. Depth 0-2 ft. Gradient low

Banks/Soils low-flat / organic tundra mat

Aquatic Vegetation Present Cover 90%

Riparian Vegetation Spruce, willow, grass, moss

Barriers intermittent flow

Drainage Structures/Conditions circular wood culvert at hwy. 18 in. x 71 ft.

Ice Conditions none

Weather —

Photographs —

Remarks Data collected in NWA alignment corridor.
4 September 1981 - No flow at AK hwy.
11 September 1981 - No flow at mouth as observed from Tanana River float trip.

By Elliott, Kay & Johnson Waterbody Unnamed Creek

Date 15 September 1981 EMG-RX # 121-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 3.5°C

D.O. — pH — Conductivity —

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather Cloudy, mild

Photographs 5-9 → us. about 100ft above Haines P/L ROW / 5-10 → us. across Haines ROW / 5-11 → ds about 100ft. below Haines ROW.

Remarks * See previous survey on 3 September 1981. Ponded at Haines ROW, low flow. Surface flow intermittent between Haines P/L & AK. hwy, going under moss & re-emerging. Surface flow ends about 200 ft. above AK. hwy. No flow through culvert.

28 September 1981 - No flow at AK. hwy. - standing water pools frozen to bottom.

9/15/81 - Unnamed Creek (RX 121-2) looking upstream 100 ft above NWA alignment.

9/15/81 - Unnamed Creek (RX 121-2) looking downstream 100 ft below NWA alignment.

9/15/81 - Unnamed Creek (RX 121-2) looking upstream across Haines pipeline ROW.

By Johnson & Bach Waterbody Unnamed Creek

Date 29 September 1981 EMG-RX # 121-2

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions ½ to 1 in ice across stream

Weather Cloudy, cold, light wind.

Photographs —

Remarks * See previous survey on 3 September 1981

No observable flow under ice at NWA alignment

16 October 1981 - Slight flow at AK. hwy. - mostly ice covered - Elliott & Breyman

By Kay E. Johnson Waterbody Unnamed Creek

Date 17 June 1981 EMG-RX # 121-3

Site Access Alaska highway

Color/Turbidity light brown/clear Temperature

D.O. pH Conductivity

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions 24 in CMP at AK. hwy.

Ice Conditions –

Weather –

Photographs –

Remarks CMP at approximate AHMP 1282.9
Low flow at AK hwy this date
23 June 1981 – Low flow at AK. hwy.
25 June 1981 – Tw = 8°C, low flow at AK hwy
discharge taken
30 June 1981 – Very low flow at AK. hwy.
3 July 1981 – Trickle flow at AK. hwy – lowest in 2 wks.
21 July 1981 – No flow at AK hwy.
17 August 1981 – No flow at AK. hwy.
28 August 1981 – No flow at AK hwy.
4 September 1981 – No flow at AK hwy
15 September 1981 – No flow at AK hwy.
19 July 1981 – Tw = 7.5°C – low flow at AK hwy.

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 121-3

Transect Location 10 ft. upstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.0	0	0				
1.6	.4	.1	.05	.2	.6	.006
1.9	.55	.2	.15	.475	.3	.021
2.2	.5	.3	.25	.525	.3	.039
2.5	.5	.1	.2	.5	.3	.030
2.8	.35	0	.05	.425	.3	.006
RBWE 3.0	0	0	0	.175	.2	0

Calculations checked by GE Discharge 0.10 cfs

Discharge _____ m^3/s

By Bach & Johnson Waterbody Unnamed Creek

Date 29 September 1981 EMG-RX # 121-3

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 0°C

D.O. 9 ppm pH — Conductivity 38 µmhos

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions 24 in CMP at Ak hwy

Ice Conditions 3/4 in ice across stream at NWA alignment

Weather Cloudy, cold, light wind.

Photographs —

Remarks Stream is similar to 121-2 (See survey on 3 Sept 1981) at NWA alignment.

There is visible flow under the ice at NWA alignment. Between NWA & Ak hwy there are intermittent pond that are iced over with no surface flow between.

By G. Elliott, J. Kay, M. Johnson Waterbody Unnamed Creek

Date 9 May 1981 EMG-RX # 123-1

Transect Location ca. 45 ft. downstream from Alaska hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.7	0	0				
2.4	.3	1.1	.55	.15	.7	.058
2.7	.4	.75	.925	.35	.3	.097
3.0	.4	1.0	.875	.4	.3	.105
3.3	.4	1.2	1.1	.4	.3	.132
3.6	.4	.8	1.0	.4	.3	.120
4.0	.4	.3	.55	.4	.4	.088
RBWE 5.2	0	0	.15	.2	1.2	.036

Calculations checked by GE Discharge 0.6 cfs

Discharge _____ m^3/s

Tw = 0.5°C

By J. Kay & M. Johnson Waterbody Unnamed Creek

Date 15 May 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity Light brown/clear Temperature 1°C

D.O. 11 ppm pH — Conductivity 116 µmhos

Bottom Type Coarse sand, gravel, cobble, silt & organic in pool

Wetted width 2-6 ft. Depth 0.3-1 ft Gradient moderate

Banks/Soils moderate to steep / Loam - gravel & cobble

Aquatic Vegetation Present Cover 70%

Riparian Vegetation Grass, willow, spruce

Barriers Possibly - log jam ca. 100 ft below hwy

Drainage Structures/Conditions 72 in x 79 ft CMP at hwy/perched 1.2 ft.

Ice Conditions Bottom ice in scour pool & CMP

Weather Mostly cloudy, light wind

Photographs —

Remarks Access restricted to Alaska hwy. ROW
Scour pool at hwy. culvert outlet ca 4 ft. deep

19 May 1981 - Thermograph placed in scour pool

By J. Kay & M. Johnson Waterbody Unnamed Creek

Date 15 May 1981 EMG-RX # 123-1

Transect Location ca. 60 ft. downstream from Alaska hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.7	0	0				
2.2	.2	.7	.35	.1	.5	.018
2.6	.3	.3	.5	.25	.4	.050
3.0	.3	1.0	.65	.3	.4	.078
3.4	.3	.7	.85	.3	.4	.102
3.8	.3	.3	.5	.3	.4	.060
4.2	.2	0	.15	.25	.4	.015
RBWE 5.1	0	0	0	.1	.9	0

Calculations checked by CE Discharge 0.3 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 21 May 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 3°C

D.O. 11 ppm pH – Conductivity 157 mmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions None in channel, large block in CMP

Weather Partly cloudy, light wind

Photographs –

Remarks See previous survey on 15 May 1981
Water depth in culvert 0.17 ft.

By Kay & Johnson Waterbody Unnamed Creek

Date 21 May 1981 EMG-RX # 123-1

Transect Location ca. 55ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 0.4	0	0				
1.2	.25	.5	.25	.125	.8	.025
1.4	.3	.25	.375	.275	.2	.021
1.6	.3	.25	.25	.3	.2	.015
1.8	.3	.4	.325	.3	.2	.020
2.0	.3	1.1	.75	.3	.2	.045
2.2	.3	.85	.975	.3	.2	.059
2.4	.3	.85	.85	.3	.2	.051
2.6	.3	.65	.75	.3	.2	.045
2.8	.3	.35	.5	.3	.2	.030
3.0	.25	.2	.275	.275	.2	.015
3.2	.2	0	.1	.225	.2	.005
RBWE 4.0	0	0	0	.1	.8	0

Calculations checked by GE Discharge 0.3 cfs

Discharge _____ m^3/s

By Kay E Johnson Waterbody Unnamed Creek

Date 27 May 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 4.5°C

D.O. 12ppm pH – Conductivity 59 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions None

Weather Partly cloudy, calm

Photographs –

Remarks See previous survey on 15 May 1981
No fish seen for 150 ft below hwy.
Hwy CMP perched 0.9 ft – water depth in CMP 0.35 ft.
Floating dip = 56.0, 53.5, 55.5, 54 sec for 79 ft.
average velocity = 1.4 ft/sec.
29 May 1981 – Tw = 3°C – 1140 hrs at scour pool

By Kay & Johnson Waterbody Unnamed Creek

Date 27 May 1981 EMG-RX # 123-1

Transect Location 35ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 5.0	0	0				
5.5	.3	2.0	1.0	.15	.5	.075
5.8	.4	2.5	2.25	.35	.3	.236
6.1	.5	2.5	2.5	.45	.3	.338
6.4	.5	.8	1.65	.5	.3	.248
6.7	.6	1.8	1.3	.55	.3	.215
7.0	.65	1.6	1.7	.625	.3	.319
7.3	.65	1.6	1.6	.65	.3	.312
7.6	.6	1.2	1.4	.625	.3	.263
7.9	.6	1.6	1.4	.6	.3	.252
8.2	.6	2.4	2.0	.6	.3	.360
8.5	.55	1.3	1.85	.575	.3	.319
RBWE 8.8	.4	.1	.7	.475	.3	.100

Calculations checked by JK Discharge 3.0 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 3 June 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity _____ Temperature 3°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks

High flow from rain on 2 June.
Hwy CMP perched 0.73ft - Water depth in CMP near outlet = 0.55ft.
Floating chip = 16.2, 16.1, 15.6 sec for 79ft.
average velocity = 4.9 ft/s
No fish seen in scour pool - 1130hrs
4 June 1981 - Tw = 3°C, seined scour pool - no fish
5 June 1981 - Tw = 3°C, seined scour pool - no fish
Floating chip = 19.2, 19.1, 19.2 sec for 79ft.
average velocity = 4.1 ft/s

By Kay & Johnson Waterbody Unnamed Creek

Date 3 June 1981 EMG-RX # 123-1

Transect Location 50 ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 0.9	0	0				
1.9	.5	4.0	2.0	.25	1.0	.50
2.4	.6	3.8	3.9	.55	.5	1.07
2.8	.6	4.8	4.3	.6	.4	1.03
3.2	.6	4.6	4.7	.6	.4	1.13
3.6	.5	4.7	4.65	.55	.4	1.02
4.0	.5	4.3	4.5	.5	.4	.90
4.4	.5	5.0	4.65	.5	.4	.93
4.8	.5	4.1	4.55	.5	.4	.91
5.2	.65	2.8	3.45	.575	.4	.79
5.6	.65	2.6	2.7	.65	.4	.70
6.0	.6	2.1	2.35	.625	.4	.59
6.4	.3	.1	1.1	.45	.4	.20
RBWE 7.1	0	0	.05	.15	.7	.01

Calculations checked by GE Discharge 9.8 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 8 June 1981 EMG-RX # 123-1

Section Surveyed AK hwy to mouth at Tanana River

Fish present/Use None seen

Gear/Effort Visual observation

Species	Length	Remarks
		- looks like good fish
		habitat
		- 12-18" falls about 300ft
		below hwy may be block
		to small fish.

