Culvert Survey Report

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 001 **VISIT** 1
DATE 6/15/2001 **Time** 12:00:00 PM **Observers:** Cecil Rich, Steve Albert, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.47698 **Long. (dec. deg)** 151.13712
Road Name College Loop Road **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10010-2030-3060
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Slikok Creek

Field Notes: Outlets are perched and have eroded a large pool ; channel turns 90 degrees, and follows left side of valley. Bank stabilization measures at outlet pool have been badly trampled. Evidence of fish cleaning (halibut carcasses) in outlet pool.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 81.1	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.00	5.00
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.00	5.00
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0244		**Manuf. Diameter:**	5.00	5.00
Corrugation Width (in.): 2		**Perch Ht. (Flow - Ind):** -0.13		**Water Depth (ft):**	1.00	0.59
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -1.36		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.40		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Fine Gravel
Sub Dominant Substrate Type:	Silt/Sand	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 12.14

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	12.5	100
Upstrream OHW Width (50 ft.):	12.8	50
Upstrream OHW Width (5 ft.):	25.1	5
Tailcrest Width at OHW:	14.6	49
Outlet Pool OHW Line (Max. Width.):	51	
Downstream OHW Width (100 ft.):	8	100
Downstrream OHW Width (50 ft.):	17.5	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 001U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 50
Susp.Spawn? No **Fork Len. (mm)** 66 51 83 88 59 68
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 001U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 50
Susp.Spawn? No **Fork Len. (mm)** 83 68 62 64
Comments:

Species: chinook salmon **Life Stage:** Adult Spawnin **Species/Life Stage Count:** 20 **Life History:** Anadromous
Stat. ID: 001D1 **Gear:** Visual Observation, Ground **# of Traps set:** **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: rainbow trout **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 001D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 50
Susp.Spawn? No **Fork Len. (mm)** 105 107 100
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 001D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 50
Susp.Spawn? No **Fork Len. (mm)** 86
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 001 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 001D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 50
Susp.Spawn? No **Fork Len. (mm)** 105 109 108 102 91
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Anadromous
Stat. ID: 001D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 50
Susp.Spawn? No **Fork Len. (mm)** 75 74 68
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.5	2	5.27	88.09	82.82	
Left Bank, Ordinary High Water	3.9	2	6.21	88.09	81.88	
Left Bank, Wetted Perimeter	3.8	2	6.71	88.09	81.38	
Left Bank/Bed Slope Break	3.8	2	6.71	88.09	81.38	
Station 1	10.7	2	7.65	88.09	80.44	
Station 2	15.8	2	7.46	88.09	80.63	
Station 3	19	2	7.38	88.09	80.71	
Station 4	22.1	2	7.75	88.09	80.34	
Station 5	25.7	2	8.07	88.09	80.02	
Station 6	27.1	2	8.32	88.09	79.77	
Right Bank/Bed Slope Break	28.5	2	8.16	88.09	79.93	
Right Bank, Wetted Perimeter	29	2	6.55	88.09	81.54	
Right Bank, Ordinary High Water	29	2	6.55	88.09	81.54	
Right Bank, Terrace	31	2	5.94	88.09	82.15	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	23.5	100	76.52	
Upstream station, thalweg 4 (50 ft)	50	1	17.9	100	82.08	
Upstream station, water elev 2 (50 ft)	50	1	16.4	100	83.58	
Upstream station, OHW line 1 (50 ft)	50	1	16.2	100	83.81	
Upstream station, thalweg 5 (100 ft)	100	1	18.3	100	81.71	
Upstream station, water elev 1 (100 ft)	100	1	16.3	100	83.72	
Upstream station, OHW line 1 (100 ft)	100	1	15.7	100	84.29	
Outlet, edge-road		1	3.71	100	96.29	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	18.4	100	81.6	
Inlet, edge-road		1	3.96	100	96.04	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	23	100	77.01	
Downstream station, OHW line 3 (100 ft)	100	1	19.1	100	80.9	
Downstream station, thalweg 1 (tailcrest)	49	1	19.3	100	80.69	
Downstream station, OHW line 1 (tailcrest)	49	1	18.0	100	81.98	
Downstream station, water elev 1 (tailcrest)	49	1	19.1	100	80.92	
Downstream station, thalweg 2 (50 ft)	50	1	19.3	100	80.69	
Downstream station, water elev 2 (50 ft)	50	1	19.1	100	80.92	
Downstream station, OHW line 2 (50)	50	1	18.7	100	81.27	
Downstream station, thalweg 3 (100 ft)	100	1	20.6	100	79.44	
Downstream station, water elev 3 (100 ft)	100	1	19.5	100	80.52	
Outlet, pool water elev		1	18.1	100	81.92	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	17.1	100	82.9	
Outlet, thalweg	A	0	1	19.4	100	80.56	

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Outlet, culvert invert	A	0	1	19.4	100	80.56
Outlet, culvert top	A	0	1	14.3	100	85.67
Upstream station, thalweg 3 (2 CMP widths)	A	10	1	18.9	100	81.15
Upstream station, water elev 1 (5 ft)	A	5	1	16.2	100	83.83
Upstream station, thalweg 2 (5 ft)	A	5	1	18.3	100	81.75
Upstream station, thalweg 1 (1 ft)	A	1	1	18.2	100	81.81
Inlet, culvert thalweg	A	0	1	17.5	100	82.54
Inlet, culvert rustline	A	0	1	14.3	100	85.75
Inlet, culvert invert	A	0	1	17.5	100	82.54
Inlet, culvert top	A	0	1	12.4	100	87.6

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
	A	50	0.7	50	40.5	Pygmy	2.74
Within Culvert, Location 3	A	50	1.5	26	41.2	Pygmy	1.41
Within Culvert, Location 1	A	49	0.7	34	40.7	Pygmy	1.86
	A	100	0.3	43	40.8	Pygmy	2.33
Within Culvert, Location 4	A	100	2	22	40.2	Pygmy	1.22
Within Culvert, Location 1	B					N/A	
	B					N/A	
	B					N/A	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	81.1	13	14	15	14		5.79 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 2	100	2	22	40.2	Pygmy	1.22
Downstream from Outlet of Culvert, Location 2	100	0.3	43	40.8	Pygmy	2.33
Downstream from Outlet of Culvert, Location 3	49	0.7	34	40.7	Pygmy	1.86
Upstream from Inlet of Culvert, Location 1	50	1.5	26	41.2	Pygmy	1.41
Downstream from Outlet of Culvert, Location 1	50	0.7	50	40.5	Pygmy	2.74

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 001 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 002 **VISIT** 1
DATE 6/15/2001 **Time** 2:00:00 PM **Observers:** Cecil Rich, Steve Albert, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.47054 **Long. (dec. deg)** 150.88326
Road Name Funny River Road **Region:** SCN
Quad Name: Kenai **ITM:** B-3 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Bear Creek

Field Notes: Outlet is perched about 10 inches. This culvert was replaced in 2002.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** **Classification:**
Length: 91 **Cross. Structure Type:**
Entrance Type: Projecting **Tidal Influence:** No
Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 2 **Perch Ht. (Flow - Ind):**
Perch Ht. (Flow -Dep):
Encrochment Ratio: 0.51

	Inlet	Outlet
Width (ft):	5.00	5.20
Height (ft):	2.03	4.54
Water Depth (ft):	0.80	0.50
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	70	0
Culv. Blockage (%):	20	0

	Inlet	Outlet
Substrate Type:		
Erosion:	N/A	N/A

Stream-related

Stream Discharge: 12.23

	Upstream	Downstream
Dominant Substrate Type:		
Sub Dominant Substrate Type:		
Bank Comp:	N/A	N/A

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	Spawning and Rearing

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	10.5	71
Upstrream OHW Width (50 ft.):	9.2	50
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):	8	100
Downstrream OHW Width (50 ft.):	14.2	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Adult **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 002U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 78 89 66 110
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 002D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 84 79 84 73
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 002D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 54 66
Comments:

Species: rainbow trout **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Unknown
Stat. ID: 002D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 134
Comments:

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 10 **Life History:** Resident
Stat. ID: 002D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 102 84 89 89 118 79 92 61 62 89
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 002 **VISIT** 1

Species: sculpin, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 002D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33

Susp.Spawn? No **Fork Len. (mm)** 110

Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, edge-road		1		100		

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 2	A	71	0.7	60	40.4	Standard_Price AA	3.28
Upstream from Inlet of Culvert, Location 1	A	50	0.8	37	40.7	Standard_Price AA	2.01
Outlet Pool Tailcrest	A	12	0.8	101	40	Standard_Price AA	5.57
Downstream from Outlet of Culvert, Location 2	A	100	0.4	90	40.3	Standard_Price AA	4.94
Downstream from Outlet of Culvert, Location 1	A	50	0.9	88	40	Standard_Price AA	4.86

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	91	16.34	14.24	12.8	13.6		6.39 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 1	50	0.9	88	40	Standard_Price AA	4.86
Downstream from Outlet of Culvert, Location 2	100	0.4	90	40.3	Standard_Price AA	4.94
Outlet Pool Tailcrest	12	0.8	101	40	Standard_Price AA	5.57
Upstream from Inlet of Culvert, Location 1	50	0.8	37	40.7	Standard_Price AA	2.01
Upstream from Inlet of Culvert, Location 2	71	0.7	60	40.4	Standard_Price AA	3.28

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 002 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 003 **VISIT** 1
DATE 6/19/2001 **Time** 11:20:00 AM **Observers:** Cecil Rich, Steve Albert, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.43401 **Long. (dec. deg)** 151.1199
Road Name Arc Loop Road **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10010-2030-3060
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Slikok Creek

Field Notes: Short pipe; erosion at inlet and fill slope erosion runoff from road causing gullying. DOTreplaced this culvert in 2002.
Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** gray

					Inlet	Outlet
Length:	30.6	**Cross. Structure Type:**	Corrugated Metal pipe arch (squash pipe)	**Width (ft):**	9.50	9.00
		Entrance Type:	Projecting	**Height (ft):**	5.85	6.25
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Water Depth (ft):**	1.34	1.33
	Inlet	**Outlet**		**Substr. Dep (ft):**	0.09	0.00
Substrate Type:	Large Cobble	None		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Tidal Influence: No
Culvert Gradient: -0.002
Perch Ht. (Flow - Ind): -0.83
Perch Ht. (Flow -Dep): -1.25
Encrochment Ratio: 0.74

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Silt/Sand	Small Cobble
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 11.46

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	15.7	100
Upstrream OHW Width (50 ft.):	9.9	50
Upstrream OHW Width (5 ft.):	18	5
Tailcrest Width at OHW:	46	12.7
Outlet Pool OHW Line (Max. Width.):		20.8
Downstream OHW Width (100 ft.):	100	13.5
Downstrream OHW Width (50 ft.):	50	13

Fish Surveys

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 10 **Life History:** Resident
Stat. ID: 003U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.66
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 27 **Life History:** Anadromous
Stat. ID: 003D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.66
Susp.Spawn? No **Fork Len. (mm)** 86 97 87 73 82 82 79 77 92 90
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 003D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.66
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: sculpin, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 003D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.66
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 003U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.66
Susp.Spawn? No **Fork Len. (mm)** 77 95 97 80 83 82
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 003 **VISIT** 1

Species: sculpin, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 003U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.66

Susp.Spawn? No **Fork Len. (mm)**

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	5.4	2	10	100.25	90.25	
Left Bank, Ordinary High Water	6.7	2	11.03	100.25	89.22	
Left Bank, Wetted Perimeter	6.7	2	11.2	100.25	89.05	
Left Bank/Bed Slope Break	6.7	2	11.08	100.25	89.17	
Station 1	12	2	11.9	100.25	88.35	
Station 2	16	2	11.91	100.25	88.34	
Station 3	18	2	12.11	100.25	88.14	
Right Bank/Bed Slope Break	19.6	2	12.32	100.25	87.93	
Right Bank, Wetted Perimeter	19.6	2	11.18	100.25	89.07	
Right Bank, Ordinary High Water	20	2	10.64	100.25	89.61	
Right Bank, Terrace	20.6	2	10.02	100.25	90.23	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	14	100	86	
Upstream station, thalweg 4 (50 ft)	50	1	14.6	100	85.37	
Upstream station, water elev 2 (50 ft)	50	1	11.0	100	88.98	
Upstream station, OHW line 1 (50 ft)	50	1	9.73	100	90.27	
Upstream station, thalweg 5 (100 ft)	100	1	13.3	100	86.69	
Upstream station, water elev 1 (100 ft)	100	1	11.3	100	88.71	
Upstream station, OHW line 1 (100 ft)	100	1	11.0	100	88.98	
Outlet, edge-road		1	3.42	100	96.58	
Outlet, pool OHWS lijne 1 (within 5 ft.)		1	10.9	100	89.08	
Inlet, edge-road		1	3.33	100	96.67	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	12.4	100	87.58	
Downstream station, OHW line 3 (100 ft)	100	1	11.3	100	88.75	
Downstream station, thalweg 1 (tailcrest)	46	1	11.8	100	88.25	
Downstream station, OHW line 1 (tailcrest)	46	1	10.4	100	89.58	
Downstream station, water elev 1 (tailcrest)	46	1	11.4	100	88.58	
Downstream station, thalweg 2 (50 ft)	50	1	11.7	100	88.31	
Downstream station, water elev 2 (50 ft)	50	1	11.4	100	88.58	
Downstream station, OHW line 2 (50)	50	1	10.4	100	89.58	
Downstream station, thalweg 3 (100 ft)	100	1	13.4	100	86.58	
Downstream station, water elev 3 (100 ft)	100	1	14.2	100	85.79	
Outlet, pool water elev	5	1	11.3	100	88.67	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	9	100	91	
Outlet, thalweg	A	0	1	12.6	100	87.42	
Outlet, culvert invert	A	0	1	12.6	100	87.42	
Outlet, culvert top	A	0	1	6.33	100	93.67	
Upstream station, thalweg 3 (2 CMP widths)	A	19	1	13.2	100	86.83	
Upstream station, OHW line 1 (1 ft)	A	5	1	10.9	100	89.06	
Upstream station, water elev 1 (5 ft)	A	5	1	11.1	100	88.92	
Upstream station, thalweg 2 (5 ft)	A	5	1	12.2	100	87.83	
Upstream station, thalweg 1 (1 ft)	A	1	1	12.5	100	87.46	

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Inlet, culvert thalweg	A	0	1	12.5	100	87.46
Inlet, culvert rustline	A	0	1	8.96	100	91.04
Inlet, culvert invert	A	0	1	12.7	100	87.35
Inlet, culvert top	A	0	1	6.79	100	93.21

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Inlet, Location 2	A	0	1.3	19	40.5	Pygmy	1.04
At Culvert Inlet, Location 1	A	0	1.3	28	40.4	Pygmy	1.55
Upstream from Inlet of Culvert, Location 1	A	100	1.8	11	41.5	Pygmy	0.60
Downstream from Outlet of Culvert, Location 2	A	100	1.1	114	40.2	Pygmy	6.26
Downstream from Outlet of Culvert, Location 1	A	50	0.8	29	40.7	Pygmy	1.58
Outlet Pool Tailcrest	A	50	0.8	29	40.7	Pygmy	1.58

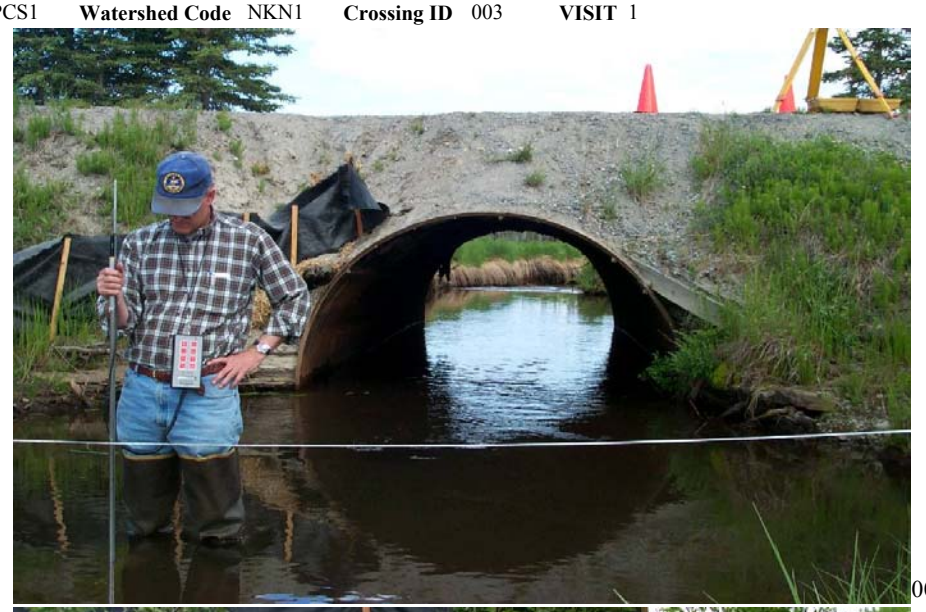
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	30.6	41	42	41			.74 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	50	0.8	29	40.7	Pygmy	1.58
Downstream from Outlet of Culvert, Location 1	50	0.8	29	40.7	Pygmy	1.58
Downstream from Outlet of Culvert, Location 2	100	1.1	114	40.2	Pygmy	6.26
Upstream from Inlet of Culvert, Location 1	100	1.8	11	41.5	Pygmy	0.60
At Culvert Inlet, Location 1	0	1.3	28	40.4	Pygmy	1.55
At Culvert Inlet, Location 2	0	1.3	19	40.5	Pygmy	1.04

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 003 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 004 **VISIT** 1
DATE 6/19/2001 **Time** 2:30:00 PM **Observers:** Cecil Rich, Michael Lund, Steve Albert, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.43719 **Long. (dec. deg)** 151.12163
Road Name Sterling Highway **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10010-2030-3060
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Slikok Creek

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length: 122	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	7.50	7.50
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	8.50	8.50
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0046		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):** 2.02		**Water Depth (ft):**	0.40	1.08
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.27	0.36
Substrate Type: None	None	**Encrochment Ratio:** 0.59		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Sands	Sands
Sub Dominant Substrate Type:	Coarse Gravel	Silt/Sand
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: N/A

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	13	100
Upstrream OHW Width (50 ft.):	12.3	50
Upstrream OHW Width (5 ft.):	6.2	5
Tailcrest Width at OHW:	18	35
Outlet Pool OHW Line (Max. Width.):	21.9	
Downstream OHW Width (100 ft.):	6	100
Downstrream OHW Width (50 ft.):	14.4	50

Fish Surveys

Species: stickleback, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** **Life History:** Resident
Stat. ID: 004U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)**
Comments: many caught but not counted

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** **Life History:** Resident
Stat. ID: 004U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)**
Comments: some caught in each of 3 traps

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 9 **Life History:** Anadromous
Stat. ID: 004U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)** 83 82 82 92 73 89 78 76 83
Comments:

Species: stickleback, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** **Life History:** Resident
Stat. ID: 004D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.17
Susp.Spawn? No **Fork Len. (mm)**
Comments: fish found in 2 of 3 traps

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 19 **Life History:** Anadromous
Stat. ID: 004D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.17
Susp.Spawn? No **Fork Len. (mm)** 62 88 77 92 82 108 87 66 82 86
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 004 **VISIT** 1

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous

Stat. ID: 004D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.17

Susp.Spawn? No **Fork Len. (mm)** 105 120

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.5	2	12.88	99.18	86.3	
Left Bank, Ordinary High Water	4.2	2	13.94	99.18	85.24	
Left Bank, Wetted Perimeter	4.3	2	14.19	99.18	84.99	
Left Bank/Bed Slope Break	4.5	2	13.04	99.18	86.14	
Station 1	5.1	2	16.25	99.18	82.93	
Station 2	6	2	15.65	99.18	83.53	
Station 3	8.2	2	16.69	99.18	82.49	
Station 4	11	2	17.04	99.18	82.14	
Station 5	11.9	2	17.19	99.18	81.99	
Station 6	12.9	2	17.23	99.18	81.95	
Right Bank/Bed Slope Break	14.5	2	16.02	99.18	83.16	
Right Bank, Wetted Perimeter	14.5	2	14.19	99.18	84.99	
Right Bank, Ordinary High Water	14.8	2	12.73	99.18	86.45	
Right Bank, Terrace	15.7	2	13.02	99.18	86.16	mid-terrace
Right Bank, Bankfull	16.4	2	12.73	99.18	86.45	terrace

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 1 (tailcrest)	34	1	15.7	100	84.33	
Upstream station, thalweg 4 (50 ft)	50	1	18.3	100	81.75	
Upstream station, water elev 2 (50 ft)	50	1	15.4	100	84.62	
Upstream station, OHW line 1 (50 ft)	50	1	14.8	100	85.17	
Upstream station, thalweg 5 (100 ft)	100	1	17.5	100	82.54	
Upstream station, water elev 1 (100 ft)	100	1	14.7	100	85.29	
Inlet, edge-road		1	2.25	100	97.75	
Downstream station, thalweg 1 (tailcrest)	34	1	19.3	100	80.67	
Downstream station, OHW line 3 (100 ft)	120	1	15.6	100	84.4	
Downstream station, water elev 1 (tailcrest)	34	1	16.4	100	83.58	
Downstream station, thalweg 2 (50 ft)	50	1	19.2	100	80.77	
Downstream station, water elev 2 (50 ft)	50	1	16.4	100	83.6	
Downstream station, OHW line 2 (50)	50	1	15.4	100	84.65	
Downstream station, thalweg 3 (100 ft)	120	1	17.2	100	82.83	
Downstream station, water elev 3 (100 ft)	120	1	16.4	100	83.58	
Outlet, edge-road		1	2.38	100	97.62	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, thalweg	A	0	1	17.7	100	82.33	
Outlet, rustline	A	0	1	13.2	100	86.77	
Outlet, culvert invert	A	0	1	17.3	100	82.69	
Outlet, culvert top	A	0	1	9.42	100	90.58	
Upstream station, thalweg 3 (2 CMP widths)	A	15	1	17.5	100	82.46	
Upstream station, OHW line 1 (1 ft)	A	5	1	15.4	100	84.62	
Upstream station, water elev 1 (5 ft)	A	5	1	15.5	100	84.54	
Upstream station, thalweg 2 (5 ft)	A	5	1	17.1	100	82.87	
Upstream station, thalweg 1 (1 ft)	A	1	1	16.8	100	83.21	
Inlet, culvert thalweg	A	0	1	16.8	100	83.25	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 004 **VISIT** 1

Inlet, culvert rustline	A	0	1	13.3	100	86.73
Inlet, culvert invert	A	0	1	16.8	100	83.25
Inlet, culvert top	A	0	1	9.04	100	90.96

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet, Location 1	A	0	0.8	35	40	Standard_Price AA	1.95
At Culvert Inlet, Location 1	A	0	0.9	41	40.7	Standard_Price AA	2.24
Upstream from Inlet of Culvert, Location 2	A	100	2	12	42.7	Standard_Price AA	0.64
Upstream from Inlet of Culvert, Location 1	A	50	2.9	9	40.8	Standard_Price AA	0.50
Outlet Pool Tailcrest	A	34	2.9	5	44.2	Standard_Price AA	0.27
Downstream from Outlet of Culvert, Location 2	A	120	0.65	26	41.2	Standard_Price AA	1.41
Downstream from Outlet of Culvert, Location 1	A	84	1.7	24	41.5	Standard_Price AA	1.29

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	122	78	81	102			1.40 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 1	84	1.7	24	41.5	Standard_Price AA	1.29
Downstream from Outlet of Culvert, Location 2	120	0.65	26	41.2	Standard_Price AA	1.41
Outlet Pool Tailcrest	34	2.9	5	44.2	Standard_Price AA	0.27
Upstream from Inlet of Culvert, Location 1	50	2.9	9	40.8	Standard_Price AA	0.50
Upstream from Inlet of Culvert, Location 2	100	2	12	42.7	Standard_Price AA	0.64
At Culvert Inlet, Location 1	0	0.9	41	40.7	Standard_Price AA	2.24
At Culvert Outlet, Location 1	0	0.8	35	40	Standard_Price AA	1.95

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 004 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 005 **VISIT** 1
DATE 6/20/2001 **Time** 9:40:00 AM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.35139 **Long. (dec. deg)** 151.21492
Road Name Sterling Highway **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10050-2015
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Coal Creek

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

			Inlet	Outlet
Length: 108	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	7.50	7.50
	Entrance Type: Mitered **Tidal Influence:** No	**Height (ft):**	8.50	8.50
Corrugation Depth (in.): 2	**Baffles Present:** No **Culvert Gradient:** 0.0160	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):** 3.18	**Water Depth (ft):**	1.48	1.44
	Perch Ht. (Flow -Dep): -1.00	**Substr. Dep (ft):**	0.00	0.00
	Encrochment Ratio: 0.53	**Struc. Damage (%):**	0	0
		Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	None
Sub Dominant Substrate Type:	Sands	None
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 3.45

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	11.8	100
Upstrream OHW Width (50 ft.):	16.4	50
Upstrream OHW Width (5 ft.):	9.3	5
Tailcrest Width at OHW:	14	54
Outlet Pool OHW Line (Max. Width.):	35.2	
Downstream OHW Width (100 ft.):	12	116
Downstrream OHW Width (50 ft.):	14	65

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 17 **Life History:** Anadromous
Stat. ID: 005U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.58
Susp.Spawn? No **Fork Len. (mm)** 84 102 82 76 73 68 87 109 87 86
Comments: 82

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 005U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.58
Susp.Spawn? No **Fork Len. (mm)** 69 65 65 70
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 005U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.58
Susp.Spawn? No **Fork Len. (mm)** 86
Comments:

Species: rainbow trout **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 005D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 113
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 22 **Life History:** Anadromous
Stat. ID: 005D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 66 78 84 78 62 64 57 77 69 62
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 005 **VISIT** 1

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 005D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 67
Comments:

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Unknown
Stat. ID: 005D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 124
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 005D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 57
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	22.4	2	7.04	88.17	81.13	
Left Bank, Bankful	21	2	7.63	88.17	80.54	mid-terrace not bankfull
Left Bank, Ordinary High Water	20	2	8.17	88.17	80	
Station 3	18.8	2	9.08	88.17	79.09	mid-slope
Left Bank, Wetted Perimeter	18	2	9.35	88.17	78.82	
Left Bank/Bed Slope Break	14	2	9.56	88.17	78.61	
Station 1	9.6	2	10.04	88.17	78.13	
Station 2	3.8	2	10.29	88.17	77.88	
Right Bank/Bed Slope Break	3.4	2	10.06	88.17	78.11	
Right Bank, Wetted Perimeter	3.4	2	9.29	88.17	78.88	
Right Bank, Ordinary High Water	3.4	2	9.4	88.17	78.77	more reliable elev th LB
Right Bank, Terrace	2	2	8.83	88.17	79.34	more reliable elev th LB

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	22.2	100	77.81	
Upstream station, thalweg 4 (50 ft)	50	1	18.6	100	81.42	
Upstream station, water elev 2 (50 ft)	50	1	15.9	100	84.15	
Upstream station, OHW line 1 (50 ft)	50	1	16.4	100	83.56	
Upstream station, thalweg 5 (100 ft)	100	1	18.6	100	81.42	
Upstream station, OHW line 1 (100 ft)	100	1	15.5	100	84.54	
Outlet, edge-road		1	2.77	100	97.23	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	17.2	100	82.79	
Inlet, edge-road		1	2.77	100	97.23	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	21.7	100	78.31	
Downstream station, OHW line 2 (50)	116	1	17.1	100	82.92	
Downstream station, thalweg 2 (50 ft)	65	1	18.0	100	81.96	
Downstream station, water elev 2 (50 ft)	65	1	17.5	100	82.48	
Downstream station, OHW line 3 (100 ft)	65	1	17.3	100	82.75	
Downstream station, thalweg 3 (100 ft)	116	1	18.1	100	81.87	
Downstream station, water elev 3 (100 ft)	116	1	17.7	100	82.29	
Outlet, pool water elev	5	1	17.9	100	82.06	
Downstream station, thalweg 1 (tailcrest)	54	2	10.3	88.17	77.88	
Downstream station, OHW line 1 (tailcrest)	54	2	9.4	88.17	78.77	
Downstream station, water elev 1 (tailcrest)	54	2	9.32	88.17	78.85	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	16.2	100	83.77	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 005 **VISIT** 1

Outlet, thalweg	A	0	1	18.9	100	81.06
Outlet, culvert invert	A	0	1	18.9	100	81.06
Outlet, culvert top	A	0	1	10.8	100	89.17
Upstream station, thalweg 3 (2 CMP widths)	A	15	1	17.8	100	82.17
Upstream station, OHW line 1 (1 ft)	A	5	1	15.5	100	84.52
Upstream station, water elev 1 (5 ft)	A	5	1	15.8	100	84.17
Upstream station, thalweg 2 (5 ft)	A	5	1	17.7	100	82.33
Upstream station, thalweg 1 (1 ft)	A	1	1	17.2	100	82.83
Inlet, culvert thalweg	A	0	1	17.2	100	82.79
Inlet, culvert rustline	A	0	1	15	100	85
Inlet, culvert invert	A	0	1	17.2	100	82.79
Inlet, culvert top	A	0	1	10.0	100	89.96

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	55	0.4	20	41.2	Standard_Price AA	1.09
Downstream from Outlet of Culvert, Location 2	A	124	0.35	19	41.9	Standard_Price AA	1.02
Downstream from Outlet of Culvert, Location 1	A	65	0.4	17	41.5	Standard_Price AA	0.92
Upstream from Inlet of Culvert, Location 2	A	100	2.5	5	41.5	Standard_Price AA	0.28
Upstream from Inlet of Culvert, Location 1	A	50	2.4	5	44.4	Standard_Price AA	0.27

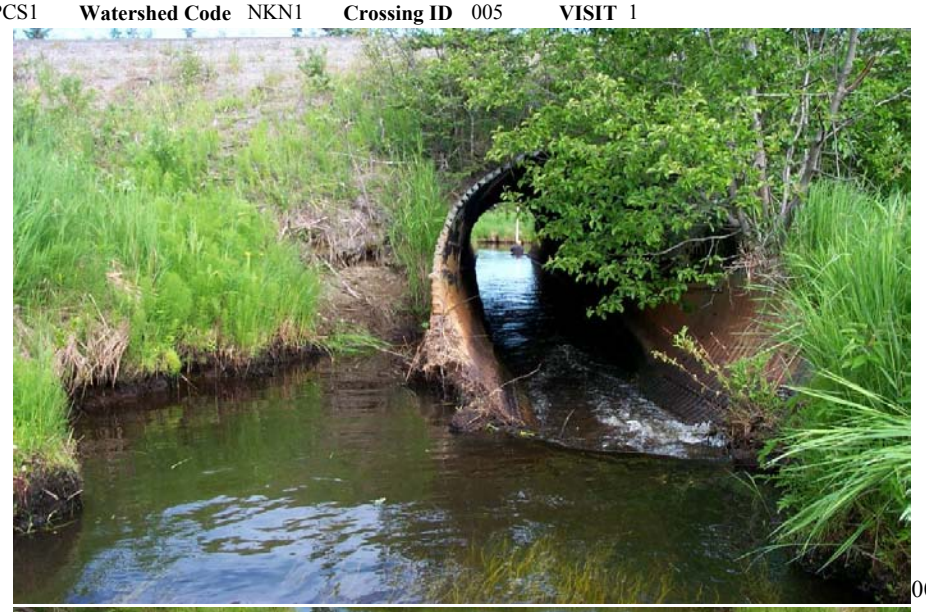
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	108	90	108	86	93	92.00	1.15 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	2.4	5	44.4	Standard_Price AA	0.27
Upstream from Inlet of Culvert, Location 2	100	2.5	5	41.5	Standard_Price AA	0.28
Downstream from Outlet of Culvert, Location 1	65	0.4	17	41.5	Standard_Price AA	0.92
Downstream from Outlet of Culvert, Location 2	124	0.35	19	41.9	Standard_Price AA	1.02
Outlet Pool Tailcrest	55	0.4	20	41.2	Standard_Price AA	1.09

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 005 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 006 **VISIT** 1
DATE 6/20/2001 **Time** 2:00:00 PM **Observers:** Cecil Rich, Durand Cook, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.47384 **Long. (dec. deg)** 151.13797
Road Name Kalifornski Beach Road **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10010-2030-3060
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Slikok Creek

Field Notes: root wad revetment erosion control at inlet and outlet - full head walls. No deep habitat upstream except under culvert (>2 feet deep most N 1 foot) some deeper areas downstream.
Road Prism Type: Through Fill **Spec. Site Cond.:** ATV activity upstream

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 1	**Classification:** gray				
Length: 96	**Cross. Structure Type:** Corrugated Metal Arch -- open bottom			**Width (ft):**	17.50	17.60
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	7.33	9.08
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0195		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):** -1.64		**Water Depth (ft):**	1.02	2.45
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -2.52		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.64		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	None	None
Bank Comp:	Alluvium	Alluvium
	Suit	**Type**
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Stream Discharge: 5.82

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	12.6	122
Upstrream OHW Width (50 ft.):	41.8	50
Upstrream OHW Width (5 ft.):	24.2	5
Tailcrest Width at OHW:	19.8	
Outlet Pool OHW Line (Max. Width.):	31.6	
Downstream OHW Width (100 ft.):	14	111.5
Downstrream OHW Width (50 ft.):	12.9	74

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 006U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)** 70 71 62
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 006U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)** 69 61 84
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Anadromous
Stat. ID: 006D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 76 75 54 65 66 68 72 63 66 85
Comments:

Species: threespine stickleback **Life Stage:** Adult **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 006D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 58 56 67 60
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 006D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 65 53 71 69 85
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 006 **VISIT** 1

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 2 **Life History:** Resident

Stat. ID: 006D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05

Susp.Spawn? No **Fork Len. (mm)** 69 77

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	4.8	2	7.55	91.23	83.68	
Left Bank, Ordinary High Water	5.2	2	7.78	91.23	83.45	
Left Bank, Wetted Perimeter	5.2	2	7.64	91.23	83.59	
Left Bank/Bed Slope Break	5.2	2	8.45	91.23	82.7800	
Station 1	10.1	2	8.71	91.23	82.52	
Station 2	11.9	2	8.59	91.23	82.64	
Station 3	13.1	2	8.88	91.23	82.3500	
Station 4	16	2	8.76	91.23	82.47	
Station 5	17.8	2	8.77	91.23	82.4600	
Right Bank/Bed Slope Break	18.8	2	8.77	91.23	82.4600	
Right Bank, Wetted Perimeter	18.8	2	7.64	91.23	83.59	
Right Bank, Ordinary High Water		2		91.23		
Right Bank, Terrace	22	2	4.29	91.23	86.94	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	19.4	100	80.62	
Upstream station, thalweg 4 (50 ft)	50	1	16.8	100	83.25	
Upstream station, water elev 2 (50 ft)	50	1	16.8	100	83.25	
Upstream station, OHW line 1 (50 ft)	50	1	16.1	100	83.92	
Upstream station, thalweg 5 (100 ft)	122	1	17.6	100	82.42	
Upstream station, water elev 1 (100 ft)	122	1	16.5	100	83.5	
Upstream station, OHW line 1 (100 ft)	122	1	16.3	100	83.71	
Outlet, edge-road		1	5.48	100	94.52	
Outlet, pool OHWS lijne 1 (within 5 ft.)		1	16.1	100	83.87	
Inlet, edge-road		1	3.4	100	96.6	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	19.4	100	80.62	
Downstream station, OHW line 3 (100 ft)	111.5	1	16.6	100	83.4	
Downstream station, thalweg 1 (tailcrest)	41	1	17.7	100	82.29	
Downstream station, water elev 1 (tailcrest)	41	1	16.7	100	83.33	
Downstream station, thalweg 2 (50 ft)	74	1	18.2	100	81.77	
Downstream station, water elev 2 (50 ft)	74	1	16.9	100	83.06	
Downstream station, OHW line 2 (50)	74	1	16.6	100	83.4	
Downstream station, thalweg 3 (100 ft)	111.5	1	17.7	100	82.33	
Downstream station, water elev 3 (100 ft)	111.5	1	17.1	100	82.9	
Outlet, pool water elev	5	1	16.8	100	83.17	
Downstream station, OHW line 1 (tailcrest)	41	2	7.78	91.23	83.45	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1		100		none
Outlet, thalweg	A	0	1	19.4	100	80.65	
Outlet, culvert invert	A	0	1	19.4	100	80.65	
Outlet, culvert top	A	0	1	10.1	100	89.9	
Upstream station, thalweg 3 (2 CMP widths)	A	35	1	18	100	82	
Upstream station, OHW line 1 (1 ft)	A	5	1	16.1	100	83.87	
Upstream station, water elev 1 (5 ft)	A	5	1	16.8	100	83.25	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 006 **VISIT** 1