By Kay & Johnson Waterbody Unnamed Creek

Date 10 June 1981 EMG-RX # 123.1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 4.5°C

D.O. – pH 6.5 Conductivity –

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions

Ice Conditions

Weather

Photographs

Remarks Weir trap placed in stream about 250 ft. below AK. hwy

11 June 1981 - Tw = 4.5°C - No fish in trap

12 June 1981 - Tw = 4°C - No fish in trap

14 June 1981 - Tw = 7°C - No fish in trap

By Kay E. Johnson Waterbody Unnamed Creek

Date 15 June 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 6°C

D.O. 8 ppm pH 6.64 Conductivity 50 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions None

Weather Overcast, rain

Photographs —

Remarks * See previous survey on 15 May 1981

Water depth in culvert outlet 0.23 ft. Culvert perched 1.18 ft.

Upstream trap placed ca. 250 ft below highway on 10 June - no fish captured to date.

16 June 1981 - Tw = 5°C - No fish in trap

17 June 1981 - Tw = 6°C - GR in trap - see fish data sheet

18 June 1981 - Tw = 5.5°C - No fish in trap

19 June 1981 - Tw = 6.5°C - No fish in trap

20 June 1981 - No fish in trap

22 June 1981 - Tw = 6°C - No fish in trap

23 June 1981 - Tw = 6°C - No fish in trap

24 June 1981 - Tw = 6°C - No fish in trap

By Kay & Johnson Waterbody Unnamed Creek

Date 15 June 1981 EMG-RX # 123-1

Transect Location 50 ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE .5	.5	.6				
			.475	.55	.5	.13
1.0	.6	.35				
			.325	.6	.5	.10
1.5	.6	.3				
			.575	.6	.5	.17
2.0	.6	.85				
			.475	.6	.5	.14
2.5	.6	.1				
			.2	.6	.5	.06
3.0	.6	.3				
			.75	.55	.5	.21
3.5	.5	1.2				
			.65	.4	.5	.13
RBWE 4.0	.3	.1				

Calculations checked by GE Discharge 0.9 cfs

Discharge _____ m^3/s

By Elliott, Kay & Johnson Waterbody Unnamed Creek

Date: 17 June 1981 EMG-RX # 123-1

Section Surveyed ca 250ft. below Alaska highway

Fish present/Use GR / rearing

Gear/Effort Weir trap / continuous

Species	Length	Remarks
GR	320mm	placed above weir
	(12.8")	

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 8°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks No fish in trap this date - discharge taken

26 June 1981 - - No fish in trap.

30 June 1981 - - No fish in trap.

3 July 1981 - Tw = 5°C - No fish in trap

4 July 1981 - Tw = 6°C - No fish in trap

5 July 1981 - - No fish in trap

6 July 1981 - - No fish in trap

7 July 1981 - - No fish in trap

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 123-1

Transect Location 40 ft. downstream from AK hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.2	0	0				
1.8	.35	.6	.3	.175	.6	.032
2.1	.35	.95	.775	.35	.3	.081
2.4	.45	.8	.875	.4	.3	.105
2.7	.4	.75	.775	.425	.3	.099
3.0	.35	1.4	1.075	.375	.3	.121
3.3	.35	1.2	1.3	.35	.3	.137
3.6	.3	.9	1.05	.325	.3	.102
4.0	.2	.2	.55	.25	.4	.055
RBWE 4.2	0	0	.1	.1	.2	.002

Calculations checked by GE Discharge 0.7 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 9 July 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway.

Color/Turbidity _____ Temperature 8°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks No fish in trap this date
12 July - No fish in trap
13 July - No fish in trap

By Kay & Johnson Waterbody Unnamed Creek

Date 9 July 1981 EMG-RX # 123-1

Section Surveyed 1000 ft below up to AK. hwy.

Fish present/Use none seen or captured

Gear/Effort Electroshocker / 1000 ft.

Species	Length	Remarks

By Kay & Johnson Waterbody Unnamed Creek

Date 21 July 1981 EMG-RX # 123.1

Site Access On foot from Alaska highway

Color/Turbidity _____ Temperature 10°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks No fish in trap this date - discharge taken
23 July 1981 - Tw = 11.5°C - No fish in trap
24 July 1981 - No fish in trap
27 July 1981 - No fish in trap
31 July 1981 - No fish in trap
3 August 1981 - Tw = 9°C - No fish in trap

By Kay E Johnson Waterbody Unnamed Creek

Date 21 July 1981 EMG-RX # 123-1

Transect Location 40 ft. downstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 2.8	0	0				
3.1	.35	.3	.15	.175	.3	.008
3.4	.4	.2	.25	.375	.3	.028
3.7	.4	.5	.35	.4	.3	.042
4.0	.4	.6	.55	.4	.3	.066
4.3	.4	.7	.65	.4	.3	.078
4.6	.4	1.0	.85	.4	.3	.102
5.0	.4	.3	.65	.4	.4	.104
5.3	.4	.2	.25	.4	.3	.030
5.6	.4	.4	.3	.4	.3	.036
RBWE 5.8	.4	.3	.35	.4	.2	.028

Calculations checked by GE Discharge 0.5 cfs

Discharge _____ m^3/s

$T_w = 10°C$

By Kay & Johnson Waterbody Unnamed Creek

Date 21 July 1981 EMG-RX # -123-1

Section Surveyed from mouth upstream for about 1500 ft.

Fish present/Use NP / rearing

Gear/Effort Electro shocker / 1500 ft.

Tw = 10°C / Tw Chisana River = 11°C

Species	Length	Remarks
NP	340mm	- captured near mouth at
		confluence of clear stream
		water and turbid river
		water backed up into
		lower reach of stream.

By Kay & Johnson Waterbody Unnamed Creek

Date 7 August 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity _____ Temperature 8.5°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks No fish in trap this date - discharge taken
10 August 1981 - Tw = 8°C - No fish in trap
14 August 1981 - - No fish in trap
17 August 1981 - Tw = 5.5°C - No fish in trap
18 August 1981 No fish in trap

By Johnson & Elliott Waterbody Unnamed Creek

Date 7 August 1981 EMG-RX # 123-1

Transect Location 30 ft. downstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 5.0	0	0				
4.7	.4	.75	.375	.2	.3	.023
4.4	.4	.6	.675	.4	.3	.081
4.1	.4	.75	.675	.4	.3	.081
3.8	.4	0	.375	.4	.3	.045
3.5	.4	0	0	.4	.3	0
3.2	.5	.4	.2	.45	.3	.027
2.9	.5	0	.2	.5	.3	.030
2.6	.5	0	0	.5	.3	0
2.3	.5	.45	.225	.5	.3	.034
2.0	.45	.6	.525	.475	.3	.075
RBWE 1.7	.3	0	.3	.375	.3	.034

Calculations checked by GE Discharge 0.4 cfs

Discharge _____ m^3/s

T_w = 8.5°C

8/6/81 - Unnamed Creek (RX 123-1) looking upstream to Alaska highway CMP.

By Kay E. Johnson Waterbody Unnamed Creek

Date 20 August 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity _____ Temperature 6.5°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks No fish in trap this date - discharge taken
28 August 1981 - - No fish in trap
31 August 1981 - Tw = 8°C - No fish in trap

By Kay & Johnson Waterbody Unnamed Creek

Date 20 August 1981 EMG-RX # 123-1

Transect Location 50 ft. downstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE .9	0	0				
1.2	.3	.4	.2	.15	.3	.009
1.5	.35	.5	.45	.325	.3	.044
1.8	.35	.6	.55	.35	.3	.058
2.1	.35	.5	.55	.35	.3	.058
2.5	.35	.5	.5	.35	.4	.070
3.0	.35	.4	.45	.35	.5	.079
3.3	.3	.3	.35	.325	.3	.034
3.8	.3	.35	.325	.3	.5	.049
RBWE 4.0	0	0	.175	.15	.2	.005

Calculations checked by M.J. Discharge 0.4 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Unnamed Creek

Date 20 August 1981 EMG-RX # 123-1

Section Surveyed 800 ft below up to weir trap

Fish present/Use none seen or captured

Gear/Effort Electroshocker / 800 ft.

Species	Length	Remarks
		- several 10-20 in falls
		present - could be barrier to
		smaller fish.

By Kay & Johnson Waterbody Unnamed Creek

Date 21 August 1981 EMG-RX # 123-1

Section Surveyed From mouth upstream about 500ft.

Fish present/Use GR, LS, LC / rearing

Gear/Effort dip net, visual

Species	Length	Remarks
GR	53mm	- Several other LS fry seen
LS	31mm	Tw = 10°C in Creek
"	33	Tw = 9°C in Tanana R.
"	19	
"	18	sampled, preserved
LC	37mm	

By Kay & Johnson Waterbody Unnamed Creek

Date 3 September 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 5°C

D.O. 10 ppm pH 6.7 Conductivity 92 µmhos

Bottom Type Organic detritus, silt

Wetted width 0.2-15 ft. Depth 0.4-3 ft. Gradient low-moderate

Banks/Soils moderate-steep / loam under moss mat

Aquatic Vegetation Present Cover 80%

Riparian Vegetation Spruce, willow, grass, moss

Barriers possibly several natural falls to 1.5 ft./perched hwy. CMP

Drainage Structures/Conditions 72 in x 79 ft. CMP at hwy./perched

Ice Conditions none

Weather —

Photographs —

Remarks Data taken in NWA alignment corridor
4 September 1981 - Tw = 5.5°C - No fish in trap
10 September 1981 - Tw = 4°C - No fish in trap
11 September 1981 - Tw = 5.5°C - No fish in trap.

By Kay & Johnson Waterbody Unnamed Creek

Date 3 September 1981 EMG-RX # 123-1

Transect Location 50ft. upstream from Haines P/L

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE .1	.7	.4				
.3	.75	.65	.525	.725	.2	.076
.5	.75	.9	.775	.75	.2	.116
.7	.75	1.0	.95	.75	.2	.143
.9	.7	.7	.85	.725	.2	.123
RBWE 1.0	.7	.4	.55	.7	.1	.039

Calculations checked by MJ Discharge 0.5 cfs

Discharge _____ m^3/s

By Elliott, Johnson & Kay Waterbody Unnamed Creek

Date 15 September 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 4.5°C

D.O. 10 ppm pH 7.0 Conductivity 70 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather Partly sunny, mild

Photographs 5-12 → ds about 150 ft. below Haines P/L / 5-13 → us across Haines P/L ROW / 5-14 → us about 100 ft. above Haines P/L / 5-15 → us. about 150 ft above Haines P/L.

Remarks * See previous survey on 3 September 1981

Hwy. CMP invert lip perched 1.7 ft above scour pool. No fish in trap

17 September 1981 - Tw = 3°C - No fish in trap - trap removed.

By Kay & Johnson Waterbody Unnamed Creek

Date 15 September 1981 EMG-RX # 123-1

Transect Location 50 ft. upstream from NWA alignment

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.5	.75	.3				
1.7	.8	.9	.6	.775	.2	.09
1.9	.85	1.2	1.05	.825	.2	.17
2.1	.85	1.3	1.25	.85	.2	.21
2.3	.85	.8	1.05	.85	.2	.18
2.5	.25	.2	.5	.55	.2	.06
RBWE 3.1	0	0	.1	.125	.6	.01

Calculations checked by GE Discharge 0.7 cfs

Discharge _____ m^3/s

9/15/81 - Unnamed Creek (RX 123-1) looking upstream 150 ft above NWA alignment.

9/15/81 - Unnamed Creek (RX 123-1) looking upstream 100 ft above NWA alignment.

9/15/81 - Unnamed Creek (RX 123-1) looking downstream 150 ft below NWA alignment.

9/15/81 - Unnamed Creek (RX 123-1) looking upstream across Haines pipeline ROW.

By Bach & Johnson Waterbody Unnamed Creek

Date 28 September 1981 EMG-RX # 123-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 0°C

D.O. 9 ppm pH — Conductivity 60 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions ½ in ice along banks & over pools

Weather Cloudy, cold, no wind

Photographs —

Remarks * See previous survey on 3 September 1981

16 October 1981 - Tw = 0°C - Flow up over level on 28 September and flowing over ice at Ak. hwy and in CMP. About 6 in ice in CMP. - Elliott & Breyman

By Bach & Johnson Waterbody Unnamed Creek

Date 28 September 1981 EMG-RX # 123-1

Transect Location 50 ft. upstream from NWA alignment

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.8	.7	1.1				
2.0	.7	1.25	1.175	.7	.2	.165
2.2	.9	1.6	1.425	.8	.2	.228
2.4	.9	.9	1.25	.9	.2	.225
2.7	.95	.1	.5	.925	.3	.139
RBWE 3.0	1.05	.05	.075	1.0	.3	.023

Calculations checked by PB Discharge 0.8 cfs

Discharge _____ m^3/s

By J. Kay & M. Johnson Waterbody Unnamed Creek

Date 15 May 1981 EMG-RX # 123-2

Site Access On foot from Alaska highway

Color/Turbidity Light brown/clear Temperature 1.5°C

D.O. 10 ppm pH — Conductivity 40 µmhos

Bottom Type silt, organic detritus

Wetted width 1-5 ft. Depth 0.3-3 ft Gradient Low

Banks/Soils Gradual / organic mat

Aquatic Vegetation Absent Cover 80%

Riparian Vegetation Grass, willow, birch, spruce

Barriers possibly muskeg

Drainage Structures/Conditions 36in x ca 60ft CMP at hwy

Ice Conditions Bottom ice above hwy & some surface ice, ice in CMP

Weather Overcast

Photographs —

Remarks Poorly defined stream channel prevented discharge measurement within hwy ROW. estimated flow < 0.2 cfs.

Culvert well placed, not perched, water depth 2.05 ft in CMP.

Access restricted to Alaska hwy ROW.

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 123-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 8°C

D.O. — pH — Conductivity —

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather —

Photographs —

Remarks * See previous survey on 15 May 1981 and other spring surveys.
- Discharge taken
3 July 1981 - High water, flowing out of channel through terrestrial vegetation

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 123-2

Transect Location about 400ft. downstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 2.0	.35	.2				
			.425	.375	.3	.048
2.3	.4	.65				
			.625	.4	.2	.050
2.5	.4	.6				
			.7	.35	.2	.049
2.7	.3	.8				
			.7	.3	.2	.042
2.9	.3	.6				
			.45	.325	.2	.029
3.1	.35	.3				
			.2	.375	.3	.023
3.4	.4	.1				
			.05	.4	.1	.002
RBWE 3.5	.4	0				

Calculations checked by GE Discharge 0.24 cfs

Discharge _____ m^3/s

Tw = 8°C

By Kay & Johnson Waterbody Unnamed Creek

Date 24 July 1981 EMG-RX # 123-2

Site Access On foot from Alaska highway

Color/Turbidity light brown / clear Temperature 10.5°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers see below

Drainage Structures/Conditions _____

Ice Conditions none

Weather _____

Photographs _____

Remarks The Chisana River is high and backed up to within 700 ft of the Haines P/L. About 500 ft below the Haines P/L there is a natural fall over 2 ft high which is a barrier to fish passage unless the river were higher.

31 July 1981 - Low flow at Ak. hwy. - no fish seen in vicinity of hwy.

17 August 1981 - Tw = 8°C - Low flow at Ak hwy.

21 August 1981 - Fish sampled near mouth - see fish data sheet

28 August 1981 - Low flow at Ak. hwy.

31 August 1981 - Tw = 8°C - Trickle flow at Ak. hwy. Intermittent above & below hwy through moss. No fish seen.

By Kay & Johnson Waterbody Unnamed Creek

Date 24 July 1981 EMG-RX # 123-2

Transect Location 50 ft. downstream from Haines P/L

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.0	0	0				
1.6	.25	.1	.05	.125	.6	.004
1.8	.25	.3	.2	.25	.2	.010
2.0	.25	.3	.3	.25	.2	.015
2.2	.25	.5	.4	.25	.2	.020
2.4	.3	.2	.35	.275	.2	.019
2.6	.35	.4	.3	.325	.2	.020
RBWE 2.9	.4	.35	.375	.375	.3	.042

Calculations checked by GE Discharge 0.13 cfs

Discharge _____ m^3/s

Tw = 10.5 °C

By Kay & Johnson Waterbody Unnamed Creek

Date 24 July 1981 EMG-RX # 123-2

Section Surveyed From Haines P/L downstream about 700 ft.

Fish present/Use None seen or captured

Gear/Effort Electroshocker / about 700 ft.

Species	Length	Remarks

By Kay & Johnson Waterbody Unnamed Creek

Date 21 August 1981 EMG-RX # 123-2

Section Surveyed From mouth upstream about 1000 ft.

Fish present/Use LS / rearing

Gear/Effort dip net, visual

Species	Length	Remarks
LS	39 mm	- Many other fry seen
"	30	throughout 1000 ft. reach.
"	42	- Low flow
"	30	
"	36	
"	32	
"	29	
"	30	
"	28	
"	21	
"	30	
"	31	
"	25	
"	24	
"	21	
"	17	
"	30	
"	32	
"	40	
"	33	

By Kay & Johnson Waterbody Unnamed Creek

Date 21 August 1981 EMG-RX # 123-2

Section Surveyed - continued - 2 of 2

Fish present/Use

Gear/Effort

Species	Length	Remarks
LS	28mm	
"	16	
"	33	
"	35	
"	29	
"	17	
"	18	

By Kay E. Johnson Waterbody Unnamed Creek

Date 3 September 1981 EMG-RX # 123-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 6°C

D.O. 6ppm pH 6.2 Conductivity 80 umhos

Bottom Type Organic detritus, silt

Wetted width 0-7ft. Depth 0-3ft. Gradient low

Banks/Soils slight/loam under moss mat

Aquatic Vegetation Present Cover 90%

Riparian Vegetation Spruce, willow, grass, moss

Barriers intermittent flow through moss, fall below Haines P/L

Drainage Structures/Conditions 36in CMP at hwy/bowed down in middle

Ice Conditions none

Weather –

Photographs –

Remarks – No measurable flow at NWA alignment
Intermittent surface flow between pools
in muskeg flowing under moss.

By Elliott, Johnson & Kay Waterbody Unnamed Creek

Date 15 September 1981 EMG-RX # 123-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 4°C

D.O. 8 ppm pH 6.9 Conductivity 65 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather Partly cloudy, warm

Photographs 5-16 → us. about 100 ft. above NWA alignment / 5-17 → us. at NWA / 5-18 → ds about 100 ft below NWA alignment toward hwy.

Remarks * See previous survey on 3 September 1981. LS fry found from mouth to within 600 ft of Haines P/L, ranging in length from 33-41 mm FL. One smaller, unidentified fry sampled for identification. There is a vertical fall about 3 ft high 400 ft below the Haines P/L.

— Smaller fry identified as LS - 10/8/81 GVE
FL = 18 mm

By Kay & Johnson Waterbody Unnamed Creek

Date 15 September 1981 EMG-RX # 123-2

Transect Location 20 ft. downstream from NWA alignment

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.2	0	0				
			0	.225	.2	0
1.4	.45	0				
			.05	.5	.1	.003
1.5	.55	.1				
			.075	.525	.2	.008
1.7	.5	.05				
			.1	.5	.2	.010
1.9	.5	.15				
			.2	.5	.2	.020
2.1	.5	.25				
			.175	.475	.2	.017
2.3	.45	.1				
			.05	.225	.1	.001
RBWE 2.4	0	0				

Calculations checked by GE Discharge 0.06 cfs

Discharge _____ m^3/s

9/15/81 - Unnamed Creek (RX 123-2) looking downstream 100 ft below NWA alignment to highway.

9/15/81 - Unnamed Creek (RX 123-2) looking upstream 100 ft above NWA alignment.

9/15/81 - Unnamed Creek (RX 123-2) looking upstream at NWA alignment crossing.

By Johnson & Bach Waterbody Unnamed Creek

Date 28 September 1981 EMG-RX # 123-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 1°C

D.O. 4 ppm pH — Conductivity 51 umhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions 1/2 in ice over creek

Weather Cloudy, cold

Photographs —

Remarks * See previous survey on 3 September 1981

29 September 1981 - Previous days DO measurement in doubt and redone DO = 7 ppm.

16 October 1981 - Flow up over level on 28 September and flowing over ice at Ak. hwy - Elliott & Breyman.

By Bach & Johnson Waterbody Unnamed Creek

Date 18 September 1981 EMG-RX # 123-2

Transect Location 25 ft. upstream from NWA alignment

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.5	.4	.1				
1.8	.35	.2	.15	.375	.3	.017
2.1	.35	.2	.2	.35	.3	.021
2.4	.4	.15	.175	.375	.3	.020
2.7	.45	.2	.175	.425	.3	.022
3.0	.4	.4	.3	.425	.3	.038
3.2	.3	.2	.3	.35	.2	.021
RBWE 3.4	.3	.1	.15	.3	.2	.009

Calculations checked by PB Discharge 0.15 cfs

Discharge _____ m^3/s

By Johnson & Bach Waterbody Unnamed Creek

Date 29 September 1981 EMG-RX # 123-2

Section Surveyed From mouth upstream for 600 ft.