Upstream station, thalweg 2 (5 ft)	A	5	1	19.4	100	80.62	
Upstream station, thalweg 1 (1 ft)	A	1	1	19.1	100	80.87	
Inlet, culvert thalweg	A	0	1	17.5	100	82.52	
Inlet, culvert rustline	A	0	1		100		none
Inlet, culvert invert	A	0	1	17.5	100	82.52	
Inlet, culvert top	A	0	1	10.3	100	89.71	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	23	0.8	15	41.4	Standard_Price AA	0.82
At Culvert Outlet, Location 1	A	0	2.9	5	46	Standard_Price AA	0.26
At Culvert Inlet, Location 1	A	0	2.65	3	45.2	Standard_Price AA	0.16
Downstream from Outlet of Culvert, Location 2	A	111.5	0.45	28	40.7	Standard_Price AA	1.52
Downstream from Outlet of Culvert, Location 1	A	74	0.45	29	41.3	Standard_Price AA	1.57
Upstream from Inlet of Culvert, Location 2	A	122	0.85	43	40	Standard_Price AA	2.39
Upstream from Inlet of Culvert, Location 1	A	50	0.95	13	43.4	Standard_Price AA	0.68

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	96	187	253	240	350		.37 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.95	13	43.4	Standard_Price AA	0.68
Upstream from Inlet of Culvert, Location 2	122	0.85	43	40	Standard_Price AA	2.39
Downstream from Outlet of Culvert, Location 1	74	0.45	29	41.3	Standard_Price AA	1.57
Downstream from Outlet of Culvert, Location 2	111.5	0.45	28	40.7	Standard_Price AA	1.52
At Culvert Inlet, Location 1	0	2.65	3	45.2	Standard_Price AA	0.16
At Culvert Outlet, Location 1	0	2.9	5	46	Standard_Price AA	0.26
Outlet Pool Tailcrest	23	0.8	15	41.4	Standard_Price AA	0.82

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 006 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 007 **VISIT** 1
DATE 6/21/2001 **Time** 10:10:00 AM **Observers:** Cecil Rich, Tracy Smith, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.56384 **Long. (dec. deg)** 151.11798
Road Name Kenai Spur Highway **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 244-30-10010-2025-3011
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Beaver Creek

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** ATV activity both upstream and downstream

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** gray
Length: 112 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate
Entrance Type: Mitered **Tidal Influence:** No
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** 0.0136
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** -0.36
Perch Ht. (Flow -Dep): -2.38
Encrochment Ratio: 0.58

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	No Inlet Erosion	No Outlet Erosion

	Inlet	Outlet
Width (ft):	9.90	9.10
Height (ft):	9.85	10.34
Manuf. Diameter:		
Water Depth (ft):	1.15	2.42
Substr. Dep (ft):	0.19	0.81
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

Stream Discharge: 14.54

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Small Cobble
Sub Dominant Substrate Type:	Fine Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	20.7	91.5
Upstrream OHW Width (50 ft.):	13.4	50
Upstrream OHW Width (5 ft.):	18.1	5
Tailcrest Width at OHW:	37.5	
Outlet Pool OHW Line (Max. Width.):	85.4	
Downstream OHW Width (100 ft.):	16	181
Downstrream OHW Width (50 ft.):	12.3	121

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Anadromous
Stat. ID: 007U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.94
Susp.Spawn? No **Fork Len. (mm)** 82 85 82 82 75 72 68
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 17 **Life History:** Anadromous
Stat. ID: 007U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.94
Susp.Spawn? No **Fork Len. (mm)** 98 120 84 96 84 77 72 110 106 86
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 007U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.94
Susp.Spawn? No **Fork Len. (mm)** 121
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 007D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 007D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 82 70 73 65 72 66 68 68 65
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 007 **VISIT** 1

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Anadromous
Stat. ID: 007D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 81 72 69 80 69 82 73 73 76 73
Comments: > than 17 adult chinnook salmon in outlet pool

Species: salmon, undifferentiated **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous
Stat. ID: 007D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.4	4	10.2	95.02	84.82	
Left Bank, Ordinary High Water	3.4	4	10.2	95.02	84.82	
Left Bank, Wetted Perimeter	4	4	10.66	95.02	84.36	
Left Bank/Bed Slope Break	4	4	10.66	95.02	84.36	
Station 1	28	4	11.54	95.02	83.48	
Station 2	37.9	4	11.14	95.02	83.88	
Station 3	42	4	12.1	95.02	82.92	
Right Bank/Bed Slope Break	43.2	4	11.94	95.02	83.08	
Right Bank, Wetted Perimeter	45	4	10.64	95.02	84.38	
Right Bank, Ordinary High Water	45.4	4	10.08	95.02	84.94	
Right Bank, Terrace	45.8	4	9.6	95.02	85.42	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 4 (50 ft)	50	1	16	100	84.04	
Upstream station, water elev 2 (50 ft)	50	1	13.9	100	86.12	
Upstream station, OHW line 1 (50 ft)	50	1	13.7	100	86.35	
Upstream station, thalweg 5 (100 ft)	91.5	1	17.2	100	82.85	
Upstream station, water elev 1 (100 ft)	91.5	1	13.8	100	86.23	
Upstream station, OHW line 1 (100 ft)	91.5	1	13.5	100	86.48	
Outlet, edge-road		2	3.29	105.38	102.09	
Inlet, edge-road		2	3.25	105.38	102.13	
Outlet, pool maximum depth 2		3	16.3	95.42	79.13	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	3	10.9	95.42	84.52	
Outlet, pool maximum depth 1 (within 5 ft)	5	3	15.8	95.42	79.67	
Downstream station, OHW line 3 (100 ft)	181	3	11.7	95.42	83.73	
Downstream station, thalweg 1 (tailcrest)	79	3	12.1	95.42	83.34	
Downstream station, water elev 1 (tailcrest)	79	3	11	95.42	84.44	
Downstream station, thalweg 2 (50 ft)	121	3	12.6	95.42	82.79	
Downstream station, water elev 2 (50 ft)	121	3	11.6	95.42	83.79	
Downstream station, OHW line 2 (50)	121	3	10.5	95.42	84.88	
Downstream station, thalweg 3 (100 ft)	181	3	12.7	95.42	82.73	
Downstream station, water elev 3 (100 ft)	181	3	12.0	95.42	83.4	
Outlet, pool water elev	5	3	10.1	95.42	85.36	
Downstream station, OHW line 1 (tailcrest)	79	4	10.1	95.02	84.88	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	3	9.65	95.42	85.77	
Outlet, thalweg	A	0	3	12.4	95.42	82.98	
Outlet, culvert invert	A	0	3	12.4	95.42	82.98	
Outlet, culvert top	A	0	3	2.1	95.42	93.32	
Upstream station, thalweg 3 (2 CMP widths)	A	20	1	15.7	100	84.35	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 007 **VISIT** 1

Upstream station, OHW line 1 (1 ft)	A	5	1	13.9	100	86.1
Upstream station, water elev 1 (5 ft)	A	5	1	13.0	100	86.96
Upstream station, thalweg 2 (5 ft)	A	5	1	16	100	84.04
Upstream station, thalweg 1 (1 ft)	A	1	1	15.4	100	84.56
Inlet, culvert thalweg	A	0	1	15.3	100	84.69
Inlet, culvert rustline	A	0	1	12.7	100	87.29
Inlet, culvert invert	A	0	1	15.5	100	84.5
Inlet, culvert top	A	0	1	5.65	100	94.35

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	84	0.35	29	40	Standard_Price AA	1.61
At Culvert Outlet, Location 1	A	0	1.5	40	40.4	Standard_Price AA	2.20
At Culvert Inlet, Location 1	A	0	1	55	40.5	Standard_Price AA	3.00
Downstream from Outlet of Culvert, Location 2	A	181	0.5	41	40	Standard_Price AA	2.28
Downstream from Outlet of Culvert, Location 1	A	121	0.8	48	40.7	Standard_Price AA	2.60
Upstream from Inlet of Culvert, Location 2	A	84	1.15	26	40	Standard_Price AA	1.45
Upstream from Inlet of Culvert, Location 1	A	50	1.1	20	40.7	Standard_Price AA	1.10

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	112	44	43	43			2.58 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.1	20	40.7	Standard_Price AA	1.10
Upstream from Inlet of Culvert, Location 2	84	1.15	26	40	Standard_Price AA	1.45
Downstream from Outlet of Culvert, Location 1	121	0.8	48	40.7	Standard_Price AA	2.60
Downstream from Outlet of Culvert, Location 2	181	0.5	41	40	Standard_Price AA	2.28
At Culvert Inlet, Location 1	0	1	55	40.5	Standard_Price AA	3.00
At Culvert Outlet, Location 1	0	1.5	40	40.4	Standard_Price AA	2.20
Outlet Pool Tailcrest	84	0.35	29	40	Standard_Price AA	1.61

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 007 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 008 **VISIT** 1
DATE 6/21/2001 **Time** 3:00:00 PM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.53803 **Long. (dec. deg)** 151.08194
Road Name Kenai Spur Highway **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 244-30-10010-2031
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Unnamed

Field Notes: This culvert was abandoned when the Kenai SH was improved and should be removed and old roadbed rehabbed in a channel. The culvert was full of slack water at the inlet, the outlet is about 15 ft from the inlet of site 9.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** gray

					Inlet	Outlet
Length:	82	**Cross. Structure Type:**	Corrugated Metal pipe arch (squash pipe)	**Width (ft):**	3.70	3.70
		Entrance Type:	Projecting	**Tidal Influence:** No	**Height (ft):**	2.35	2.17
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** -0.006	**Manuf. Diameter:**		
Corrugation Width (in.):	2.63			**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	2.35	0.21
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** 0.57	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Small Cobble
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

Stream Discharge: 0.13

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	6.2	74
Upstrream OHW Width (50 ft.):	6.8	50
Upstrream OHW Width (5 ft.):	12.1	5
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):		
Downstrream OHW Width (50 ft.):		

	Suit	**Type**
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous
Stat. ID: 008U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)** 98 71 83 87 72 71 64 71 67 68
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 008U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)** 94 73 64 75
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 008U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)** 74
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 008U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 008D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.5
Susp.Spawn? No **Fork Len. (mm)** 73 80
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 008 **VISIT** 1

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 008D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.5

Susp.Spawn? No **Fork Len. (mm)** 90

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	5	5.67	93.68	88.01	
Left Bank, Ordinary High Water	11.4	5	10.15	93.68	83.53	
Left Bank, Wetted Perimeter	13	5	10.89	93.68	82.79	
Left Bank/Bed Slope Break	13	5	10.89	93.68	82.79	
Station 1	14.9	5	11.22	93.68	82.46	
Station 2	16	5	11.43	93.68	82.25	
Station 3	17.9	5	11.43	93.68	82.25	
Right Bank, Terrace	23.9	5	8.37	93.68	85.31	
Right Bank, Ordinary High Water	21.2	5	9.84	93.68	83.84	
Right Bank, Wetted Perimeter	19.3	5	10.7	93.68	82.98	
Right Bank/Bed Slope Break	18.7	5	10.88	93.68	82.8	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 2 (50)	5	1	16.6	100	83.4	
Downstream station, water elev 2 (50 ft)	5	1	17.4	100	82.62	
Downstream station, thalweg 2 (50 ft)	5	1	17.8	100	82.21	
Upstream station, OHW line 1 (100 ft)	74	1	14.7	100	85.33	
Upstream station, water elev 1 (100 ft)	74	1	15.7	100	84.29	
Upstream station, thalweg 5 (100 ft)	74	1	15.9	100	84.12	
Upstream station, OHW line 1 (50 ft)	50	1	15.0	100	84.96	
Upstream station, water elev 2 (50 ft)	50	1	15.5	100	84.52	
Upstream station, thalweg 4 (50 ft)	50	1	16.8	100	83.25	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	15.3	100	84.71	
Outlet, thalweg	A	0	1	17.5	100	82.54	
Outlet, culvert invert	A	0	1	17.5	100	82.54	
Outlet, culvert top	A	0	1	15.3	100	84.71	
Upstream station, thalweg 3 (2 CMP widths)	A	7.4	1	17.6	100	82.37	
Upstream station, OHW line 1 (1 ft)	A	5	1	14.9	100	85.1	
Upstream station, water elev 1 (5 ft)	A	5	1	15.3	100	84.73	
Upstream station, thalweg 2 (5 ft)	A	5	1	17.6	100	82.37	
Upstream station, thalweg 1 (1 ft)	A	1	1	17.6	100	82.37	
Inlet, culvert thalweg	A	0	1	18	100	82.02	
Inlet, culvert rustline	A	0	1	15.6	100	84.37	
Inlet, culvert invert	A	0	1	18	100	82.02	
Inlet, culvert top	A	0	1	15.6	100	84.37	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0	0	0	Pygmy	0.00
Upstream from Inlet of Culvert, Location 2	74	0.1	24	41.6	Pygmy	1.29
At Culvert Inlet, Location 1	0	2.4	0	0	Pygmy	0.00
At Culvert Outlet, Location 1	0	0.2	28	40.4	Pygmy	0.70

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 008 **VISIT** 1

00802.jpg

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 009 **VISIT** 1
DATE 6/21/2001 **Time** 3:30:00 PM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.53798 **Long. (dec. deg)** 151.08344
Road Name Kenai Spur Hwy. **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Lower culvert uner Kenai Spur Hwy. Portion of data on site 8 data sheets.
Road Prism Type: Through Fill **Spec. Site Cond.:** ATV activity both upstream and downstream

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

			Inlet	Outlet
Length: 84	**Cross. Structure Type:** Corrugated Metal Pipe		**Width (ft):**	3.00	3.00
	Entrance Type: Flush in Headwall	**Tidal Influence:** No	**Height (ft):**	3.00	3.10
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0426	**Manuf. Diameter:**		
Corrugation Width (in.): 2.63		**Perch Ht. (Flow - Ind):** -0.38	**Water Depth (ft):**	0.60	0.63
		Perch Ht. (Flow -Dep): -0.63	**Substr. Dep (ft):**	0.00	0.00
		Encrochment Ratio:	**Struc. Damage (%):**	0	0
			Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	No Inlet Erosion	N/A

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Small Cobble	
Sub Dominant Substrate Type:	Coarse Gravel	
Bank Comp:	Alluvium	N/A

	Suit	Type
Upstream:	Suitable for anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

Stream Discharge: 0.13

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	7.7	5
Tailcrest Width at OHW:	9	10
Outlet Pool OHW Line (Max. Width.):	9.9	
Downstream OHW Width (100 ft.):	6	112
Downstrream OHW Width (50 ft.):	8.3	52

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 009U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.5
Susp.Spawn? No **Fork Len. (mm)** 73 80
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 009U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.5
Susp.Spawn? No **Fork Len. (mm)** 90
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 009D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 72 84 75
Comments:

Species: threespine stickleback **Life Stage:** Adult **Species/Life Stage Count:** 50 **Life History:** Resident
Stat. ID: 009D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	4	11.99	88.47	76.48	
Left Bank, Ordinary High Water	3	4	11.99	88.47	76.48	
Left Bank, Wetted Perimeter	5	4	12.2	88.47	76.27	
Left Bank/Bed Slope Break	3	4	11.99	88.47	76.48	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 009 **VISIT** 1

Station 1	8	4	12.47	88.47	76
Station 2	11	4	12.43	88.47	76.04
Right Bank/Bed Slope Break	12.6	4	12.37	88.47	76.1
Right Bank, Wetted Perimeter	12.6	4	12.37	88.47	76.1
Right Bank, Ordinary High Water	12.7	4	11.83	88.47	76.64
Right Bank, Terrace	14.3	4	11.19	88.47	77.28

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road		2	3.58	115.11	111.53	
Inlet, edge-road		2	3.6	115.11	111.51	
Downstream station, OHW line 3 (100 ft)	100	3	18.4	95.28	76.86	
Downstream station, water elev 3 (100 ft)	100	3	19	95.28	76.28	
Downstream station, thalweg 3 (100 ft)	100	3	19.3	95.28	76.03	
Downstream station, OHW line 2 (50)	52	3	16.7	95.28	78.63	
Downstream station, water elev 2 (50 ft)	52	3	16.9	95.28	78.34	
Downstream station, thalweg 2 (50 ft)	52	3	17.3	95.28	77.97	
Downstream station, water elev 1 (tailcrest)	10	3	16.0	95.28	79.24	
Downstream station, thalweg 1 (tailcrest)	10	3	16.3	95.28	79.03	
Outlet, pool maximum depth 2		3	16.9	95.28	78.36	
Outlet, pool maximum depth 1 (within 5 ft)	5	3	16.9	95.28	78.36	
Outlet, pool water elev	5	3	16	95.28	79.28	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	3	15.8	95.28	79.51	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	3	14.8	95.28	80.53	
Outlet, thalweg	A	0	3	16.6	95.28	78.65	
Outlet, culvert invert	A	0	3	16.6	95.28	78.65	
Outlet, culvert top	A	0	3	13.5	95.28	81.74	
Upstream station, OHW line 1 (1 ft)	A	5	1	16.6	100	83.4	
Upstream station, water elev 1 (5 ft)	A	5	1	17.4	100	82.62	
Upstream station, thalweg 2 (5 ft)	A	5	1	17.8	100	82.21	
Upstream station, thalweg 1 (1 ft)	A	1	1	17.7	100	82.29	
Inlet, culvert thalweg	A	0	1	17.8	100	82.23	
Inlet, culvert rustline	A	0	1	17.3	100	82.67	
Inlet, culvert invert	A	0	1	17.8	100	82.23	
Inlet, culvert top	A	0	1	14.8	100	85.23	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 1	52	0.1	13	41	Pygmy	0.34
Downstream from Outlet of Culvert, Location 2	112	0.1	10	40.5	Pygmy	0.27
At Culvert Inlet, Location 1	0	0.25	28	41.2	Pygmy	0.68
At Culvert Outlet, Location 1	0	0.6	0	0	Pygmy	0.00
Outlet Pool Tailcrest	12	0.1	16	41	Pygmy	0.41

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 009 **VISIT** 1

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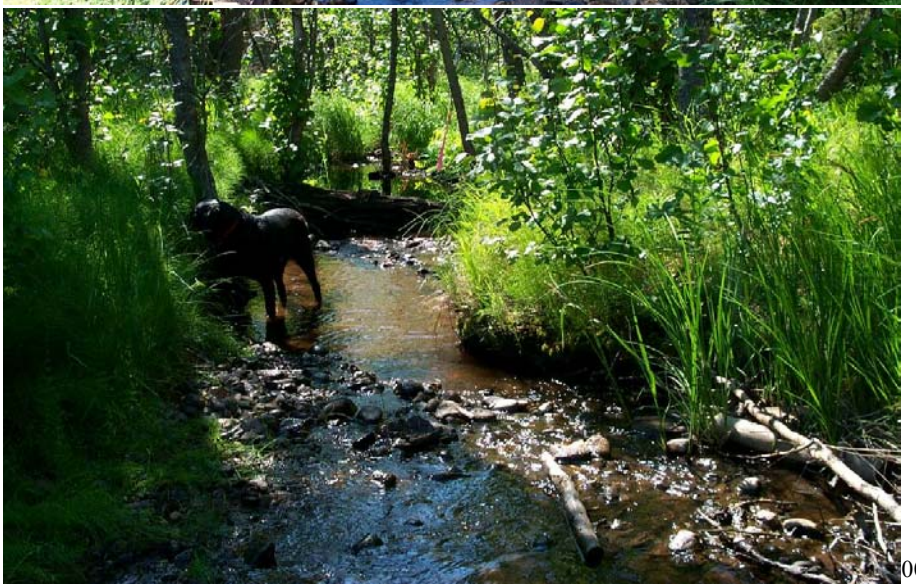


00902.jpg

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 010 **VISIT** 1
DATE 6/25/2001 **Time** 8:30:00 AM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.55809 **Long. (dec. deg)** 151.2639
Road Name Kenai Spur Hwy **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Pipe has dropped N 10 feet from outlet. Major headwall erosion DOT replacing culvert. No tailcrest data as culvert was replaced before we returned to resurvey. Active construction site - silt barrier functional.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length: 158.9	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	3.00	2.60
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	3.17	2.61
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0011		**Manuf. Diameter:**		
Corrugation Width (in.): 0.5		**Perch Ht. (Flow - Ind):** 1.29		**Water Depth (ft):**	1.52	1.21
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.64		**Substr. Dep (ft):**	0.00	1.47
Substrate Type: None	None	**Encrochment Ratio:** 0.46		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	Other			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Sands	Sands
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

Stream Discharge: N/A

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):	6.5	48
Upstrream OHW Width (5 ft.):	5.5	5
Tailcrest Width at OHW:	5.5	
Outlet Pool OHW Line (Max. Width.):	11.8	
Downstream OHW Width (100 ft.):	15	64
Downstrream OHW Width (50 ft.):	6.9	17

	Suit	**Type**
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 13 **Life History:** Anadromous
Stat. ID: 010U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3
Susp.Spawn? No **Fork Len. (mm)** 72 75 70 75 86 86 72 72 73 59
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 010U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: salmon, undifferentiated **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Anadromous
Stat. ID: 010U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Anadromous
Stat. ID: 010U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3
Susp.Spawn? No **Fork Len. (mm)** 76 72 86 88 71 78 58 69
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile **Species/Life Stage Count:** 15 **Life History:** Resident
Stat. ID: 010U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 010 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 010D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.67
Susp.Spawn? No **Fork Len. (mm)** 76
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 12 **Life History:** Anadromous
Stat. ID: 010D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.67
Susp.Spawn? No **Fork Len. (mm)** 84 89 82 74 93 102 70 98 75 70
Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)	15	1	13.4	100	86.58	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	12.7	100	87.27	
Outlet, pool water elev	5	1	12.8	100	87.23	
Outlet, pool maximum depth 2		1	14.5	100	85.54	
Downstream station, OHW line 3 (100 ft)	100	1	14	100	86.02	
Downstream station, OHW line 1 (tailcrest)	15	1	12.7	100	87.33	
Downstream station, water elev 1 (tailcrest)	15	1	12.9	100	87.15	
Downstream station, thalweg 2 (50 ft)	50	1	14.2	100	85.81	
Downstream station, water elev 2 (50 ft)	50	1	13.3	100	86.71	
Downstream station, OHW line 2 (50)	50	1	13.1	100	86.92	
Downstream station, thalweg 3 (100 ft)	100	1	14.6	100	85.4	
Downstream station, water elev 3 (100 ft)	100	1	14.2	100	85.79	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.8	100	85.19	
Inlet, edge-road		2	4.13	116.88	112.745	
Outlet, edge-road		2	4.79	116.88	112.085	
Upstream station, OHW line 1 (50 ft)	48	3	9.73	99.813	90.0830	
Upstream station, water elev 2 (50 ft)	48	3	9.96	99.813	89.853	
Upstream station, thalweg 4 (50 ft)	48	3	10.8	99.813	89.0030	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	11.6	100	88.4	
Outlet, thalweg	A	0	1	13.6	100	86.4	
Outlet, culvert invert	A	0	1	12.1	100	87.87	
Outlet, culvert top	A	0	1	9.52	100	90.48	
Upstream station, thalweg 3 (2 CMP widths)	A	6	3	11.2	99.81	88.603	
Upstream station, OHW line 1 (1 ft)	A	5	3	10.1	99.81	89.6830	
Upstream station, water elev 1 (5 ft)	A	5	3	10.3	99.81	89.543	
Upstream station, thalweg 2 (5 ft)	A	5	3	11.3	99.81	88.543	
Upstream station, thalweg 1 (1 ft)	A	1	3	11.9	99.81	87.8930	
Inlet, culvert thalweg	A	0	3	11.8	99.81	88.043	
Inlet, culvert rustline	A	0	3	9.94	99.81	89.873	
Inlet, culvert invert	A	0	3	11.8	99.81	88.043	
Inlet, culvert top	A	0	3	8.6	99.81	91.2130	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	15	0.3	3	40.2	Pygmy	1.44
At Culvert Outlet, Location 1	A	0	1.5	13	41.7	Pygmy	0.70
At Culvert Inlet, Location 1	A	0	0.6	161	40.2	Pygmy	8.85
Downstream from Outlet of Culvert, Location 2	A	100	0.2	42	40.2	Pygmy	2.31
Downstream from Outlet of Culvert, Location 1	A	75	0.3	44	40.3	Pygmy	2.42
Upstream from Inlet of Culvert, Location 2	A	50	0.4	38	40.2	Pygmy	2.09

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 010 **VISIT** 1

Upstream from Inlet of Culvert, Location 1	A	48	0.7	19	40.5	Pygmy	1.04

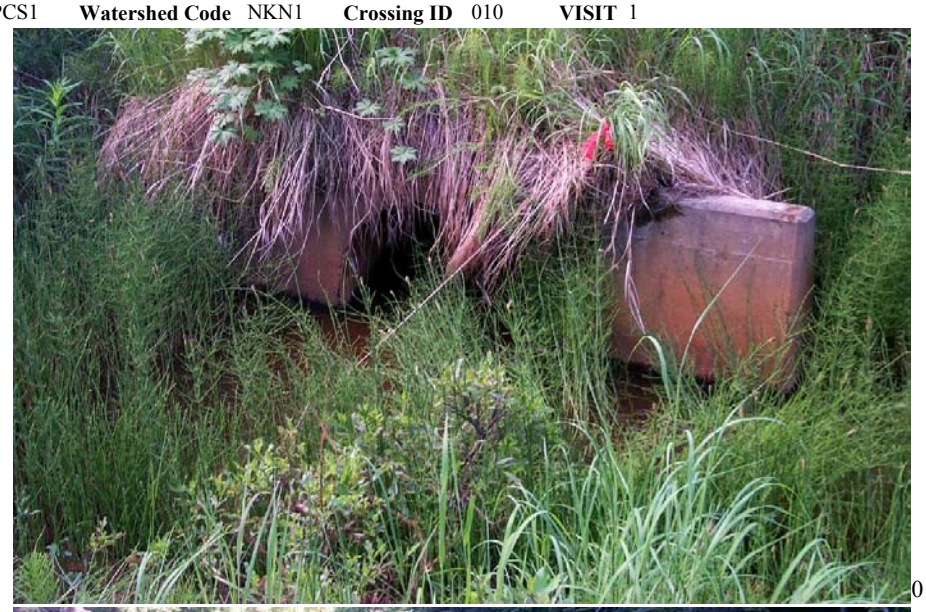
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	158.9	96	98				1.64 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	48	0.7	19	40.5	Pygmy	1.04
Upstream from Inlet of Culvert, Location 2	50	0.4	38	40.2	Pygmy	2.09
Downstream from Outlet of Culvert, Location 1	75	0.3	44	40.3	Pygmy	2.42
Downstream from Outlet of Culvert, Location 2	100	0.2	42	40.2	Pygmy	2.31
At Culvert Inlet, Location 1	0	0.6	161	40.2	Pygmy	8.85
At Culvert Outlet, Location 1	0	1.5	13	41.7	Pygmy	0.70
Outlet Pool Tailcrest	15	0.3	3	40.2	Pygmy	1.44

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 010 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 011 **VISIT** 1
DATE 6/25/2001 **Time** 1:30:00 PM **Observers:** Cecil Rich, Tracy Smith, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.56023 **Long. (dec. deg)** 151.2711
Road Name Kenai Spur Road **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Inlet headwall damaged - seperated from main pipe. To be repaired in 2 weeks. They plan to raise outlet pool to eliminate perch also. Wetland above inlet in narrow valley. Upstream - wetland. Entire culvert replaced before tailcrest was redone.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length: 230.4	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	3.90	3.75
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	4.50	4.38
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0156		**Manuf. Diameter:**		
Corrugation Width (in.): 2		**Perch Ht. (Flow - Ind):** 0.98		**Water Depth (ft):**	0.54	0.25
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.48		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.48		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Fine Gravel
Sub Dominant Substrate Type:	None	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

Stream Discharge: 2.33

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):	8.2	38
Upstrream OHW Width (5 ft.):	17.2	5
Tailcrest Width at OHW:	7.7	
Outlet Pool OHW Line (Max. Width.):	36.2	
Downstream OHW Width (100 ft.):	7	99
Downstrream OHW Width (50 ft.):	6.8	42

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 011U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.92
Susp.Spawn? No **Fork Len. (mm)** 78 76 85 73
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 011U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.92
Susp.Spawn? No **Fork Len. (mm)** 82 83 99 72 75 79
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Anadromous
Stat. ID: 011D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.95
Susp.Spawn? No **Fork Len. (mm)** 78 65 73 70 85 78 71 64 83 68
Comments: other fork lengths - 67, 68, 69, 64

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 19 **Life History:** Anadromous
Stat. ID: 011D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.95
Susp.Spawn? No **Fork Len. (mm)** 70 84 85 72 75 85 72 77 109 100
Comments: other fork lengths - 73, 78, 65, 75, 95, 78, 65, 68, 68

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 8 **Life History:** Resident
Stat. ID: 011D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.95
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No	FS	HI	Elevation	Field Comments

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 011 **VISIT** 1

Station ID	Xing	No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)	26.5	1	14.2	100	85.77	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	13.0	100	86.98	
Outlet, pool water elev	5	1	13.7	100	86.27	
Outlet, pool maximum depth 2		1	16.1	100	83.9	
Downstream station, OHW line 3 (100 ft)	99	1	14.3	100	85.75	
Downstream station, OHW line 1 (tailcrest)	26.5	1	13.5	100	86.5	
Downstream station, water elev 1 (tailcrest)	26.5	1	13.9	100	86.15	
Downstream station, thalweg 2 (50 ft)	42	1	14.4	100	85.56	
Downstream station, water elev 2 (50 ft)	42	1	14.0	100	85.98	
Downstream station, OHW line 2 (50)	42	1	13.7	100	86.29	
Downstream station, thalweg 3 (100 ft)	99	1	15.8	100	84.25	
Downstream station, water elev 3 (100 ft)	99	1	14.9	100	85.08	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	15.8	100	84.25	
Inlet, edge-road		3	3.33	129.81	126.48	
Outlet, edge-road		3	5.71	129.81	124.1	
Upstream station, OHW line 1 (50 ft)	38	4	15.3	107.06	91.73	
Upstream station, water elev 2 (50 ft)	38	4	15.6	107.06	91.46	
Upstream station, thalweg 4 (50 ft)	38	4	16.9	107.06	90.18	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	10.2	100	89.83	
Outlet, thalweg	A	0	1	13.3	100	86.75	
Outlet, culvert invert	A	0	1	13.3	100	86.75	
Outlet, culvert top	A	0	1	8.88	100	91.12	
Upstream station, thalweg 3 (2 CMP widths)	A	9	4	16.8	107.1	90.25	
Upstream station, OHW line 1 (1 ft)	A	5	4	15.5	107.1	91.56	
Upstream station, water elev 1 (5 ft)	A	5	4	15.9	107.1	91.21	
Upstream station, thalweg 2 (5 ft)	A	5	4	17.0	107.1	90.04	
Upstream station, thalweg 1 (1 ft)	A	1	4	18	107.1	89.1	
Inlet, culvert thalweg	A	0	4	16.7	107.1	90.35	
Inlet, culvert rustline	A	0	4	15.7	107.1	91.35	
Inlet, culvert invert	A	0	4	16.7	107.1	90.35	
Inlet, culvert top	A	0	4	12.2	107.1	94.85	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet, Location 1	A	0	0.2	238	40.2	Pygmy	5.72
At Culvert Inlet, Location 1	A	0	0.55	27	40.9	Pygmy	1.47
Outlet Pool Tailcrest	A	26.5	0.55	65	40.1	Pygmy	1.59
Downstream from Outlet of Culvert, Location 2	A	99	0.35	34	40.1	Pygmy	0.85
Downstream from Outlet of Culvert, Location 1	A	42	0.3	57	40.5	Pygmy	1.38
Upstream from Inlet of Culvert, Location 1	A	38				Pygmy	0.00

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	230.4	91	93				2.50 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	38				Pygmy	0.00
Downstream from Outlet of Culvert, Location 1	42	0.3	57	40.5	Pygmy	1.38
Downstream from Outlet of Culvert, Location 2	99	0.35	34	40.1	Pygmy	0.85
Outlet Pool Tailcrest	26.5	0.55	65	40.1	Pygmy	1.59

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 011 **VISIT** 1

At Culvert Inlet, Location 1	0	0.55	27	40.9		Pygmy	1.47
At Culvert Outlet, Location 1	0	0.2	238	40.2		Pygmy	5.72

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 011 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 012 **VISIT** 1
DATE 6/26/2001 **Time** 8:30:00 AM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.77564 **Long. (dec. deg)** 151.09644
Road Name North Kenai Hwy **Region:** SCN
Quad Name: Kenai **ITM:** D-3 **Stream #:** 247-90-10030
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Bishop Creek

Field Notes: In good shape. Lots of material in culvert.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** gray

		Inlet	Outlet
Length: 117	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	13.70	13.70
	Entrance Type: Mitered **Tidal Influence:** No	**Height (ft):**	8.43	7.46
Corrugation Depth (in.): 2	**Baffles Present:** No **Culvert Gradient:** 0.0032	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):** -0.54	**Water Depth (ft):**	1.02	0.98
Inlet	**Outlet** **Perch Ht. (Flow -Dep):** -1.31	**Substr. Dep (ft):**	0.00	0.19
Substrate Type:	Small Cobble **Encrochment Ratio:** 0.60	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion	**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 7.60

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	29.2	100
Upstrream OHW Width (50 ft.):	16.8	50
Upstrream OHW Width (5 ft.):	17.1	5
Tailcrest Width at OHW:	21.9	19
Outlet Pool OHW Line (Max. Width.):	20.3	
Downstream OHW Width (100 ft.):	20	103
Downstrream OHW Width (50 ft.):	13.9	55

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 012D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 86 121 98 92 94 103
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 012D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 83
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 012D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 81 73
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 32 **Life History:** Resident
Stat. ID: 012D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 012U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2075
Susp.Spawn? No **Fork Len. (mm)** 83
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 012 **VISIT** 1

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 44 **Life History:** Resident

Stat. ID: 012U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.75

Susp.Spawn? No **Fork Len. (mm)**

Comments: more were trapped than were counted

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.5	4	9.24	91.83	82.59	
Left Bank, Ordinary High Water	2.7	4	9.85	91.83	81.98	
Left Bank, Wetted Perimeter	2.9	4	10.23	91.83	81.6000	
Left Bank/Bed Slope Break	2.9	4	11.27	91.83	80.56	
Station 1	6.8	4	11.31	91.83	80.52	
Station 2	11.5	4	11.2	91.83	80.63	
Station 3	14.6	3	11.12	92.63	81.51	
Station 4	18	4	10.62	91.83	81.21	
Station 5	20.3	4	10.92	91.83	80.91	
Right Bank/Bed Slope Break	23.4	4	10.9	91.83	80.93	
Right Bank, Wetted Perimeter	24	4	10.26	91.83	81.57	
Right Bank, Ordinary High Water	24.5	4	9.6	91.83	82.23	
Right Bank, Terrace	25.9	4	8.87	91.83	82.96	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 4 (50 ft)	50	1	19.3	100	80.67	
Upstream station, water elev 2 (50 ft)	50	1	18.3	100	81.67	
Upstream station, OHW line 1 (50 ft)	50	1	17.9	100	82.12	
Upstream station, thalweg 5 (100 ft)	100	1	20.2	100	79.77	
Upstream station, water elev 1 (100 ft)	100	1	19.3	100	80.73	
Upstream station, OHW line 1 (100 ft)	100	1	17.5	100	82.52	
Outlet, edge-road		2	0.75	102.38	101.63	
Inlet, edge-road		2	0.63	102.38	101.75	
Outlet, pool maximum depth 2	5	3	12.3	92.63	80.3	
Outlet, pool OHWS lijne 1 (within 5 ft.)		3	10.5	92.63	82.15	
Outlet, pool maximum depth 1 (within 5 ft)	5	3	12.2	92.63	80.46	
Downstream station, OHW line 3 (100 ft)	103	3	10.5	92.63	82.09	
Downstream station, thalweg 1 (tailcrest)	19	3	12.0	92.63	80.61	
Downstream station, water elev 1 (tailcrest)	19	3	11.4	92.63	81.23	
Downstream station, thalweg 2 (50 ft)	55	3	12.3	92.63	80.3	
Downstream station, water elev 2 (50 ft)	55	3	11.5	92.63	81.11	
Downstream station, OHW line 2 (50)	55	3	10.7	92.63	81.92	
Downstream station, thalweg 3 (100 ft)	103	3	12.6	92.63	80	
Downstream station, water elev 3 (100 ft)	103	3	11.4	92.63	81.21	
Outlet, pool water elev	5	3	11.3	92.63	81.38	
Downstream station, OHW line 1 (tailcrest)	19	4	9.73	91.83	82.1000	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	3	10.4	92.63	82.19	
Outlet, thalweg	A	0	3	12.4	92.63	80.25	
Outlet, culvert invert	A	0	3	12.6	92.63	80.07	
Outlet, culvert top	A	0	2	14.9	102.4	87.53	
Upstream station, thalweg 3 (2 CMP widths)	A	27.4	1	19.6	100	80.44	
Upstream station, OHW line 1 (1 ft)	A	5	1	18.1	100	81.92	
Upstream station, water elev 1 (5 ft)	A	5	1	18.6	100	81.42	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 012 **VISIT** 1

Upstream station, thalweg 2 (5 ft)	A	5	1	20.6	100	79.37
Upstream station, thalweg 1 (1 ft)	A	1	1	21.4	100	78.58
Inlet, culvert thalweg	A	0	1	19.6	100	80.44
Inlet, culvert rustline	A	0	1	17.9	100	82.12
Inlet, culvert invert	A	0	1	19.6	100	80.44
Inlet, culvert top	A	0	1	11.1	100	88.87

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	18.5	0.7	19	42	Standard_Price AA	1.02
At Culvert Outlet, Location 1	A	0	1	11	39.9	Standard_Price AA	0.63
At Culvert Inlet, Location 1	A	0	0.9	20	41.1	Standard_Price AA	1.09
Downstream from Outlet of Culvert, Location 2	A	103	1	16	41	Standard_Price AA	0.88
Downstream from Outlet of Culvert, Location 1	A	55	0.6	20	41.2	Standard_Price AA	1.09
Upstream from Inlet of Culvert, Location 2	A	50	0.9	14	41.2	Standard_Price AA	0.76
Upstream from Inlet of Culvert, Location 1	A	100	1.35	10	42.4	Standard_Price AA	0.54

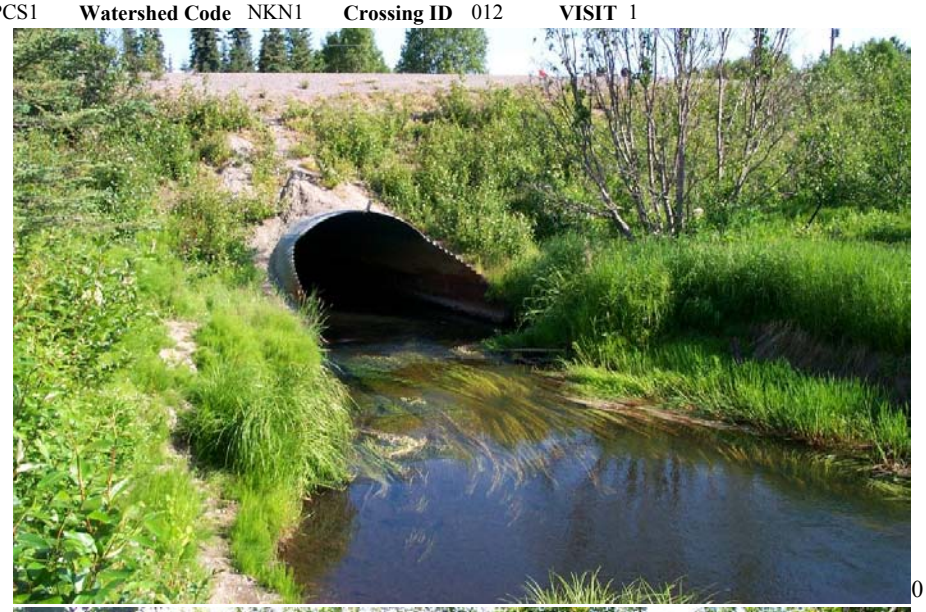
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	117	127	128	138			.89 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	100	1.35	10	42.4	Standard_Price AA	0.54
Upstream from Inlet of Culvert, Location 2	50	0.9	14	41.2	Standard_Price AA	0.76
Downstream from Outlet of Culvert, Location 1	55	0.6	20	41.2	Standard_Price AA	1.09
Downstream from Outlet of Culvert, Location 2	103	1	16	41	Standard_Price AA	0.88
At Culvert Inlet, Location 1	0	0.9	20	41.1	Standard_Price AA	1.09
At Culvert Outlet, Location 1	0	1	11	39.9	Standard_Price AA	0.63
Outlet Pool Tailcrest	18.5	0.7	19	42	Standard_Price AA	1.02

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 012 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 013 **VISIT** 1
DATE 6/25/2001 **Time** 3:30:00 PM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.56786 **Long. (dec. deg)** 151.14452
Road Name Kenai Spur Hwy **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Beaver ponded up/down channel. Makes 90 degree turn into inlet. Beaver lodge just above inlet. Blownout beaver dam below outlet pool - no apparent recent activity.