Fish present/Use LS / rearing

Gear/Effort visual observation / 600 ft.

Species	Length	Remarks
LS	fry	- about 25 fry (probably
		LS - see previous surveys)
		seen beneath up to 2 in.
		of ice

By G. Elliott, J. Kay & M. Johnson Waterbody Lethe Creek

Date 8 May 1981 EMG-RX # 124-2

Transect Location 60 ft. downstream from Alaska hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.8	0	0				
2.6	.25	.7	.35	.125	.8	.035
3.0	.3	.9	.8	.275	.4	.088
3.3	.35	1.0	.95	.325	.3	.093
3.6	.35	1.0	1.0	.35	.3	.105
3.9	.4	1.2	1.1	.375	.3	.124
4.2	.4	.9	1.05	.4	.3	.126
4.6	.3	.7	.8	.35	.4	.112
5.1	.25	.4	.55	.275	.5	.076
RBWE 5.8	0	0	.2	.125	.7	.018

Calculations checked by GE Discharge 0.8 cfs

Discharge _____ m^3/s

Tw = 3°C

By Kay & Johnson Waterbody Lethe Creek

Date 19 May 1981 EMG-RX # 124-2

Transect Location 50 ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 0	0	0				
1.0	.3	.2	.1	.15	1.0	.015
1.4	.35	.3	.25	.325	.4	.033
1.8	.4	.3	.3	.375	.4	.045
2.0	.4	.4	.35	.4	.2	.028
2.2	.4	.5	.45	.4	.2	.036
2.4	.4	.45	.475	.4	.2	.038
2.6	.4	.4	.425	.4	.2	.034
2.8	.4	.4	.4	.4	.2	.032
3.0	.35	.45	.425	.375	.2	.032
3.4	.3	.35	.4	.325	.4	.052
3.8	.3	.25	.3	.3	.4	.036
RBWE 4.6	0	0	.125	.15	.8	.015

Calculations checked by GE Discharge 0.4 cfs

Discharge _____ m^3/s

Tw = 5.5°C

DO = 10 ppm

Cond. = 60 μmhos

By Kay & Johnson Waterbody Lethe Creek

Date 27 May 1981 EMG-RX # 124-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 4°C

D.O. 11ppm pH – Conductivity 46 µmhos

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers See below.

Drainage Structures/Conditions Wooden box culvert at hwy - 4ft x 4ft

Ice Conditions None

Weather Partly cloudy

Photographs –

Remarks No fish seen in scour pool.
A 14ft flat wooden chute carries water from the culvert outlet to the scour pool, a definite barrier to fish passage.
Ca. 70ft downstream from the scour pool the is a large log and debris jam – probably no barrier.
Access limited to Alaska hwy ROW.

By Kay & Johnson Waterbody Lethe Creek

Date 27 May 1981 EMG-RX # 124-2

Transect Location 50 ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 0	0	0				
0.6	.25	.2	.1	.125	.6	.008
1.0	.4	1.1	.65	.325	.4	.085
1.4	.5	1.7	1.4	.45	.4	.252
1.8	.6	1.6	1.65	.55	.4	.363
2.2	.6	1.9	1.75	.6	.4	.420
2.6	.6	2.8	2.35	.6	.4	.564
3.0	.6	2.4	2.6	.6	.4	.624
3.4	.5	2.0	2.2	.55	.4	.484
3.8	.35	1.9	1.95	.425	.4	.332
4.4	.3	1.2	1.55	.325	.6	.302
RBWE 6.2	.1	0	.6	.2	1.8	.216

Calculations checked by JK Discharge 3.7 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Lethe Creek

Date 3 June 1981 EMG-RX # 124-2

Transect Location 45ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 0.9	0	0				
1.9	.55	1.3	.65	.275	1.0	.18
2.3	.55	2.2	1.75	.55	.4	.39
2.7	.6	2.6	2.4	.575	.4	.55
3.1	.6	3.8	3.2	.6	.4	.77
3.5	.7	4.2	4.0	.65	.4	1.04
3.9	.8	3.2	3.7	.75	.4	1.11
4.3	.75	1.5	2.35	.775	.4	.73
4.9	.5	1.4	1.45	.625	.6	.54
5.3	.5	1.9	1.65	.5	.4	.33
5.9	.5	1.8	1.85	.5	.6	.56
6.3	.35	1.4	1.6	.425	.4	.27
6.7	.4	1.0	1.2	.375	.4	.18
RBWE 7.2	.35	.3	.65	.375	.5	.12

Calculations checked by GE Discharge 6.8 cfs

Discharge _____ m^3/s

Tw = 4.5°C

Water high from rain on 2 June

- light brown / clear

By Kay & Johnson Waterbody Lethe Creek

Date 5 June 1981 EMG-RX # 124-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 3.5°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks Water highest yet - no fish seen in scum pool

9 June 1981 - Water still high - no fish seen

10 June 1981 - Tw = 4.5°C, pH = 6.5 - no fish seen

12 June 1981 - Tw = 5°C - no fish seen for over 100 ft. below highway.

14 June 1981 - Tw = 9°C - Water low & clear - no fish seen in scum pool.

By Kay E. Johnson Waterbody Lethe Creek

Date 16 June 1981 EMG-RX # 124-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 6.5°C

D.O. 10ppm pH 6.78 Conductivity 55 µmhos

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions

Ice Conditions None

Weather Clear, calm

Photographs –

Remarks

No fish seen for over 100 ft below highway

19 June 1981 – Tw = 7.5°C – Water level unchanged
– No fish seen for over 100 ft below highway
23 June 1981 – Tw = 8.5°C – Low & clear – No fish seen

By Kay & Johnson Waterbody Lethe Creek

Date 16 June 1981 EMG-RX # 124-2

Transect Location 50 ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.0	0	0				
			.95	.15	1.0	.10
2.0	.3	1.9				
			1.85	.35	.4	.26
2.4	.4	1.8				
			1.25	.4	.4	.20
2.8	.4	.7				
			1.65	.45	.4	.30
3.2	.5	2.6				
			2.725	.45	.4	.49
3.6	.4	2.85				
			2.1	.4	.4	.34
4.0	.4	1.35				
			1.175	.4	.4	.19
4.4	.4	1.0				
			.575	.375	.4	.09
4.8	.35	.15				
			.075	.175	.5	.01
RBWE 5.3	0	0				

Calculations checked by GE Discharge 2.0 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Lethe Creek

Date 25 June 1981 EMG-RX # 124.2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 9°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks Discharge taken
3 July 1981 - Flow up some over 25 June
9 July 1981 - Tw = 9°C - scum pool shocked

By Kay & Johnson Waterbody Lethe Creek

Date 25 June 1981 EMG-RX # 124-2

Transect Location 50 ft. downstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.7	0	0				
2.0	.2	.35	.175	.1	.3	.005
2.4	.25	.65	.5	.225	.4	.045
2.8	.3	1.0	.825	.275	.4	.091
3.1	.3	1.1	1.05	.3	.3	.095
3.4	.35	1.6	1.35	.325	.3	.132
3.7	.35	1.5	1.55	.35	.3	.163
4.0	.3	.7	1.1	.325	.3	.107
4.3	.25	.7	.65	.275	.3	.054
RBWE 4.6	0	0	.3	.125	.3	.011

Calculations checked by GE Discharge 0.7 cfs

Discharge _____ m^3/s

$T_w = 9°C$

By Kay & Johnson Waterbody Lethe Creek

Date 9 July 1981 EMG-RX # 124-2

Section Surveyed Scour pool at Ak. hwy.

Fish present/Use None seen or captured

Gear/Effort Electroshocker / 50 ft

Species	Length	Remarks

By Kay & Johnson Waterbody Lethe Creek

Date 23 July 1981 EMG-RX # 124.2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 13°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks Discharge taken. Placed weir trap in stream about 100 ft. below AK. hwy. There is a 32 in fall about 500 ft. below the hwy. - probable barrier to all but larger fish. Electroshocked below falls - see fish data sheet.
24 July 1981 - No fish in trap
31 July 1981 - No fish in trap - low flow
3 August 1981 - Tw = 10°C - No fish in trap
4 August 1981 - sampled fish below falls - see fish data sheet
7 August 1981 - discharge taken, fish sampled below falls - see fish data sheet.
10 August 1981 - Tw = 8.5°C - No fish in trap
14 August 1981 - No fish in trap.

By Kay & Johnson Waterbody Lethe Creek

Date 23 July 1981 EMG-RX # 124-2

Transect Location 50 ft. downstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.7	0	0	0	.15	.3	0
2.0	.3	0	.025	.3	.3	.002
2.3	.3	.05	.225	.35	.3	.024
2.6	.4	.4	.5	.425	.3	.064
2.9	.45	.6	.725	.475	.3	.103
3.2	.5	.85	.875	.5	.3	.131
3.5	.5	.9	.85	.5	.3	.128
3.8	.5	.8	.7	.45	.2	.063
4.0	.4	.6	.3	.2	.2	.012
RBWE 4.2	0	0				

Calculations checked by GE Discharge 0.5 cfs

Discharge _____ m^3/s

Tw = 13°C

By Kay & Johnson Waterbody Lethe Creek

Date 23 July 1981 EMG-RX # 124-2

Section Surveyed from AK hwy. downstream about 1500 ft.

Fish present/Use BB, LS fry / rearing

Gear/Effort Electroshocker / 1500 ft.

Tw = 13 °C

Species	Length	Remarks
BB	525mm	- all fish found below
LS	20mm	32 in fall about 500 ft.
"	19	below AK. hwy. BB captured
"	18	just downstream from fall.
"	19	
"	20	- LS fry abundant below
"	22	fall to confluence with
"	25	Chisana River
"	24	
"	26	- lower reach of stream
"	18	backed up from high water
"	10	in river.
"	9	
"	11	
"	16	
"	17	
"	20	
"	18	
NP	about 250mm	- seen but not captured
		about 1500 ft. below hwy

By Kay E. Johnson

Waterbody Lethe Creek

Date 23 July 1981

EMG-RX # 124-2

Section Surveyed Continued - 2 of 2

Fish present/Use

Gear/Effort

Species	Length	Remarks
LS	25mm	
"	22	
"	21	sampled for positive i.d.
"	22	
"	14	
"	13	

By Elliott, Johnson & Kay Waterbody Lethe Creek

Date 4 August 1981 EMG-RX # 124-2

Section Surveyed from 500 ft below Ak. hwy to mouth

Fish present/Use LS fry / rearing

Gear/Effort Dip net - about 1000 ft.

Species	Length	Remarks
LS	22 mm	- fry abundant below 27 in
"	21	fall 500 ft downstream from
"	17	Ak hwy
"	16	- Tw Lethe Ck. = 9.5 °C
"	14	- Tw Chisana R = 11 °C
"	15	
"	15	
"	15	sampled for positive id.
"	15	
"	15	
"	13	
"	15	
"	14	
"	15	
"	11	
NP?	about 150 mm	seen but not captured.

By Johnson & Elliott Waterbody Lethe Creek

Date 7 August 1981 EMG-RX # 124-2

Transect Location 50 ft. downstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.7	0	0				
			.775	.1	.4	.031
2.1	.2	1.55				
			1.725	.225	.3	.116
2.4	.25	1.9				
			1.9	.25	.3	.143
2.7	.25	1.9				
			1.85	.3	.3	.167
3.0	.35	1.8				
			1.75	.35	.3	.184
3.3	.35	1.7				
			1.65	.275	.3	.136
RBWE 3.6	.2	1.6				

Calculations checked by GE Discharge 0.8 cfs

Discharge _____ m^3/s

By Elliott & Johnson Waterbody Lethe Creek

Date 7 August 1981 EMG-RX # 124-2

Section Surveyed from 500 ft to 700 ft. below AK. hwy.

Fish present/Use GR & LS fry / rearing

Gear/Effort Electroshocker / 200 ft and dipnet

Species	Length	Remarks
GR	47 mm	- one GR fry electroshocked
"	46	& one caught with dipnet
		- 3-4 more GR fry seen
		but not captured
LS	fry	- LS fry abundant throughout
		sampled reach.

8/6/81 - Lethe Creek (RX 124-2) looking upstream to Alaska highway culvert outlet.

By Kay & Johnson Waterbody Lethe Creek

Date 17 August 1981 EMG-RX # 124-2

Site Access On foot from Alaska highway

Color/Turbidity Light brown/clear Temperature 9°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks Weir trap moved to 50ft. below falls.
Fish sampled below falls - see fish data sheet
19 August 1981 - Fish captured in trap and others dip netted - see fish data sheet.
20 August 1981 - T_w = 9°C - Discharge taken - Fish in trap & dip netted - see fish data sheet.
22 August 1981 - Fish in trap - see fish data sheet
28 August 1981 - T_w = 12.5°C - Fish in trap - see fish data sheet.
31 August 1981 - T_w = 9°C - Fish sampled below falls - see fish data sheet.

By Kay & Johnson Waterbody Lethe Creek

Date 17 August 1981 EMG-RX # 124-2

Section Surveyed From AK. hwy to about 1000ft. downstream

Fish present/Use LS / rearing

Gear/Effort Visual, dip net

Species	Length	Remarks
LS	33 mm	- All fish found below falls
"	26	located about 500 ft. below
"	20	AK. hwy
"	25	- larger fry seen but not
		captured.
		- Weir trap moved to about
		50 ft. below falls.
		Tw = 9°C

By Kay E. Johnson Waterbody Lethe Creek

Date 19 August 1981 EMG-RX # 124-2

Section Surveyed From 500 ft below to 1000 ft. below AK hwy.

Fish present/Use NP, GR, LS / rearing

Gear/Effort Weir trap, dip net

Species	Length	Remarks
NP	125mm	- in trap
LS	23mm	- all captured by dip net
"	22	above trap & below falls
"	24	Tw = 10°C
"	31	
"	28	
"	23	
"	22	
"	26	
"	25	
"	28	
GR	52mm	

By Kay & Johnson Waterbody Lethe Creek

Date 20 August 1981 EMG-RX # 124-2

Transect Location 50 ft. downstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 3.7	0	0				
			.525	.075	.6	.024
4.3	.15	1.05				
			1.025	.175	.2	.036
4.5	.2	1.0				
			1.15	.2	.2	.046
4.7	.2	1.3				
			1.2	.2	.3	.072
5.0	.2	1.1				
			.775	.2	.2	.031
5.2	.2	.45				
			.425	.225	.3	.029
5.5	.25	.4				
			.2	.225	.3	.014
RBWE 5.8	.2	0				

Calculations checked by GE Discharge 0.25 cfs

Discharge _____ m^3/s

By Kay E Johnson Waterbody Lethe Creek

Date 20 August 1981 EMG-RX # 124.2

Section Surveyed From AK. hwy downstream for about 1200 ft.

Fish present/Use LS, NP

Gear/Effort Weir trap, dip net, electroshocker

Species	Length	Remarks
NP	131 mm	- in trap
LS	37 mm	- by dip net from above trap
"	21	
		- Electroshocked from AK. hwy
		to trap - no fish seen or
		captured above falls.
		- Electroshocked for about 700 ft
		below trap, no fish stunned
		but several hundred LS fry
		seen between trap & mouth.

By Kay & Johnson

Waterbody Lethe Creek

Date 22 August 1981

EMG-RX # 124-2

Section Surveyed

Fish present/Use NP / rearing

Gear/Effort Weir trap / continuous

Species	Length	Remarks
NP	97 mm	

By Kay & Johnson Waterbody Lethe Creek

Date 28 August 1981 EMG-RX # 124-2

Section Surveyed Trap - about 550 ft. below AK. hwy.

Fish present/Use GR / rearing

Gear/Effort Weir trap / continuous

Tw = 12.5°C

Species	Length	Remarks
GR	60mm	

By Johnson & Kay Waterbody Lethe Creek

Date 31 August 1981 EMG-RX # 124-2

Section Surveyed From trap downstream about 1000 ft.

Fish present/Use LS, LC / rearing

Gear/Effort Electroshocker / 1000 ft.

Tw = 9°C

Species	Length	Remarks
LS	44mm	
"	38	
"	44	
"	41	
"	40	
"	39	
"	40	
"	43	
"	35	
"	28	
"	32	
"	46	
"	48	
"	51	
"	26	
"	40	
"	41	
"	42	
"	33	
"	25	

By Johnson & Kay

Waterbody Lethe Creek

Date 31 August 1981

EMG-RX # 124-2

Section Surveyed continued - 2 of 2

Fish present/Use

Gear/Effort

Species	Length	Remarks
LS	46mm	
"	22	
"	21	
"	18	
"	17	sampled, preserved
LC	42mm	
"	39	sampled, preserved
"	41	
"	32	
"	28	

By Kay & Johnson Waterbody Lethe Creek

Date 3 September 1981 EMG-RX # 124-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 5.5°C

D.O. 9 ppm pH 6.4 Conductivity 69 µmhos

Bottom Type Organic detritus, silt

Wetted width 0.5-5 ft. Depth 0.2-4 ft. Gradient low

Banks/Soils Moderate, incised at stream channel/loam under moss mat

Aquatic Vegetation Present Cover 70%

Riparian Vegetation Spruce, willow, grass, moss

Barriers several falls below hwy., hwy culvert

Drainage Structures/Conditions - see previous survey on 27 May 1981

Ice Conditions none

Weather —

Photographs —

Remarks Data collected within NWA alignment corridor.

4 September 1981 - No fish in trap

10 September 1981 - Tw = 6°C - No fish in trap

11 September 1981 - Tw = 7.5°C - No fish in trap.

14 September 1981 - No fish in trap

By Kay & Johnson Waterbody Lethe Creek

Date 3 September 1981 EMG-RX # 124-2

Transect Location 75 ft. upstream from Haines P/L

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.3	0	0				
1.4	.3	.1	.05	.15	.1	.001
1.6	.3	.5	.3	.3	.2	.018
1.8	.3	.5	.5	.3	.2	.030
2.0	.3	.5	.5	.3	.2	.030
2.2	.3	.4	.45	.3	.2	.027
2.4	.3	.2	.3	.3	.2	.018
2.6	.3	.1	.15	.3	.2	.009
RBWE 2.9	0	0	.05	.15	.3	.002

Calculations checked by M.J. Discharge 0.13 cfs

Discharge _____ m^3/s

By Elliott, Johnson & Kay Waterbody Lethe Creek

Date 15 September 1981 EMG-RX # 124-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 4°C

D.O. 9 ~~10~~ ppm pH 6.5 Conductivity 65 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather Clear, warm

Photographs 5-19 → us. about 250 ft. above NWA alignment / 5-20 → us. about 200 ft. above NWA / 5-21 → us across pond on lower edge of Haines ROW / 5-22 → ds about 200 ft. below NWA.

Remarks * See previous survey on 3 September 1981
Pond at lower edge of Haines ROW is about 12 ft. wide.
17 September 1981 - Tw = 4.5°C - No fish in trap
18 September 1981 - Tw = 4.5°C - No fish in trap
21 September 1981 - Tw = 3°C - No fish in trap
25 September 1981 - Tw = 2°C - Fish in trap - see fish data sheet.

By Kay & Johnson Waterbody Lethe Creek

Date 15 September 1981 EMG-RX # 124-2

Transect Location 40 ft. downstream from NWA alignment

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.1	0	0				
1.3	.3	.5	.25	.15	.2	.008
1.5	.3	.7	.6	.3	.2	.036
1.7	.3	.75	.725	.3	.2	.044
1.9	.35	.85	.8	.325	.2	.052
2.1	.35	.9	.875	.35	.2	.061
2.3	.35	.9	.9	.35	.2	.063
2.5	.35	.85	.875	.35	.2	.061
2.7	.35	.8	.825	.35	.2	.058
2.9	.3	.7	.75	.325	.2	.049
RBWE 3.2	0	0	.35	.15	.3	.016

Calculations checked by GE Discharge 0.45 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Lethe Creek

Date 15 September 1981 EMG-RX # 124-2

Section Surveyed 550 ft. below Ak. hwy.

Fish present/Use GR / rearing

Gear/Effort Weir trap / continuous

Tw = 6°C at trap.

Species	Length	Remarks
GR	56 mm	

9/15/81 - Lethe Creek (RX 124-2) looking upstream 250 ft above NWA alignment.

9/15/81 - Lethe Creek (RX 124-2) looking upstream 200 ft above NWA alignment.

9/15/81 - Lethe Creek (RX 124-2) looking upstream across Haines pipeline ROW.

9/15/81 - Lethe Creek (RX 124-2) looking downstream 200 ft below NWA alignment.

By Johnson & Bach Waterbody Lethe Creek

Date 25 September 1981 EMG-RX # 124-2

Section Surveyed 550 ft. below AK. hwy.

Fish present/Use NP / rearing

Gear/Effort weir trap / continuous

Tw = 2°C

Species	Length	Remarks
NP	104mm	

By Johnson & Bach Waterbody Lethe Creek

Date 28 September 1981 EMG-RX # 124-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 0.5°C

D.O. 10 ppm pH – Conductivity 61 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions 1/2 in. ice along stream edge

Weather Cloudy, cold, no wind

Photographs –

Remarks * See previous survey on 3 September 1981
No fish in trap.
29 September 1981 - Tw = 1.5°C - Fish sampled below falls - see fish data sheet.