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity both up/down of drainage structure

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

				Inlet	Outlet
Length: 97	**Cross. Structure Type:** Corrugated Metal Pipe		**Width (ft):**	4.00	4.00
	Entrance Type: Flared Inlet	**Tidal Influence:** No	**Height (ft):**	3.53	3.63
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.58	1.42
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Culvert ID: B **Category:** **Classification:**

				Inlet	Outlet
Length: 97	**Cross. Structure Type:** Corrugated Metal Pipe		**Width (ft):**	4.00	4.10
	Entrance Type: Flared Inlet	**Tidal Influence:** No	**Height (ft):**	3.44	4.02
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.67	0.50
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Fine Gravel
Sub Dominant Substrate Type:	None	Sands
Bank Comp:	Alluvium	Alluvium

Stream Discharge: 0.30

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	14.5	100
Upstrream OHW Width (50 ft.):	35.2	50
Upstrream OHW Width (5 ft.):	15.9	5
Tailcrest Width at OHW:	8.2	39
Outlet Pool OHW Line (Max. Width.):	24.3	
Downstream OHW Width (100 ft.):	8	100
Downstrream OHW Width (50 ft.):	5.9	53

	Suit	**Type**
Upstream:	Suitable for anadromous and	OR
Downstream:	Suitable for anadromous and	OR

Fish Surveys

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 013U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.2
Susp.Spawn? No **Fork Len. (mm)** 105 83
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 30 **Life History:** Resident
Stat. ID: 013U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.2
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 013D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 90
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 013 **VISIT** 1

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 60 **Life History:** Resident

Stat. ID: 013D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25

Susp.Spawn? No **Fork Len. (mm)**

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.7	2	7.39	96.91	89.52	
Left Bank, Ordinary High Water	3.7	2	8.17	96.91	88.7400	
Left Bank, Wetted Perimeter	4.5	2	8.42	96.91	88.4900	
Left Bank/Bed Slope Break	5.2	2	8.89	96.91	88.02	
Station 1	7.3	2	8.83	96.91	88.08	
Station 2	9	2	8.49	96.91	88.4200	
Station 3	9.2	2	8.44	96.91	88.47	
Station 4	9.9	2	8.12	96.91	88.79	
Station 5	11.1	2	8.36	96.91	88.55	
Station 6	13	2	8.42	96.91	88.4900	
Right Bank/Bed Slope Break	13	2	8.45	96.91	88.4600	
Right Bank, Wetted Perimeter	9	2	8.49	96.91	88.4200	
Right Bank, Ordinary High Water	13.4	2	7.97	96.91	88.94	
Right Bank, Terrace	13.8	2	7.7	96.91	89.2100	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	17.6	100	82.4	
Upstream station, thalweg 4 (50 ft)	50	1	17.8	100	82.17	
Upstream station, water elev 2 (50 ft)	50	1	15.6	100	84.42	
Upstream station, OHW line 1 (50 ft)	50	1	15.4	100	84.6	
Upstream station, thalweg 5 (100 ft)	100	1	18.6	100	81.4	
Upstream station, water elev 1 (100 ft)	100	1	15.6	100	84.4	
Upstream station, OHW line 1 (100 ft)	100	1	15.5	100	84.52	
Outlet, edge-road		1	2.92	100	97.08	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	15.4	100	84.6	
Inlet, edge-road		1	2.85	100	97.15	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	17.6	100	82.4	
Downstream station, OHW line 3 (100 ft)	100	1	15.4	100	84.62	
Downstream station, thalweg 1 (tailcrest)	39	1	16	100	84.02	
Downstream station, water elev 1 (tailcrest)	39	1	15.3	100	84.69	
Downstream station, thalweg 2 (50 ft)	53	1	16.1	100	83.92	
Downstream station, water elev 2 (50 ft)	53	1	15.6	100	84.42	
Downstream station, OHW line 2 (50)	53	1	15.2	100	84.77	
Downstream station, thalweg 3 (100 ft)	100	1	16.7	100	83.35	
Downstream station, water elev 3 (100 ft)	100	1	15.6	100	84.42	
Outlet, pool water elev	5	1	15.6	100	84.44	
Downstream station, OHW line 1 (tailcrest)	39	2	8.07	96.91	88.84	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	15.2	100	84.79	
Inlet, culvert top	B	0	1	12.8	100	87.19	
Inlet, culvert invert	A	0	1	16.2	100	83.79	
Inlet, culvert rustline	A	0	1	15.2	100	84.79	
Inlet, culvert thalweg	A	0	1	16.2	100	83.79	
Upstream station, thalweg 1 (1 ft)	A	1	1	16.6	100	83.4	

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Upstream station, thalweg 2 (5 ft)	A	5	1	18.3	100	81.75
Upstream station, water elev 1 (5 ft)	A	5	1	16.6	100	83.4
Upstream station, OHW line 1 (1 ft)	A	5	1	15.3	100	84.73
Upstream station, thalweg 3 (2 CMP widths)	A	8	1	17.9	100	82.08
Outlet, culvert top	A	0	1	13.3	100	86.67
Inlet, culvert top	A	0	1	12.7	100	87.33
Outlet, thalweg	A	0	1	17	100	83.04
Outlet, rustline	B	0	1	15.2	100	84.85
Inlet, culvert invert	B	0	1	16.3	100	83.75
Inlet, culvert rustline	B	0	1	15.3	100	84.71
Inlet, culvert thalweg	B	0	1	16.3	100	83.75
Upstream station, thalweg 1 (1 ft)	B	1	1	17.3	100	82.71
Upstream station, thalweg 2 (5 ft)	B	5	1	18.3	100	81.75
Upstream station, water elev 1 (5 ft)	B	5	1	16.6	100	83.4
Upstream station, OHW line 1 (1 ft)	B	5	1	15.3	100	84.73
Upstream station, thalweg 3 (2 CMP widths)	B	8	1	17.9	100	82.08
Outlet, culvert top	B	0	1	13.0	100	86.98
Outlet, culvert invert	B	0	1	17.0	100	82.96
Outlet, thalweg	B	0	1	17.0	100	82.96
Outlet, culvert invert	A	0	1	17	100	83.04

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A		0.4	22	40.7	Pygmy	0.55
Downstream from Outlet of Culvert, Location 1	A	53	0.5	13	42.7	Pygmy	0.32

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 1	53	0.5	13	42.7	Pygmy	0.32
Outlet Pool Tailcrest	39	0.4	22	40.7	Pygmy	0.55

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 013 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 014 **VISIT** 1
DATE 6/27/2001 **Time** 8:30:00 AM **Observers:** Cecil Rich, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.30263 **Long. (dec. deg)** 151.26906
Road Name Sterling Hwy **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10050-2024
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Crooked Creek

Field Notes: Severe embankment erosion at outlet. Large outlet pool > 8 feet deep. Perched outlet invert 6-8". Unstable upstream embankment slope.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

			Inlet	Outlet
Length: 113	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	7.40	7.50
	Entrance Type: Projecting / **Tidal Influence:** No	**Height (ft):**	8.38	8.75
Corrugation Depth (in.): 2	**Baffles Present:** No / **Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	1.50	1.17
	Perch Ht. (Flow -Dep):	**Substr. Dep (ft):**	0.00	2.83
Substrate Type: None / Boulder	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion / Fill Slope Protection Needed		**Culv. Blockage (%):**	0	0

Culvert ID: B **Category:** **Classification:**

			Inlet	Outlet
Length: 114	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	7.70	7.50
	Entrance Type: Projecting / **Tidal Influence:** No	**Height (ft):**	8.54	8.75
Corrugation Depth (in.): 2	**Baffles Present:** No / **Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	2.08	1.34
	Perch Ht. (Flow -Dep):	**Substr. Dep (ft):**	0.00	3.04
Substrate Type: None / None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion / Fill Slope Protection Needed		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Small Cobble
Sub Dominant Substrate Type:	Small Cobble	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 42.11

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	30.4	184
Upstrream OHW Width (50 ft.):	25.2	102
Upstrream OHW Width (5 ft.):	24.7	5
Tailcrest Width at OHW:	62.7	53
Outlet Pool OHW Line (Max. Width.):	86.5	
Downstream OHW Width (100 ft.):	30	180
Downstrream OHW Width (50 ft.):	26.8	119

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 014U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 126 126 123 118 118 142
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Anadromous
Stat. ID: 014U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 80 58 77 73 50 59 77
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 014U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.33
Susp.Spawn? No **Fork Len. (mm)** 73
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 014 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 26 **Life History:** Resident
Stat. ID: 014D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.67
Susp.Spawn? No **Fork Len. (mm)** 143 111 113 117 141 115 113 110 109 110
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 3 **Life History:** Anadromous
Stat. ID: 014D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.67
Susp.Spawn? No **Fork Len. (mm)** 95 76 92
Comments:

Species: rainbow trout **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 014D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.67
Susp.Spawn? No **Fork Len. (mm)** 79 85
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 014D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.67
Susp.Spawn? No **Fork Len. (mm)** 83 95 72 89 62 90 82 70
Comments: Adult Chinnook observed in outlet pool

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	10.8	6	10.6	99.27	88.67	resurvey 7/24/01
Left Bank, Ordinary High Water	14	6	11.9	99.27	87.37	resurvey 7/24/01
Left Bank, Wetted Perimeter	14.6	6	11.94	99.27	87.33	resurvey 7/24/01
Left Bank/Bed Slope Break	20.7	6	11.81	99.27	87.46	resurvey 7/24/01 undercut bank
Station 1	31	6	12.4	99.27	86.87	resurvey 7/24/01
Station 2	36	6	12.31	99.27	86.96	resurvey 7/24/01
Station 3	41.6	6	12.96	99.27	86.31	resurvey 7/24/01
Station 4	46	6	12.71	99.27	86.56	resurvey 7/24/01
Station 5	53	6	13.02	99.27	86.25	resurvey 7/24/01
Station 6	60.4	6	12.79	99.27	86.48	resurvey 7/24/01
Station 7	67	6	12.79	99.27	86.48	resurvey 7/24/01
Station 8	72	6	12.29	99.27	86.98	resurvey 7/24/01
Station 9	76.5	6	12.38	99.27	86.89	resurvey 7/24/01
Station 10	83.6	6	12.71	99.27	86.56	resurvey 7/24/01
Right Bank/Bed Slope Break	83.6	6	12.71	99.27	86.56	resurvey 7/24/01
Right Bank, Wetted Perimeter	84	6	11.92	99.27	87.35	resurvey 7/24/01
Right Bank, Ordinary High Water	84	6	12.1	99.27	87.17	resurvey 7/24/01
Right Bank, Terrace	85.2	6	10.6	99.27	88.67	resurvey 7/24/01

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	21.7	100	78.32	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	12.4	100	87.65	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	20.8	100	79.25	
Downstream station, OHW line 3 (100 ft)	180	1	13.9	100	86.1	
Downstream station, thalweg 1 (tailcrest)	47	1	13.9	100	86.15	
Downstream station, water elev 1 (tailcrest)	47	1	12.9	100	87.12	
Downstream station, thalweg 2 (50 ft)	119	1	14.8	100	85.25	
Downstream station, water elev 2 (50 ft)	119	1	13.4	100	86.58	
Downstream station, OHW line 2 (50)	119	1	13.5	100	86.54	
Downstream station, thalweg 3 (100 ft)	180	1	14.9	100	85.1	
Downstream station, water elev 3 (100 ft)	180	1	13.9	100	86.1	
Outlet, pool water elev	5	1	13	100	87	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 014 **VISIT** 1

Upstream station, OHW line 1 (50 ft)	102	3	10.4	101.73	91.3500
Upstream station, water elev 2 (50 ft)	102	3	10.7	101.73	91.02
Upstream station, thalweg 4 (50 ft)	102	3	12.4	101.73	89.3500
Inlet, edge-road		4	0.38	113.15	112.77
Outlet, edge-road		4	0.27	113.15	112.88
Upstream station, OHW line 1 (100 ft)	184	5	5.1	96.92	91.82
Upstream station, water elev 1 (100 ft)	184	5	5.52	96.92	91.4
Upstream station, thalweg 5 (100 ft)	184	5	6.88	96.92	90.04
Downstream station, OHW line 1 (tailcrest)	47	6	12	99.27	87.27

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	3	4.46	101.7	97.27	
Inlet, culvert invert	A	0	3	12.6	101.7	89.13	
Inlet, culvert rustline	A	0	3	10.7	101.7	91.04	
Inlet, culvert thalweg	A	0	3	12.6	101.7	89.13	
Upstream station, thalweg 1 (1 ft)	A	1	3	12.6	101.7	89.1700	
Upstream station, thalweg 2 (5 ft)	A	5	3	12.3	101.7	89.4	
Upstream station, water elev 1 (5 ft)	A	5	3	10.9	101.7	90.88	
Upstream station, OHW line 1 (1 ft)	A	5	3	10.6	101.7	91.15	
Upstream station, thalweg 3 (2 CMP widths)	A	15	3	12.1	101.7	89.6700	
Outlet, culvert top	A	0	1	4.5	100	95.5	
Outlet, culvert invert	A	0	1	13.3	100	86.75	
Inlet, culvert top	A	0	3	4.31	101.7	97.4200	
Outlet, rustline	A	0	1	11.8	100	88.25	
Outlet, rustline	B	0	1	11.9	100	88.08	
Inlet, culvert invert	B	0	3	13	101.7	88.73	
Inlet, culvert rustline	B	0	3	10.9	101.7	90.88	
Inlet, culvert thalweg	B	0	3	13	101.7	88.73	
Upstream station, thalweg 1 (1 ft)	B	1	3	12.9	101.7	88.83	
Upstream station, thalweg 2 (5 ft)	B	5	3	12.6	101.7	89.1000	
Upstream station, water elev 1 (5 ft)	B	5	3	11	101.7	90.77	
Upstream station, OHW line 1 (1 ft)	B	5	3	10.3	101.7	91.4600	
Upstream station, thalweg 3 (2 CMP widths)	B	15	3	12.6	101.7	89.1700	
Outlet, culvert top	B	0	1	4.67	100	95.33	
Outlet, culvert invert	B	0	1	13.4	100	86.58	
Outlet, thalweg	B	0	1	16.5	100	83.54	
Outlet, thalweg	A	0	1	16.1	100	83.92	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Inlet, Location 2	A	0	1.8	38	40.7	Standard_Price AA	2.08
At Culvert Inlet, Location 1	A	0	1.4	56	40.7	Standard_Price AA	3.04
Downstream from Outlet of Culvert, Location 2	A	180	0.8	52	40.3	Standard_Price AA	1.26
Downstream from Outlet of Culvert, Location 1	A	119	0.67	51	40	Standard_Price AA	1.26
Upstream from Inlet of Culvert, Location 2	A	184	1	40	40.7	Standard_Price AA	2.18
Upstream from Inlet of Culvert, Location 1	A	102	1.5	26	40.3	Standard_Price AA	1.44

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	113	18	21	22			5.56 ft/sec.
B	114	20	21	25			5.18 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity

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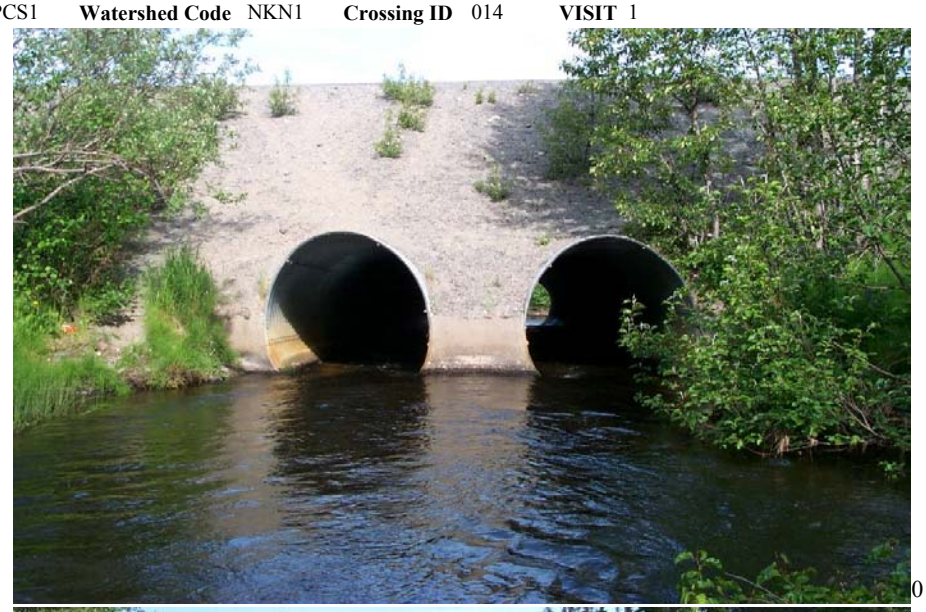
Upstream from Inlet of Culvert, Location 1	102	1.5	26	40.3		Standard_Price AA	1.44
Upstream from Inlet of Culvert, Location 2	184	1	40	40.7		Standard_Price AA	2.18
Downstream from Outlet of Culvert, Location 1	119	0.67	51	40		Standard_Price AA	1.26
Downstream from Outlet of Culvert, Location 2	180	0.8	52	40.3		Standard_Price AA	1.26
At Culvert Inlet, Location 1	0	1.4	56	40.7		Standard_Price AA	3.04
At Culvert Inlet, Location 2	0	1.8	38	40.7		Standard_Price AA	2.08
Outlet Pool Tailcrest	53	0.6	38	41.2		Standard_Price AA	0.92

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 014 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 015 **VISIT** 1
DATE 6/27/2001 **Time** 2:45:00 PM **Observers:** Cecil Rich, Tracy Smith, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.35575 **Long. (dec. deg)** 151.26262
Road Name Kalifornski Beach Rd. **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10050-2015
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Coal Creek

Field Notes: Short headwall with erosion behind. Perched at outlet - 1 foot. Large outlet scour hole > 8 feet deep.
Road Prism Type: Through Fill **Spec. Site Cond.:** ATV activity both upstream and downstream

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length:	203	**Cross. Structure Type:**	Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	8.70	9.00
		Entrance Type:	Mitered	**Tidal Influence:** No **Height (ft):**	9.38	9.54
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:** 0.0138 **Manuf. Diameter:**		
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):** 1.64 **Water Depth (ft):**	0.73	0.63
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -1.09 **Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** 0.86 **Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	Fill Slope Protection Needed		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 2.71

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	9.9	82
Upstrream OHW Width (50 ft.):	10.4	45
Upstrream OHW Width (5 ft.):	14.2	5
Tailcrest Width at OHW:	32	41.9
Outlet Pool OHW Line (Max. Width.):	61.9	
Downstream OHW Width (100 ft.):	14	147
Downstrream OHW Width (50 ft.):	10.5	102

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 13 **Life History:** Anadromous
Stat. ID: 015U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 72 86 72 74 72 78 83 70 76 78
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 015U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 132 105
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 015U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 100 112 116
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 18 **Life History:** Anadromous
Stat. ID: 015D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 73 77 47 58 63 58 70 73 70 67
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 015D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 80 75 85 80
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 015 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 015D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 118 118 93
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 015D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 75
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 015D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 015D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 98
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.6	6	9	97.02	88.02	
Left Bank, Ordinary High Water	4.8	6	12	97.02	85.02	
Left Bank, Wetted Perimeter	4.8	6	11.42	97.02	85.6	
Left Bank/Bed Slope Break	2.4	6	9.35	97.02	87.67	
Station 1	2.9	6	10.42	97.02	86.6	bank slope break
Station 2	4.5	6	12.31	97.02	84.71	slopebreak
Station 3	5.6	6	12.75	97.02	84.27	
Station 4	8.2	6	13.63	97.02	83.39	
Station 5	10.5	6	13.54	97.02	83.48	
Station 6	11.7	6	13.27	97.02	83.75	
Station 7	15.4	6	12.08	97.02	84.94	
Station 8	17.9	6	11.56	97.02	85.46	edge island
Station 9	21	6	11.23	97.02	85.79	
Station 10	23.6	6	11.46	97.02	85.56	edge island
Station 11	24.8	6	11.63	97.02	85.39	
Station 12	26.5	6	11.29	97.02	85.73	island
Station 13	45.2	6	10.92	97.02	86.1	island
Station 14	49.8	6	12.46	97.02	84.56	
Right Bank/Bed Slope Break	51.9	6	12.23	97.02	84.79	
Right Bank, Wetted Perimeter	51.9	6	11.4	97.02	85.62	
Right Bank, Ordinary High Water	51.9	6	11.73	97.02	85.29	
Right Bank, Terrace	52.5	6	10.56	97.02	86.46	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	20.9	100	79.06	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	14.3	100	85.73	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	18.4	100	81.65	
Downstream station, OHW line 3 (100 ft)	147	1	14.4	100	85.6	
Downstream station, thalweg 1 (tailcrest)	42	1	15.8	100	84.17	
Downstream station, water elev 1 (tailcrest)	42	1	14.9	100	85.06	
Downstream station, thalweg 2 (50 ft)	102	1	15.5	100	84.5	
Downstream station, water elev 2 (50 ft)	102	1	15.0	100	84.98	
Downstream station, OHW line 2 (50)	102	1	14.3	100	85.71	
Downstream station, thalweg 3 (100 ft)	147	1	15.8	100	84.25	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 016 **VISIT** 1
DATE 6/28/2001 **Time** 8:25:00 AM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.19117 **Long. (dec. deg)** 151.42743
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Kenai **ITM:** A-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Falls Creek

Field Notes: Likely has barrier near mouth. CG?SC above influence of inlet. Headwall separating upstream and dowstream from culvert and leaning.
Road Prism Type: Through Fill **Spec. Site Cond.:** ATV activity downstream

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length: 103	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	7.50	7.67
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	8.81	8.10
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0104		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):** 0.53		**Water Depth (ft):**	0.67	0.60
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.25		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 1.33		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Small Cobble
Sub Dominant Substrate Type:	Silt/Sand	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 11.50

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	6.9	100
Upstrream OHW Width (50 ft.):	4.4	50
Upstrream OHW Width (5 ft.):	9.2	5
Tailcrest Width at OHW:	8	37
Outlet Pool OHW Line (Max. Width.):	37.4	
Downstream OHW Width (100 ft.):	9	111
Downstrream OHW Width (50 ft.):	10.4	53

Fish Surveys

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 016D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 016U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	1.5	4	12.23	98.34	86.11	
Left Bank, Ordinary High Water	4	4	14.92	98.34	83.42	
Left Bank, Wetted Perimeter	4	4	14.77	98.34	83.57	
Left Bank/Bed Slope Break	4	4	14.92	98.34	83.42	
Station 1	6.6	4	15.29	98.34	83.05	
Station 2	9	4	15.27	98.34	83.07	
Station 3	15	4	15.17	98.34	83.17	
Station 4	20.5	4	14.81	98.34	83.53	
Station 5	23	4	14.5	98.34	83.84	
Station 6	25	4	14.77	98.34	83.57	
Right Bank/Bed Slope Break	27	4	15.04	98.34	83.3	
Right Bank, Wetted Perimeter	27	4	14.81	98.34	83.53	
Right Bank, Ordinary High Water	27	4	14.98	98.34	83.36	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 016 **VISIT** 1

Right Bank, Terrace	29	4	14.17	98.34	84.17

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	25	100	75	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	16.0	100	83.96	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	21.5	100	78.46	
Downstream station, thalweg 2 (50 ft)	53	1	17	100	83.02	
Downstream station, water elev 2 (50 ft)	53	1	16	100	84	
Downstream station, OHW line 2 (50)	53	1	16	100	84	
Downstream station, thalweg 3 (100 ft)	111	1	17	100	83	
Downstream station, water elev 3 (100 ft)	111	1	17	100	83	
Downstream station, OHW line 3 (100 ft)	111	1	16	100	84	
Outlet, pool water elev	5	1	16.7	100	83.33	
Inlet, edge-road		2	3.04	108.98	105.94	
Outlet, edge-road		2	7.6	108.98	101.38	
Upstream station, OHW line 1 (100 ft)	101	3	8.85	95.61	86.76	
Upstream station, water elev 1 (100 ft)	101	3	9.13	95.61	86.48	
Upstream station, thalweg 5 (100 ft)	101	3	9.63	95.61	85.98	
Upstream station, OHW line 1 (50 ft)	59	3	9.65	95.61	85.96	
Upstream station, water elev 2 (50 ft)	59	3	10.3	95.61	85.32	
Upstream station, thalweg 4 (50 ft)	59	3	10.8	95.61	84.8	
Downstream station, water elev 1 (tailcrest)	37	4	15	98.34	83.39	
Downstream station, thalweg 1 (tailcrest)	37	4	15.3	98.34	83.05	
Downstream station, OHW line 1 (tailcrest)	37	4	15	98.34	83.39	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	15.3	100	84.69	
Outlet, thalweg	A	0	1	16.4	100	83.58	
Outlet, culvert invert	A	0	1	16.4	100	83.58	
Outlet, culvert top	A	0	1	7.6	100	92.4	
Upstream station, thalweg 3 (2 CMP widths)	A	15	3	10.8	95.61	84.8	
Upstream station, OHW line 1 (1 ft)	A	5	3	9.98	95.61	85.63	
Upstream station, water elev 1 (5 ft)	A	5	3	10.3	95.61	85.32	
Upstream station, thalweg 2 (5 ft)	A	5	3	11.1	95.61	84.48	
Upstream station, thalweg 1 (1 ft)	A	1	3	11.3	95.61	84.3	
Inlet, culvert thalweg	A	0	3	11	95.61	84.65	
Inlet, culvert rustline	A	0	3	9.42	95.61	86.19	
Inlet, culvert invert	A	0	3	11	95.61	84.65	
Inlet, culvert top	A	0	3	2.15	95.61	93.46	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	37	0.4	53	40	N/A	2.94
At Culvert Outlet, Location 1	A	0	0.4	104	40.2	N/A	2.52
At Culvert Inlet, Location 1	A	0	0.5	27	40.2	N/A	1.51
Downstream from Outlet of Culvert, Location 2	A	111	0.2	40	40.5	N/A	2.20
Downstream from Outlet of Culvert, Location 1	A	53	0.2	55	40.2	N/A	3.02
Upstream from Inlet of Culvert, Location 2	A	101	0.4	78	40.5	N/A	1.88
Upstream from Inlet of Culvert, Location 1	A	59	0.5	133	40	N/A	3.22

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	103	39	42	56			2.26 ft/sec.

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 016 **VISIT** 1

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	59	0.5	133	40	Pygmy	3.22
Upstream from Inlet of Culvert, Location 2	101	0.4	78	40.5	Pygmy	1.88
Downstream from Outlet of Culvert, Location 1	53	0.2	55	40.2	Pygmy	3.02
Downstream from Outlet of Culvert, Location 2	111	0.2	40	40.5	Pygmy	2.20
At Culvert Inlet, Location 1	0	0.5	27	40.2	Pygmy	1.51
At Culvert Outlet, Location 1	0	0.4	104	40.2	Pygmy	2.52
Outlet Pool Tailcrest	37	0.4	53	40	Pygmy	2.94

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 016 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 017 **VISIT** 1
DATE 6/28/2001 **Time** 11:09:00 AM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 60.17229 **Long. (dec. deg)** 151.44377
Road Name Sterling Hwy **Region:** SCN
Quad Name: Kenai **ITM:** A-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Corea

Field Notes: Culvert in good shape - appears to pass fish. First 1/3 of culvert high grad, second 2/3rd pooled.
Road Prism Type: Through Fill **Spec. Site Cond.:**

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 75	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	6.00	5.71
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	8.81	8.82
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0245		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.54	0.46
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 1.03		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 1.16

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	3.8	37.5
Upstrream OHW Width (50 ft.):	7.8	21.5
Upstrream OHW Width (5 ft.):	5	5
Tailcrest Width at OHW:	12.5	6.5
Outlet Pool OHW Line (Max. Width.):	11	
Downstream OHW Width (100 ft.):	8	107
Downstrream OHW Width (50 ft.):	8.7	61

Fish Surveys

Species: threespine stickleback **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 017U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.05
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: ninespine stickleback **Life Stage:** Adult **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 017U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.05
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: threespine stickleback **Life Stage:** Adult **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 017D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1	2	13.25	99.51	86.26	
Left Bank, Ordinary High Water	2	2	13.54	99.51	85.97	
Left Bank, Wetted Perimeter	2	2	13.54	99.51	85.97	
Left Bank/Bed Slope Break	2	2	13.54	99.51	85.97	
Station 1	3.6	2	13.98	99.51	85.53	
Station 2	5.4	2	13.75	99.51	85.76	
Station 3	9.7	2	13.71	99.51	85.8	
Right Bank/Bed Slope Break	14.5	2	13.52	99.51	85.9900	
Right Bank, Wetted Perimeter	14.5	2	13.52	99.51	85.9900	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 017 **VISIT** 1

Right Bank, Ordinary High Water	14.9	2	13.17	99.51	86.34
Right Bank, Terrace	15.9	2	12.79	99.51	86.72

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	14.4	100	85.56	
Upstream station, thalweg 4 (50 ft)	21.5	1	12.2	100	87.83	
Upstream station, water elev 2 (50 ft)	21.5	1	11.8	100	88.21	
Upstream station, OHW line 1 (50 ft)	21.5	1	11.6	100	88.37	
Upstream station, thalweg 5 (100 ft)	37.5	1	11.8	100	88.17	
Upstream station, water elev 1 (100 ft)	37.5	1	11.3	100	88.71	
Upstream station, OHW line 1 (100 ft)	37.5	1	11	100	89.02	
Outlet, edge-road		1	2.48	100	97.52	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	13.3	100	86.67	
Inlet, edge-road		1	1.5	100	98.5	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.4	100	85.56	
Downstream station, thalweg 2 (50 ft)	61	1	15.5	100	84.54	
Downstream station, water elev 2 (50 ft)	61	1	15.1	100	84.87	
Downstream station, OHW line 2 (50)	61	1	14.0	100	85.96	
Downstream station, thalweg 3 (100 ft)	107	1	16.3	100	83.73	
Downstream station, water elev 3 (100 ft)	107	1	15.8	100	84.19	
Downstream station, OHW line 3 (100 ft)	107	1	14.7	100	85.35	
Outlet, pool water elev	5	1	13.9	100	86.06	
Downstream station, water elev 1 (tailcrest)	6.5	2	13.5	99.51	85.98	
Downstream station, thalweg 1 (tailcrest)	6.5	2	14	99.51	85.53	
Downstream station, OHW line 1 (tailcrest)	6.5	2	13.4	99.51	86.15	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	12.6	100	87.4	
Outlet, thalweg	A	0	1	14.7	100	85.31	
Outlet, culvert top	A	0	1	10.7	100	89.35	
Upstream station, thalweg 3 (2 CMP widths)	A	12	1	12.7	100	87.35	
Upstream station, OHW line 1 (1 ft)	A	5	1	11.6	100	88.42	
Upstream station, water elev 1 (5 ft)	A	5	1	12.3	100	87.69	
Upstream station, thalweg 2 (5 ft)	A	5	1	12.9	100	87.1	
Upstream station, thalweg 1 (1 ft)	A	1	1	12.8	100	87.17	
Inlet, culvert thalweg	A	0	1	12.9	100	87.15	
Inlet, culvert rustline	A	0	1	11.7	100	88.27	
Inlet, culvert invert	A	0	1	12.9	100	87.15	
Inlet, culvert top	A	0	1	6.63	100	93.37	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	6.5	0.1	26	40.6	N/A	6.46
At Culvert Outlet, Location 1	A	0	0.5	14	41.7	N/A	0.35
At Culvert Inlet, Location 1	A	0	0.2	108	40	N/A	2.61
Downstream from Outlet of Culvert, Location 2	A	107	0.3	78	40.2	N/A	1.86
Downstream from Outlet of Culvert, Location 1	A	61	0.15	41	40.7	N/A	1.00
Upstream from Inlet of Culvert, Location 2	A		0.4	72	40.5	N/A	1.74
Upstream from Inlet of Culvert, Location 1	A		0.3	67	40.2	N/A	1.63

Barrel Velocity(Float Ball)

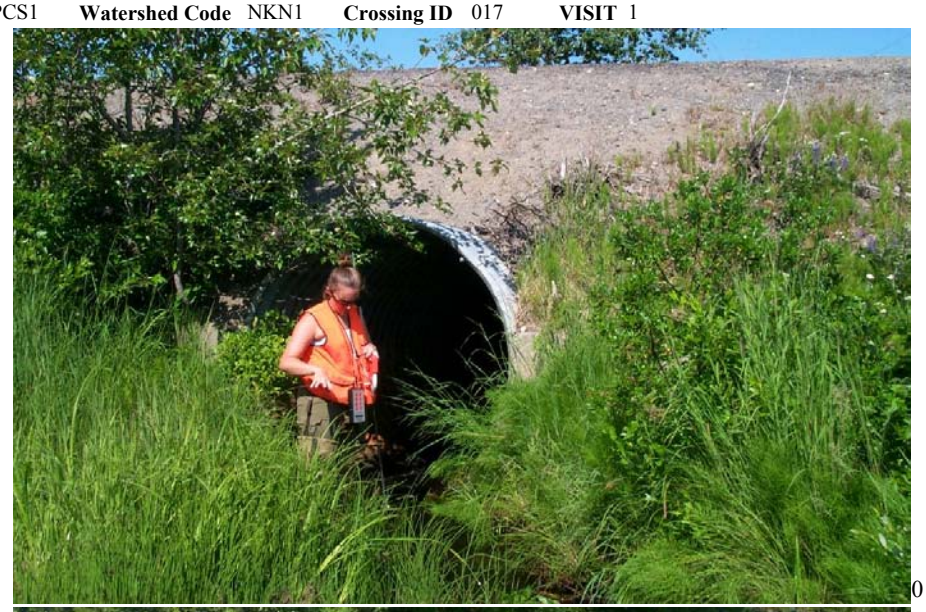
Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	75	95	98	100			.77 ft/sec.

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 017 **VISIT** 1

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	21.5	0.3	67	40.2	N/A	1.63
Upstream from Inlet of Culvert, Location 2	37.5	0.4	72	40.5	N/A	1.74
Downstream from Outlet of Culvert, Location 1	61	0.15	41	40.7	N/A	1.00
Downstream from Outlet of Culvert, Location 2	107	0.3	78	40.2	N/A	1.86
At Culvert Inlet, Location 1	0	0.2	108	40	N/A	2.61
At Culvert Outlet, Location 1	0	0.5	14	41.7	N/A	0.35
Outlet Pool Tailcrest	6.5	0.1	26	40.6	N/A	6.46

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 017 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 018 **VISIT** 1
DATE 7/2/2001 **Time** 9:00:00 AM **Observers:** Cecil Rich, Tracy Smith, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.93753 **Long. (dec. deg)** 151.73537
Road Name Sterling Hwy **Region:** SCN
Quad Name: Seldovia **ITM:** C-5 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Happy Creek

Field Notes: Upstream thalweg aims to left side at headwll. Very steep embankment on upstream side but well vegetated with alder. Falls near mouth create migratory barrier near mouth to anadromous fish - no salmon.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** gray

					Inlet	Outlet
Length: 118.17	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	7.60	7.80
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	8.69	8.59
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0074		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):** 0.23		**Water Depth (ft):**	1.00	1.00
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.94		**Substr. Dep (ft):**	0.00	0.39
Substrate Type: None	None	**Encrochment Ratio:** 0.73		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	Large Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 4.83

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	9	149
Upstrream OHW Width (50 ft.):	11.81	59
Upstrream OHW Width (5 ft.):	16.6	5
Tailcrest Width at OHW:	19.4	41.9
Outlet Pool OHW Line (Max. Width.):	38.8	
Downstream OHW Width (100 ft.):	12	163
Downstrream OHW Width (50 ft.):	12.2	104

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 018U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.2
Susp.Spawn? No **Fork Len. (mm)** 165 79 84
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 18 **Life History:** Resident
Stat. ID: 018D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 129 138 136 132 118 88 86 77 84 77
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	2.1	5	11.5	107.96	96.46	mid upper terrace
Station 1	4.7	5	12.35	107.96	95.61	terrace slope
Station 2	5.9	5	12.65	107.96	95.31	another terrace
Station 3	6.1	5	13.17	107.96	94.79	bank slope
Station 4	16.6	5	13.13	107.96	94.83	channel bank
Left Bank/Bed Slope Break	17.2	5	13.69	107.96	94.27	
Left Bank, Wetted Perimeter	17.2	5	13.4	107.96	94.56	
Station 5	20	5	13.58	107.96	94.38	
Station 6	22	5	13.83	107.96	94.13	
Station 7	30	5	13.4	107.96	94.56	
Station 8	31	5	15	107.96	92.96	
Right Bank/Bed Slope Break	33	5	14.98	107.96	92.98	
Right Bank, Wetted Perimeter	35.3	5	13.5	107.96	94.46	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 018 **VISIT** 1

Right Bank, Ordinary High Water	35.3	5	13.6	107.96	94.36

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	10.0	100	89.96	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	4.98	100	95.02	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	8.81	100	91.19	
Downstream station, thalweg 1 (tailcrest)	39	1	6.9	100	93.1	
Downstream station, water elev 1 (tailcrest)	39	1	5.73	100	94.27	
Downstream station, thalweg 2 (50 ft)	104	1	6.67	100	93.33	
Downstream station, water elev 2 (50 ft)	104	1	6.06	100	93.94	
Downstream station, OHW line 2 (50)	104	1	5.83	100	94.17	
Downstream station, thalweg 3 (100 ft)	163	1	7.07	100	92.93	
Downstream station, water elev 3 (100 ft)	163	1	6.77	100	93.23	
Downstream station, OHW line 3 (100 ft)	163	1	6.38	100	93.62	
Outlet, pool water elev	5	1	5.73	100	94.27	
Inlet, edge-road		3	3.48	126.71	123.23	
Outlet, edge-road		3	3.42	126.71	123.29	
Upstream station, OHW line 1 (100 ft)	149	4	8.69	105.63	96.94	
Upstream station, water elev 1 (100 ft)	149	4	9.4	105.63	96.23	
Upstream station, thalweg 5 (100 ft)	149	4	10.1	105.63	95.57	
Upstream station, OHW line 1 (50 ft)	59	4	9.38	105.63	96.25	
Upstream station, water elev 2 (50 ft)	59	4	9.79	105.63	95.84	
Upstream station, thalweg 4 (50 ft)	59	4	10.3	105.63	95.36	
Downstream station, OHW line 1 (tailcrest)	39	5	13.6	107.96	94.36	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	4.65	100	95.35	
Outlet, thalweg	A	0	1	7.06	100	92.94	
Outlet, culvert invert	A	0	1	6.67	100	93.33	
Outlet, culvert top	A	0	2	22.9	124.8	101.92	
Upstream station, thalweg 3 (2 CMP widths)	A	15.2	4	11.4	105.6	94.28	
Upstream station, OHW line 1 (1 ft)	A	5	4	9.56	105.6	96.07	
Upstream station, water elev 1 (5 ft)	A	5	4	10.3	105.6	95.32	
Upstream station, thalweg 2 (5 ft)	A	5	4	11.1	105.6	94.5	
Upstream station, thalweg 1 (1 ft)	A	1	4	11.4	105.6	94.21	
Inlet, culvert thalweg	A	0	4	11.4	105.6	94.21	
Inlet, culvert rustline	A	0	4	8.6	105.6	97.03	
Inlet, culvert invert	A	0	4	11.4	105.6	94.21	
Inlet, culvert top	A	0	4	2.73	105.6	102.9	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	41.9	1.2	58	40.2	Pygmy	1.40
At Culvert Outlet, Location 1	A	0	0.8	93	40.3	Pygmy	2.25
At Culvert Inlet, Location 1	A	0	0.85	59	40.1	Pygmy	1.44
Downstream from Outlet of Culvert, Location 2	A	163	0.45	59	40.3	Pygmy	1.44
Downstream from Outlet of Culvert, Location 1	A	104	0.5	63	40.2	Pygmy	1.52
Upstream from Inlet of Culvert, Location 2	A		0.35	95	40.4	Pygmy	2.29
Upstream from Inlet of Culvert, Location 1	A		0.65	97	40.2	Pygmy	2.33

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	118.17	42	46	49			2.59 ft/sec.

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 018 **VISIT** 1

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	59	0.65	97	40.2	Pygmy	2.33
Upstream from Inlet of Culvert, Location 2	149	0.35	95	40.4	Pygmy	2.29
Downstream from Outlet of Culvert, Location 1	104	0.5	63	40.2	Pygmy	1.52
Downstream from Outlet of Culvert, Location 2	163	0.45	59	40.3	Pygmy	1.44
At Culvert Inlet, Location 1	0	0.85	59	40.1	Pygmy	1.44
At Culvert Outlet, Location 1	0	0.8	93	40.3	Pygmy	2.25
Outlet Pool Tailcrest	41.9	1.2	58	40.2	Pygmy	1.40

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 018 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 019 **VISIT** 1
DATE 7/2/2001 **Time** 12:50:00 PM **Observers:** Cecil Rich, Tracy Smith, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.85205 **Long. (dec. deg)** 151.78839
Road Name Sterling Hwy **Region:** SCN
Quad Name: Seldovia **ITM:** D-5 **Stream #:** 244-10-10050
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Stariski Creek

Field Notes: Eroding embankment gully above outlet. At inlet river and pipe eroding deeply on each side - should be a bridge here! Right culvert only functions at high water. Inlet erosion codes - FIBO
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray **Inlet** **Outlet**
Length: 130.81 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 9.58 9.79
Entrance Type: Projecting **Tidal Influence:** No **Height (ft):** 10.83 10.79
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 2.00 2.25
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.00
Substrate Type: None None **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: Fill Slope Erosion Protection Needed No Outlet Erosion **Culv. Blockage (%):** 0 0

Culvert ID: B **Category:** **Classification:** **Inlet** **Outlet**
Length: 130.81 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 9.58 9.75
Entrance Type: Projecting **Tidal Influence:** No **Height (ft):** 10.81 10.81
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 1.14 2.29
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.00
Substrate Type: None None **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: Other No Outlet Erosion **Culv. Blockage (%):** 0 0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 27.85

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	29.9	182
Upstrream OHW Width (50 ft.):	22.2	85
Upstrream OHW Width (5 ft.):	19.5	5
Tailcrest Width at OHW:	38.9	62
Outlet Pool OHW Line (Max. Width.):	65	
Downstream OHW Width (100 ft.):	38	200
Downstrream OHW Width (50 ft.):	33.1	147

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 019U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 103 122 90 103 121
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 019U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 103
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 019U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 93
Comments: observed > 15 adult chinnook spawning/ holding in outlet pool - none seen upstream

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 019 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Resident
Stat. ID: 019D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 96 92 116 112 93 104 97 82 91 96
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 019D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 88 92 124 110 91
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 019D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 71 72
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 019D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 102
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	5.5	5	13.21	102.62	89.41	
Left Bank, Ordinary High Water	8.8	5	14.02	102.62	88.6000	
Left Bank, Wetted Perimeter	10.2	5	14	102.62	88.62	
Left Bank/Bed Slope Break	10.2	5	15.54	102.62	87.08	
Station 1	15.5	5	15.46	102.62	87.16	
Station 2	23.2	5	15.46	102.62	87.16	
Station 3	30.7	5	15.1	102.62	87.52	
Station 4	39.5	5	14.6	102.62	88.02	
Station 5	45.3	5	14.83	102.62	87.79	
Right Bank/Bed Slope Break	46.6	5	14.83	102.62	87.79	
Right Bank, Wetted Perimeter	46.6	5	13.9	102.62	88.72	
Right Bank, Ordinary High Water	46.6	5	14.02	102.62	88.6000	
Right Bank, Terrace	47.5	5	12.48	102.62	90.14	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	17.5	100	82.52	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	11	100	89	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	15.6	100	84.44	
Downstream station, thalweg 1 (tailcrest)	59	1	12.9	100	87.15	
Downstream station, water elev 1 (tailcrest)	59	1	11.7	100	88.31	
Downstream station, thalweg 2 (50 ft)	147	1	13.6	100	86.42	
Downstream station, water elev 2 (50 ft)	147	1	12.7	100	87.35	
Downstream station, OHW line 2 (50)	147	1	12.4	100	87.58	
Downstream station, thalweg 3 (100 ft)	200	1	13.9	100	86.1	
Downstream station, water elev 3 (100 ft)	200	1	13.0	100	86.98	
Downstream station, OHW line 3 (100 ft)	200	1	12.9	100	87.1	
Outlet, pool water elev	5	1	11.7	100	88.35	
Inlet, edge-road		2	3.36	117.75	114.39	
Outlet, edge-road		4	3.46	92.92	89.46	
Upstream station, OHW line 1 (100 ft)	182	4	3.42	92.92	89.5	
Upstream station, water elev 1 (100 ft)	182	4	4.04	92.92	88.88	
Upstream station, thalweg 5 (100 ft)	182	4	4.88	92.92	88.04	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 019 **VISIT** 1

Upstream station, OHW line 1 (50 ft)	85	4	3.96	92.92	88.96
Upstream station, water elev 2 (50 ft)	85	4	4.54	92.92	88.38
Upstream station, thalweg 4 (50 ft)	85	4	5.63	92.92	87.29
Downstream station, OHW line 1 (tailcrest)	59	5	14.0	102.62	88.6000

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	3	5	101.4	96.44	
Inlet, culvert invert	A	0	3	15.8	101.4	85.61	
Inlet, culvert rustline	A	0	3	13.3	101.4	88.15	
Inlet, culvert thalweg	A	0	3	15.8	101.4	85.61	
Upstream station, thalweg 1 (1 ft)	A	1	3	16.3	101.4	85.11	
Upstream station, thalweg 2 (5 ft)	A	5	3	15.9	101.4	85.59	
Upstream station, water elev 1 (5 ft)	A	5	3	13.7	101.4	87.75	
Upstream station, OHW line 1 (1 ft)	A	5	3	13.5	101.4	87.94	
Upstream station, thalweg 3 (2 CMP widths)	A	19.2	3	14.7	101.4	86.79	
Outlet, culvert top	A	0	1	3.13	100	96.87	
Outlet, culvert invert	A	0	1	13.9	100	86.08	
Inlet, culvert top	A	0	3	5	101.4	96.44	
Outlet, rustline	A	0	1	11.4	100	88.62	
Outlet, rustline	B	0	1	11.4	100	88.62	
Inlet, culvert invert	B	0	3	15.8	101.4	85.63	
Inlet, culvert rustline	B	0	3	15	101.4	86.4600	
Inlet, culvert thalweg	B	0	3	15.8	101.4	85.63	
Upstream station, thalweg 1 (1 ft)	B	1	3	12.7	101.4	88.75	
Upstream station, thalweg 2 (5 ft)	B	5	3	12.8	101.4	88.69	
Upstream station, water elev 1 (5 ft)	B	5	3		101.4		no water
Upstream station, OHW line 1 (1 ft)	B	5	3		101.4		no water
Upstream station, thalweg 3 (2 CMP widths)	B	19.2	3	14.7	101.4	86.79	
Outlet, culvert top	B	0	1	3.15	100	96.85	
Outlet, culvert invert	B	0	1	14	100	86.04	
Outlet, thalweg	B	0	1	14	100	86.04	
Outlet, thalweg	A	0	1	13.9	100	86.08	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	62	0.8	42	40	Pygmy	1.04
At Culvert Outlet, Location 2	A	0				N/A	0.00
At Culvert Inlet, Location 2	A	0				N/A	0.00
At Culvert Outlet, Location 1	A	0	2.2	126	40	Pygmy	3.05
At Culvert Inlet, Location 1	A	0	1.8	164	40.2	Pygmy	3.95
Downstream from Outlet of Culvert, Location 2	A	200	0.6	84	40.5	Pygmy	2.01
Downstream from Outlet of Culvert, Location 1	A	147	0.8	75	40.5	Pygmy	1.81
Upstream from Inlet of Culvert, Location 2	A		0.8	88	40.2	Pygmy	2.13
Upstream from Inlet of Culvert, Location 1	A		0.8	147	40.1	Pygmy	3.54

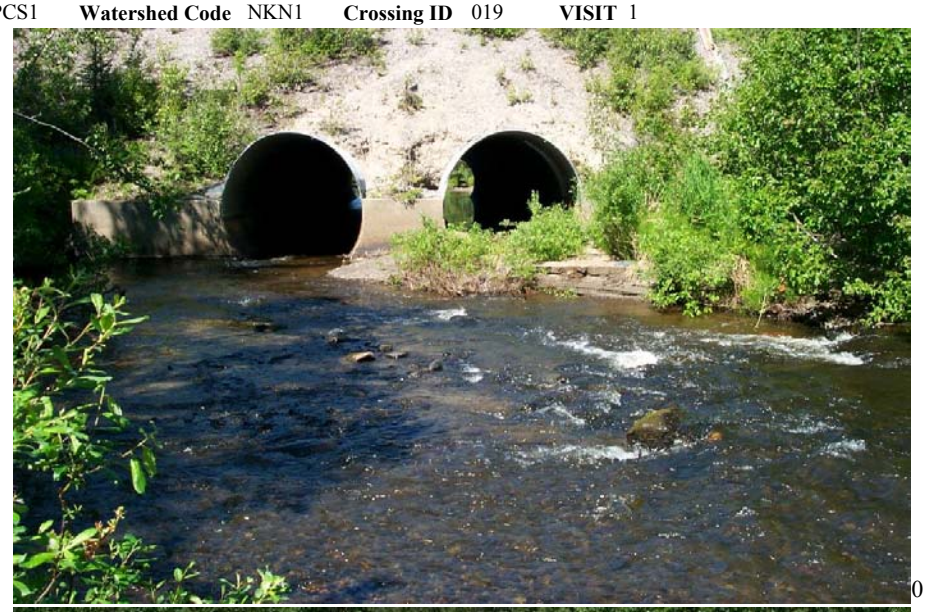
Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1		0.8	147	40.1	Pygmy	3.54
Upstream from Inlet of Culvert, Location 2		0.8	88	40.2	Pygmy	2.13
Downstream from Outlet of Culvert, Location 1	147	0.8	75	40.5	Pygmy	1.81
Downstream from Outlet of Culvert, Location 2	200	0.6	84	40.5	Pygmy	2.01
At Culvert Inlet, Location 1	0	1.8	164	40.2	Pygmy	3.95
At Culvert Outlet, Location 1	0	2.2	126	40	Pygmy	3.05
At Culvert Inlet, Location 2	0				N/A	0.00

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 019 **VISIT** 1

At Culvert Outlet, Location 2	0					N/A	0.00
Outlet Pool Tailcrest	62	0.8	42	40		Pygmy	1.04

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 019 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 020 **VISIT** 1
DATE 7/3/2001 **Time** 8:50:00 AM **Observers:** Cecil Rich, Michael Lund, Tracy Smith

Site Information:

GPS Location: **Lat. (dec. deg)** 59.80106 **Long. (dec. deg)** 151.63435
Road Name Nikolaeusk Rd. **Region:** SCN
Quad Name: Seldovia **ITM:** D-5 **Stream #:** 244-10-10010-2011
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** North Fork Anchor River

Field Notes: CP damage at inlet. Overly steep embankment. Fill eroding above pipes at outlet. Jeep trail along outchannel and crosses 300 feet below culvert. Boulders in culverts for good resting places for fish.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

					Inlet	Outlet
Length: 76.35	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	8.30	8.10
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	7.12	8.25
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.33	0.06
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Coarse Gravel	Boulder	**Encrochment Ratio:**	**Struc. Damage (%):**	10	0
Erosion:	Inlet Conditions Improvement Needed	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Culvert ID: B **Category:** **Classification:**

					Inlet	Outlet
Length: 79.35	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	8.30	8.10
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	7.12	8.25
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.75	0.83
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Boulder	None	**Encrochment Ratio:**	**Struc. Damage (%):**	5	0
Erosion:	Inlet Conditions Improvement Needed	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Coarse Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 12.57

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	21.2	150
Upstrream OHW Width (50 ft.):	22.8	46
Upstrream OHW Width (5 ft.):	26.4	5
Tailcrest Width at OHW:	26.4	36
Outlet Pool OHW Line (Max. Width.):	34.1	
Downstream OHW Width (100 ft.):	22	146
Downstrream OHW Width (50 ft.):	19.4	62

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 41 **Life History:** Resident
Stat. ID: 020U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 115 91 99 112 95 88 86 112 92 107
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 020U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 67 42
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 020U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 86
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 020 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 20 **Life History:** Resident
Stat. ID: 020D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 106 110 102 100 88 96 76
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 020D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 73
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	4.4	3	12.92	98.02	85.1	above terrace
Left Bank/Bed Slope Break	5.1	3	13.4	98.02	84.62	
Left Bank, Ordinary High Water	6	3	14.44	98.02	83.58	
Station 2	6	3	16.63	98.02	81.39	slopebreak - undercut
Left Bank, Wetted Perimeter	4	3	15	98.02	83.02	undercut
Station 3	9	3	16.46	98.02	81.56	
Station 4	14	3	16.31	98.02	81.71	
Station 5	16	3	15.25	98.02	82.77	
Station 6	19.5	3	15.42	98.02	82.6	
Station 7	24	3	15.81	98.02	82.21	
Station 8	30	3	15.4	98.02	82.62	
Right Bank/Bed Slope Break	33.2	3	15.65	98.02	82.37	undercut
Right Bank, Wetted Perimeter	33.2	3	14.96	98.02	83.06	
Right Bank, Ordinary High Water	33	3	14.5	98.02	83.52	
Right Bank, Terrace	34.2	3	13.13	98.02	84.89	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	20.6	100	79.37	
Upstream station, thalweg 4 (50 ft)	46	1	15.6	100	84.42	
Upstream station, water elev 2 (50 ft)	46	1	14.4	100	85.56	
Upstream station, OHW line 1 (50 ft)	46	1	14.2	100	85.83	
Outlet, edge-road		1	2.63	100	97.37	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	17.0	100	82.96	
Inlet, edge-road		1	3.79	100	96.21	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	19.9	100	80.15	
Downstream station, OHW line 3 (100 ft)	146	1	17.3	100	82.71	
Downstream station, thalweg 1 (tailcrest)	36	1	18.8	100	81.19	
Downstream station, water elev 1 (tailcrest)	36	1	17.4	100	82.56	
Downstream station, thalweg 2 (50 ft)	62	1	18.6	100	81.4	
Downstream station, water elev 2 (50 ft)	62	1	17.8	100	82.23	
Downstream station, OHW line 2 (50)	62	1	17.3	100	82.71	
Downstream station, thalweg 3 (100 ft)	146	1	19.4	100	80.58	
Downstream station, water elev 3 (100 ft)	146	1	17.9	100	82.12	
Outlet, pool water elev	5	1	17.4	100	82.65	
Upstream station, OHW line 1 (100 ft)	150	2	4.69	91.08	86.39	
Upstream station, water elev 1 (100 ft)	150	2	5.19	91.08	85.89	
Upstream station, thalweg 5 (100 ft)	150	2	6.65	91.08	84.43	
Downstream station, OHW line 1 (tailcrest)	36	3	14.6	98.02	83.44	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	1	9.52	100	90.48	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 020 **VISIT** 1

Inlet, culvert invert	A	0	1	17.3	100	82.67
Inlet, culvert rustline	A	0	1	15.4	100	84.56
Inlet, culvert thalweg	A	0	1	17.3	100	82.67
Upstream station, thalweg 1 (1 ft)	A	1	1	16.5	100	83.5
Upstream station, thalweg 2 (5 ft)	A	5	1	16.1	100	83.87
Upstream station, water elev 1 (5 ft)	A	5	1	15.6	100	84.37
Upstream station, OHW line 1 (1 ft)	A	5	1	15.5	100	84.46
Upstream station, thalweg 3 (2 CMP widths)	A	16.6	1	15.7	100	84.33
Outlet, culvert top	A	0	1	9.5	100	90.5
Outlet, culvert invert	A	0	1	17.8	100	82.25
Inlet, culvert top	A	0	1	10.2	100	89.79
Outlet, rustline	A	0	1	16.3	100	83.67
Outlet, rustline	B	0	1	16.7	100	83.35
Inlet, culvert invert	B	0	1	17.3	100	82.67
Inlet, culvert rustline	B	0	1	15.4	100	84.58
Inlet, culvert thalweg	B	0	1	17.3	100	82.67
Upstream station, thalweg 1 (1 ft)	B	1	1	17.1	100	82.87
Upstream station, thalweg 2 (5 ft)	B	5	1	16.8	100	83.17
Upstream station, water elev 1 (5 ft)	B	5	1	15.6	100	84.42
Upstream station, OHW line 1 (1 ft)	B	5	1	15.3	100	84.69
Upstream station, thalweg 3 (2 CMP widths)	B	16.6	1	16	100	84.04
Outlet, culvert top	B	0	1	9.67	100	90.33
Outlet, culvert invert	B	0	1	17.8	100	82.25
Outlet, thalweg	B	0	1	17.8	100	82.25
Outlet, thalweg	A	0	1	17.8	100	82.25

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	36	0.75	92	40.4	N/A	2.22
At Culvert Outlet, Location 2	A	0	0.7	191	40.2	N/A	4.59
At Culvert Inlet, Location 2	A	0	1.5	70	40	N/A	1.71
At Culvert Outlet, Location 1	A	0	0.5	102	40	N/A	2.48
At Culvert Inlet, Location 1	A	0	1.05	70	40.1	N/A	1.72
Downstream from Outlet of Culvert, Location 2	A	146	1.1	69	40	N/A	1.67
Downstream from Outlet of Culvert, Location 1	A	62	0.75	110	40.4	N/A	2.65
Upstream from Inlet of Culvert, Location 2	A	150	0.9	39	40.9	N/A	0.95
Upstream from Inlet of Culvert, Location 1	A	46	0.5	66	40	N/A	1.61

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	76.35	35	38	40			2.03 ft/sec.
B	79.35	22	26	28			3.13 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	46	0.5	66	40	Pygmy	1.61
Upstream from Inlet of Culvert, Location 2	150	0.9	39	40.9	Pygmy	0.95
Downstream from Outlet of Culvert, Location 1	62	0.75	110	40.4	Pygmy	2.65
Downstream from Outlet of Culvert, Location 2	146	1.1	69	40	Pygmy	1.67
At Culvert Inlet, Location 1	0	1.05	70	40.1	Pygmy	1.72
At Culvert Outlet, Location 1	0	0.5	102	40	Pygmy	2.48
At Culvert Inlet, Location 2	0	1.5	70	40	Pygmy	1.71
At Culvert Outlet, Location 2	0	0.7	191	40.2	Pygmy	4.59
Outlet Pool Tailcrest	36	0.75	92	40.4	Pygmy	2.22

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 020 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 021 **VISIT** 1
DATE 7/3/2001 **Time** 12:40:00 PM **Observers:** Cecil Rich, Tracy Smith, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.76699 **Long. (dec. deg)** 151.62451
Road Name North Fork Road **Region:** SCN
Quad Name: Seldovia **ITM:** D-5 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Left pipe (smaller one) perched 150 mm. Right pipe perched 20 mm. Resurvey on 7/24/01.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 48.95	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	1.50	1.50
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	1.50	1.77
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 2.5		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.16	0.10
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 49.1	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	2.00	2.20
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	2.08	2.12
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 2.5		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.32	0.20
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Large Cobble	Small Cobble
Sub Dominant Substrate Type:	Fine Gravel	Large Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: 0.36

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	5.6	27
Upstrream OHW Width (50 ft.):	4.2	13
Upstrream OHW Width (5 ft.):	5.3	5
Tailcrest Width at OHW:	8.2	14.5
Outlet Pool OHW Line (Max. Width.):	11.9	
Downstream OHW Width (100 ft.):	5	47
Downstrream OHW Width (50 ft.):	6.4	29

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 021U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)** 132 122 127 98
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident
Stat. ID: 021D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 165 121 145 128 97 116 122 115
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 021 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	5.2	2	9.42	96.4	86.98	
Left Bank, Ordinary High Water	5.4	2	9.56	96.4	86.84	
Left Bank, Wetted Perimeter	6.3	2	9.75	96.4	86.65	
Left Bank/Bed Slope Break	6.3	2	9.92	96.4	86.48	
Station 1	10	2	9.98	96.4	86.42	
Station 2	11.2	2	9.85	96.4	86.55	
Right Bank/Bed Slope Break	12.5	2	9.79	96.4	86.61	
Right Bank, Wetted Perimeter	12.5	2	9.79	96.4	86.61	
Right Bank, Ordinary High Water	12.5	2	9.71	96.4	86.69	
Right Bank, Terrace	13.7	2	9.54	96.4	86.86	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	14.8	100	85.25	
Upstream station, thalweg 4 (50 ft)	13	1	10.9	100	89.12	
Upstream station, water elev 2 (50 ft)	13	1	10.0	100	89.98	
Upstream station, OHW line 1 (50 ft)	13	1	9.71	100	90.29	
Upstream station, thalweg 5 (100 ft)	27	1	10.4	100	89.65	
Upstream station, water elev 1 (100 ft)	27	1	9.98	100	90.02	
Upstream station, OHW line 1 (100 ft)	27	1	9.73	100	90.27	
Outlet, edge-road		1	5.96	100	94.04	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	12.8	100	87.17	
Inlet, edge-road		1	4.69	100	95.31	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.8	100	85.25	
Downstream station, OHW line 3 (100 ft)	47	1	15.6	100	84.44	
Downstream station, thalweg 1 (tailcrest)	15	1	13.7	100	86.33	
Downstream station, OHW line 1 (tailcrest)	15	1	9.63	100	90.37	
Downstream station, water elev 1 (tailcrest)	15	1	13.4	100	86.58	
Downstream station, thalweg 2 (50 ft)	29	1	15.5	100	84.52	
Downstream station, water elev 2 (50 ft)	29	1	15.1	100	84.9	
Downstream station, OHW line 2 (50)	29	1	14.8	100	85.25	
Downstream station, thalweg 3 (100 ft)	47	1	16.6	100	83.44	
Downstream station, water elev 3 (100 ft)	47	1	16.2	100	83.79	
Outlet, pool water elev	5	1	13.5	100	86.5	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	12.6	100	87.4	
Inlet, culvert invert	A	0	1	10.4	100	89.65	
Inlet, culvert rustline	A	0	1	9.96	100	90.04	
Inlet, culvert thalweg	A	0	1	10.4	100	89.65	
Upstream station, thalweg 1 (1 ft)	A	1	1	10.4	100	89.65	
Upstream station, thalweg 2 (5 ft)	A	5	1	10.5	100	89.46	
Upstream station, water elev 1 (5 ft)	A	5	1	10.1	100	89.9	
Upstream station, OHW line 1 (1 ft)	A	5	1	9.88	100	90.12	
Upstream station, thalweg 3 (2 CMP widths)	A	3	1	10.5	100	89.52	
Outlet, culvert top	A	0	1	11.2	100	88.79	
Inlet, culvert top	A	0	1	8.77	100	91.23	
Outlet, thalweg	A	0	1	13	100	87.02	
Outlet, rustline	B	0	1	13.1	100	86.87	
Inlet, culvert top	B	0	1	8.31	100	91.69	
Inlet, culvert invert	B	0	1	10.4	100	89.6	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 021 **VISIT** 1

Inlet, culvert rustline	B	0	1	9.9	100	90.1
Inlet, culvert thalweg	B	0	1	10.4	100	89.6
Upstream station, thalweg 1 (1 ft)	B	1	1	10.5	100	89.46
Upstream station, thalweg 3 (2 CMP widths)	B	4	1	10.4	100	89.56
Outlet, culvert top	B	0	1	11.5	100	88.52
Outlet, culvert invert	B	0	1	13.6	100	86.4
Outlet, thalweg	B	0	1	13.6	100	86.4
Outlet, culvert invert	A	0	1	13	100	87.02

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	14	0.15	29	41.4	Pygmy	0.70
At Culvert Outlet, Location 2	A	0	0.2	140	40.2	Pygmy	3.38
At Culvert Inlet, Location 2	A	0	0.25	14	40.1	Pygmy	0.37
At Culvert Outlet, Location 1	A	0	0.1	81	40	Pygmy	1.98
At Culvert Inlet, Location 1	A	0	0.2	80	40.4	Pygmy	1.92
Downstream from Outlet of Culvert, Location 2	A	29	0.15	27	40.2	Pygmy	0.68
Downstream from Outlet of Culvert, Location 1	A	48	0.25	48	40.2	Pygmy	1.18
Upstream from Inlet of Culvert, Location 2	A	27	0.6	21	41.3	Pygmy	0.52
Upstream from Inlet of Culvert, Location 1	A	13	0.5	19	41.4	Pygmy	0.47

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	48.95	86	87	88			.56 ft/sec.
B	49.1	15	16	18			3.01 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	13	0.5	19	41.4	Pygmy	0.47
Upstream from Inlet of Culvert, Location 2	27	0.6	21	41.3	Pygmy	0.52
Downstream from Outlet of Culvert, Location 1	48	0.25	48	40.2	Pygmy	1.18
Downstream from Outlet of Culvert, Location 2	29	0.15	27	40.2	Pygmy	0.68
At Culvert Inlet, Location 1	0	0.2	80	40.4	Pygmy	1.92
At Culvert Outlet, Location 1	0	0.1	81	40	Pygmy	1.98
At Culvert Inlet, Location 2	0	0.25	14	40.1	Pygmy	0.37
At Culvert Outlet, Location 2	0	0.2	140	40.2	Pygmy	3.38
Outlet Pool Tailcrest	14	0.15	29	41.4	Pygmy	0.70

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 021 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 022 **VISIT** 1
DATE 7/3/2001 **Time** 3:30:00 PM **Observers:** Cecil Rich, Tracy Smith, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.71287 **Long. (dec. deg)** 151.67807
Road Name North Fork Anchor Road **Region:** SCN
Quad Name: Seldovia **ITM:** C-5 **Stream #:** 244-10-10010-2090
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: neet to return to do discharge. Multiple channels meeting at inlet (must do seperatly and add?). Steep embankment but well vegetated on outlet. Some erosion and damage at inlet but still functional.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length: 34.54	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	3.00	3.00
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	3.62	2.96
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0255		**Manuf. Diameter:**		
Corrugation Width (in.): 2.5		**Perch Ht. (Flow - Ind):** 0.04		**Water Depth (ft):**	0.39	0.38
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.54		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.51		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Fine Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: 1.42

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	5.2	55
Upstrream OHW Width (50 ft.):	6.5	17
Upstrream OHW Width (5 ft.):	8.58	5
Tailcrest Width at OHW:	9.2	29
Outlet Pool OHW Line (Max. Width.):	24.7	
Downstream OHW Width (100 ft.):	6	64
Downstrream OHW Width (50 ft.):	8.3	46

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 13 **Life History:** Resident
Stat. ID: 022U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 132 128 110 95 105 114 122 125 133 81
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Anadromous
Stat. ID: 022U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 80 61 65 58 64
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Resident
Stat. ID: 022D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 112 104 125 116 102 111 115 137 118 70
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 022D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 62 62 67 70
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	1.5	2	2.46	93	90.54	
Left Bank, Ordinary High Water	3.7	2	3.71	93	89.29	
Left Bank, Wetted Perimeter	4.3	2	4.04	93	88.96	pool
Left Bank/Bed Slope Break	4.3	2	4.88	93	88.12	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 022 **VISIT** 1

Station 1	6.2	2	4.71	93	88.29	
Station 2	7.9	2	4.42	93	88.58	
Station 3	10	2	4.44	93	88.56	
Station 4	11.5	2	4.46	93	88.54	
Right Bank/Bed Slope Break	13.5	2	4.27	93	88.73	
Right Bank, Wetted Perimeter	13.5	2	4.23	93	88.77	riffle
Station 5	14	2	3.63	93	89.37	SB slope break
Station 6	15.5	2	13.73	93	79.27	wetted perimeter

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	13.4	100	86.56	
Upstream station, thalweg 4 (50 ft)	17	1	9.65	100	90.35	
Upstream station, water elev 2 (50 ft)	17	1	9.56	100	90.44	
Upstream station, OHW line 1 (50 ft)	17	1	8.5	100	91.5	
Upstream station, thalweg 5 (100 ft)	55	1	9.15	100	90.85	
Upstream station, water elev 1 (100 ft)	55	1	8.85	100	91.15	
Upstream station, OHW line 1 (100 ft)	55	1	8.48	100	91.52	
Outlet, edge-road		1	4.71	100	95.29	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.7	100	89.35	
Inlet, edge-road		1	4.81	100	95.19	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	12.8	100	87.17	
Downstream station, OHW line 3 (100 ft)	64	1	11.7	100	88.31	
Downstream station, thalweg 1 (tailcrest)	29	1	11.8	100	88.23	
Downstream station, water elev 1 (tailcrest)	29	1	11.6	100	88.4	
Downstream station, thalweg 2 (50 ft)	46	1	12.1	100	87.9	
Downstream station, water elev 2 (50 ft)	46	1	11.8	100	88.21	
Downstream station, OHW line 2 (50)	46	1	11.4	100	88.62	
Downstream station, thalweg 3 (100 ft)	64	1	12.6	100	87.42	
Downstream station, water elev 3 (100 ft)	64	1	12.3	100	87.75	
Outlet, pool water elev	5	1	11.2	100	88.81	
Downstream station, OHW line 1 (tailcrest)	29	2	3.5	93	89.5	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	10.8	100	89.19	
Outlet, thalweg	A	0	1	11.7	100	88.27	
Outlet, culvert invert	A	0	1	11.7	100	88.27	
Outlet, culvert top	A	0	1	8.77	100	91.23	
Upstream station, thalweg 3 (2 CMP widths)	A	6	1	9.63	100	90.37	
Upstream station, OHW line 1 (1 ft)	A	5	1	8.56	100	91.44	
Upstream station, water elev 1 (5 ft)	A	5	1	9.5	100	90.5	
Upstream station, thalweg 2 (5 ft)	A	5	1	9.73	100	90.27	
Upstream station, thalweg 1 (1 ft)	A	1	1	10.2	100	89.83	
Inlet, culvert thalweg	A	0	1	10.9	100	89.15	
Inlet, culvert rustline	A	0	1	9.52	100	90.48	
Inlet, culvert invert	A	0	1	10.9	100	89.15	
Inlet, culvert top	A	0	1	7.23	100	92.77	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A		0.4	20	41	Standard_Price AA	1.09
At Culvert Outlet, Location 2	A	0	0.4	107	40.1	Pygmy	2.58
At Culvert Outlet, Location 1	A	0	0.4	18	32.5	Standard_Price AA	1.24
At Culvert Inlet, Location 1	A	0	0.3	35	43	Standard_Price AA	1.81