16 October 1981 - Tw = 0.5°C. Ponded reach above hwy. ice covered. Limited ice along stream edge below hwy. increasing downstream. No fish seen below falls for over 200 ft. Elliott & Breyman.

By Bach & Johnson Waterbody Lethe Creek

Date 28 September 1981 EMG-RX # 124-2

Transect Location 30 ft. downstream from NWA alignment

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 2.0	.25	.65				
			.85	.275	.2	.047
2.2	.3	1.05				
			1.025	.3	.2	.062
2.4	.3	1.0				
			.975	.35	.2	.068
2.6	.4	.95				
			1.325	.4	.2	.106
2.8	.4	1.7				
			1.575	.35	.2	.110
RBWE 3.0	.3	1.45				

Calculations checked by PB Discharge 0.39 cfs

Discharge _____ m^3/s

By Johnson & Bach Waterbody Lethe Creek

Date 29 September 1981 EMG-RX # 124-2

Section Surveyed From 550 ft to about 1500 ft below AK hwy.

Fish present/Use LS / rearing

Gear/Effort Electroshocker / about 1000 ft.

Tw = 1.5°C

Species	Length	Remarks
LS	34mm	- some ice developing along
"	30	stream edge
"	37	
"	39	
"	31	
"	32	
"	40	
"	27	
"	31	
"	32	
"	37	
"	32	
"	36	
"	26	
"	40	
"	38	
"	35	
"	29	
"	34	
"	33	

By Johnson & Bach Waterbody Lethe Creek

Date 29 September 1981 EMG-RX # 124-2

Section Surveyed continued - 2 of 2

Fish present/Use

Gear/Effort

Species	Length	Remarks
LS	28mm	
"	36	
"	37	
"	35	
"	32	
"	35	
"	32	
"	30	

By Kay & Johnson Waterbody Silver Creek

Date 20 May 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 5.5°C

D.O. 10 ppm pH — Conductivity 100 µmhos

Bottom Type Gravel, coarse sand, silt in pools

Wetted width 1-5 ft. Depth 0.3-3.5 ft Gradient Low-mod.

Banks/Soils Low banks, incised channel/

Aquatic Vegetation _____ Cover 40%

Riparian Vegetation Grass, willow, spruce

Barriers None

Drainage Structures/Conditions CMP at hwy (ca 90 in x 90 ft)/good

Ice Conditions None

Weather Overcast, light wind

Photographs —

Remarks No fish observed
Access limited to Alaska hwy ROW

By Kay & Johnson Waterbody Silver Creek

Date 20 May 1981 EMG-RX # 125-1

Transect Location 70 ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 0	0	0				
0.6	.45	.05	.025	.225	.6	.003
1.0	.9	.1	.075	.675	.4	.020
1.5	1.2	.3	.2	1.05	.5	.105
2.0	1.45	.2	.25	1.325	.5	.166
2.5	1.45	.3	.25	1.45	.5	.181
3.0	1.55	.3	.3	1.5	.5	.225
3.5	1.65	.3	.3	1.6	.5	.240
4.0	1.7	.4	.35	1.675	.5	.293
4.5	1.6	.2	.3	1.65	.5	.248
5.0	1.2	0	.1	1.4	.5	.070
RBWE 5.3	0	0	0	.6	.3	0

Calculations checked by GE Discharge 1.6 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Silver Creek

Date 26 May 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 6°C

D.O. 9ppm pH – Conductivity 43 µmhos

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions

Ice Conditions None

Weather Overcast

Photographs

Remarks See previous survey on 20 May 1981
Water high from rain past 3 days
28 May 1981 - Tw = 8°C - No fish seen in scour pool
31 May 1981 - Tw = 8.5°C - No fish seen in scour pool
5 June 1981 - Tw = 7.5°C - No fish seen in scour pool.
Floating chip through CHP - 31.6, 30.3, 27.6 sec - ave. vel. = 3.0 ft/s
9 June 1981 - Tw = 8.5°C - No fish seen in scour pool
10 June 1981 - Tw = 8.5°C, pH = 6.8 - No fish seen in scour pool
14 June 1981 - Tw = 11.5°C - No fish seen in scour pool
water low & clear

By Kay & Johnson Waterbody Silver Creek

Date 26 May 1981 EMG-RX # 125-1

Transect Location 120ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 0.5	.45	.9				
1.0	.5	1.7	1.3	.475	.5	.309
1.4	.75	2.8	2.25	.625	.4	.563
1.8	.95	2.7	2.75	.85	.4	.935
2.2	.95	2.8	2.75	.95	.4	1.045
2.6	.8	3.1	2.95	.875	.4	1.033
3.0	.7	2.5	2.8	.75	.4	.840
3.4	.7	1.4	1.95	.7	.4	.546
3.8	.6	1.3	1.35	.65	.4	.351
4.2	.7	1.3	1.3	.65	.4	.338
4.6	.5	1.3	1.3	.6	.4	.312
RBWE 5.0	.4	.7	1.0	.45	.4	.180

Calculations checked by JK Discharge 6.5 cfs

Discharge _____ m^3/s

By Elliott, Kay & Johnson Waterbody Silver Creek

Date 16 June 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 12°C

D.O. – pH 6.35 Conductivity 57 µmhos

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions 8ft x 90ft CMP

Ice Conditions None

Weather Partly cloudy

Photographs –

Remarks

No fish seen for over 100ft below highway
Culvert diameter = 8ft.
19 June 1981 - Tw = 11°C - No fish seen in scour pool
26 June 1981 - Tw = 11°C - discharge taken
29 June 1981 - Tw = 10.5°C - No fish seen in scour pool
6 July 1981 - No fish seen in scour pool
8 July 1981 - Floating chip 40.9, 45.9, 42.3 sec
ave velocity = 2.1 ft/s

By Elliott, Kay & Johnson Waterbody Silver Creek

Date 16 June 1981 EMG-RX # 125-1

Transect Location 100 ft. downstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE .4	.3	.05				
			.4	.65	.6	.16
1.0	1.0	.75				
			1.025	1.125	.4	.46
1.4	1.25	1.3				
			1.55	1.275	.4	.79
1.8	1.3	1.8				
			1.95	1.3	.4	1.01
2.2	1.3	2.1				
			2.0	1.275	.4	1.02
2.6	1.25	1.9				
			1.35	1.225	.4	.66
3.0	1.2	.8				
			.45	1.2	.4	.22
RBWE 3.4	1.2	.1				

Calculations checked by GE Discharge 4.3 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Silver Creek

Date 26 June 1981 EMG-RX # 125-1

Transect Location about 100ft. above Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.5	.5	0				
2.0	1.1	.3	.15	.8	.5	.06
2.3	1.1	.3	.3	1.1	.3	.10
2.6	1.1	.65	.475	1.1	.3	.16
2.9	1.15	1.0	.825	1.125	.3	.28
3.2	1.1	1.2	1.1	1.125	.3	.37
3.5	1.05	.8	1.0	1.075	.3	.32
3.8	1.0	.4	.6	1.025	.3	.18
RBWE 4.1	1.0	.1	.25	1.0	.3	.08

Calculations checked by GE Discharge 1.6 cfs

Discharge _____ m^3/s

$T_w = 11°C$

By Kay E Johnson Waterbody Silver Creek

Date 13 July 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature

D.O. pH Conductivity

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions

Ice Conditions

Weather

Photographs

Remarks Stream inspected from Eliza Lake to AK. hwy. Well defined stream channel entire reach - passes through two small ponds about 50ft across between Haines P/L and Lake. Mouth at lake is Equisetum filled. Stream channel lined with heavy willow growth

22 July 1981 - Tw=15°C - Weir trap placed about 150ft below AK. hwy.

23 July 1981 - Tw=14°C - No fish in trap - discharge taken

24 July 1981 - Tw=13°C - No fish in trap - Fish captured with electroshocker - see fish data sheet

27 July 1981 - Tw=10°C - Fish in trap - see fish data sheet

31 July 1981 - Tw=13°C - No fish in trap

By Kay & Johnson Waterbody Silver Creek

Date 23 July 1981 EMG-RX # 125-1

Transect Location about 100ft. downstream from Akinny.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.0	.9	0				
1.4	.9	.1	.05	.9	.4	.018
1.7	.9	.2	.15	.9	.3	.041
2.0	.95	.35	.275	.925	.3	.076
2.3	1.0	.5	.425	.975	.3	.124
2.6	.95	.65	.575	.975	.3	.168
2.9	.95	.5	.575	.95	.3	.164
3.2	.75	.35	.425	.85	.3	.108
RBWE 3.5	.6	0	.175	.675	.3	.035

Calculations checked by GE Discharge 0.7 cfs

Discharge _____ m^3/s

$T_w = 14°C$

By Kay & Johnson Waterbody Silver Creek

Date 24 July 1981 EMG-RX # - 125-1

Section Surveyed from 1000ft below to 1000ft above Ak. hwy

Fish present/Use GR fry / rearing

Gear/Effort Electroshocker / 2000 ft.

Species	Length	Remarks
GR	45mm	- captured between Haines
		pipeline ROW and weir trap

By Kay & Johnson Waterbody Silver Creek

Date 27 July 1981 EMG-RX # 125-1

Section Surveyed about 150 ft downstream from Akhway

Fish present/Use GR fry / rearing

Gear/Effort Weir trap / continuous

Tw = 10°C

Species	Length	Remarks
GR	53mm	

By Kay & Johnson Waterbody Silver Creek

Date 3 August 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity light brown / clear Temperature 11°C

D.O. _____ pH _____ Conductivity _____

Bottom Type _____

Wetted width _____ Depth _____ Gradient _____

Banks/Soils _____

Aquatic Vegetation _____ Cover _____

Riparian Vegetation _____

Barriers _____

Drainage Structures/Conditions _____

Ice Conditions _____

Weather _____

Photographs _____

Remarks Fish in trap - see fish data sheet
7 August 1981 - Tw = 11°C - No fish in trap - Discharge taken.
14 August 1981 - Tw = 10.5°C - Fish in trap - see fish data sheet
17 August 1981 - Tw = 8°C - Fish captured - see fish data sheet
18 August 1981 - Tw = 9°C - Fish in trap - see fish data sheet.
Second weir trap placed 40 ft. above Ak. hwy.
19 August 1981 - Tw = 8°C - No fish in traps - Discharge taken
20 August 1981 - No fish in traps
29 August 1981 - Tw = 9°C - Fish in upper trap - see fish data sheet.
1 September 1981 - No fish in traps - low flow.
2 September 1981 - Tw = 6°C - No fish in traps - Stream electroshocked - see fish data sheet.
4 September 1981 - No fish in traps

By Kay & Johnson Waterbody Silver Creek

Date 3 August 1981 EMG-RX # 125-1

Section Surveyed about 150ft downstream from Akhwy.