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 022 **VISIT** 1

Downstream from Outlet of Culvert, Location 2	A		0.3	42	40.3	Standard_Price AA	2.32
Downstream from Outlet of Culvert, Location 1	A		0.3	25	40.5	Standard_Price AA	1.38
Upstream from Inlet of Culvert, Location 2	A	55	0.3	17	41.8	Standard_Price AA	0.91
Upstream from Inlet of Culvert, Location 1	A	17	0.3	15	42	Standard_Price AA	0.80

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	34.54	8	9	10			3.84 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	17	0.3	15	42	Standard_Price AA	0.80
Upstream from Inlet of Culvert, Location 2	55	0.3	17	41.8	Standard_Price AA	0.91
Downstream from Outlet of Culvert, Location 1	46	0.3	25	40.5	Standard_Price AA	1.38
Downstream from Outlet of Culvert, Location 2	64	0.3	42	40.3	Standard_Price AA	2.32
At Culvert Inlet, Location 1	0	0.3	35	43	Standard_Price AA	1.81
At Culvert Outlet, Location 1	0	0.4	18	32.5	Standard_Price AA	1.24
At Culvert Outlet, Location 2	0	0.4	107	40.1	Pygmy	2.58
Outlet Pool Tailcrest	29	0.4	20	41	Standard_Price AA	1.09

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 022 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 023 **VISIT** 1
DATE 7/4/2001 **Time** 9:30:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.77435 **Long. (dec. deg)** 151.82896
Road Name Sterling Hwy **Region:** SCN
Quad Name: Seldovia **ITM:** D-5 **Stream #:** 244-10-10010-2011
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** North Fork Anchor River

Field Notes: Large (2.5 ft above water level) 30' wide by 50' long mid-channel bar 6ft above culverts. 4 culverts in headwall. Some erosion on ends at outlet. Raw embankment on outlet with a few willows. Should be a bridge on this river. Culvert washed out in 2002

Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray **Inlet** **Outlet**
Length: 183.7 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 7.90 7.80
Entrance Type: Flush in Headwall **Tidal Influence:** No **Height (ft):** 8.54 8.58
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 0.63 2.27
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.00
Substrate Type: None None **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion Other **Culv. Blockage (%):** 0 0

Culvert ID: B **Category:** **Classification:** **Inlet** **Outlet**
Length: 183.7 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 7.90 7.80
Entrance Type: Flush in Headwall **Tidal Influence:** No **Height (ft):** 8.66
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 2.50 2.50
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00
Substrate Type: Large Cobble None **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: Other No Outlet Erosion **Culv. Blockage (%):** 0 0

Culvert ID: C **Category:** **Classification:** **Inlet** **Outlet**
Length: 183.7 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 7.90 7.80
Entrance Type: Flush in Headwall **Tidal Influence:** No **Height (ft):** 8.35
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 1.77 1.69
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00
Substrate Type: Large Cobble None **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: Other No Outlet Erosion **Culv. Blockage (%):** 0 0

Culvert ID: D **Category:** **Classification:** **Inlet** **Outlet**
Length: 183.7 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 7.90 7.80
Entrance Type: Flush in Headwall **Tidal Influence:** No **Height (ft):** 8.52 8.64
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 0.67 2.21
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.00
Substrate Type: None None **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: Other No Outlet Erosion **Culv. Blockage (%):** 0 0

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 023 **VISIT** 1

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Boulder
Sub Dominant Substrate Type:	Small Cobble	Large Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 40.75

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	58.3	258
Upstrream OHW Width (50 ft.):	63.5	89
Upstrream OHW Width (5 ft.):	65	5
Tailcrest Width at OHW:	32.7	72
Outlet Pool OHW Line (Max. Width.):	65.8	
Downstream OHW Width (100 ft.):	34	215
Downstrream OHW Width (50 ft.):	32.3	158

Fish Surveys

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 023U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 5.1
Susp.Spawn? No **Fork Len. (mm)** 56 53 49 58 53 49 51 47 48 43
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 17 **Life History:** Anadromous
Stat. ID: 023U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 5.1
Susp.Spawn? No **Fork Len. (mm)** 81 52 49 53 64 45 51 50 55 55
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 023D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 4.4
Susp.Spawn? No **Fork Len. (mm)** 157
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 023D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 4.4
Susp.Spawn? No **Fork Len. (mm)** 68 47 53 47 50 55
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 023D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 4.4
Susp.Spawn? No **Fork Len. (mm)** 47 45
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	7.1	6	12.15	97.35	85.2	
Left Bank, Ordinary High Water	8.6	6	12.71	97.35	84.64	
Left Bank, Wetted Perimeter	10.5	6	13.08	97.35	84.27	
Left Bank/Bed Slope Break	10.7	6	13.27	97.35	84.08	
Station 1	13.6	6	13.79	97.35	83.56	
Station 2	18	6	14.23	97.35	83.12	
Station 3	23	6	14.42	97.35	82.93	
Station 4	34	6	14.73	97.35	82.62	
Station 5	40	6	15.1	97.35	82.25	
Station 6	46	6	14.58	97.35	82.77	
Right Bank/Bed Slope Break	50.4	6	14.29	97.35	83.06	
Right Bank, Wetted Perimeter	50.4	6	13.08	97.35	84.27	
Right Bank, Ordinary High Water	50.6	6	12.67	97.35	84.68	
Right Bank, Terrace	51.5	6	12.31	97.35	85.04	
Station 7	56	6	11.42	97.35	85.93	above terrace

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 023 **VISIT** 1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	21.4	100	78.56	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	15.4	100	84.65	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	19.8	100	80.2	
Downstream station, OHW line 3 (100 ft)	215	1	17.3	100	82.73	
Downstream station, thalweg 1 (tailcrest)	72	1	17.7	100	82.29	
Downstream station, OHW line 1 (tailcrest)	72	1	12.7	100	87.33	
Downstream station, water elev 1 (tailcrest)	72	1	16.5	100	83.48	
Downstream station, thalweg 2 (50 ft)	158	1	19.0	100	80.98	
Downstream station, water elev 2 (50 ft)	158	1	17.3	100	82.69	
Downstream station, OHW line 2 (50)	158	1	17.1	100	82.9	
Downstream station, thalweg 3 (100 ft)	215	1	19.1	100	80.9	
Downstream station, water elev 3 (100 ft)	215	1	17.5	100	82.48	
Outlet, pool water elev	5	1	16.6	100	83.4	
Inlet, edge-road		3	6.75	139.39	132.64	
Outlet, edge-road		3	4.67	139.39	134.72	
Upstream station, OHW line 1 (100 ft)	258	5	12.3	100.12	87.79	
Upstream station, water elev 1 (100 ft)	258	5	12.8	100.12	87.33	
Upstream station, thalweg 5 (100 ft)	258	5	14	100.12	86.14	
Upstream station, OHW line 1 (50 ft)	89	5	13.2	100.12	86.89	
Upstream station, water elev 2 (50 ft)	89	5	13.9	100.12	86.2400	
Upstream station, thalweg 4 (50 ft)	89	5	15.4	100.12	84.77	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, culvert invert	A	0	1	18.8	100	81.21	
Outlet, culvert invert	B	0	1	18.6	100	81.4	
Outlet, culvert top	B	0	1	9.94	100	90.06	
Upstream station, thalweg 3 (2 CMP widths)	B	16	5	14.1	100.1	86.02	
Upstream station, water elev 1 (5 ft)	B	5	5	15.6	100.1	84.4900	
Upstream station, thalweg 2 (5 ft)	B	5	5	18.0	100.1	82.1000	
Upstream station, thalweg 1 (1 ft)	B	1	5	19.0	100.1	81.08	
Inlet, culvert thalweg	B	0	5	18.2	100.1	81.89	
Inlet, culvert rustline	B	0	5	13.7	100.1	86.39	
Inlet, culvert top	B	0	5	10.1	100.1	90.04	
Inlet, culvert top	A	0	5	7.65	100.1	92.47	
Outlet, thalweg	A	0	1	18.8	100	81.21	
Inlet, culvert top	C	0	5	10.1	100.1	90.04	
Outlet, culvert top	A	0	1	10.2	100	89.79	
Upstream station, thalweg 3 (2 CMP widths)	A	16	5	16.2	100.1	83.93	
Upstream station, OHW line 1 (1 ft)	A	5	5	14.1	100.1	86.0600	
Upstream station, water elev 1 (5 ft)	A	5	5	15.6	100.1	84.52	
Upstream station, thalweg 2 (5 ft)	A	5	5	17.2	100.1	82.91	
Upstream station, thalweg 1 (1 ft)	A	1	5	17.3	100.1	82.83	
Inlet, culvert thalweg	A	0	5	16.2	100.1	83.93	
Inlet, culvert rustline	A	0	5	14.2	100.1	85.97	
Inlet, culvert invert	A	0	5	16.2	100.1	83.93	
Outlet, rustline	A	0	1	15.2	100	84.79	
Outlet, rustline	C	0	1	15.2	100	84.83	
Outlet, thalweg	D	0	1	18.8	100	81.23	
Outlet, culvert invert	D	0	1	18.8	100	81.23	
Outlet, culvert top	D	0	1	10.1	100	89.87	
Upstream station, thalweg 3 (2 CMP widths)	D	16	5	15.9	100.1	84.2400	

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Upstream station, water elev 1 (5 ft)	D	5	5	15.2	100.1	84.97
Upstream station, thalweg 2 (5 ft)	D	5	5	15.9	100.1	84.2
Upstream station, thalweg 1 (1 ft)	D	1	5	16.1	100.1	84.02
Inlet, culvert thalweg	D	0	5	15.9	100.1	84.22
Inlet, culvert rustline	D	0	5	13.8	100.1	86.37
Outlet, thalweg	B	0	1	18.6	100	81.4
Inlet, culvert top	D	0	5	7.38	100.1	92.7400
Outlet, rustline	B	0	1	15	100	85
Outlet, thalweg	C	0	1	18.3	100	81.71
Outlet, culvert invert	C	0	1	18.3	100	81.71
Outlet, culvert top	C	0	1	9.94	100	90.06
Upstream station, thalweg 3 (2 CMP widths)	C	16	5	13.4	100.1	86.72
Upstream station, water elev 1 (5 ft)	C	5	5	15.7	100.1	84.43
Upstream station, thalweg 2 (5 ft)	C	5	5	16.3	100.1	83.87
Upstream station, thalweg 1 (1 ft)	C	1	5	16.6	100.1	83.52
Inlet, culvert thalweg	C	0	5	17.5	100.1	82.62
Inlet, culvert rustline	C	0	5	13.8	100.1	86.3100
Outlet, rustline	D	0	1	16.1	100	83.87
Inlet, culvert invert	D	0	5	15.9	100.1	84.22

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A		1.55	42	40.2	Standard_Price AA	2.32
At Culvert Outlet, Location 4	A	0	2.2	7	43.7	Standard_Price AA	0.37
At Culvert Inlet, Location 4	A	0	1.3	8	41.1	Standard_Price AA	0.45
At Culvert Outlet, Location 3	A	0	2	85	40.3	Standard_Price AA	4.67
At Culvert Inlet, Location 3	A	0	2.4	53	40.5	Standard_Price AA	2.90
At Culvert Outlet, Location 2	A	0	2.1	9	42.1	Standard_Price AA	0.99
At Culvert Inlet, Location 2	A	0	0.6	72	40.5	Standard_Price AA	3.93
At Culvert Outlet, Location 1	A	0	2.1	6	45.8	Standard_Price AA	0.31
At Culvert Inlet, Location 1	A	0	0.45	49	40.5	Standard_Price AA	2.69
Downstream from Outlet of Culvert, Location 2	A	215	1.05	29	40.7	Standard_Price AA	1.59
Downstream from Outlet of Culvert, Location 1	A	158	2.6	14	40.8	Standard_Price AA	0.77
Upstream from Inlet of Culvert, Location 2	A		1.15	36	40.5	Standard_Price AA	1.98
Upstream from Inlet of Culvert, Location 1	A		1.3	32	40.6	Standard_Price AA	1.76

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	183.7	585	748	758	230		.32 ft/sec.
B	183.7	44	45	50			3.96 ft/sec.
C	183.7	112	112				1.64 ft/sec.
D	183.7	230	290				.71 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1		1.3	32	40.6	Standard_Price AA	1.76
Upstream from Inlet of Culvert, Location 2		1.15	36	40.5	Standard_Price AA	1.98
Downstream from Outlet of Culvert, Location 1	158	2.6	14	40.8	Standard_Price AA	0.77
Downstream from Outlet of Culvert, Location 2	215	1.05	29	40.7	Standard_Price AA	1.59
At Culvert Inlet, Location 1	0	0.45	49	40.5	Standard_Price AA	2.69
At Culvert Outlet, Location 1	0	2.1	6	45.8	Standard_Price AA	0.31
At Culvert Inlet, Location 2	0	0.6	72	40.5	Standard_Price AA	3.93
At Culvert Outlet, Location 2	0	2.1	9	42.1	Standard_Price AA	0.99
At Culvert Inlet, Location 3	0	2.4	53	40.5	Standard_Price AA	2.90

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At Culvert Outlet, Location 3	0	2	85	40.3	:	Standard_Price AA	4.67
At Culvert Inlet, Location 4	0	1.3	8	41.1	:	Standard_Price AA	0.45
At Culvert Outlet, Location 4	0	2.2	7	43.7	:	Standard_Price AA	0.37
Outlet Pool Tailcrest		1.55	42	40.2	:	Standard_Price AA	2.32

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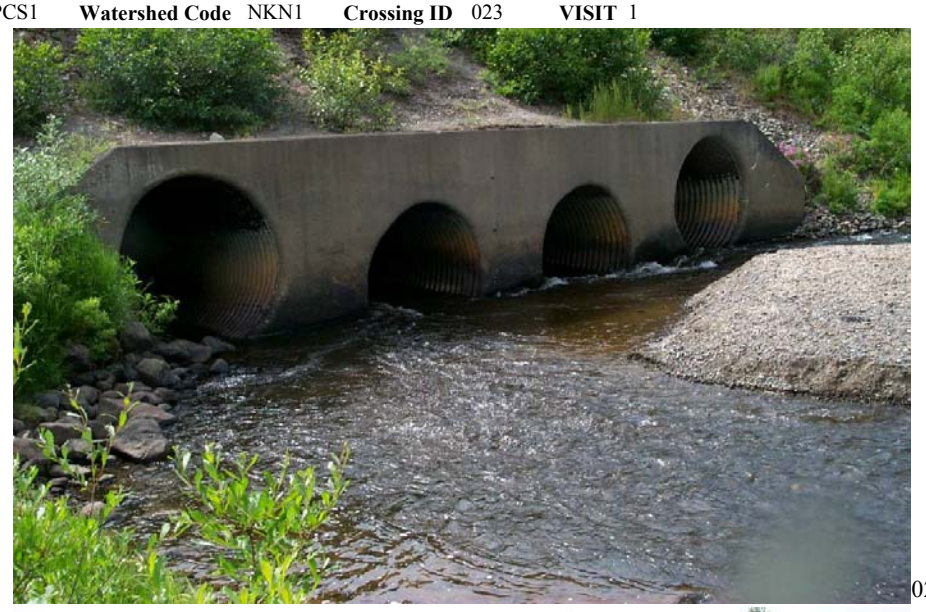

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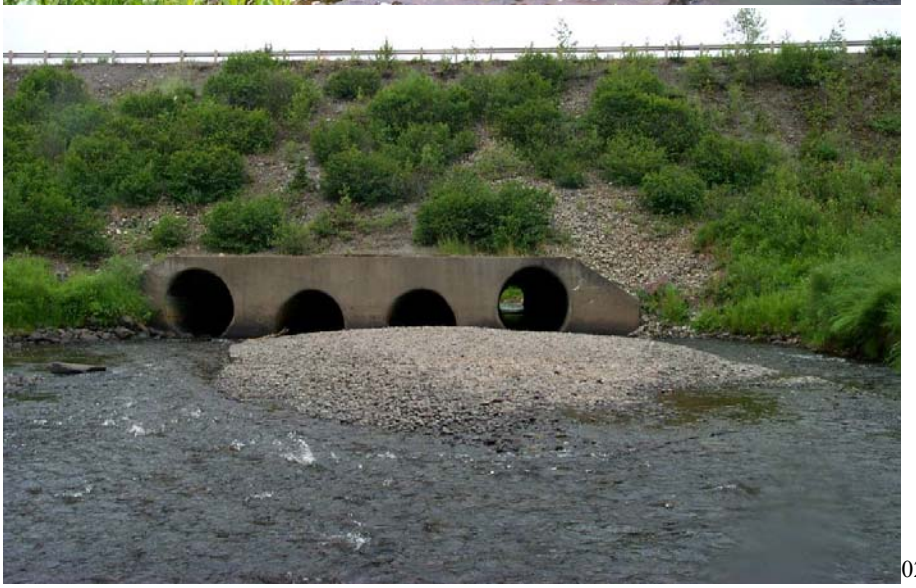

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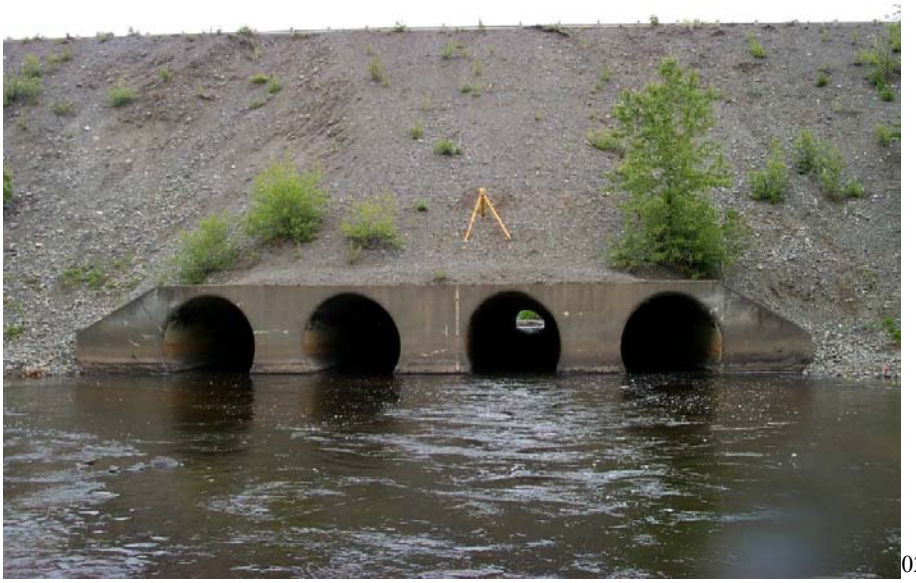

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 024 **VISIT** 1
DATE 7/5/2001 **Time** 9:10:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.75725 **Long. (dec. deg)** 151.78055
Road Name Serling Hwy. **Region:** SCN
Quad Name: Seldovia **ITM:** D-5 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Very steep embankments gullying undermining road gfc above inlet.
Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

			Inlet	Outlet
Length: 116	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	9.50	7.20
	Entrance Type: Mitered **Tidal Influence:** No	**Height (ft):**	7.71	8.86
Corrugation Depth (in.): 2	**Baffles Present:** No **Culvert Gradient:** 0.0380	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):** 0.41	**Water Depth (ft):**	0.61	0.84
	Perch Ht. (Flow -Dep): -0.17	**Substr. Dep (ft):**	0.00	0.00
	Encrochment Ratio: 0.60	**Struc. Damage (%):**	20	0
		Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	Inlet Conditions Improvement Needed	No Outlet Erosion

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Small Cobble	Large Cobble
Sub Dominant Substrate Type:	Large Cobble	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 10.21

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	17.3	87
Upstrream OHW Width (50 ft.):	14.3	39
Upstrream OHW Width (5 ft.):	13.2	5
Tailcrest Width at OHW:	29.3	36
Outlet Pool OHW Line (Max. Width.):	54.3	
Downstream OHW Width (100 ft.):	32	136
Downstrream OHW Width (50 ft.):	14.5	78

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 024U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 123 111
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 024U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 55 52
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 024D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 125
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	4	14.92	92.46	77.54	
Left Bank, Ordinary High Water	7	4	15.5	92.46	76.96	
Left Bank, Wetted Perimeter	7.5	4	15.85	92.46	76.61	
Left Bank/Bed Slope Break	7.5	4	16.06	92.46	76.4	
Station 1	9	4	16.31	92.46	76.15	
Station 2	10.4	4	16.23	92.46	76.23	
Station 3	12.5	4	15.71	92.46	76.75	island
Station 4	17.4	4	16.25	92.46	76.21	

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Station 5	24.5	4	16.27	92.46	76.19
Station 6	31.5	4	16.39	92.46	76.07
Right Bank/Bed Slope Break	35.8	4	15.63	92.46	76.83
Right Bank, Wetted Perimeter	35.8	4	15.79	92.46	76.67
Right Bank, Ordinary High Water	37.5	4	15.21	92.46	77.25
Right Bank, Terrace	39.3	4	14.81	92.46	77.65

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	25.7	100	74.31	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	19.9	100	80.06	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	25.7	100	74.31	
Downstream station, OHW line 3 (100 ft)	136	1	21.5	100	78.48	
Downstream station, thalweg 1 (tailcrest)	36	1	21.1	100	78.9	
Downstream station, water elev 1 (tailcrest)	36	1	20.7	100	79.33	
Downstream station, thalweg 2 (50 ft)	78	1	22	100	78	
Downstream station, water elev 2 (50 ft)	78	1	21.2	100	78.81	
Downstream station, OHW line 2 (50)	78	1	20.7	100	79.35	
Downstream station, thalweg 3 (100 ft)	136	1	22	100	78	
Downstream station, water elev 3 (100 ft)	136	1	21.7	100	78.33	
Outlet, pool water elev	5	1	20.5	100	79.48	
Inlet, edge-road		2	3.73	115	111.27	
Outlet, edge-road		2	2.75	115	112.25	
Upstream station, OHW line 1 (100 ft)	87	3	9.69	97.1	87.41	
Upstream station, water elev 1 (100 ft)	87	3	10.9	97.1	86.25	
Upstream station, thalweg 5 (100 ft)	87	3	10.9	97.1	86.22	
Upstream station, OHW line 1 (50 ft)	39	3	10.5	97.1	86.64	
Upstream station, water elev 2 (50 ft)	39	3	11.2	97.1	85.95	
Upstream station, thalweg 4 (50 ft)	39	3	12.0	97.1	85.08	
Downstream station, OHW line 1 (tailcrest)	36	4	15.4	92.46	77.11	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	18.9	100	81.12	
Outlet, thalweg	A	0	1	20.7	100	79.31	
Outlet, culvert invert	A	0	1	20.7	100	79.31	
Outlet, culvert top	A	0	1	11.8	100	88.17	
Upstream station, thalweg 3 (2 CMP widths)	A	19	3	12.4	97.1	84.7	
Upstream station, OHW line 1 (1 ft)	A	5	3	11.3	97.1	85.83	
Upstream station, water elev 1 (5 ft)	A	5	3	11.7	97.1	85.37	
Upstream station, thalweg 2 (5 ft)	A	5	3	12.9	97.1	84.22	
Upstream station, thalweg 1 (1 ft)	A	1	3	12.9	97.1	84.16	
Inlet, culvert thalweg	A	0	3	13.4	97.1	83.72	
Inlet, culvert rustline	A	0	3	12.4	97.1	84.7	
Inlet, culvert invert	A	0	3	13.4	97.1	83.72	
Inlet, culvert top	A	0	3	5.67	97.1	91.43	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	45	0.35	29	40.3	N/A	1.60
At Culvert Outlet, Location 1	A	0	0.7	81	40	N/A	4.48
At Culvert Inlet, Location 1	A	0	0.5	114	40.3	N/A	6.25
Downstream from Outlet of Culvert, Location 2	A	136	0.3	27	34	N/A	1.77
Downstream from Outlet of Culvert, Location 1	A	78	0.7	28	41	N/A	1.52
Upstream from Inlet of Culvert, Location 2	A	87	0.7	43	40	N/A	2.39

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Upstream from Inlet of Culvert, Location 1	A	39	0.6	40	40.2	N/A	2.21

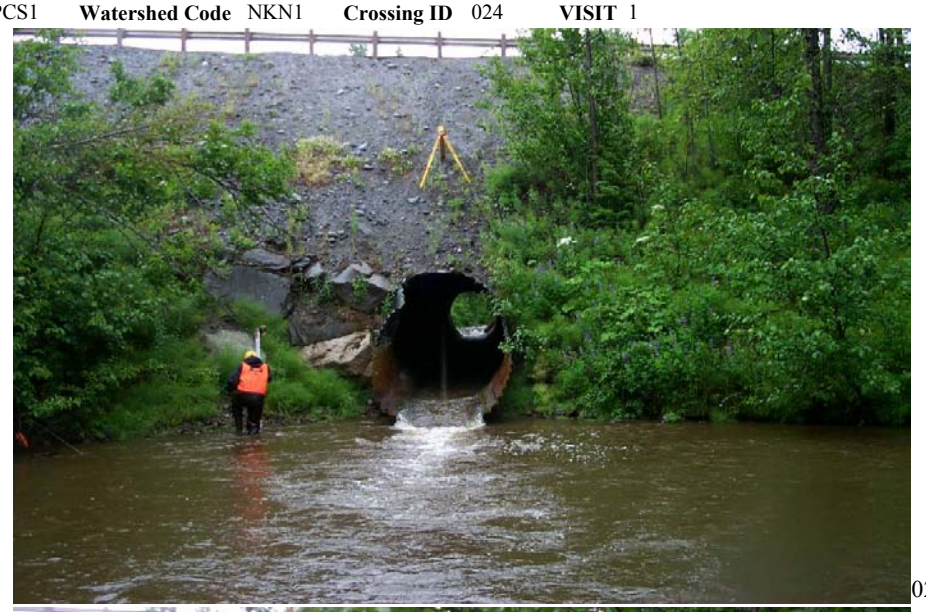
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	116	16	17				7.03 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	39	0.6	40	40.2	N/A	2.21
Upstream from Inlet of Culvert, Location 2	87	0.7	43	40	N/A	2.39
Downstream from Outlet of Culvert, Location 1	78	0.7	28	41	N/A	1.52
Downstream from Outlet of Culvert, Location 2	136	0.3	27	34	N/A	1.77
At Culvert Inlet, Location 1	0	0.5	114	40.3	N/A	6.25
At Culvert Outlet, Location 1	0	0.7	81	40	N/A	4.48
Outlet Pool Tailcrest	45	0.35	29	40.3	N/A	1.60

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 024 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 025 **VISIT** 1
DATE 7/5/2001 **Time** 1:10:00 PM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.71447 **Long. (dec. deg)** 151.70049
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Seldovia **ITM:** C-5 **Stream #:** 244-10-10010-2088
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Outlet perched 6 inches. Beaver meadow - stream.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 84.72	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.10	4.10
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	4.16	3.98
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0002		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.82		**Water Depth (ft):**	1.27	0.79
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.04		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.50		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium
	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 6.74

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	9.8	83
Upstrream OHW Width (50 ft.):	6.7	43
Upstrream OHW Width (5 ft.):	7.8	5
Tailcrest Width at OHW:	7.7	31
Outlet Pool OHW Line (Max. Width.):	14.9	
Downstream OHW Width (100 ft.):	6	74
Downstrream OHW Width (50 ft.):	5.8	55

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 025U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 97
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 025U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 108 79 102
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 025D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.35
Susp.Spawn? No **Fork Len. (mm)** 62 73
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 025D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.35
Susp.Spawn? No **Fork Len. (mm)** 63 68
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	1.2	2	4.85	90.98	86.13	
Left Bank, Ordinary High Water	3.5	2	6.04	90.98	84.94	
Left Bank, Wetted Perimeter	3.5	2	6.4	90.98	84.58	
Left Bank/Bed Slope Break	3.4	2	6.83	90.98	84.15	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 025 **VISIT** 1

Station 1	5.8	2	6.81	90.98	84.1700
Station 2	8	2	6.94	90.98	84.04
Right Bank/Bed Slope Break	9.5	2	6.92	90.98	84.0600
Right Bank, Wetted Perimeter	9.5	2	6.38	90.98	84.6000
Right Bank, Ordinary High Water	9.7	2	5.83	90.98	85.15
Right Bank, Terrace	10.2	2	5.67	90.98	85.3100

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	17.9	100	82.1	
Upstream station, thalweg 4 (50 ft)	43	1	14.8	100	85.23	
Upstream station, water elev 2 (50 ft)	43	1	15.7	100	84.33	
Upstream station, OHW line 1 (50 ft)	43	1	12.9	100	87.06	
Upstream station, thalweg 5 (100 ft)	83	1	14.1	100	85.94	
Upstream station, water elev 1 (100 ft)	83	1	13.3	100	86.69	
Upstream station, OHW line 1 (100 ft)	83	1	12.7	100	87.27	
Outlet, edge-road		1	2.73	100	97.27	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	14.5	100	85.48	
Inlet, edge-road		1	3.98	100	96.02	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	17.9	100	82.1	
Downstream station, OHW line 3 (100 ft)	74	1	15.2	100	84.85	
Downstream station, thalweg 1 (tailcrest)	31	1	15.9	100	84.12	
Downstream station, OHW line 1 (tailcrest)	31	1	5.94	100	94.06	
Downstream station, water elev 1 (tailcrest)	31	1	15.2	100	84.85	
Downstream station, thalweg 2 (50 ft)	55	1	16.8	100	83.25	
Downstream station, water elev 2 (50 ft)	55	1	15.5	100	84.52	
Downstream station, OHW line 2 (50)	55	1	15	100	85.02	
Downstream station, thalweg 3 (100 ft)	74	1	17.0	100	82.96	
Downstream station, water elev 3 (100 ft)	74	1	15.5	100	84.48	
Outlet, pool water elev	5	1	15.1	100	84.9	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	14.2	100	85.81	
Outlet, thalweg	A	0	1	15.1	100	84.94	
Outlet, culvert invert	A	0	1	15.1	100	84.94	
Outlet, culvert top	A	0	1	11.1	100	88.92	
Upstream station, thalweg 3 (2 CMP widths)	A	8.2	1	14.9	100	85.1	
Upstream station, OHW line 1 (1 ft)	A	5	1	13.3	100	86.69	
Upstream station, water elev 1 (5 ft)	A	5	1	13.8	100	86.21	
Upstream station, thalweg 2 (5 ft)	A	5	1	14.9	100	85.06	
Upstream station, thalweg 1 (1 ft)	A	1	1	15.0	100	84.98	
Inlet, culvert thalweg	A	0	1	15.0	100	84.96	
Inlet, culvert rustline	A	0	1	13.0	100	86.96	
Inlet, culvert invert	A	0	1	15.0	100	84.96	
Inlet, culvert top	A	0	1	10.9	100	89.12	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	31	0.5	39	40.5	Standard_Price AA	2.14
At Culvert Inlet, Location 2	A	0	0.75	79	40	Standard_Price AA	4.36
At Culvert Inlet, Location 1	A	0	1.1	54	40.7	Standard_Price AA	2.94
Downstream from Outlet of Culvert, Location 2	A	74	1.4	23	41.5	Standard_Price AA	1.24
Downstream from Outlet of Culvert, Location 1	A	55	1.1	36	40.2	Standard_Price AA	1.99
Upstream from Inlet of Culvert, Location 2	A		0.9	39	40.5	Standard_Price AA	2.14

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 025 **VISIT** 1

Upstream from Inlet of Culvert, Location 1	A	43	0.9	49	40.5	Standard_Price AA	2.68

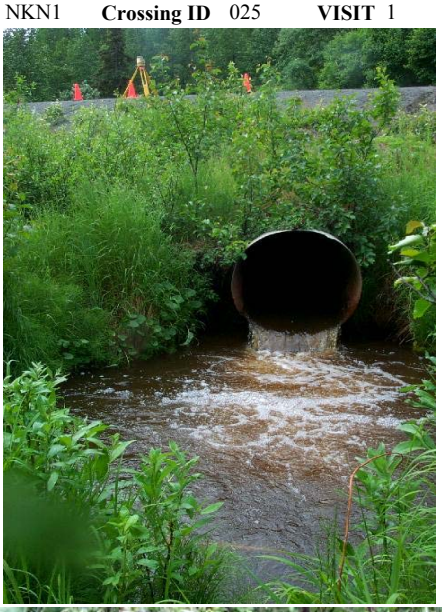
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	84.72	29	32				2.78 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	43	0.9	49	40.5	Standard_Price AA	2.68
Upstream from Inlet of Culvert, Location 2		0.9	39	40.5	Standard_Price AA	2.14
Downstream from Outlet of Culvert, Location 1	55	1.1	36	40.2	Standard_Price AA	1.99
Downstream from Outlet of Culvert, Location 2	74	1.4	23	41.5	Standard_Price AA	1.24
At Culvert Inlet, Location 1	0	1.1	54	40.7	Standard_Price AA	2.94
At Culvert Inlet, Location 2	0	0.75	79	40	Standard_Price AA	4.36
Outlet Pool Tailcrest	31	0.5	39	40.5	Standard_Price AA	2.14

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 025 **VISIT** 1



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Culvert Survey Report

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 026 **VISIT** 1
DATE 7/10/2001 **Time** 1:00:00 PM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.66976 **Long. (dec. deg)** 151.66776
Road Name Sterling Hwy **Region:** SCN
Quad Name: Seldovia **ITM:** C-5 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Diamond Creek

Field Notes: Evidence of past erosion around right side of inlet headwall. Six inch perch at outlet, flexed down.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length: 110.55	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	7.60	7.00
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	8.30	9.70
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0340		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):** 1.14		**Water Depth (ft):**	0.50	0.62
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.15		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.75		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Large Cobble	Large Cobble
Sub Dominant Substrate Type:	Boulder	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 2.07

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	10.5	36
Upstrream OHW Width (50 ft.):	9.7	66
Upstrream OHW Width (5 ft.):	21.9	5
Tailcrest Width at OHW:	12.9	33
Outlet Pool OHW Line (Max. Width.):	36.4	
Downstream OHW Width (100 ft.):	12	138
Downstrream OHW Width (50 ft.):	11.8	92

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident
Stat. ID: 026U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 133 158 72 93 98 118 112 97
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 25 **Life History:** Resident
Stat. ID: 026D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.35
Susp.Spawn? No **Fork Len. (mm)** 151 123 138 149 122 129 98 128 125 105
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.7	4	9.69	101.58	91.89	
Station 1	5.3	4	10.73	101.58	90.8500	mid-terrace
Left Bank, Wetted Perimeter	6.5	4	12.77	101.58	88.81	
Left Bank/Bed Slope Break	6.5	4	13.17	101.58	88.41	
Station 2	8	4	13.27	101.58	88.31	
Station 3	9	4	13.08	101.58	88.5	
Station 4	10.2	4	13.47	101.58	88.11	
Station 5	11.2	4	12.98	101.58	88.6000	large rock
Station 6	12.5	4	12.94	101.58	88.64	
Station 7	12.8	4	12.79	101.58	88.79	
Right Bank/Bed Slope Break	16.4	4	12.83	101.58	88.75	
Right Bank, Wetted Perimeter	16.4	4	12.35	101.58	89.23	

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 026 **VISIT** 1

Right Bank, Ordinary High Water	18	4	12.73	101.58	88.8500
Right Bank, Terrace	20	4	11.58	101.58	90

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	14.8	100	85.23	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.4	100	89.58	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.8	100	85.23	
Downstream station, OHW line 3 (100 ft)	138	1	12.2	100	87.83	
Downstream station, thalweg 1 (tailcrest)	33	1	12.3	100	87.67	
Downstream station, water elev 1 (tailcrest)	33	1	11.4	100	88.62	
Downstream station, thalweg 2 (50 ft)	92	1	12.6	100	87.37	
Downstream station, water elev 2 (50 ft)	92	1	12.2	100	87.85	
Downstream station, OHW line 2 (50)	92	1	11.1	100	88.9	
Downstream station, thalweg 3 (100 ft)	138	1	13.5	100	86.54	
Downstream station, water elev 3 (100 ft)	138	1	12.8	100	87.21	
Outlet, pool water elev	5	1	11.3	100	88.66	
Inlet, edge-road		2	4.65	119.98	115.33	
Outlet, edge-road		2	4.52	119.98	115.46	
Upstream station, OHW line 1 (100 ft)	136	3	8.94	104.17	95.23	
Upstream station, water elev 1 (100 ft)	136	3	9.15	104.17	95.02	
Upstream station, thalweg 5 (100 ft)	136	3	9.56	104.17	94.61	
Upstream station, OHW line 1 (50 ft)	66	3	9.23	104.17	94.94	
Upstream station, water elev 2 (50 ft)	66	3	9.94	104.17	94.23	
Upstream station, thalweg 4 (50 ft)	66	3	11.4	104.17	92.79	
Downstream station, OHW line 1 (tailcrest)	33	4	12.1	101.58	89.45	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	9.13	100	90.87	
Outlet, thalweg	A	0	1	13.3	100	86.75	
Outlet, culvert invert	A	0	1	11.2	100	88.81	
Outlet, culvert top	A	0	1	1.5	100	98.5	
Upstream station, thalweg 3 (2 CMP widths)	A	15	3	12.1	104.2	92.04	
Upstream station, OHW line 1 (1 ft)	A	5	3	11.1	104.2	93.07	
Upstream station, water elev 1 (5 ft)	A	5	3	11.1	104.2	93.07	
Upstream station, thalweg 2 (5 ft)	A	5	3	12	104.2	92.17	
Upstream station, thalweg 1 (1 ft)	A	1	3	12.2	104.2	91.98	
Inlet, culvert thalweg	A	0	3	12	104.2	92.21	
Inlet, culvert rustline	A	0	3	11.8	104.2	92.4	
Inlet, culvert invert	A	0	3	11.6	104.2	92.57	
Inlet, culvert top	A	0	3	3.28	104.2	100.89	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	33	1.15	28	40.3	Pygmy	0.70
At Culvert Outlet, Location 1	A		0.25	294	40.1	Pygmy	7.07
At Culvert Inlet, Location 1	A		0.3	43	40.4	Pygmy	1.04
Downstream from Outlet of Culvert, Location 2	A	138	0.6	50	40.7	Pygmy	1.21
Downstream from Outlet of Culvert, Location 1	A	92	0.4	47	40.4	Pygmy	1.15
Upstream from Inlet of Culvert, Location 2	A		0.4	67	40.2	Pygmy	1.63
Upstream from Inlet of Culvert, Location 1	A		0.45	99	40.4	Pygmy	2.38

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity

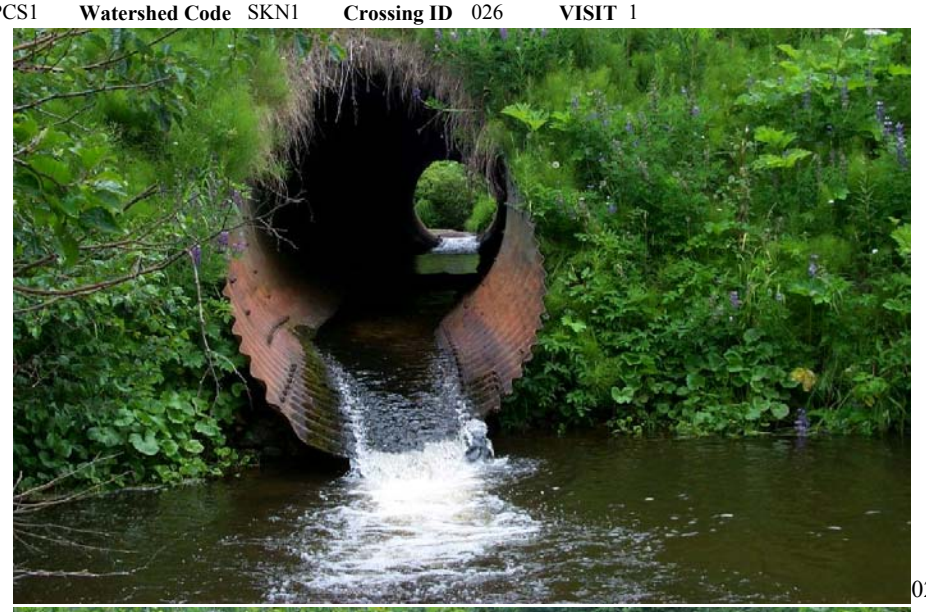
Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 026 **VISIT** 1

A 110.55 47 49 2.30 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	60	0.45	99	40.4	Pygmy	2.38
Upstream from Inlet of Culvert, Location 2	136	0.4	67	40.2	Pygmy	1.63
Downstream from Outlet of Culvert, Location 1	92	0.4	47	40.4	Pygmy	1.15
Downstream from Outlet of Culvert, Location 2	138	0.6	50	40.7	Pygmy	1.21
At Culvert Inlet, Location 1	0	0.3	43	40.4	Pygmy	1.04
At Culvert Outlet, Location 1	0	0.25	294	40.1	Pygmy	7.07
Outlet Pool Tailcrest	33	1.15	28	40.3	Pygmy	0.70

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 026 **VISIT** 1



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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 027 **VISIT** 1
DATE 7/11/2001 **Time** 11:00:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.66447 **Long. (dec. deg)** 151.46747
Road Name East End Road **Region:** SCN
Quad Name: Seldovia **ITM:** C-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Palmer Creek or Coal Creek

Field Notes: 20 inch perch at outlet on right (main) culvert. Both too short and misaligned. Active channel widening upstream of culvert. Right inlet smashed and perched from debris. Rt. aligned with inchannel, offset 25 feet to outchannel. L is offset 8 ft.

Road Prism Type: **Spec. Site Cond.:**

Culvert Measurements:

						Inlet	Outlet
Culvert ID: A		**Category:** 8		**Classification:** gray			
Length: 53.89		**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	3.00	3.00
		Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	3.50	2.98
Corrugation Depth (in.):	1	**Baffles Present:** No		**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.54	0.04
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.53	0.00
Substrate Type:	Coarse Gravel	None		**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed			**Culv. Blockage (%):**	10	0

						Inlet	Outlet
Culvert ID: B		**Category:**		**Classification:**			
Length: 49.89		**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.10	3.80
		Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	4.30	4.30
Corrugation Depth (in.):	1	**Baffles Present:** No		**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.50	0.27
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:**	**Struc. Damage (%):**	40	0
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed			**Culv. Blockage (%):**	20	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Sands	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: 2.88

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	7.4	64
Upstrream OHW Width (50 ft.):	7.9	44
Upstrream OHW Width (5 ft.):	3.2	5
Tailcrest Width at OHW:	9.1	7
Outlet Pool OHW Line (Max. Width.):	8.9	
Downstream OHW Width (100 ft.):	10	68
Downstrream OHW Width (50 ft.):	6.4	39

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 027U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 027D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 027 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	1	4	3.75	100.67	96.92	LB Slope Embankment
Left Bank/Bed Slope Break	1.7	4	4.33	100.67	96.34	streambed slopebreak
Station 2	2.2	4	4.5	100.67	96.17	
Station 3	2.8	4	4.71	100.67	95.96	
Station 4	4.7	4	4.71	100.67	95.96	
Station 5	5.9	4	4.29	100.67	96.38	
Station 6	6.3	4	4.52	100.67	96.15	
Station 7	6.6	4	4.23	100.67	96.44	
Station 8	7	4	4.6	100.67	96.07	
Right Bank, Wetted Perimeter	8.2	4	4.5	100.67	96.17	
Right Bank/Bed Slope Break	8.2	4	4.5	100.67	96.17	
Right Bank, Terrace	9.4	4	4.29	100.67	96.38	
Right Bank, Ordinary High Water		4	4.04	100.67	96.63	
Left Bank, Ordinary High Water		4	4.04	100.67	96.63	
Station 9	13	4	3.56	100.67	97.11	RB Slope

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 3 (100 ft)	68	1	6.4	100	93.6	
Downstream station, thalweg 2 (50 ft)	39	1	5.65	100	94.35	
Downstream station, OHW line 2 (50)	39	1	5.38	100	94.62	
Downstream station, water elev 1 (tailcrest)	6	1	3.85	100	96.15	
Downstream station, water elev 3 (100 ft)	68	1	6.06	100	93.94	
Downstream station, OHW line 3 (100 ft)	68	1	5.67	100	94.33	
Outlet, pool OHWS lijne 1 (within 5 ft.)		1	3.44	100	96.56	
Outlet, pool water elev	5	1	3.85	100	96.15	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	4.71	100	95.29	
Outlet, pool maximum depth 2	5	1	4.71	100	95.29	
Downstream station, thalweg 1 (tailcrest)	6	1	4.15	100	95.85	
Downstream station, OHW line 1 (tailcrest)	6	1	4.04	100	95.96	
Downstream station, water elev 2 (50 ft)	39	1	5.44	100	94.56	
Inlet, edge-road		2	3.06	108.77	105.71	
Outlet, edge-road		2	3.1	108.77	105.67	
Upstream station, OHW line 1 (100 ft)	64	3	6.33	109.14	102.81	
Upstream station, water elev 1 (100 ft)	64	3	6.65	109.14	102.49	
Upstream station, thalweg 5 (100 ft)	64	3	7.02	109.14	102.12	
Upstream station, OHW line 1 (50 ft)	40	3	6.75	109.14	102.39	
Upstream station, water elev 2 (50 ft)	40	3	7.04	109.14	102.1	
Upstream station, thalweg 4 (50 ft)	40	3	7.38	109.14	101.76	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	2	5.54	108.8	103.23	
Inlet, culvert invert	A	0	3	10.1	109.1	99.01	
Inlet, culvert rustline	A	0	3	9.4	109.1	99.74	
Inlet, culvert thalweg	A	0	3	9.73	109.1	99.41	
Upstream station, thalweg 1 (1 ft)	A	1	3	9.35	109.1	99.79	
Upstream station, thalweg 2 (5 ft)	A	5	3	9.1	109.1	100.04	
Upstream station, water elev 1 (5 ft)	A	5	3	9.06	109.1	100.08	
Upstream station, OHW line 1 (1 ft)	A	5	3	8.81	109.1	100.33	
Upstream station, thalweg 3 (2 CMP widths)	A	8	3	8.9	109.1	100.24	
Outlet, culvert top	A	0	2	9	108.8	99.77	

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Outlet, culvert invert	A	0	1	3.21	100	96.79
Inlet, culvert top	A	0	2	6.65	108.8	102.12
Outlet, rustline	A	0	1	2.98	100	97.02
Outlet, rustline	B	0	1	1.5	100	98.5
Inlet, culvert invert	B	0	3	9.81	109.1	99.33
Inlet, culvert rustline	B	0	3	9.04	109.1	100.1
Inlet, culvert thalweg	B	0	3	9.81	109.1	99.33
Upstream station, thalweg 1 (1 ft)	B	1	3	9.31	109.1	99.83
Upstream station, thalweg 2 (5 ft)	B	5	3	9.38	109.1	99.76
Upstream station, water elev 1 (5 ft)	B	5	3	8.92	109.1	100.22
Upstream station, OHW line 1 (1 ft)	B	5	3	8.21	109.1	100.93
Upstream station, thalweg 3 (2 CMP widths)	B	8	3	8.96	109.1	100.18
Outlet, culvert top	B	0	2	6.73	108.8	102.04
Outlet, culvert invert	B	0	1	1.96	100	98.04
Outlet, thalweg	B	0	1	4.06	100	95.94
Outlet, thalweg	A	0	1	4.17	100	95.83

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Outlet Pool Tailcrest	A	18	0.25	46	40.3	Pygmy	1.13
At Culvert Outlet, Location 1	A		0.2	100	40.3	Pygmy	2.41
At Culvert Inlet, Location 1	A		0.2	170	40	Pygmy	4.09
Downstream from Outlet of Culvert, Location 2	A	68	0.2	63	40.5	Pygmy	1.53
Downstream from Outlet of Culvert, Location 1	A	39	0.15	23	40	Pygmy	0.58
Upstream from Inlet of Culvert, Location 2	A	64	0.25	44	40.4	Pygmy	1.08
Upstream from Inlet of Culvert, Location 1	A	40	0.3	29	40	Pygmy	0.73

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	53.89	22	23				2.40 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	40	0.3	29	40	Pygmy	0.73
Upstream from Inlet of Culvert, Location 2	64	0.25	44	40.4	Pygmy	1.08
Downstream from Outlet of Culvert, Location 1	39	0.15	23	40	Pygmy	0.58
Downstream from Outlet of Culvert, Location 2	68	0.2	63	40.5	Pygmy	1.53
At Culvert Inlet, Location 1	0	0.2	170	40	Pygmy	4.09
At Culvert Outlet, Location 1	0	0.2	100	40.3	Pygmy	2.41
Outlet Pool Tailcrest	18	0.25	46	40.3	Pygmy	1.13

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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 028 **VISIT** 1
DATE 7/11/2001 **Time** 3:10:00 PM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.70917 **Long. (dec. deg)** 151.34305
Road Name East End Road **Region:** SCN
Quad Name: Seldovia **ITM:** C-4 **Stream #:** 241-13-10760
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Fritz Creek

Field Notes: Water pooled in culvert except for uppermost section 3-4 m. Very steep embankment.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 1 **Classification:** gray

					Inlet	Outlet
Length:	69.4	**Cross. Structure Type:**	Structural plate arch - (open bottom-multi plate)	**Width (ft):**	11.40	11.40
		Entrance Type:	Mitered	**Height (ft):**	7.16	6.84
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Water Depth (ft):**	0.71	1.44
	Inlet	**Outlet**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Boulder	Large Cobble		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Tidal Influence: No
Culvert Gradient: 0.0195
Perch Ht. (Flow - Ind): -0.63
Perch Ht. (Flow -Dep): -1.46
Encrochment Ratio: 0.53

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	Large Cobble	Large Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 7.05

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	21.4	89
Upstrream OHW Width (50 ft.):	21.8	43
Upstrream OHW Width (5 ft.):	17.3	5
Tailcrest Width at OHW:	20.8	19.5
Outlet Pool OHW Line (Max. Width.):	29.8	
Downstream OHW Width (100 ft.):	15	118
Downstrream OHW Width (50 ft.):	28.2	53

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 028U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 138
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 028D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.53
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	5	4.83	99.52	94.69	
Left Bank, Ordinary High Water	4.2	5	5.27	99.52	94.25	
Left Bank, Wetted Perimeter	6.5	5	6	99.52	93.52	
Left Bank/Bed Slope Break	6	5	5.9	99.52	93.62	
Station 1	7.3	5	6.42	99.52	93.1	
Station 2	10.5	5	6.5	99.52	93.02	
Station 3	14	5	6.77	99.52	92.75	
Station 4	17.9	5	6.75	99.52	92.77	
Station 6	19	5	6.6	99.52	92.92	
Station 7	22.1	5	6.13	99.52	93.39	
Right Bank/Bed Slope Break	25.6	5	5.98	99.52	93.54	
Right Bank, Wetted Perimeter	25.6	5	5.98	99.52	93.54	
Right Bank, Ordinary High Water	26.5	5	5.27	99.52	94.25	

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Right Bank, Terrace	27.6	5	4.83	99.52	94.69	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 3 (100 ft)	118	1	8.67	100	91.33	
Downstream station, water elev 3 (100 ft)	118	1	9.27	100	90.73	
Downstream station, thalweg 3 (100 ft)	118	1	10.3	100	89.67	
Downstream station, OHW line 2 (50)	53	1	6.19	100	93.81	
Downstream station, water elev 2 (50 ft)	53	1	5.77	100	94.23	
Downstream station, thalweg 2 (50 ft)	53	1	7.54	100	92.46	
Outlet, pool maximum depth 2	5	2	7.23	99.5	92.27	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	4.21	99.5	95.29	
Outlet, pool maximum depth 1 (within 5 ft)	5	2	7.23	99.5	92.27	
Downstream station, thalweg 1 (tailcrest)	19.5	2	6.81	99.5	92.69	
Downstream station, water elev 1 (tailcrest)	19.5	2	6.15	99.5	93.35	
Outlet, pool water elev	5	2	5.98	99.5	93.52	
Inlet, edge-road		3	4.54	110.82	106.28	
Outlet, edge-road		3	3.56	110.82	107.26	
Upstream station, OHW line 1 (100 ft)	89	4	11.1	109.72	98.66	
Upstream station, water elev 1 (100 ft)	89	4	11.8	109.72	97.97	
Upstream station, thalweg 5 (100 ft)	89	4	12.6	109.72	97.12	
Upstream station, OHW line 1 (50 ft)	43	4	11.4	109.72	98.37	
Upstream station, water elev 2 (50 ft)	43	4	13	109.72	96.76	
Upstream station, thalweg 4 (50 ft)	43	4	13.7	109.72	96.03	
Downstream station, OHW line 1 (tailcrest)	19.5	5	5.27	99.52	94.25	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	2	4.63	99.5	94.87	
Outlet, thalweg	A	0	2	7.29	99.5	92.21	
Outlet, culvert invert	A	0	2	7.44	99.5	92.06	
Outlet, culvert top	A	0	2	0.6	99.5	98.9	
Upstream station, thalweg 3 (2 CMP widths)	A	22.8	4	15	109.7	94.7400	
Upstream station, OHW line 1 (1 ft)	A	5	4	13.7	109.7	95.9900	
Upstream station, water elev 1 (5 ft)	A	5	4	14.8	109.7	94.91	
Upstream station, thalweg 2 (5 ft)	A	5	4	15.9	109.7	93.78	
Upstream station, thalweg 1 (1 ft)	A	1	4	16.2	109.7	93.55	
Inlet, culvert thalweg	A	0	4	16.3	109.7	93.41	
Inlet, culvert rustline	A	0	4	15	109.7	94.7400	
Inlet, culvert invert	A	0	4	16.3	109.7	93.41	
Inlet, culvert top	A	0	4	9.15	109.7	100.57	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	69.36	42	24	45	43	48.00	1.72 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	43	0.7	36	41	Standard_Price AA	1.95
Upstream from Inlet of Culvert, Location 2	89	0.7	33	40	Standard_Price AA	1.84
Downstream from Outlet of Culvert, Location 1	53	0.8	24	41.4	Standard_Price AA	1.30
Downstream from Outlet of Culvert, Location 2	118	0.65	51	40.7	Standard_Price AA	2.78
At Culvert Inlet, Location 1	0	0.6	78	40	Standard_Price AA	0.82
At Culvert Outlet, Location 1	0	1.2	15	41.4	Standard_Price AA	0.82

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Outlet Pool Tailcrest	22	0.8	31	40.3		Standard_Price AA	1.71	

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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 029 **VISIT** 1
DATE 7/12/2001 **Time** 8:30:00 AM **Observers:** Cecil Rich

Site Information:

GPS Location: **Lat. (dec. deg)** 5974525 **Long. (dec. deg)** 15125420
Road Name East End Road **Region:** SCN
Quad Name: Seldovia **ITM:** C-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** McNeil Creek

Field Notes: 2 foot perch at outlet from apron. Thaw heat pipe broken. Heavy willow growth. High grad. Plunge pools < 1 ft. deep - maybe too steep for fish.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 176.1	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.90	5.80
	Entrance Type: Flared Inlet	**Tidal Influence:** No		**Height (ft):**	4.75	6.71
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:** 0.0889		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 3.73		**Water Depth (ft):**	0.40	0.21
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 2.89		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.68		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	None	None
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: 0.93

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	9.4	74
Upstrream OHW Width (50 ft.):	7.9	42
Upstrream OHW Width (5 ft.):	11.6	5
Tailcrest Width at OHW:	11.1	13
Outlet Pool OHW Line (Max. Width.):	12.4	
Downstream OHW Width (100 ft.):	8	88
Downstrream OHW Width (50 ft.):	9.7	55

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 029U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 029D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	4.2	5	14.79	99.27	84.48	
Left Bank, Ordinary High Water	5.3	5	15.81	99.27	83.46	
Left Bank, Wetted Perimeter	6.1	5	15.77	99.27	83.5	
Left Bank/Bed Slope Break	6.1	5	15.71	99.27	83.56	
Station 1	7.3	5	15.94	99.27	83.33	
Station 2	8.3	5	15.38	99.27	83.89	
Station 3	9.6	5	15.6	99.27	83.67	
Station 4	10.7	5	14.98	99.27	84.29	
Station 5	10.8	5	15.83	99.27	83.44	
Station 6	11.8	5	15.1	99.27	84.17	
Station 7	12.2	5	15.85	99.27	83.42	
Station 8	13.6	5	16.1	99.27	83.17	
Station 9	14.6	5	15.6	99.27	83.67	

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Station 10	15.1	5	15.96	99.27	83.31
Right Bank/Bed Slope Break	15.8	5	16.17	99.27	83.1
Right Bank, Wetted Perimeter	16.5	5	15.96	99.27	83.31
Right Bank, Ordinary High Water	16.1	5	16.38	99.27	82.89
Right Bank, Terrace	17	5	15.73	99.27	83.54

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 1 (tailcrest)	13	1	16.9	100	83.06	
Downstream station, thalweg 1 (tailcrest)	13	1	17.7	100	82.31	
Outlet, pool maximum depth 2		1	17.7	100	82.29	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	17.4	100	82.62	
Outlet, pool water elev	5	1	16.9	100	83.15	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	16.5	100	83.54	
Downstream station, water elev 2 (50 ft)	55	1	21.8	100	78.23	
Downstream station, OHW line 2 (50)	55	1	21.3	100	78.69	
Downstream station, thalweg 3 (100 ft)	88	1	24.4	100	75.65	
Downstream station, thalweg 2 (50 ft)	55	1	22.1	100	77.94	
Downstream station, water elev 3 (100 ft)	88	1	23.9	100	76.08	
Downstream station, OHW line 3 (100 ft)	88	1	23.2	100	76.79	
Outlet, edge-road		3	4.4	138.12	133.72	
Inlet, edge-road		3	3.54	138.12	134.58	
Upstream station, water elev 1 (100 ft)	74	4	11.4	114.6	103.2	
Upstream station, thalweg 4 (50 ft)	42	4	13.1	114.6	101.47	
Upstream station, water elev 2 (50 ft)	42	4	12.8	114.6	101.83	
Upstream station, thalweg 5 (100 ft)	74	4	11.8	114.6	102.77	
Upstream station, OHW line 1 (100 ft)	74	4	11.9	114.6	102.68	
Upstream station, OHW line 1 (50 ft)	42	4	12.2	114.6	102.41	
Downstream station, OHW line 1 (tailcrest)	13	5	16.1	99.27	83.17	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	13.3	100	86.71	
Outlet, thalweg	A	0	1	16.6	100	83.42	
Outlet, culvert invert	A	0	1	14	100	86.04	
Outlet, culvert top	A	0	1	7.25	100	92.75	
Upstream station, thalweg 3 (2 CMP widths)	A	11.8	4	13.5	114.6	101.12	
Upstream station, OHW line 1 (1 ft)	A	5	4	12.5	114.6	102.08	
Upstream station, water elev 1 (5 ft)	A	5	4	12.9	114.6	101.75	
Upstream station, thalweg 2 (5 ft)	A	5	5	13.5	99.27	85.79	
Upstream station, thalweg 1 (1 ft)	A	1	4	13.3	114.6	101.35	
Inlet, culvert thalweg	A	0	4	13.2	114.6	101.45	
Inlet, culvert rustline	A	0	4	12.4	114.6	102.2	
Inlet, culvert invert	A	0	4	12.9	114.6	101.7	
Inlet, culvert top	A	0	4	8.15	114.6	106.45	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	176.1	35	33				5.18 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	42	0.3	60	40.6	Pygmy	1.45
Upstream from Inlet of Culvert, Location 2	74	0.3	93	40.2	Pygmy	2.25

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Downstream from Outlet of Culvert, Location 1	55	0.3	59	40.2	Pygmy	1.44
Downstream from Outlet of Culvert, Location 2	88	0.2	51	40.7	Pygmy	1.23
Outlet Pool Tailcrest	13	0.15	39	40.5	Pygmy	0.95

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 029 **VISIT** 1

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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 030 **VISIT** 1
DATE 7/12/2001 **Time** 11:15:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.73888 **Long. (dec. deg)** 151.30783
Road Name Hutler Road/Beaver Creek Road **Region:** SCN
Quad Name: Seldovia **ITM:** C-4 **Stream #:** 244-10-10010-2150
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Beaver Creek

Field Notes: Damage at inlet and outlet 5%
Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** gray

			Inlet	Outlet
Length: 51.61	**Cross. Structure Type:** Corrugated Metal Pipe		**Width (ft):**	5.80	6.20
	Entrance Type: Projecting	**Tidal Influence:** No	**Height (ft):**	5.55	5.43
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:** 0.0039	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.13	**Water Depth (ft):**	0.92	0.87
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.45	**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Large Cobble	Large Cobble	**Encrochment Ratio:** 0.65	**Struc. Damage (%):**	2	15
Erosion: No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Fine Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium
	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 3.40

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	10.3	77
Upstrream OHW Width (50 ft.):	7.5	28
Upstrream OHW Width (5 ft.):	16.7	5
Tailcrest Width at OHW:	14.1	17
Outlet Pool OHW Line (Max. Width.):	13.8	
Downstream OHW Width (100 ft.):	12	79
Downstrream OHW Width (50 ft.):	8.7	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Resident
Stat. ID: 030U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 119 108 92 135 70 113 116 101 68 110
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 030U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 84
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 29 **Life History:** Resident
Stat. ID: 030D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 117 63 74 75 78 103 109 113 69 118
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	3	2	7.08	98.85	91.77	
Left Bank, Bankful	3	2	7.08	98.85	91.77	
Left Bank, Wetted Perimeter	4.2	2	9.79	98.85	89.06	
Left Bank/Bed Slope Break	4.2	2	10.08	98.85	88.77	undercut
Station 1	5.1	2	10.35	98.85	88.5	
Station 2	8	2	9.9	98.85	88.95	
Station 3	11.5	2	9.94	98.85	88.91	
Station 4	14	2	10.04	98.85	88.81	
Station 5	15	2	9.92	98.85	88.93	

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Right Bank/Bed Slope Break	17	2	9.88	98.85	88.97	
Right Bank, Wetted Perimeter	17	2	9.79	98.85	89.06	
Right Bank, Ordinary High Water	16.8	2	9.65	98.85	89.2	
Station 6	18	2	7.67	98.85	91.18	slopebreak
Right Bank, Terrace	20	2	6.92	98.85	91.93	
Right Bank, Bankfull	20	2	6.92	98.85	91.93	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	13.6	100	86.37	
Upstream station, thalweg 4 (50 ft)	28	1	10.5	100	89.48	
Upstream station, water elev 2 (50 ft)	28	1	9.85	100	90.15	
Upstream station, OHW line 1 (50 ft)	28	1	9.52	100	90.48	
Upstream station, thalweg 5 (100 ft)	77	1	10.5	100	89.54	
Upstream station, water elev 1 (100 ft)	77	1	9.77	100	90.23	
Upstream station, OHW line 1 (100 ft)	77	1	9.54	100	90.46	
Outlet, edge-road		1	4.32	100	95.68	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.9	100	89.15	
Inlet, edge-road		1	4.31	100	95.69	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	13.6	100	86.37	
Downstream station, thalweg 1 (tailcrest)		1	11.5	100	88.54	
Downstream station, water elev 1 (tailcrest)		1	10.9	100	89.15	
Downstream station, thalweg 2 (50 ft)	50	1	11.8	100	88.17	
Downstream station, water elev 2 (50 ft)	50	1	11.3	100	88.73	
Downstream station, OHW line 2 (50)	50	1	10.6	100	89.4	
Downstream station, thalweg 3 (100 ft)	79	1	12.3	100	87.71	
Downstream station, water elev 3 (100 ft)	79	1	11.6	100	88.44	
Downstream station, OHW line 3 (100 ft)	79	1	11.2	100	88.85	
Outlet, pool water elev	5	1	10.9	100	89.12	
Downstream station, OHW line 1 (tailcrest)	17	2	9.65	98.85	89.2	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	8.52	100	91.48	
Outlet, thalweg	A	0	1	13.5	100	86.54	
Outlet, culvert invert	A	0	1	11.3	100	88.67	
Outlet, culvert top	A	0	1	5.9	100	94.1	
Upstream station, thalweg 3 (2 CMP widths)	A	6	1	11.1	100	88.9	
Upstream station, OHW line 1 (1 ft)	A	5	1	9.31	100	90.69	
Upstream station, water elev 1 (5 ft)	A	5	1	9.94	100	90.06	
Upstream station, thalweg 2 (5 ft)	A	5	1	10.6	100	89.42	
Upstream station, thalweg 1 (1 ft)	A	1	1	10.8	100	89.23	
Inlet, culvert thalweg	A	0	1	11.1	100	88.9	
Inlet, culvert rustline	A	0	1	9.1	100	90.9	
Inlet, culvert invert	A	0	1	11.1	100	88.87	
Inlet, culvert top	A	0	1	5.58	100	94.42	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	51.61	40	48	40	51		1.15 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	28	0.65	56	40.8	Pygmy	1.35

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Upstream from Inlet of Culvert, Location 2	77	0.7	33	40	Pygmy	0.82
Downstream from Outlet of Culvert, Location 1	50	0.45	124	40.4	Pygmy	2.98
Downstream from Outlet of Culvert, Location 2	79	0.55	57	40.2	Pygmy	1.39
At Culvert Outlet, Location 1	0	0.9	83	40.5	Pygmy	2.00
Outlet Pool Tailcrest	19	0.5	49	40.6	Pygmy	1.19

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 030 **VISIT** 1

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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 031 **VISIT** 1
DATE 7/15/2001 **Time** 9:40:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.81906 **Long. (dec. deg)** 151.60452
Road Name Nikolaevsk **Region:** SCN
Quad Name: Seldovia **ITM:** D-5 **Stream #:** 244-10-10010-2011-3031-4022
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: 2 culverts, large one sits higher, has one foot perch with large boulder at outlet; small culvert is countersunk.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

						Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray					
Length: 32	**Cross. Structure Type:** Corrugated Metal Pipe				**Width (ft):**	1.50	1.50
	Entrance Type: Projecting	**Tidal Influence:** No			**Height (ft):**	1.50	2.50
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**			**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**			**Water Depth (ft):**	0.61	0.37
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**			**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**			**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0
Culvert ID: B	**Category:**	**Classification:**				**Inlet**	**Outlet**
Length: 30.11	**Cross. Structure Type:** Corrugated Metal Pipe				**Width (ft):**	2.50	2.60
	Entrance Type: Projecting	**Tidal Influence:** No			**Height (ft):**	2.40	2.50
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**			**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**			**Water Depth (ft):**	0.24	0.25
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**			**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**			**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**	**Stream Discharge:** 0.89	**Width (ft)**	**Distance (ft)**
Dominant Substrate Type:	Silt/Sand	Small Cobble	**Upstrream OHW Width (100 ft.):**	2.2	58
Sub Dominant Substrate Type:	Boulder	Large Cobble	**Upstrream OHW Width (50 ft.):**	6.4	29
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	8.9	5
	Suit	**Type**	**Tailcrest Width at OHW:**	7.5	8
Upstream:	Suitable for Resident fish	SRO	**Outlet Pool OHW Line (Max. Width.):**	8.8	
			Downstream OHW Width (100 ft.):	2	79
Downstream:	Suitable for Resident fish	SRO	**Downstrream OHW Width (50 ft.):**	1.8	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 031D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.17
Susp.Spawn? No **Fork Len. (mm)** 115 105
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 031U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 118 135 118 140 110 121
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	2.8	1	9	100	91	
Left Bank, Ordinary High Water	3.1	2	9.02	98.75	89.73	
Left Bank, Wetted Perimeter	4.3	2	9.19	98.75	89.56	
Left Bank/Bed Slope Break	3.6	2	9.17	98.75	89.58	
Station 1	6.2	2	9.23	98.75	89.52	

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Station 2	8.2	2	9.54	98.75	89.21
Station 3	9.6	2	9.42	98.75	89.33
Right Bank, Wetted Perimeter	10.6	2	9.21	98.75	89.54
Right Bank, Ordinary High Water	11.2	2	9.06	98.75	89.69
Right Bank, Terrace	12	2	9	98.75	89.75

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	11.4	100	88.65	
Upstream station, thalweg 4 (50 ft)	29	1	10.3	100	89.69	
Upstream station, water elev 2 (50 ft)	29	1	8.06	100	91.94	
Upstream station, OHW line 1 (50 ft)	29	1	7.94	100	92.06	
Upstream station, thalweg 5 (100 ft)	58	1	9.23	100	90.77	
Upstream station, water elev 1 (100 ft)	58	1	7.98	100	92.02	
Upstream station, OHW line 1 (100 ft)	58	1	7.69	100	92.31	
Outlet, edge-road		1	5.08	100	94.92	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.3	100	89.67	
Inlet, edge-road		1	5.04	100	94.96	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	11.4	100	88.65	
Downstream station, thalweg 1 (tailcrest)	8	1	10.9	100	89.06	
Downstream station, water elev 1 (tailcrest)	8	1	10.5	100	89.52	
Downstream station, thalweg 2 (50 ft)	50	1	13.1	100	86.94	
Downstream station, water elev 2 (50 ft)	50	1	12.4	100	87.65	
Downstream station, OHW line 2 (50)	50	1	12.1	100	87.87	
Downstream station, thalweg 3 (100 ft)	79	1	14.2	100	85.81	
Downstream station, water elev 3 (100 ft)	79	1	13.6	100	86.37	
Downstream station, OHW line 3 (100 ft)	79	1	13.2	100	86.83	
Outlet, pool water elev	5	1	10.4	100	89.58	
Downstream station, OHW line 1 (tailcrest)	8	2	9.04	98.75	89.71	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	A	0	1	7.17	100	92.83	
Outlet, rustline	A	0	1	10.3	100	89.71	
Inlet, culvert top	B	0	1	5.77	100	94.23	
Inlet, culvert invert	B	0	1	8.19	100	91.81	
Inlet, culvert rustline	B	0	1	7.83	100	92.17	
Inlet, culvert thalweg	B	0	1	8.33	100	91.67	
Upstream station, thalweg 3 (2 CMP widths)	B	5	1	8.83	100	91.17	
Outlet, culvert top	B	0	1	7.25	100	92.75	
Outlet, culvert invert	B	0	1	9.75	100	90.25	
Outlet, thalweg	A	0	1	10.8	100	89.17	
Outlet, rustline	B	0	1	9.35	100	90.65	
Outlet, culvert invert	A	0	1	11	100	89.02	
Inlet, culvert invert	A	0	1	8.63	100	91.37	
Inlet, culvert rustline	A	0	1	8.19	100	91.81	
Inlet, culvert thalweg	A	0	1	8.6	100	91.4	
Upstream station, thalweg 1 (1 ft)	A	1	1	8.44	100	91.56	
Upstream station, thalweg 2 (5 ft)	A	5	1	8.1	100	91.9	
Upstream station, water elev 1 (5 ft)	A	5	1	7.96	100	92.04	
Upstream station, OHW line 1 (1 ft)	A	5	1	8.06	100	91.94	
Upstream station, thalweg 3 (2 CMP widths)	A	3	1	8.1	100	91.9	
Outlet, culvert top	A	0	1	8.5	100	91.5	
Outlet, thalweg	B	0	1	10.8	100	89.17	

Barrel Velocity(Float Ball)

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Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	32	9	10	11	12		3.05 ft/sec.
B	30.11	8	8	9			3.61 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	58	1.2	21	40.8	Pygmy	0.56
Upstream from Inlet of Culvert, Location 2	29	2.3	0	0	Pygmy	0.00
Downstream from Outlet of Culvert, Location 1	50	0.7	46	40.1	Pygmy	1.13
Downstream from Outlet of Culvert, Location 2	79	0.5	86	40.2	Pygmy	2.07
At Culvert Inlet, Location 1	0	0.4	65	40.4	Pygmy	1.58
At Culvert Outlet, Location 1	0	0.6	37	40	Pygmy	0.92
At Culvert Inlet, Location 2	0	0.2	14	40.3	Pygmy	0.37
At Culvert Outlet, Location 2	0	0.2	57	40.6	Pygmy	1.38
Outlet Pool Tailcrest	8	0.3	118	40	Pygmy	2.86

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 031 **VISIT** 1

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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 032 **VISIT** 1
DATE 7/16/2001 **Time** 1:00:00 PM **Observers:** Cecil Rich, Doug Hill, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 59.8016 **Long. (dec. deg)** 151.66293
Road Name North Fork Road **Region:** SCN
Quad Name: Seldovia **ITM:** D-5 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Ten inch perch at outlet. Very small creek width = or < 3 feet no pool developed. Channel flows thought hummocky wetland, diffficult to locate channel. Channel steps off sphagnum and goes through substrate.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length: 64.45	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	2.10	2.00
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	2.00	1.79
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0158		**Manuf. Diameter:**		
Corrugation Width (in.): 2.75		**Perch Ht. (Flow - Ind):** 0.96		**Water Depth (ft):**	0.21	0.22
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.92		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.48		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Small Cobble
Sub Dominant Substrate Type:	None	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 0.16

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	1.3	99
Upstrream OHW Width (50 ft.):	7.5	41
Upstrream OHW Width (5 ft.):	8.4	5
Tailcrest Width at OHW:	2.6	5.5
Outlet Pool OHW Line (Max. Width.):	4.4	
Downstream OHW Width (100 ft.):	6	87
Downstrream OHW Width (50 ft.):	3.2	44