Fish present/Use GR fry / rearing

Gear/Effort Weir trap / continuous

Species	Length	Remarks
GR	66mm	

By Johnson & Elliott Waterbody Silver Creek

Date 7 August 1981 EMG-RX # 125-1

Transect Location 100 ft. downstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 4.3	.9	0				
			0	.9	.3	0
4.6	.9	0				
			.05	.9	.3	.014
4.9	.9	.1				
			.2	.9	.3	.054
5.2	.9	.3				
			.35	.9	.3	.095
5.5	.9	.4				
			.375	.9	.3	.101
5.8	.9	.35				
			.275	.85	.3	.070
6.1	.8	.2				
			.125	.8	.3	.030
RBWE 6.4	.8	.05				

Calculations checked by GE Discharge 0.36 cfs

Discharge _____ m^3/s

Tw = 11°C

By Kay & Johnson Waterbody Silver Creek

Date 14 August 1981 EMG-RX # 125-1

Section Surveyed Trap - about 150 ft. below Ak. hwy.

Fish present/Use GR / rearing

Gear/Effort Weir trap / continuous

Tw = 10.5°C

Species	Length	Remarks
GR	69 mm	

By Kay E. Johnson Waterbody Silver Creek

Date 17 August 1981 EMG-RX # 125-1

Section Surveyed From AK hwy downstream about 1000 ft.

Fish present/Use GR / rearing

Gear/Effort Electroshocker / 1000 ft.

Species	Length	Remarks
GR	64 mm	– only fish seen

By Kay & Johnson Waterbody Silver Creek

Date 18 August 1981 EMG-RX # 125-1

Section Surveyed Trap - 150ft below Ak. hwy.

Fish present/Use GR / rearing

Gear/Effort Weir trap / continuous

Tw = 9°C

Species	Length	Remarks
GR	86mm	
		- Second trap placed
		about 40 ft above Ak. hwy.

By Kay & Johnson Waterbody Silver Creek

Date 19 August 1981 EMG-RX # 125-1

Transect Location 100 ft. downstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 2.0	0	0				
2.4	.85	.1	.05	.425	.4	.009
2.7	.85	.1	.1	.85	.3	.026
3.0	.9	.25	.175	.875	.3	.046
3.3	1.0	.2	.225	.95	.3	.064
3.6	.9	.2	.2	.95	.3	.057
RBWB 4.0	.5	0	.1	.7	.4	.028

Calculations checked by MJ Discharge 0.23 cfs

Discharge _____ m^3/s

By Kay & Johnson Waterbody Silver Creek

Date 29 August 1981 EMG-RX # 125-1

Section Surveyed Trap - 40 ft above AK. hwy.

Fish present/Use GR / rearing

Gear/Effort Weir trap / continuous

Tw = 9°C

Species	Length	Remarks
GR	97mm	- Very low flow

By Kay & Johnson Waterbody Silver Creek

Date 2 September 1981 EMG-RX # 125-1

Section Surveyed Haines P/L to AK hwy.

Fish present/Use None seen or captured

Gear/Effort Electroshocker / about 1500 ft.

Species	Length	Remarks

By Kay & Johnson Waterbody Silver Creek

Date 8 September 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity very light brown/clear Temperature 6°C

D.O. 9 ppm pH 6.7 Conductivity 72 µmhos

Bottom Type Organic detritus, silt

Wetted width 2-30 ft. Depth 1-2 ft. Gradient low

Banks/Soils slight / tundra mat

Aquatic Vegetation Present Cover 95%

Riparian Vegetation Willow, grasses, tussock tundra

Barriers none

Drainage Structures/Conditions 96in. x 90ft. CMP at hwy. / good

Ice Conditions none

Weather —

Photographs —

Remarks Data collected at upper NWA alignment crossing. No fish in traps.
9 September 1981 - Fish in upper trap - see fish data sheet
10 September 1981 - Tw = 5.5°C - No fish in traps - Discharge

By Kay E. Johnson Waterbody Silver Creek

Date 9 September 1981 EMG-RX # 125-1

Section Surveyed 40 ft. above AK hwy.

Fish present/Use GR/rearing

Gear/Effort Weir trap/continuous

Tw = 5°C

Species	Length	Remarks
GR	75mm	
"	84	

By Kay & Johnson Waterbody Silver Creek

Date 10 September 1981 EMG-RX # 125-1

Transect Location 70 ft. downstream from AK. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 2.4	.8	.2				
2.8	.8	.3	.25	.8	.4	.08
3.1	.8	.35	.325	.8	.3	.08
3.4	.8	.45	.4	.8	.3	.10
3.7	.9	.4	.425	.85	.3	.11
4.0	.8	.35	.375	.85	.3	.10
4.3	.8	.35	.35	.8	.3	.08
RBWE 4.8	.85	.2	.275	.825	.5	.11

Calculations checked by GE Discharge 0.7 cfs

Discharge _____ m^3/s

By Elliott, Johnson & Kay Waterbody Silver Creek

Date 15 September 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity very light brown/clear Temperature 5.5°C

D.O. 6 ppm pH 6.4 Conductivity 60 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather Partly cloudy, warm

Photographs S-23 → us. at upper NWA crossing/S-24 → ds about 100 ft. below upper crossing

Remarks * See previous survey on 8 September 1981

Above the hwy, this stream is mostly spread out through sedge and Equisetum marsh with limited reaches in a narrow channel

DO = 8 ppm just above hwy CMP.

No fish in traps - Tw = 6°C in scour pool

17 September 1981 - Tw = 3.5°C - Fish in upper trap - see fish data sheet.

18 September 1981 - Tw = 5.5°C - No fish in traps

21 September 1981 - Tw = 2°C - No fish in traps.

25 September 1981 - Tw = 2.5°C - No fish in traps

By Kay & Johnson Waterbody Silver Creek

Date 15 September 1981 EMG-RX # 125-1

Transect Location 75 ft. downstream from Ak. hwy.

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE .5	.4	.3				
.9	1.0	.6	.45	.7	.4	.13
1.2	1.0	.7	.65	1.0	.3	.20
1.5	1.0	.75	.725	1.0	.3	.23
1.8	1.05	.75	.75	1.025	.3	.23
2.1	1.1	.8	.775	1.075	.3	.25
2.4	.9	.8	.8	1.0	.3	.24
RBWE 2.8	.8	.7	.75	.85	.4	.26

Calculations checked by GE Discharge 1.5 cfs

Discharge _____ m^3/s

9/15/81 - Silver Creek (RX 125-1) looking downstream 100 ft below upper NWA alignment.

9/15/81 - Silver Creek (RX 125-1) looking NW along upper NWA crossing. Person in foreground standing in sedge and Equisetum-filled channel.

By Kay & Johnson Waterbody Silver Creek

Date 17 September 1981 EMG-RX # 125-1

Section Surveyed 40ft above AK hwy

Fish present/Use GR / rearing

Gear/Effort Weir trap / continuous

Tw = 3.5°C

Species	Length	Remarks
GR	85mm	

By Johnson & Bach Waterbody Silver Creek

Date 28 September 1981 EMG-RX # 125-1

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 0.5°C

D.O. 8 ppm pH — Conductivity 40 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions 1/2 in ice on creek

Weather Cloudy, cold

Photographs —

Remarks No fish in traps - traps removed

16 October 1981 - Tw = 0°C. Stream completely ice covered at upper NWA alignment crossing with flow under ice. Lower 2 crossings not marked by any survey and could not be found. - Elliott & Breyman

By Bach & Johnson Waterbody Silver Creek

Date 28 September 1981 EMG-RX # 125-1

Transect Location 15 ft. upstream from Alaska highway

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE 1.5	.35	.05				
2.0	.35	.05	.05	.35	.5	.009
2.5	.5	.1	.075	.425	.5	.016
3.0	.5	.15	.125	.5	.5	.031
3.4	.5	.3	.225	.5	.4	.045
3.8	.8	.5	.4	.65	.4	.104
4.1	.7	.7	.6	.75	.3	.135
4.4	.75	.95	.825	.725	.3	.179
4.7	.6	.7	.825	.675	.3	.167
RBWE 5.1	.4	.35	.525	.5	.4	.105

Calculations checked by PB Discharge 0.8 cfs

Discharge _____ m^3/s

By Elliott & Kay Waterbody Unnamed Creek

Date 30 May 1981 EMG-RX # 128-1

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type

Wetted width — Depth — Gradient Low

Banks/Soils low/tundra mat, sandy at hwy.

Aquatic Vegetation Present-sedge Cover —

Riparian Vegetation Willow, tussock/shrub tundra

Barriers No surface flow

Drainage Structures/Conditions 48in x 120ft multiplate CMP at hwy

Ice Conditions None

Weather Clear, hot & dusty

Photographs —

Remarks No surface flow - some standing water at Napline and ca 150ft below hwy. Mostly wet tundra above & below Napline. Scour hole at hwy CMP outlet dry & over 8ft deep. Flat, open sandy area with no channel above hwy. sparcely vegetated with small ~~aspen~~ cottonwood. Tall stand of willows above open area.

12 June - No flow

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 128-1

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions *

Ice Conditions none.

Weather

Photographs

Remarks * See previous survey on 30 May 1981 and other spring surveys.

No flow at AK.hwy. this date.

28 June 1981 - No flow at AK.hwy.

29 June 1981 - No flow at AK hwy.

6 July 1981 - No flow at AK hwy.

21 July 1981 - No flow at AK.hwy.

24 July 1981 - No flow at AK.hwy.

3 August 1981 - No flow at AK. hwy.

17 August 1981 - No flow at AK hwy.

By J. Kay Waterbody Unnamed Creek

Date 8 September 1981 EMG-RX # 128-1

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover —

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions *

Ice Conditions none

Weather —

Photographs —

Remarks * See previous survey on 30 May 1981
No surface flow at NWA alignment

10 September 1981 — No flow at AK hwy

By G. Elliott Waterbody Unnamed Creek

Date 16 September 1981 EMG-RX # 128-1

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover —

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none

Weather Partly sunny, warm

Photographs 5-25 → u.s. to hwy. CMP outlet / 5-26 → us. at NWA alignment / 5-27 → ds. about 200ft. below NWA alignment.

Remarks * See previous survey on 30 May 1981.
No surface flow - standing water ponded on Haines P/L ROW & between tussocks below Haines ROW.

30 September 1981 - No flow at Ak. hwy.

No flow has been observed at the Ak. highway on numerous other occasions throughout the entire season in 1981.
- CMP at AHMP 1241.2

16 October 1981 - No flow at Ak. hwy - Elliott & Breyman

9/16/81 - Unnamed Creek (RX 128-1) looking upstream to Alaska highway CMP outlet and scour hole.

9/16/81 - Unnamed Creek (RX 128-1) looking upstream across Haines pipeline ROW.

9/16/81 - Unnamed Creek (RX 128-1) looking downstream 200 ft below NWA alignment.

By Kay & Johnson Waterbody Unnamed Creek

Date 26 May 1981 EMG-RX # 128-2

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 7.5°C

D.O. 9 ppm pH — Conductivity 38 µmhos

Bottom Type organic detritus

Wetted width 1-2 ft. Depth 0.2-1 ft. Gradient Low

Banks/Soils gentle slope / loam-organic

Aquatic Vegetation Absent Cover

Riparian Vegetation Willow, spruce, grass

Barriers underground flow below "crater"

Drainage Structures/Conditions 36in CMP at hwy.

Ice Conditions None

Weather Overcast, light wind, T_A = 13°C

Photographs 11-1 Napline / 11-2 Pond below Napline / 11-3 "Crater"
11-4 → ds? below hwy

Remarks First noticable flow of the season. Stream flow from above hwy goes underground at the crater pool. Running water was heard in cave-in at crater outlet. A tributary from the south joins this stream channel ~~at~~ a small pond at Napline then flows into a larger pond downstream ~~flow~~ from Napline. There is no flow at the outlet of the larger pond below Napline (see sketch)

Water depth in hwy CMP near outlet = 0.11 ft.

5/26/81 - Unnamed Creek (RX 128-2) looking downstream across "crater" between NWA alignment and Alaska highway.

5/26/81 - Unnamed Creek (RX 128-2) looking upstream between "crater" and Alaska highway.

5/26/81 - Unnamed Creek (RX 128-2) looking downstream across 1st pond below NWA crossing.

5/26/81 - Unnamed Creek (RX 128-2& looking SE along Haines P/L Row. All surface flow from 128-3, 128-2 drainage (dry below "crater") enters from left.

By Kay & Johnson Waterbody Unnamed Creek

Date 25 June 1981 EMG-RX # 128-2

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation — Cover —

Riparian Vegetation *

Barriers no flow

Drainage Structures/Conditions *

Ice Conditions none

Weather

Photographs

Remarks * See previous survey on 26 May 1989 and other spring surveys - photos included
No flow at Ak. hwy this date
28 June 1981 - low flow at Ak. hwy. 1 in deep at CMP outlet
29 June 1981 - Tw = 8°C - low flow at Ak. hwy.
6 July 1981 - flow at Ak. hwy - No surface flow out of "crater" or 1st pond below Haines P/L
21 July 1981 - No flow at Ak. hwy.
24 July 1981 - No flow at Ak hwy.
31 July 1981 - No flow at Ak. hwy
3 August 1981 - No flow at Ak. hwy.
17 August 1981 - No flow at Ak. hwy.

By J. Kay Waterbody Unnamed Creek

Date 8 September 1981 EMG-RX # 128-2

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation * Cover —

Riparian Vegetation *

Barriers no surface flow

Drainage Structures/Conditions *

Ice Conditions —

Weather —

Photographs —

Remarks * See previous survey on 26 May 1981
No surface flow at NWA alignment this date.

10 September 1981 - No flow at Ak. hwy.

By G. Elliott Waterbody Unnamed Creek

Date 16 September 1981 EMG-RX # 128-2

Site Access On foot from Alaska highway

Color/Turbidity — Temperature —

D.O. — pH — Conductivity —

Bottom Type *

Wetted width — Depth — Gradient *

Banks/Soils *

Aquatic Vegetation Present Cover

Riparian Vegetation *

Barriers no surface flow

Drainage Structures/Conditions *

Ice Conditions none

Weather Partly sunny, warm

Photographs 5-28 → NW along Haines P/L ROW. 128-3 follows P/L through sedge to "confluence" with 128-2 in willows behind sedge.

Remarks * See previous survey on 26 May 1981. No surface flow - "Crater" above NWA alignment dry - 1st pond below NWA crossing dry.

Aquatic vegetation (sedge) present from confluence with 128-3 "downstream"

30 September 1981 - No flow at AK. hwy.

- CMP at AHMP 1240.6

16 October 1981 - No flow at AK. hwy. - Elliott & Breyman

9/16/81 - Unnamed Creeks (RX 128-2 & 3) looking NW along Haines pipeline ROW. 128-3 follows P/L through sedge, 128-2 enters from right in willows behind sedge.

By Elliott Kay & Johnson Waterbody Unnamed Creek

Date 28 June 1981 EMG-RX # 128-3

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature —

D.O. — pH — Conductivity —

Bottom Type

Wetted width Depth Gradient

Banks/Soils

Aquatic Vegetation Cover

Riparian Vegetation

Barriers

Drainage Structures/Conditions

Ice Conditions

Weather

Photographs

Remarks * See survey on 26 May 1981 for RX 128-2 and sketch in spring report. This is tributary entering from south.
- low flow at AK.hwy this date.
21 July 1981 - very low flow at AK.hwy.
17 August 1981 - Tw = 8°C - slight flow at AK.hwy.

By G. Elliott Waterbody Unnamed Creek

Date 16 September 1981 EMG-RX # 128-3

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature

D.O. pH Conductivity

Bottom Type Tussock tundra, moss, silt

Wetted width Depth Gradient low

Banks/Soils none - very slight / tundra mat

Aquatic Vegetation Present Cover

Riparian Vegetation Spruce, cottonwood, aspen, willow, tussock tundra

Barriers Intermittent flow.

Drainage Structures/Conditions 24in x 50ft. CMP at Ak. hwy.

Ice Conditions none

Weather Partly sunny, warm

Photographs 5-29 → ds. about 150ft below NWA crossing / 5-30 → us at NWA crossing / 5-31 → ds across NWA crossing / 5-32 → ds from AK hwy culvert.

Remarks Trickle flow present at AK hwy CMP and at Haines P/L ROW. Unable to find flow between - spread out through tussock tundra. Pond downstream from crossing has water in it. Intermittent flow through moss 300ft. below Haines ROW. No surface flow at confluence with 128-2.

30 September 1981 - Trickle flow at AK. hwy. - thin ice on scum pool.

- CMP at approximately AHMP 1240.2

9/16/81 - Unnamed Creek (RX 128-3) looking downstream 150 ft below NWA alignment.

9/16/81 - Unnamed Creek (RX 128-3) looking downstream across Haines pipeline ROW.

9/16/81 - Unnamed Creek (RX 128-3) looking downstream from Alaska highway CMP.

9/16/81 - Unnamed Creek (RX 128-3) looking upstream across Haines pipeline ROW.

By Johnson, Kay Elliott Waterbody Unnamed Creek

Date 7 May 1981 EMG-RX # 129-5

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 3°C

D.O. 12 ppm pH — Conductivity 50 µmhos

Bottom Type aquatic vegetation, organic

Wetted width 1 to 15 ft. Depth 0.5 to 1.5 ft Gradient low

Banks/Soils low banks/organic mat

Aquatic Vegetation Present Cover 90%

Riparian Vegetation grass, willow, alder, spruce

Barriers Possibly spread out flow through tussock tundra

Drainage Structures/Conditions highway culvert/not inspected

Ice Conditions stream substrate frozen, some bottom ice

Weather Partly cloudy, warm

Photographs 10-4 → ds ~200m below Napline/10-5 → us across Napline/10-6 → us Haines pipeline/10-7 → us ~300m above Napline.

Remarks There is no distinct stream channel for most of the stream reach inspected (~2000 ft above Napline to ~1000 ft. below Napline) Much of the streams flow is spread out through tussock tundra The stream crosses the Haines pipeline diagonally, following the right-of-way clearing for ~500 ft through dense sedge. No fish were observed in the reach of stream inspected.

By Kay & Johnson Waterbody Unnamed Creek

Date 1 September 1981 EMG-RX # 129-5

Section Surveyed Beaver dam at lake upstream about 1000 ft.

Fish present/Use None seen or captured.

Gear/Effort Electroshocker / about 1000 ft.

Species	Length	Remarks

By J. Kay Waterbody Unnamed Creek

Date 8 September 1981 EMG-RX # 129-5

Site Access On foot from Alaska highway

Color/Turbidity Colorless/clear Temperature 6°C

D.O. 7 ppm pH 6.0 Conductivity 70 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers Large beaver dam at mouth & 4 others upstream

Drainage Structures/Conditions 36 in x 115 ft. South channel } at Ak hwy.
24 in x 128 ft North channel }

Ice Conditions none

Weather Partly cloudy

Photographs —

Remarks * See previous survey on 7 May 1981.
Flow too slow to register on current meter

By Kay & Johnson Waterbody Unnamed Creek

Date 16 September 1981 EMG-RX # 129-5

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 5°C

D.O. 9 ppm pH 6.1 Conductivity 60 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions none.

Weather –

Photographs –

Remarks * See previous survey on 8 September 1981

By Kay E. Johnson Waterbody Unnamed Creek

Date 16 September 1981 EMG-RX # 129-5

Transect Location 200 ft. downstream from NWA alignment

(LB/RB orientation facing upstream)

Station	Depth	Velocity	Mean Velocity	Mean Depth	Cell Width	Partial Discharge
LBWE .5	0	0				
.8	.45	.9	.45	.225	.3	.030
1.1	.5	.7	.8	.475	.3	.114
1.4	.5	.6	.65	.5	.3	.098
1.7	.5	.7	.65	.5	.3	.098
2.0	.5	.6	.65	.5	.3	.098
RBWE 2.5	0	0	.3	.25	.5	.038

Calculations checked by GE Discharge 0.48 cfs

Discharge _____ m^3/s

By Johnson & Bach Waterbody Unnamed Creek

Date 30 September 1981 EMG-RX # 129-5

Site Access On foot from Alaska highway

Color/Turbidity light brown/clear Temperature 0°C

D.O. 7ppm pH — Conductivity 60 µmhos

Bottom Type *

Wetted width * Depth * Gradient *

Banks/Soils *

Aquatic Vegetation * Cover *

Riparian Vegetation *

Barriers *

Drainage Structures/Conditions *

Ice Conditions 1-2 in ice over stream

Weather Snowing, windy

Photographs —

Remarks * See previous survey on 8 September 1981
Slight flow visible under ice

16 October 1981 - Both channels at AK. hwy ice covered - Elliott & Breyman