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 032U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 032D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.35
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	7.3	2	10.85	96.64	85.79	
Left Bank, Ordinary High Water	6.1	2	11	96.64	85.64	
Left Bank, Wetted Perimeter	6.1	2	11	96.64	85.64	
Left Bank/Bed Slope Break	6.1	2	11	96.64	85.64	
Station 1	6.6	2	11	96.64	85.64	
Station 2	5	2	11.35	96.64	85.29	
Station 3	4	2	11.29	96.64	85.35	
Right Bank/Bed Slope Break	4.5	2	10.98	96.64	85.66	
Right Bank, Wetted Perimeter	4.5	2	11	96.64	85.64	
Right Bank, Ordinary High Water	4.5	2	10.98	96.64	85.66	
Right Bank, Terrace	2.7	2	11	96.64	85.64	

Longitudinal Section Elevation Common

Dist. from **Inst.**

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Station ID	Xing	No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	14.6	100	85.4	
Upstream station, thalweg 4 (50 ft)	41	1	10.9	100	89.1	
Upstream station, water elev 2 (50 ft)	41	1	10.4	100	89.56	
Upstream station, OHW line 1 (50 ft)	41	1	10.4	100	89.6	
Upstream station, thalweg 5 (100 ft)	99	1	10.2	100	89.85	
Upstream station, water elev 1 (100 ft)	99	1	9.65	100	90.35	
Upstream station, OHW line 1 (100 ft)	99	1	8.63	100	91.37	
Outlet, edge-road		1	3.94	100	96.06	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	13.7	100	86.35	
Inlet, edge-road		1	4.04	100	95.96	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.6	100	85.4	
Downstream station, thalweg 1 (tailcrest)	5.5	1	14.3	100	85.71	
Downstream station, water elev 1 (tailcrest)	5.5	1	14.1	100	85.9	
Downstream station, thalweg 2 (50 ft)	44	1	16.7	100	83.27	
Downstream station, water elev 2 (50 ft)	44	1	16.0	100	83.98	
Downstream station, OHW line 2 (50)	44	1	15.9	100	84.12	
Downstream station, thalweg 3 (100 ft)	87	1	18.9	100	81.12	
Downstream station, water elev 3 (100 ft)	87	1	17.9	100	82.12	
Downstream station, OHW line 3 (100 ft)	87	1	17.8	100	82.19	
Outlet, pool water elev	5	1	14.3	100	85.75	
Downstream station, OHW line 1 (tailcrest)	5.5	2	11	96.64	85.65	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	13.1	100	86.92	
Outlet, thalweg	A	0	1	14.3	100	85.69	
Outlet, culvert invert	A	0	1	13.3	100	86.67	
Outlet, culvert top	A	0	1	11.3	100	88.67	
Upstream station, thalweg 3 (2 CMP widths)	A	4	1	12.4	100	87.62	
Upstream station, OHW line 1 (1 ft)	A	5	1	11.2	100	88.81	
Upstream station, water elev 1 (5 ft)	A	5	1	12.1	100	87.9	
Upstream station, thalweg 2 (5 ft)	A	5	1	12.5	100	87.5	
Upstream station, thalweg 1 (1 ft)	A	1	1	12.5	100	87.5	
Inlet, culvert thalweg	A	0	1	12.5	100	87.5	
Inlet, culvert rustline	A	0	1	12	100	88	
Inlet, culvert invert	A	0	1	12.3	100	87.69	
Inlet, culvert top	A	0	1	10.5	100	89.48	

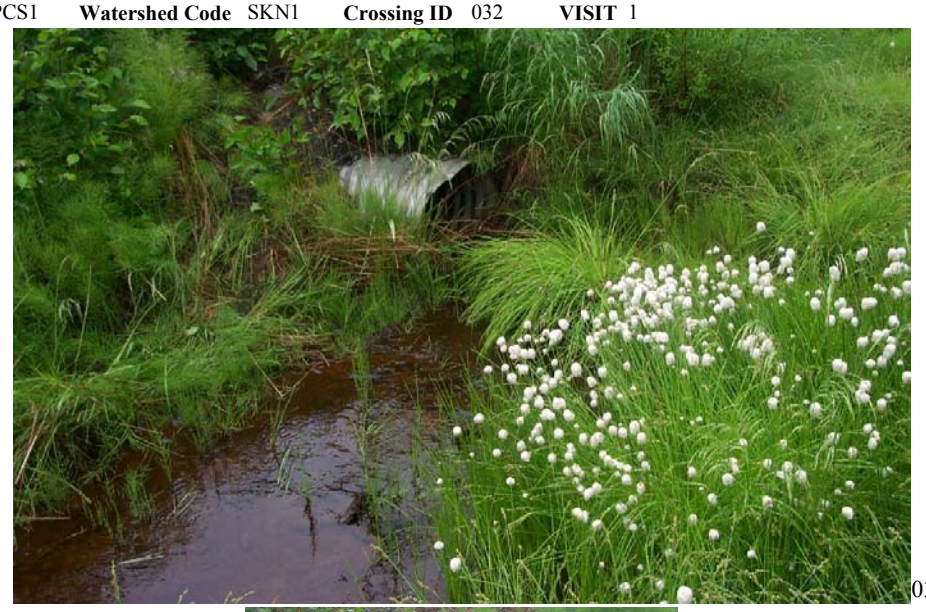
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	64.45	42	40	41			1.57 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	41	0.3	18	42	N/A	0.44
Upstream from Inlet of Culvert, Location 2	99	0.15	29	40.7	N/A	0.72
Downstream from Outlet of Culvert, Location 1	44	0.4			N/A	0.00
Downstream from Outlet of Culvert, Location 2	87	0.6	20	40.6	N/A	0.50
At Culvert Inlet, Location 1	0	0.15	31	40.2	N/A	0.77
At Culvert Outlet, Location 1	0	0.1	68	40.2	N/A	1.66
Outlet Pool Tailcrest	5.5	0.15	21	36.7	N/A	0.58

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 032 **VISIT** 1



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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 033 **VISIT** 1
DATE 7/17/2001 **Time** 9:00:00 AM **Observers:** Cecil Rich, Michael Lund, Doug Hill

Site Information:

GPS Location: **Lat. (dec. deg)** 60.01126 **Long. (dec. deg)** 151.52312
Road Name Oilwell Road **Region:** SCN
Quad Name: Kenai **ITM:** A-5 **Stream #:** 244-20-10100-2019
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Silver Salmon

Field Notes: Pipe damage at inlet. Erosion on both sides squashed gabions falling apart.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 71.71	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.90	4.60
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	3.35	4.54
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0169		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.12		**Water Depth (ft):**	1.40	1.42
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -1.17		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.42		**Struc. Damage (%):**	20	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Coarse Gravel
Sub Dominant Substrate Type:	None	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 17.13

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	11.75	200
Upstrream OHW Width (50 ft.):	11.5	89
Upstrream OHW Width (5 ft.):	15	5
Tailcrest Width at OHW:	25.5	34
Outlet Pool OHW Line (Max. Width.):	31.4	
Downstream OHW Width (100 ft.):	15	174
Downstrream OHW Width (50 ft.):	10.2	91

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Resident
Stat. ID: 033U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 92 74 75 109 115 74 63 72 80 62
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 033U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.05
Susp.Spawn? No **Fork Len. (mm)** 83 65 65 60 79 73
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Resident
Stat. ID: 033D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 68 110 75 65 72 70 63 90 67 98
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 033D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 53 74 45 49 50 45
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 15 **Life History:** Anadromous
Stat. ID: 033D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 60 62 77 65 75 68 72 60 72 61
Comments:

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 033 **VISIT** 1

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 033D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25

Susp.Spawn? No **Fork Len. (mm)** 100

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.2	4	8.83	102.12	93.29	
Left Bank, Ordinary High Water	4.7	4	10.73	102.12	91.39	
Left Bank, Wetted Perimeter	4.9	4	10.5	102.12	91.62	
Left Bank/Bed Slope Break	4.9	4	11.23	102.12	90.89	
Station 1	7.2	4	11.13	102.12	90.9900	
Station 2	7.9	4	11.46	102.12	90.66	
Station 3	19.2	4	10.98	102.12	91.14	
Station 4	27.4	4	10.81	102.12	91.3100	
Right Bank/Bed Slope Break	32	4	10.79	102.12	91.33	
Right Bank, Wetted Perimeter	32.2	4	10.35	102.12	91.77	
Right Bank, Terrace	37	4	8.38	102.12	93.7400	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	12.4	100	87.65	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	8.08	100	91.92	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	11	100	89.04	
Downstream station, thalweg 1 (tailcrest)	37	1	9.65	100	90.35	
Downstream station, water elev 1 (tailcrest)	37	1	8.52	100	91.48	
Downstream station, thalweg 2 (50 ft)	91	1	10.2	100	89.79	
Downstream station, water elev 2 (50 ft)	91	1	8.94	100	91.06	
Downstream station, OHW line 2 (50)	91	1	8.52	100	91.48	
Downstream station, thalweg 3 (100 ft)	174	1	11.9	100	88.06	
Downstream station, water elev 3 (100 ft)	174	1	9.58	100	90.42	
Downstream station, OHW line 3 (100 ft)	174	1	9.15	100	90.85	
Outlet, pool water elev	5	1	8.6	100	91.4	
Inlet, edge-road		2	3.75	112.02	108.27	
Outlet, edge-road		2	3.4	112.02	108.62	
Upstream station, OHW line 1 (100 ft)	200	3	6.88	100.94	94.0600	
Upstream station, water elev 1 (100 ft)	200	3	7.77	100.94	93.1700	
Upstream station, thalweg 5 (100 ft)	200	3	9.5	100.94	91.44	
Upstream station, OHW line 1 (50 ft)	89	3	7.19	100.94	93.75	
Upstream station, water elev 2 (50 ft)	89	3	7.81	100.94	93.13	
Upstream station, thalweg 4 (50 ft)	89	3	9.85	100.94	91.09	
Downstream station, OHW line 1 (tailcrest)	37	4	10.7	102.12	91.39	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	8.23	100	91.77	
Outlet, thalweg	A	0	1	9.94	100	90.06	
Outlet, culvert invert	A	0	1	9.77	100	90.23	
Outlet, culvert top	A	0	1	5.23	100	94.77	
Upstream station, thalweg 3 (2 CMP widths)	A	9.8	3	9.85	100.9	91.09	
Upstream station, OHW line 1 (1 ft)	A	5	3	6.88	100.9	94.0600	
Upstream station, water elev 1 (5 ft)	A	5	3	7.85	100.9	93.09	
Upstream station, thalweg 2 (5 ft)	A	5	3	9.54	100.9	91.4	
Upstream station, thalweg 1 (1 ft)	A	1	3	9.73	100.9	91.2100	

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 033 **VISIT** 1

Inlet, culvert thalweg	A	0	3	9.96	100.9	90.98
Inlet, culvert rustline	A	0	3	7.79	100.9	93.15
Inlet, culvert invert	A	0	3	9.5	100.9	91.44
Inlet, culvert top	A	0	3	6.15	100.9	94.79

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	71.71	13	13				5.52 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	89	2	20	40.5	Standard_Price AA	1.11
Upstream from Inlet of Culvert, Location 2	200	1.7	20	40.2	Standard_Price AA	1.11
Downstream from Outlet of Culvert, Location 1	91	0.6	45	40.9	Standard_Price AA	2.44
Downstream from Outlet of Culvert, Location 2	174	1.8	36	40	Standard_Price AA	2.00
At Culvert Inlet, Location 1	0	1.5	71	40.5	Standard_Price AA	3.88
At Culvert Outlet, Location 1	0	1.2	89	40	Standard_Price AA	4.90
Outlet Pool Tailcrest	34	1	13	40.7	Standard_Price AA	0.72

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 033 **VISIT** 1

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Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 034 **VISIT** 1
DATE 7/17/2001 **Time** 1:10:00 PM **Observers:** Cecil Rich, Doug Hill

Site Information:

GPS Location: **Lat. (dec. deg)** 60.2341 **Long. (dec. deg)** 151.38377
Road Name Sterling Hwy **Region:** SCN
Quad Name: Kenai **ITM:** A-5 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Marsh upstream with poorly defined channel. Damaged 4 foot section detached at left overflow.
Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 90.82	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.60	6.20
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.21	5.07
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0262		**Manuf. Diameter:**		
Corrugation Width (in.): 2.6		**Perch Ht. (Flow - Ind):** -0.63		**Water Depth (ft):**	0.75	0.46
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.96		**Substr. Dep (ft):**	0.54	0.38
Substrate Type: Coarse Gravel	Coarse Gravel	**Encrochment Ratio:** 1.01		**Struc. Damage (%):**	20	20
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Silt/Sand	Small Cobble
Sub Dominant Substrate Type:	None	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: 0.52

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	4.6	100
Upstrream OHW Width (50 ft.):	6.5	50
Upstrream OHW Width (5 ft.):	5.3	5
Tailcrest Width at OHW:	9.1	5.5
Outlet Pool OHW Line (Max. Width.):	9.8	
Downstream OHW Width (100 ft.):	4	113
Downstrream OHW Width (50 ft.):	5.4	42

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident
Stat. ID: 034U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.4
Susp.Spawn? No **Fork Len. (mm)** 120 99 93 111 110 117 91
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 034U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.4
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 034D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.3
Susp.Spawn? No **Fork Len. (mm)** 115 118 121 110 95 110
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 034D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.6	1	15.83	100	84.17	
Left Bank, Ordinary High Water	2.5	1	16.06	100	83.94	
Left Bank, Wetted Perimeter	3.4	1	16.42	100	83.58	
Left Bank/Bed Slope Break	3.4	1	16.42	100	83.58	

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 034 **VISIT** 1

Station 1	4.2	1	16.65	100	83.35
Station 2	5.4	1	16.52	100	83.48
Station 3	6.2	1	16.63	100	83.37
Station 4	7	1	16.58	100	83.42
Station 5	7.8	1	16.69	100	83.31
Station 6	8.7	1	16.77	100	83.23
Station 7	9.5	1	16.75	100	83.25
Right Bank/Bed Slope Break	10	1	16.63	100	83.37
Right Bank, Wetted Perimeter	10.2	1	16.46	100	83.54
Right Bank, Ordinary High Water	11.6	1	15.88	100	84.12
Right Bank, Terrace	13.6	1	15.52	100	84.48

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	17.2	100	82.83	
Upstream station, thalweg 4 (50 ft)	50	1	15.1	100	84.9	
Upstream station, water elev 2 (50 ft)	50	1	14.5	100	85.5	
Upstream station, OHW line 1 (50 ft)	50	1	14.1	100	85.92	
Upstream station, thalweg 5 (100 ft)	100	1	15.1	100	84.9	
Upstream station, water elev 1 (100 ft)	100	1	14.3	100	85.71	
Upstream station, OHW line 1 (100 ft)	100	1	13.7	100	86.29	
Outlet, edge-road		1	2.23	100	97.77	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	16	100	84.02	
Inlet, edge-road		1	2.4	100	97.6	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	17.2	100	82.83	
Downstream station, OHW line 1 (tailcrest)	5.5	1	16	100	84.03	
Downstream station, thalweg 1 (tailcrest)	5.5	1	16.8	100	83.23	
Downstream station, water elev 1 (tailcrest)	5.5	1	16.4	100	83.6	
Downstream station, thalweg 2 (50 ft)	42	1	18.8	100	81.23	
Downstream station, water elev 2 (50 ft)	42	1	18.1	100	81.9	
Downstream station, OHW line 2 (50)	42	1	17.2	100	82.81	
Downstream station, thalweg 3 (100 ft)	113	1	20.5	100	79.46	
Downstream station, water elev 3 (100 ft)	113	1	19.3	100	80.71	
Downstream station, OHW line 3 (100 ft)	113	1	18.7	100	81.35	
Outlet, pool water elev	5	1	16.4	100	83.56	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	15.9	100	84.08	
Outlet, thalweg	A	0	1	17.1	100	82.9	
Outlet, culvert invert	A	0	1	17.4	100	82.6	
Outlet, culvert top	A	0	1	12.3	100	87.67	
Upstream station, thalweg 3 (2 CMP widths)	A	12	1	15.1	100	84.9	
Upstream station, OHW line 1 (1 ft)	A	5	1	14.7	100	85.33	
Upstream station, water elev 1 (5 ft)	A	5	1	14.8	100	85.25	
Upstream station, thalweg 2 (5 ft)	A	5	1	15.2	100	84.83	
Upstream station, thalweg 1 (1 ft)	A	1	1	15.8	100	84.19	
Inlet, culvert thalweg	A	0	1	16	100	84.04	
Inlet, culvert rustline	A	0	1	14.8	100	85.23	
Inlet, culvert invert	A	0	1	15.0	100	84.98	
Inlet, culvert top	A	0	1	9.81	100	90.19	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.5	12	40.9	Pygmy	0.31

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 034 **VISIT** 1

Upstream from Inlet of Culvert, Location 2	100	0.6	15	40.1	Pygmy	0.39
Downstream from Outlet of Culvert, Location 1	42	0.35	11	42	Pygmy	0.28
Downstream from Outlet of Culvert, Location 2	113	1.2	13	40.5	Pygmy	0.34
At Culvert Inlet, Location 1	0	0.7	27	42	Pygmy	0.65
At Culvert Outlet, Location 1	0	0.7	17	43.9	Pygmy	0.40
Outlet Pool Tailcrest	13	0.2	88	40.4	Pygmy	2.11

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 034 **VISIT** 1

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Culvert Survey Report

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 035 **VISIT** 1
DATE 7/18/2001 **Time** 8:00:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.51722 **Long. (dec. deg)** 151.20167
Road Name SBS Road **Region:** SCN
Quad Name: Kenai **ITM:** C-4 **Stream #:** 244-30-10010-2010
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Chain-link fence across inlet causing an inlet control due to vegetation build-up. No defined tailcrest at outlet - very marshy. Upstream level profile, and stream width measurements data missing due to mashy conditions.

Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:**

					Inlet	Outlet
Length: 107.89	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.10	4.00
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	4.07	3.66
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0015		**Manuf. Diameter:**		
Corrugation Width (in.): 2.6		**Perch Ht. (Flow - Ind):** -0.47		**Water Depth (ft):**	1.15	1.33
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -1.33		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Sands	Sands	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	30	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Sands	Sands
Sub Dominant Substrate Type:	None	None
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

Stream Discharge: 1.37

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:	11.6	10
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):		
Downstrream OHW Width (50 ft.):		

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 22 **Life History:** Resident
Stat. ID: 035U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.5
Susp.Spawn? No **Fork Len. (mm)** 91 95 84 94 75 85 103 88 101 84
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 34 **Life History:** Anadromous
Stat. ID: 035U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.5
Susp.Spawn? No **Fork Len. (mm)** 109 122 68 78 89 88 85 97 106 88
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 035U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.5
Susp.Spawn? No **Fork Len. (mm)** 91
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 25 **Life History:** Anadromous
Stat. ID: 035D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 100 91 86 73 88 82 88 93 101 62
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Resident
Stat. ID: 035D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 90 95 83 90 100 150
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 035 **VISIT** 1

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous

Stat. ID: 035D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1

Susp.Spawn? No **Fork Len. (mm)** 80

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.5	4	6.69	94.68	87.99	
Left Bank, Ordinary High Water	1.6	4	7	94.68	87.68	
Left Bank, Wetted Perimeter	1.6	4	7	94.68	87.68	
Left Bank/Bed Slope Break	1.8	4	7.35	94.68	87.33	
Station 1	1.9	4	7.44	94.68	87.24	
Station 2	3	4	7.56	94.68	87.12	
Station 4	5	4	7.83	94.68	86.85	
Station 5	7.2	4	7.56	94.68	87.12	
Station 6	9	4	7.67	94.68	87.01	
Station 7	10	4	7.79	94.68	86.89	
Station 8	11	4	7.79	94.68	86.89	
Station 9	11.7	4	7.81	94.68	86.87	
Station 10	12.3	4	7.6	94.68	87.08	
Right Bank/Bed Slope Break	12.9	4	7.54	94.68	87.14	
Right Bank, Wetted Perimeter	13	4	7	94.68	87.68	
Right Bank, Ordinary High Water	13	4	7	94.68	87.68	
Right Bank, Terrace	14.4	4	6	94.68	88.68	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road		2	4.44	109.64	105.2	
Inlet, edge-road		2	4.4	109.64	105.24	
Outlet, pool maximum depth 2		3	8.85	94.98	86.13	
Outlet, pool maximum depth 1 (within 5 ft)	5	3	8.85	94.98	86.13	
Outlet, pool water elev	5	3	7.21	94.98	87.77	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	3	7.21	94.98	87.77	
Downstream station, OHW line 1 (tailcrest)	11.7	4	7	94.68	87.68	
Downstream station, water elev 1 (tailcrest)	11.7	4	7	94.68	87.68	
Downstream station, thalweg 1 (tailcrest)	11.7	4	7.77	94.68	86.91	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	3	7.21	94.98	87.77	
Outlet, thalweg	A	0	3	8.5	94.98	86.48	
Outlet, culvert invert	A	0	3	8.54	94.98	86.44	
Outlet, culvert top	A	0	3	4.88	94.98	90.1000	
Upstream station, OHW line 1 (1 ft)	A	0	1	11.5	100	88.55	
Upstream station, water elev 1 (5 ft)	A	5	1	11.8	100	88.21	
Upstream station, thalweg 2 (5 ft)	A	5	1	15.3	100	84.75	
Upstream station, thalweg 1 (1 ft)	A	0	1	13.3	100	86.67	
Inlet, culvert thalweg	A	0	1	13.4	100	86.6	
Inlet, culvert rustline	A	0	1	11.6	100	88.4	
Inlet, culvert invert	A	0	1	13.4	100	86.6	
Inlet, culvert top	A	0	1	9.33	100	90.67	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 035 **VISIT** 1

A 107.89 213 218 .50 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1		0	0	0	N/A	0.00
Downstream from Outlet of Culvert, Location 1		0	0	0	N/A	0.00
At Culvert Inlet, Location 1	0	0.75	12	43.4	N/A	0.63
At Culvert Outlet, Location 1	0	1.25	6	47	N/A	
Outlet Pool Tailcrest	10	0.6	14	40.5	N/A	0.78

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 035 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 036 **VISIT** 1
DATE 7/18/2001 **Time** 10:16:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.51818 **Long. (dec. deg)** 151.2037
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Kenai **ITM:** C-4 **Stream #:** 244-30-10010-2010
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Apron is jacked up at inlet. May help a lot to remove apron. Ponded above. Artifical channel just up stream of culvert.
Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length:	150	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	4.00	3.90
		Entrance Type:	Flared Inlet	**Tidal Influence:** No **Height (ft):**	4.00	4.00
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** 0.0201 **Manuf. Diameter:**		
Corrugation Width (in.):	2.6			**Perch Ht. (Flow - Ind):** -0.40 **Water Depth (ft):**	0.32	1.21
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -1.21 **Substr. Dep (ft):**	0.00	0.37
Substrate Type:	None	None		**Encrochment Ratio:** **Struc. Damage (%):**	10	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Sands	Sands
Sub Dominant Substrate Type:	None	None
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	RO
Downstream:	Suitable for anadromous and	RO

Stream Discharge: 1.37

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	6.2	5
Tailcrest Width at OHW:	9.7	7
Outlet Pool OHW Line (Max. Width.):	10	6
Downstream OHW Width (100 ft.):	6	100
Downstrream OHW Width (50 ft.):	8.8	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 25 **Life History:** Anadromous
Stat. ID: 036U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 100 91 86 73 88 82 88 93 101 62
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Resident
Stat. ID: 036U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)** 90 95 83 90 100 150
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 036U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 036D1 **Gear:** Minnow Trap **# of Traps set:** 2 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 94 75
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 036D1 **Gear:** Minnow Trap **# of Traps set:** 2 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 50 64 57 110
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 036 **VISIT** 1

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 036D1 **Gear:** Minnow Trap **# of Traps set:** 2 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 58 52
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 53 **Life History:** Resident
Stat. ID: 036D1 **Gear:** Minnow Trap **# of Traps set:** 2 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.7	2	13.8	92.84	79.04	
Left Bank, Ordinary High Water	2	2	13.81	92.84	79.03	
Left Bank, Wetted Perimeter	2.5	2	14.08	92.84	78.76	
Left Bank/Bed Slope Break	2.7	2	14.31	92.84	78.53	
Station 1	3.3	2	14.52	92.84	78.32	
Station 2	3.9	2	14.67	92.84	78.17	
Station 3	4.8	2	14.88	92.84	77.96	
Station 4	5.8	2	14.9	92.84	77.94	
Station 5	6.7	2	14.81	92.84	78.03	
Station 8	7.8	2	14.77	92.84	78.07	
Station 9	8.4	2	14.54	92.84	78.3	
Station 10	8.9	2	14.88	92.84	77.96	
Station 11	9.8	2	14.85	92.84	77.99	
Right Bank/Bed Slope Break	10.7	2	14.6	92.84	78.24	
Right Bank, Wetted Perimeter	11	2	14.1	92.84	78.74	
Right Bank, Ordinary High Water	12	2	13.77	92.84	79.07	
Right Bank, Terrace	13	2	13.6	92.84	79.24	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 2 (50 ft)	50	1	19.1	100	80.94	
Upstream station, OHW line 1 (50 ft)	50	1	19.1	100	80.94	
Upstream station, water elev 1 (100 ft)	100	1	19.1	100	80.94	
Upstream station, OHW line 1 (100 ft)	100	1	19.1	100	80.94	
Outlet, edge-road		1	0.71	100	99.29	
Inlet, edge-road		1	1.85	100	98.15	
Downstream station, thalweg 1 (tailcrest)	7	2	14.9	92.84	77.99	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	13.9	92.84	78.96	
Outlet, pool water elev	5	2	14.0	92.84	78.8	
Outlet, pool maximum depth 2		2	15	92.84	77.86	
Downstream station, OHW line 1 (tailcrest)	7	2	13.8	92.84	79.05	
Downstream station, water elev 1 (tailcrest)	7	2	14.1	92.84	78.76	
Downstream station, thalweg 2 (50 ft)	48	2	15.3	92.84	77.55	
Downstream station, water elev 2 (50 ft)	48	2	14.6	92.84	78.28	
Downstream station, OHW line 2 (50)	48	2	14.2	92.84	78.65	
Downstream station, thalweg 3 (100 ft)	105	2	16.1	92.84	76.74	
Downstream station, water elev 3 (100 ft)	105	2	15.5	92.84	77.36	
Downstream station, OHW line 3 (100 ft)	105	2	15.3	92.84	77.57	
Outlet, pool maximum depth 1 (within 5 ft)	5	2	15	92.84	77.86	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	2	13.7	92.84	79.13	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 036 **VISIT** 1

Outlet, thalweg	A	0	2	14.9	92.84	77.94
Outlet, culvert invert	A	0	2	15.3	92.84	77.59
Outlet, culvert top	A	0	2	11.3	92.84	81.59
Upstream station, thalweg 3 (2 CMP widths)	A	8	1	20.1	100	79.92
Upstream station, OHW line 1 (1 ft)	A	5	1	19.5	100	80.5
Upstream station, water elev 1 (5 ft)	A	5	1	19.5	100	80.5
Upstream station, thalweg 2 (5 ft)	A	5	1	20.3	100	79.71
Upstream station, thalweg 1 (1 ft)	A	1	1	20.2	100	79.81
Inlet, culvert thalweg	A	0	1	20	100	80.04
Inlet, culvert rustline	A	0	1	18.8	100	81.19
Inlet, culvert invert	A	0	1	19.4	100	80.6
Inlet, culvert top	A	0	1	16.3	100	83.71

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	150	156	130	108			1.14 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 1		0.55	11	44	Standard_Price AA	
Downstream from Outlet of Culvert, Location 2		0.5	17	40.5	Standard_Price AA	0.94
At Culvert Inlet, Location 1	0	0.2	110	40.2	Standard_Price AA	6.05
At Culvert Outlet, Location 1	0	0.8	7	45	Standard_Price AA	0.36
Outlet Pool Tailcrest	7	0.6	0	41.7	Standard_Price AA	0.81

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 036 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 037 **VISIT** 1
DATE 7/18/2001 **Time** 2:30:00 PM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.48833 **Long. (dec. deg)** 151.04462
Road Name E. Redoubt Street **Region:** SCN
Quad Name: Kenai **ITM:** B-3 **Stream #:** 244-30-10010-2039
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Soldotna Creek

Field Notes: Inlet control on both culverts. Headwall at outlet is eroded between culverts. Left culvert outlet perched slightly, very high velocity at outlet. Boulders placed in outlet pool to reduce outlet perch but was not effective. Had broad tailcrest < 5% of f

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

					Inlet	Outlet
Length: 48.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.40	4.10
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	3.58	3.90
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.81	0.57
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	5	10
Erosion: No Inlet Erosion	Fill Slope Protection Needed			**Culv. Blockage (%):**	0	0

Culvert ID: B **Category:** **Classification:**

					Inlet	Outlet
Length: 48	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.10	4.00
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	4.02	4.00
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.83	0.52
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	Fill Slope Protection Needed			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Silt/Sand
Sub Dominant Substrate Type:	Sands	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: N/A

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	21.2	100
Upstrream OHW Width (50 ft.):	22.3	59
Upstrream OHW Width (5 ft.):	36.5	5
Tailcrest Width at OHW:	11.9	49
Outlet Pool OHW Line (Max. Width.):	42.7	
Downstream OHW Width (100 ft.):	10	117
Downstrream OHW Width (50 ft.):	9.2	81

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 28 **Life History:** Anadromous
Stat. ID: 037U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.35
Susp.Spawn? No **Fork Len. (mm)** 76 71 71 98 91 75 81 90 74 86
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 037U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.35
Susp.Spawn? No **Fork Len. (mm)** 74
Comments:

Species: ninespine stickleback **Life Stage:** Adult **Species/Life Stage Count:** 80 **Life History:** Resident
Stat. ID: 037U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.35
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 037 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 69 **Life History:** Anadromous
Stat. ID: 037D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.35
Susp.Spawn? No **Fork Len. (mm)** 71 82 75 69 68 74 54 70 60 62
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 037D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.35
Susp.Spawn? No **Fork Len. (mm)** 84
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 50 **Life History:** Resident
Stat. ID: 037D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.35
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: chinook salmon **Life Stage:** Adult Spawnin **Species/Life Stage Count:** **Life History:** Anadromous
Stat. ID: 037D1 **Gear:** Visual Observation, Ground **# of Traps set:** **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments: adult chinnooks observed in outlet pool

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.7	1	5.31	100	94.69	
Left Bank, Ordinary High Water	2.3	1	5.5	100	94.5	
Left Bank, Wetted Perimeter	3.5	1	5.85	100	94.15	
Left Bank/Bed Slope Break	4.1	1	6.4	100	93.6	
Station 1	4.6	1	6.94	100	93.06	
Station 2	5.4	1	7.06	100	92.94	
Station 3	6.2	1	7.02	100	92.98	
Station 4	7	1	6.9	100	93.1	
Station 5	7.9	1	6.65	100	93.35	
Station 6	9.3	1	6.73	100	93.27	
Station 7	10.4	1	6.88	100	93.12	
Station 8	11.3	1	6.88	100	93.12	
Station 9	12.8	1	6.92	100	93.08	
Right Bank, Wetted Perimeter	13	1	5.85	100	94.15	
Right Bank, Ordinary High Water	13.6	1	5.15	100	94.85	
Right Bank, Terrace	13.8	1	4.21	100	95.79	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 3 (100 ft)	117	1	5.96	100	94.04	
Downstream station, thalweg 3 (100 ft)	117	1	6.83	100	93.17	
Downstream station, OHW line 1 (tailcrest)	81	1	5.27	100	94.73	
Downstream station, water elev 2 (50 ft)	81	1	5.88	100	94.12	
Downstream station, thalweg 2 (50 ft)	81	1	7.15	100	92.85	
Downstream station, water elev 1 (tailcrest)	49	1	5.5	100	94.5	
Downstream station, thalweg 1 (tailcrest)	49	1	7.06	100	92.94	
Downstream station, OHW line 3 (100 ft)	117	1	5.52	100	94.48	
Outlet, pool maximum depth 1 (within 5 ft)	5	2	12.2	103.67	91.48	
Upstream station, thalweg 4 (50 ft)	59	2	10.9	103.67	92.77	
Upstream station, water elev 2 (50 ft)	59	2	7.71	103.67	95.96	
Upstream station, OHW line 1 (50 ft)	59	2	6.94	103.67	96.73	
Upstream station, thalweg 5 (100 ft)	100	2	10.4	103.67	93.27	
Upstream station, water elev 1 (100 ft)	100	2	7.65	103.67	96.02	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 037 **VISIT** 1

Upstream station, OHW line 1 (100 ft)	100	2	7.38	103.67	96.29
Outlet, edge-road		2	2.08	103.67	101.59
Inlet, edge-road		2	2.21	103.67	101.46
Outlet, pool water elev	5	2	9.42	103.67	94.25
Outlet, pool maximum depth 2		2	13.4	103.67	90.27
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	8.9	103.67	94.77

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert rustline	A	0	2	7.6	103.7	96.07	
Inlet, culvert rustline	B	0	2	7.48	103.7	96.19	
Inlet, culvert thalweg	B	0	2	8.6	103.7	95.07	
Upstream station, thalweg 1 (1 ft)	B	1	2	8.88	103.7	94.79	
Upstream station, thalweg 2 (5 ft)	B	5	2	9.5	103.7	94.17	
Upstream station, water elev 1 (5 ft)	B	5	2	7.71	103.7	95.96	
Upstream station, thalweg 3 (2 CMP widths)	B	8	2	10.3	103.7	93.34	
Outlet, culvert top	B	0	2	5.77	103.7	97.9	
Outlet, culvert invert	B	0	2	9.77	103.7	93.9	
Outlet, thalweg	B	0	2	10.3	103.7	93.42	
Outlet, rustline	B	0	2	9	103.7	94.67	
Inlet, culvert invert	B	0	2	8.56	103.7	95.11	
Inlet, culvert invert	A	0	2	8.6	103.7	95.07	
Inlet, culvert top	B	0	2	4.54	103.7	99.13	
Inlet, culvert thalweg	A	0	2	8.77	103.7	94.9	
Upstream station, thalweg 1 (1 ft)	A	1	2	8.92	103.7	94.75	
Upstream station, thalweg 2 (5 ft)	A	5	2	9.67	103.7	94	
Upstream station, water elev 1 (5 ft)	A	5	2	7.71	103.7	95.96	
Upstream station, OHW line 1 (1 ft)	A	5	2	7.35	103.7	96.32	
Upstream station, thalweg 3 (2 CMP widths)	A	8.8	2	10.3	103.7	93.34	
Outlet, culvert top	A	0	2	5.73	103.7	97.94	
Outlet, culvert invert	A	0	2	9.63	103.7	94.04	
Outlet, thalweg	A	0	2	10.5	103.7	93.13	
Outlet, rustline	A	0	2	9	103.7	94.67	
Inlet, culvert top	A	0	2	5.02	103.7	98.65	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	48.5	10.3	10.1				4.85 ft/sec.
B	48	9.8	9.3				5.05 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	59	3.2	12	42.2	N/A	0.64
Upstream from Inlet of Culvert, Location 2	100	2	8	43.2	N/A	
Downstream from Outlet of Culvert, Location 1	81	1.1	22	41.5	N/A	1.19
Downstream from Outlet of Culvert, Location 2	117	0.9	21	40.4	N/A	1.15
At Culvert Inlet, Location 1	0	0.75	19	41.9	N/A	1.02
At Culvert Outlet, Location 1	0	0.55	79	40	N/A	4.36
At Culvert Inlet, Location 2	0	0.75	21	41.4	N/A	1.14
At Culvert Outlet, Location 2	0	0.5	105	40	N/A	5.81
Outlet Pool Tailcrest	49	1	14	42.1	N/A	0.75

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 037 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 038 **VISIT** 1
DATE 7/19/2001 **Time** 7:30:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.49855 **Long. (dec. deg)** 151.01984
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Kenai **ITM:** B-3 **Stream #:** 244-30-10010-2039
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Soldotna Creek

Field Notes: Baffles installed in culvert. V-notch wier at about 3 m. upstream of culvert. Riprap riffle below outlet.
Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

			Inlet	Outlet
Length: 298	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	14.50	14.50
	Entrance Type: Mitered **Tidal Influence:** No	**Height (ft):**	9.90	9.79
Corrugation Depth (in.): 2	**Baffles Present:** Yes **Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.94	0.96
	Perch Ht. (Flow -Dep):	**Substr. Dep (ft):**	1.50	1.50
Substrate Type: Large Cobble	Small Cobble **Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion	**Culv. Blockage (%):**	0	0

Stream-related

Stream Discharge: N/A

	Upstream	Downstream		Width (ft)	Distance (ft)
Dominant Substrate Type:	Silt/Sand	Large Cobble	**Upstrream OHW Width (100 ft.):**	16.1	100
Sub Dominant Substrate Type:	Silt/Sand	Boulder	**Upstrream OHW Width (50 ft.):**	12.8	50
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	19.1	5
	Suit	**Type**	**Tailcrest Width at OHW:**	17.9	0
Upstream:	Suitable for anadromous and	SRO	**Outlet Pool OHW Line (Max. Width.):**		
Downstream:	Suitable for anadromous and	SRO	**Downstream OHW Width (100 ft.):**	9	101
			Downstrream OHW Width (50 ft.):	14.7	56

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Anadromous
Stat. ID: 038U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3.3
Susp.Spawn? No **Fork Len. (mm)** 80 93 72 87 87 94 50 41 115 79
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 038U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3.3
Susp.Spawn? No **Fork Len. (mm)** 97 93 165 158 140 149
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 038U1 **Gear:** Minnow Trap **# of Traps set:** 4 **Trap Dur. (h):** 3.3
Susp.Spawn? No **Fork Len. (mm)** 127 67 111 83
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 100 **Life History:** Resident
Stat. ID: 038U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Anadromous
Stat. ID: 038D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.3
Susp.Spawn? No **Fork Len. (mm)** 51 52 70 47 49 70 57 72
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 038 **VISIT** 1

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 038D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.3
Susp.Spawn? No **Fork Len. (mm)** 87 121 100 75 127
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 038D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.3
Susp.Spawn? No **Fork Len. (mm)** 121
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 50 **Life History:** Resident
Stat. ID: 038D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.6	5	5.6	81.9	76.3	Riprap
Left Bank, Ordinary High Water	3	5	6.06	81.9	75.84	
Left Bank, Wetted Perimeter	5.2	5	6.44	81.9	75.46	
Left Bank/Bed Slope Break	5.3	5	6.77	81.9	75.13	
Station 1	6.8	5	6.58	81.9	75.32	
Station 2	8.6	5	7	81.9	74.9	
Station 3	9	5	6.81	81.9	75.09	
Station 4	11.2	5	6.88	81.9	75.02	
Station 5	12	5	6.44	81.9	75.46	
Station 6	12.9	5	7.29	81.9	74.61	
Station 7	14	5	7.04	81.9	74.86	
Station 8	14.5	5	6.83	81.9	75.07	
Station 9	14.9	5	6.31	81.9	75.59	
Station 10	15.8	5	6.31	81.9	75.59	
Station 11	16.2	5	6.73	81.9	75.17	
Station 12	18.1	5	6.81	81.9	75.09	
Right Bank/Bed Slope Break	18.8	5	6.9	81.9	75	
Right Bank, Wetted Perimeter	19.1	5	6.6	81.9	75.3	
Right Bank, Ordinary High Water	20.9	5	6.23	81.9	75.67	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 4 (50 ft)	50	1	20.9	100	79.15	
Upstream station, water elev 2 (50 ft)	50	1	18.4	100	81.62	
Upstream station, OHW line 1 (50 ft)	50	1	17.9	100	82.08	
Upstream station, thalweg 5 (100 ft)	100	1	21.2	100	78.77	
Upstream station, water elev 1 (100 ft)	100	1	18.3	100	81.73	
Upstream station, OHW line 1 (100 ft)	100	1	17.7	100	82.27	
Outlet, edge-road		3	1.54	118.34	116.8	
Inlet, edge-road		3	1.71	118.34	116.63	
Outlet, pool water elev	5	5	6.35	81.9	75.55	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	5	6.38	81.9	75.52	
Downstream station, water elev 1 (tailcrest)	0	5	6.52	81.9	75.38	
Downstream station, thalweg 2 (50 ft)	56	5	8.1	81.9	73.8	
Downstream station, water elev 2 (50 ft)	56	5	7.19	81.9	74.71	
Downstream station, OHW line 2 (50)	56	5	6.71	81.9	75.19	
Downstream station, thalweg 3 (100 ft)	101	5	8.77	81.9	73.13	
Downstream station, water elev 3 (100 ft)	101	5	8	81.9	73.9	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 038 **VISIT** 1

Downstream station, OHW line 3 (100 ft)	101	5	7.69	81.9	74.21
Downstream station, OHW line 1 (tailcrest)	0	5	6.15	81.9	75.75

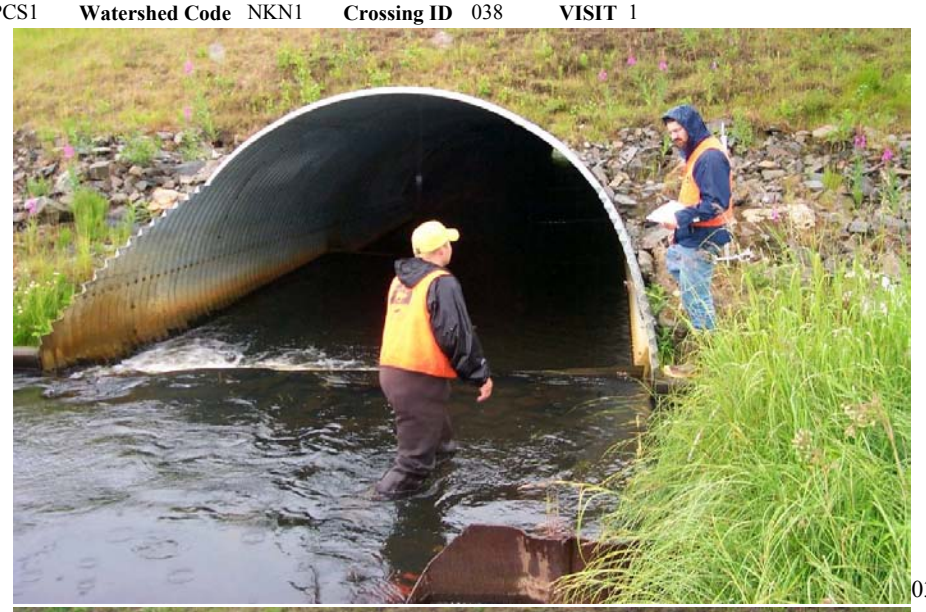
Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	5	6.13	81.9	75.77	
Outlet, thalweg	A	0	5	7.06	81.9	74.84	
Outlet, culvert invert	A	0	5	8.75	81.9	73.15	
Outlet, culvert top	A	0	4	13.7	96.61	82.94	
Upstream station, thalweg 3 (2 CMP widths)	A	29	1	20.8	100	79.17	
Upstream station, OHW line 1 (1 ft)	A	5	1	18.2	100	81.77	
Upstream station, water elev 1 (5 ft)	A	5	1	18.4	100	81.58	
Upstream station, thalweg 2 (5 ft)	A	5	1	19.9	100	80.06	
Upstream station, thalweg 1 (1 ft)	A	1	1	19	100	81.02	
Inlet, culvert thalweg	A	0	1	19.2	100	80.85	
Inlet, culvert invert	A	0	1	21.2	100	78.81	
Inlet, culvert top	A	0	1	11.3	100	88.71	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	100	2.9	5	50	N/A	
Upstream from Inlet of Culvert, Location 2	50	2.3	9	41.7	N/A	
Downstream from Outlet of Culvert, Location 1	50	0.9	25	40.5	N/A	1.38
Downstream from Outlet of Culvert, Location 2	100	0.8	25	41.4	N/A	1.35
Downstream from Outlet of Culvert, Location 3	0.2	0.8	38	40.7	N/A	2.08
At Culvert Inlet, Location 1	0	0.4	70	40.5	N/A	3.83
At Culvert Outlet, Location 1	0	0.4	16	42	N/A	0.86

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 038 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 040 **VISIT** 1
DATE 7/30/2001 **Time** 10:00:00 AM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.5313 **Long. (dec. deg)** 150.45998
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Kenai **ITM:** C-2 **Stream #:** 244-30-10010-2063-3036
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** East Fork Moose River

Field Notes: Some erosion at outlet caused by road drainage structure.
Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length:	84	**Cross. Structure Type:**	Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	8.71	8.42
		Entrance Type:	Mitered	**Tidal Influence:** No	**Height (ft):**	10.17	9.79
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:** 0.0061	**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):** 0.78	**Water Depth (ft):**	1.00	1.00
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -1.00	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Coarse Gravel	Small Cobble		**Encrochment Ratio:** 0.63	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	Other			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	None
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 25.85

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	14.2	113
Upstrream OHW Width (50 ft.):	13.6	53
Upstrream OHW Width (5 ft.):	14	5
Tailcrest Width at OHW:	32.8	26
Outlet Pool OHW Line (Max. Width.):	32.8	
Downstream OHW Width (100 ft.):	10	150
Downstrream OHW Width (50 ft.):	9.6	86

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 20 **Life History:** Anadromous
Stat. ID: 040U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 97 60 120 84 59 50 58 60 62 66
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident
Stat. ID: 040U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 103 86 129 154 161 92 83 94
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 47 **Life History:** Resident
Stat. ID: 040U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 26 **Life History:** Anadromous
Stat. ID: 040D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 60 62 50 96 62 88 62 73 69 95
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 040D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 59 111 108 80
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 040 **VISIT** 1

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 120 **Life History:** Resident
Stat. ID: 040D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 80 **Life History:** Resident
Stat. ID: 040D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	37.2	1	13.19	100	86.81	
Left Bank, Ordinary High Water	36.1	1	13.33	100	86.67	
Left Bank, Wetted Perimeter	35.5	1	13.54	100	86.46	
Left Bank/Bed Slope Break	34.2	1	14.29	100	85.71	
Station 1	29.9	1	15.13	100	84.87	
Station 2	25.7	1	14.08	100	85.92	Thalwag
Station 3	20	1	14.1	100	85.9	
Station 4	15.9	1	13.94	100	86.06	
Station 5	13.4	1	14.52	100	85.48	
Right Bank/Bed Slope Break	11.4	1	14.19	100	85.81	
Right Bank, Wetted Perimeter	9.7	1	13.54	100	86.46	Marshy
Right Bank, Ordinary High Water	3.3	1	13.5	100	86.5	
Right Bank, Terrace	2	1	13.02	100	86.98	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	15.0	100	84.96	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	13.3	100	86.67	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.5	100	85.48	
Downstream station, OHW line 3 (100 ft)	150	1	13.7	100	86.33	
Downstream station, thalweg 1 (tailcrest)	26	1	15.1	100	84.87	
Downstream station, OHW line 1 (tailcrest)	26	1	13.4	100	86.57	
Downstream station, water elev 1 (tailcrest)	26	1	13.5	100	86.46	
Downstream station, thalweg 2 (50 ft)	86	1	14.6	100	85.4	
Downstream station, water elev 2 (50 ft)	86	1	13.7	100	86.33	
Downstream station, OHW line 2 (50)	86	1	13.4	100	86.56	
Downstream station, thalweg 3 (100 ft)	150	1	14.4	100	85.62	
Downstream station, water elev 3 (100 ft)	150	1	13.7	100	86.27	
Outlet, pool water elev	5	1	13.4	100	86.65	
Inlet, edge-road		2	3.35	104.33	100.98	
Outlet, edge-road		2	4.48	104.33	99.85	
Upstream station, OHW line 1 (100 ft)	113	2	16.9	104.33	87.41	
Upstream station, water elev 1 (100 ft)	113	2	16.8	104.33	87.52	
Upstream station, thalweg 5 (100 ft)	113	2	17.7	104.33	86.68	
Upstream station, OHW line 1 (50 ft)	53	2	17.1	104.33	87.23	
Upstream station, water elev 2 (50 ft)	53	2	17.1	104.33	87.25	
Upstream station, thalweg 4 (50 ft)	53	2	18.3	104.33	86.08	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	13.0	100	86.96	
Outlet, thalweg	A	0	1	14.4	100	85.65	
Outlet, culvert invert	A	0	1	14.4	100	85.65	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 040 **VISIT** 1

Outlet, culvert top	A	0	1	4.83	100	95.17
Upstream station, thalweg 3 (2 CMP widths)	A	17.4	2	19.0	104.3	85.29
Upstream station, OHW line 1 (1 ft)	A	5	2	17	104.3	87.37
Upstream station, water elev 1 (5 ft)	A	5	2	17.2	104.3	87.18
Upstream station, thalweg 2 (5 ft)	A	5	2	19.2	104.3	85.18
Upstream station, thalweg 1 (1 ft)	A	1	2	18.4	104.3	85.95
Inlet, culvert thalweg	A	0	2	18.2	104.3	86.16
Inlet, culvert rustline	A	0	2	17.3	104.3	87
Inlet, culvert invert	A	0	2	18.2	104.3	86.16
Inlet, culvert top	A	0	2	12.6	104.3	91.73

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	84	56	61	40	43	60.00	1.62 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	53	1.1	36	40.7	Standard_Price AA	1.96
Upstream from Inlet of Culvert, Location 2	113	0.6	26	40	Standard_Price AA	1.45
Downstream from Outlet of Culvert, Location 1	86	0.8	38	40	Standard_Price AA	2.10
Downstream from Outlet of Culvert, Location 2	150	0.6	36	40.8	Standard_Price AA	1.96
At Culvert Inlet, Location 1	0	0.8	40	40.3	Standard_Price AA	2.21
At Culvert Outlet, Location 1	0	0.8	55	40.6	Standard_Price AA	3.00
Outlet Pool Tailcrest	26	0.4	31	41.1	Standard_Price AA	1.67

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 040 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 041 **VISIT** 1
DATE 7/30/2001 **Time** 1:15:00 PM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.48404 **Long. (dec. deg)** 150.11455
Road Name Skilak Lake Road **Region:** SCN
Quad Name: Kenai **ITM:** B-1 **Stream #:** 244-30-10010-2145
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Jean Creek

Field Notes: Riffle with natural substrate throughout the culvert. No outlet pool; riffle below outlet. Beaver dam above culvert about 8 feet upstream.

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:**

Length:	40	**Cross. Structure Type:**	Corrugated Metal Pipe			**Width (ft):**	6.30 / 6.00
		Entrance Type:	Projecting	**Tidal Influence:**	No	**Height (ft):**	6.30 / 6.00
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:**	-0.004	**Manuf. Diameter:**	
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.50 / 0.94
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.07 / 0.06
Substrate Type:	Coarse Gravel	Small Cobble		**Encrochment Ratio:**		**Struc. Damage (%):**	0 / 0
Erosion:	Fill Slope Erosion Protection Needed	No Outlet Erosion				**Culv. Blockage (%):**	0 / 0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Large Cobble
Sub Dominant Substrate Type:	Large Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium

Stream Discharge: 8.49

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	13.6	5
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):	15	78
Downstrream OHW Width (50 ft.):	12.5	50

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 041U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.12
Susp.Spawn? No **Fork Len. (mm)** 155 155
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 75 **Life History:** Anadromous
Stat. ID: 041U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.12
Susp.Spawn? No **Fork Len. (mm)** 73 68 85 82 55 56 107 83 56 75
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 041U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.12
Susp.Spawn? No **Fork Len. (mm)** 107 92
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 27 **Life History:** Anadromous
Stat. ID: 041D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 47 43 64 48 60 74 84 90 111 51
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Resident
Stat. ID: 041D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 88 123 120 77 81 76 121
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 041 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 041D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 88
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 041D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 3 (100 ft)	78	1	11.3	100	88.75	
Downstream station, water elev 3 (100 ft)	78	1	11.5	100	88.46	
Downstream station, thalweg 3 (100 ft)	78	1	11.9	100	88.15	
Downstream station, OHW line 2 (50)	48	1	11.1	100	88.9	
Downstream station, water elev 2 (50 ft)	48	1	11.3	100	88.73	
Downstream station, thalweg 2 (50 ft)	48	1	12.8	100	87.25	
Outlet, edge-road		1	3.83	100	96.17	
Inlet, edge-road		1	3.5	100	96.5	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	10.6	100	89.42	
Outlet, thalweg	A	0	1	11.3	100	88.69	
Outlet, culvert invert	A	0	1	12.3	100	87.75	
Outlet, culvert top	A	0	1	6.25	100	93.75	
Upstream station, OHW line 1 (1 ft)	A	5	1	9.58	100	90.42	
Upstream station, water elev 1 (5 ft)	A	5	1	9.96	100	90.04	
Upstream station, thalweg 2 (5 ft)	A	5	1	12.0	100	87.96	
Upstream station, thalweg 1 (1 ft)	A	1	1	11.6	100	88.44	
Inlet, culvert thalweg	A	0	1	11.4	100	88.65	
Inlet, culvert rustline	A	0	1	9.94	100	90.06	
Inlet, culvert invert	A	0	1	12.4	100	87.58	
Inlet, culvert top	A	0	1	6.08	100	93.92	

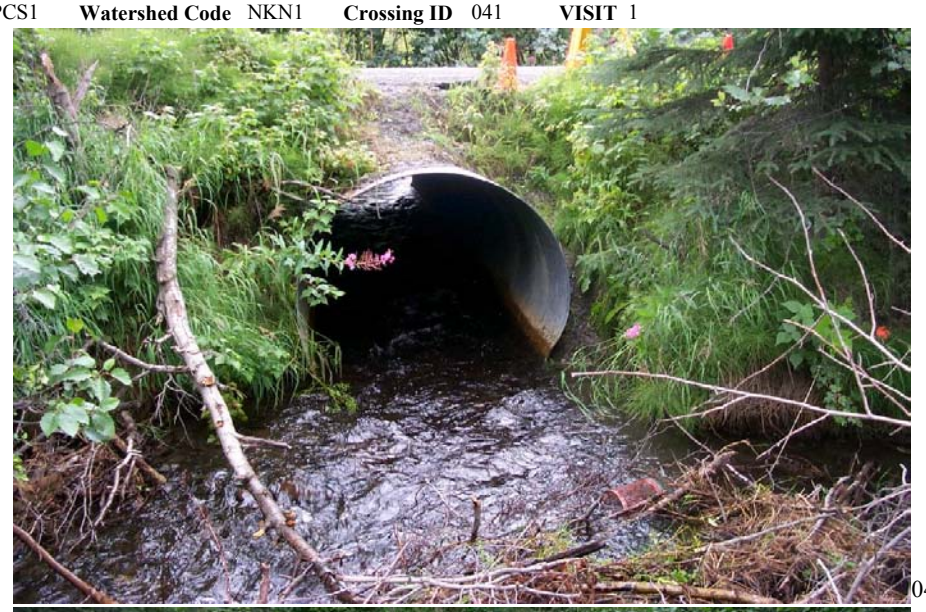
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	40	12	12				3.33 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 1	49	1.4	27	40.9	Standard_Price AA	1.47
Downstream from Outlet of Culvert, Location 2	78	1.5	39	40.5	Standard_Price AA	2.14
At Culvert Inlet, Location 1	0	1.4	22	40	Standard_Price AA	1.23
At Culvert Outlet, Location 1	0	0.5	55	40.7	Standard_Price AA	3.00

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 041 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 042 **VISIT** 1
DATE 7/30/2001 **Time** 3:49:00 PM **Observers:** Cecil Rich, Michael Lund

Site Information:

GPS Location: **Lat. (dec. deg)** 60.4842 **Long. (dec. deg)** 150.11443
Road Name Skilak Lake Road **Region:** SCN
Quad Name: Kenai **ITM:** B-1 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: this culvert serves as an overflow for beaver pond (on Jean Creek) above. Woody debris damming inlet. Flared outlet clogged with debris.

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 44.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.90	4.92
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.00	5.00
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:** 0.029		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.17	0.17
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 2.21		**Substr. Dep (ft):**	1.94	0.75
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	95	25

Stream-related

	Upstream	**Downstream**		**Width (ft)**	**Distance (ft)**
Dominant Substrate Type:	None	None	**Stream Discharge:** N/A		
Sub Dominant Substrate Type:			**Upstrream OHW Width (100 ft.):**		
			Upstrream OHW Width (50 ft.):		
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**		
	Suit	**Type**	**Tailcrest Width at OHW:**		
Upstream:	Suitable for anadromous and	SRO	**Outlet Pool OHW Line (Max. Width.):**		
Downstream:	Suitable for anadromous and	SRO	**Downstream OHW Width (100 ft.):**		
			Downstrream OHW Width (50 ft.):		

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 042U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.12
Susp.Spawn? No **Fork Len. (mm)** 155 155
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 042U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.12
Susp.Spawn? No **Fork Len. (mm)** 107 92
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 27 **Life History:** Anadromous
Stat. ID: 042D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 47 43 64 48 60 74 84 90 111 51
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 042D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 48
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Resident
Stat. ID: 042D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 88 123 120 77 81 76 121
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 042 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident

Stat. ID: 042D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4

Susp.Spawn? No **Fork Len. (mm)** 88

Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool water elev	1	2	12.7	100.23	87.58	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, thalweg	A	0	2	9.69	100.2	90.54	
Outlet, culvert invert	A	0	2	10.4	100.2	89.79	
Outlet, culvert top	A	0	2	5.44	100.2	94.79	
Upstream station, thalweg 1 (1 ft)	A	1	2	6.6	100.2	93.63	
Inlet, culvert thalweg	A	0	2	7.21	100.2	93.02	
Inlet, culvert invert	A	0	2	9.15	100.2	91.08	
Inlet, culvert top	A	0	2	4.15	100.2	96.08	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet, Location 1	0	0.5	26	41.3	Standard_Price AA	1.41

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 042 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 043 **VISIT** 1
DATE 7/31/2001 **Time** 9:30:00 AM **Observers:** Cecil Rich, Michael Lund, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** **Long. (dec. deg)**
Road Name Skilak lake Road **Region:** SCN
Quad Name: Kenai **ITM:** B-1 **Stream #:** 244-30-10010-2137
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Hidden Creek

Field Notes: Structural plate crushed at outlet.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 60	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	7.90	4.50
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	6.69	6.20
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** -0.024		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):** 0.67		**Water Depth (ft):**	0.83	0.83
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.29		**Substr. Dep (ft):**	2.40	0.00
Substrate Type: Small Cobble	Coarse Gravel	**Encrochment Ratio:** 0.31		**Struc. Damage (%):**	0	40
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	40

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Small Cobble
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium
	Suit	**Type**
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Stream Discharge: 7.16

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	25.6	100
Upstrream OHW Width (50 ft.):	24.6	62
Upstrream OHW Width (5 ft.):	24.9	5
Tailcrest Width at OHW:	22.5	10
Outlet Pool OHW Line (Max. Width.):	22.5	
Downstream OHW Width (100 ft.):	19	100
Downstrream OHW Width (50 ft.):	29.6	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 31 **Life History:** Anadromous
Stat. ID: 043U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 70 90 54 68 60 75 50 72 72 61
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 043U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 138 64
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 043U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 75 59
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 043U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 043U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 043 **VISIT** 1

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 043U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 75 **Life History:** Anadromous
Stat. ID: 043D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 78 72 70 65 51 60 65 88 70 48
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Anadromous
Stat. ID: 043D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 96 105 90
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 043D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 81
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 043D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 12 **Life History:** Resident
Stat. ID: 043D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.5	2	13.04	111.15	98.11	
Left Bank, Ordinary High Water	4.6	2	13.67	111.15	97.48	
Left Bank, Wetted Perimeter	5.4	2	14.19	111.15	96.96	
Left Bank/Bed Slope Break	5.9	2	14.5	111.15	96.65	
Station 1	10	2	14.96	111.15	96.19	
Station 2	12.5	2	15.19	111.15	95.96	
Station 3	14.4	2	14.9	111.15	96.25	
Station 4	18.5	2	14.85	111.15	96.3	
Station 5	20.5	2	14.81	111.15	96.34	
Station 6	23.8	2	14.77	111.15	96.38	
Right Bank/Bed Slope Break	26.7	2	14.83	111.15	96.32	
Right Bank, Wetted Perimeter	26.7	2	14.17	111.15	96.98	
Right Bank, Ordinary High Water	27.1	2	13.02	111.15	98.13	
Right Bank, Terrace	27.3	2	13.29	111.15	97.86	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 3 (100 ft)	100	1	4.42	100	95.58	
Downstream station, thalweg 3 (100 ft)	100	1	4.79	100	95.21	
Downstream station, OHW line 2 (50)	50	1	3.52	100	96.48	
Downstream station, water elev 2 (50 ft)	50	1	3.85	100	96.15	
Downstream station, thalweg 2 (50 ft)	50	1	4.21	100	95.79	
Downstream station, OHW line 3 (100 ft)	100	1	3.63	100	96.37	
Outlet, pool maximum depth 2	2.4	2	16.5	111.15	94.65	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 043 **VISIT** 1

Outlet, edge-road		2	4.23	111.15	106.92
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	13.7	111.15	97.48
Inlet, edge-road		2	4.15	111.15	107
Outlet, pool maximum depth 1 (within 5 ft)	2.5	2	16.6	111.15	94.57
Downstream station, thalweg 1 (tailcrest)	10	2	15.2	111.15	95.96
Downstream station, OHW line 1 (tailcrest)	10	2	13.8	111.15	97.4
Downstream station, water elev 1 (tailcrest)	10	2	14.2	111.15	96.98
Outlet, pool water elev	5	2	14.2	111.15	96.92
Upstream station, OHW line 1 (100 ft)	100	3	5.29	105.51	100.22
Upstream station, water elev 1 (100 ft)	100	3	6.38	105.51	99.13
Upstream station, thalweg 5 (100 ft)	100	3	6.83	105.51	98.68
Upstream station, OHW line 1 (50 ft)	62	3	5.63	105.51	99.88
Upstream station, water elev 2 (50 ft)	62	3	6.6	105.51	98.91
Upstream station, thalweg 4 (50 ft)	62	3	7.77	105.51	97.7400

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	2	12.9	111.2	98.21	
Outlet, thalweg	A	0	2	15.9	111.2	95.3	
Outlet, culvert invert	A	0	2	14.5	111.2	96.63	
Outlet, culvert top	A	0	2	9.02	111.2	102.13	
Upstream station, thalweg 3 (2 CMP widths)	A	18.8	3	8.71	105.5	96.8	
Upstream station, OHW line 1 (1 ft)	A	5	3	7.42	105.5	98.09	
Upstream station, water elev 1 (5 ft)	A	5	3	7.85	105.5	97.66	
Upstream station, thalweg 2 (5 ft)	A	5	3	8.83	105.5	96.68	
Upstream station, thalweg 1 (1 ft)	A	1	3	9	105.5	96.51	
Inlet, culvert thalweg	A	0	3	9.08	105.5	96.43	
Inlet, culvert rustline	A	0	3	7.02	105.5	98.4900	
Inlet, culvert invert	A	0	3	10.3	105.5	95.2	
Inlet, culvert top	A	0	2	8.04	111.2	103.11	

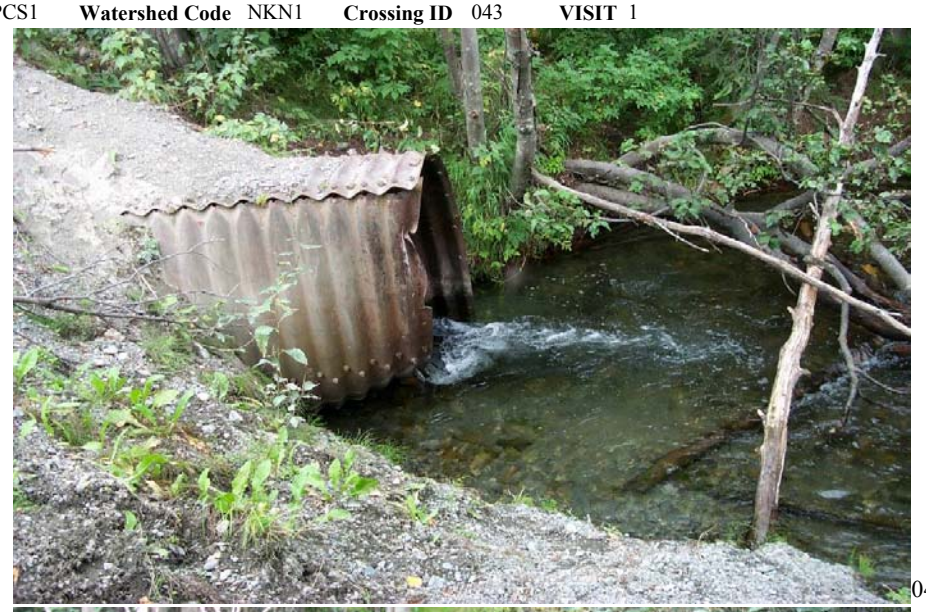
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	60	45	65	44	49		1.18 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	62	0.4	22	41.2	Standard_Price AA	
Upstream from Inlet of Culvert, Location 2	100	1	45	40.7	Standard_Price AA	2.46
Downstream from Outlet of Culvert, Location 1	50	0.3	23	40.5	Standard_Price AA	
Downstream from Outlet of Culvert, Location 2	100	0.4	32	40.9	Standard_Price AA	1.74
At Culvert Inlet, Location 1	0	1.3	113	40.2	Standard_Price AA	
At Culvert Outlet, Location 1	0	1.2	22	41.4	Standard_Price AA	1.14
Outlet Pool Tailcrest	10	0.9	32	41	Standard_Price AA	1.74

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 043 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 044 **VISIT** 1
DATE 8/20/2001 **Time** 2:45:00 PM **Observers:** Cecil Rich, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.48846 **Long. (dec. deg)** 149.78354
Road Name Snug Harbor Road **Region:** SCN
Quad Name: Seward **ITM:** B-8 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Shackleford Creek

Field Notes: Very steep stream. Most of flow through right culvert. Substrate in left culvert but has an inlet control drop. According to adjacent landowner of 20 yrs. stream does not flow in winter.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

					Inlet	Outlet
Length:	52	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	4.80	4.80
		Entrance Type:	Projecting	**Tidal Influence:** No **Height (ft):**	5.10	5.10
Corrugation Depth (in.):	1	**Baffles Present:**	No	**Culvert Gradient:** **Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** **Water Depth (ft):**	2.00	1.10
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** **Substr. Dep (ft):**	4.50	0.00
Substrate Type:	Boulder	Large Cobble		**Encrochment Ratio:** **Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Culvert ID: B **Category:** **Classification:**

					Inlet	Outlet
Length:	51	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	5.10	5.10
		Entrance Type:	Projecting	**Tidal Influence:** No **Height (ft):**	5.10	5.27
Corrugation Depth (in.):	1	**Baffles Present:**	No	**Culvert Gradient:** **Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** **Water Depth (ft):**	8.00	4.00
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** **Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** **Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Coarse Gravel
Sub Dominant Substrate Type:	Boulder	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 12.43

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	14.2	94
Upstrream OHW Width (50 ft.):	13.5	50
Upstrream OHW Width (5 ft.):	21	5
Tailcrest Width at OHW:	17	16
Outlet Pool OHW Line (Max. Width.):	17	
Downstream OHW Width (100 ft.):	10	99
Downstrream OHW Width (50 ft.):	11.5	47

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 044U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 044D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.45
Susp.Spawn? No **Fork Len. (mm)**
Comments: adult dolly varden observed but not captured

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 044 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	1	3.38	100	96.62	
Left Bank, Ordinary High Water	3.2	1	3.63	100	96.37	
Left Bank, Wetted Perimeter	4.2	1	4.92	100	95.08	
Left Bank/Bed Slope Break	4.2	1	4.92	100	95.08	
Station 1	8	1	5.04	100	94.96	
Station 2	10.1	1	5.54	100	94.46	
Station 3	13.8	1	6.08	100	93.92	
Station 4	16.5	1	5.5	100	94.5	
Right Bank/Bed Slope Break	18.3	1	5.33	100	94.67	
Right Bank, Wetted Perimeter	19	1	4.83	100	95.17	
Right Bank, Ordinary High Water	20	1	3.92	100	96.08	
Right Bank, Terrace	21.2	1	3.73	100	96.27	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	6.58	100	93.42	
Upstream station, OHW line 1 (100 ft)	94	1	2.38	100	97.62	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	3.92	100	96.08	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	6.58	100	93.42	
Downstream station, OHW line 3 (100 ft)	99	1	9.83	100	90.17	
Downstream station, thalweg 1 (tailcrest)	15	1	6.08	100	93.92	
Downstream station, OHW line 1 (tailcrest)	15	1	3.78	100	96.22	
Downstream station, water elev 1 (tailcrest)	15	1	4.88	100	95.12	
Downstream station, thalweg 2 (50 ft)	47	1	7.15	100	92.85	
Downstream station, water elev 2 (50 ft)	47	1	6.38	100	93.62	
Downstream station, OHW line 2 (50)	47	1	5.58	100	94.42	
Downstream station, thalweg 3 (100 ft)	99	1	11.3	100	88.71	
Downstream station, water elev 3 (100 ft)	99	1	10.3	100	89.71	
Outlet, pool water elev	5	1	4.92	100	95.08	
Inlet, edge-road		2	2.15	106.46	104.31	
Outlet, edge-road		2	2.88	106.46	103.58	
Upstream station, thalweg 5 (100 ft)	94	2	4.56	106.46	101.9	
Upstream station, OHW line 1 (50 ft)	50	2	3.88	106.46	102.58	
Upstream station, water elev 2 (50 ft)	50	2	5.67	106.46	100.79	
Upstream station, thalweg 4 (50 ft)	50	2	6.67	106.46	99.79	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	2	4.88	106.5	101.58	
Inlet, culvert invert	A	0	2	9.79	106.5	96.67	
Inlet, culvert rustline	A	0	2	8.75	106.5	97.71	
Inlet, culvert thalweg	A	0	2	9.42	106.5	97.04	
Upstream station, thalweg 1 (1 ft)	A	1	2	8.9	106.5	97.56	
Upstream station, thalweg 2 (5 ft)	A	5	2	8.33	106.5	98.13	
Upstream station, water elev 1 (5 ft)	A	5	2	8.13	106.5	98.33	
Upstream station, OHW line 1 (1 ft)	A	5	2	7.71	106.5	98.75	
Upstream station, thalweg 3 (2 CMP widths)	A	9.9	2	8.06	106.5	98.4	
Outlet, culvert top	A	0	1	0.33	100	99.67	
Outlet, culvert invert	A	0	1	5.42	100	94.58	
Inlet, culvert top	A	0	2	5.04	106.5	101.42	
Outlet, rustline	A	0	1	4.48	100	95.52	
Outlet, rustline	B	0	1	4.31	100	95.69	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 044 **VISIT** 1

Inlet, culvert invert	B	0	2	10.3	106.5	96.13
Inlet, culvert rustline	B	0	2	8.88	106.5	97.58
Inlet, culvert thalweg	B	0	2	10.3	106.5	96.19
Upstream station, thalweg 1 (1 ft)	B	1	2	9.79	106.5	96.67
Upstream station, thalweg 2 (5 ft)	B	5	2	9.31	106.5	97.15
Upstream station, water elev 1 (5 ft)	B	5	2	7.92	106.5	98.54
Upstream station, OHW line 1 (1 ft)	B	5	2	7.44	106.5	99.02
Upstream station, thalweg 3 (2 CMP widths)	B	10.2	2	8.71	106.5	97.75
Outlet, culvert top	B	0	1	0.27	100	99.73
Outlet, culvert invert	B	0	1	5.54	100	94.46
Outlet, thalweg	B	0	1	5.54	100	94.46
Outlet, thalweg	A	0	1	5.13	100	94.87

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	52	25	26				2.04 ft/sec.
B	51	7	6				7.85 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.5	56	40.5	Standard_Price AA	3.07
Upstream from Inlet of Culvert, Location 2	94	1	71	40.2	Standard_Price AA	3.91
Downstream from Outlet of Culvert, Location 1	47	0.9	61	40.1	Standard_Price AA	3.36
Downstream from Outlet of Culvert, Location 2	99	0.5	44	40.7	Standard_Price AA	2.40
At Culvert Inlet, Location 1	0	0.15	10	43.8	Standard_Price AA	0.54
At Culvert Outlet, Location 1	0	0.25	9	41.2	Standard_Price AA	0.50
At Culvert Inlet, Location 2	0	0.4	82	40	Standard_Price AA	4.53
At Culvert Outlet, Location 2	0	0.7	85	40.4	Standard_Price AA	4.66
Outlet Pool Tailcrest	15	0.7	41	40.3	Standard_Price AA	2.26

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 044 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 045 **VISIT** 1
DATE 8/21/2001 **Time** 11:00:00 AM **Observers:** Cecil Rich, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.52479 **Long. (dec. deg)** 149.64395
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-8 **Stream #:** 244-30-10010-2177-3020-4015
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Trib of Daves Creek. Braided channels up and downstream from culverts. Two inlet channels bend sharply before flowing opposite directions into culverts. Inlet jacked on left culvert. Inlet velocities difficult to measure, 2 flows converging at pipes.

Road Prism Type: Through Fill **Spec. Site Cond.:**

Culvert Measurements:

Culvert ID:	A	**Category:**	8	**Classification:**	gray	**Inlet**	**Outlet**
Length:	93	**Cross. Structure Type:**	Corrugated Metal Pipe			**Width (ft):**	3.00 3.90
		Entrance Type:	Projecting	**Tidal Influence:**	No	**Height (ft):**	3.00 3.00
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:**		**Manuf. Diameter:**	
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.83 0.70
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00 0.40
Substrate Type:	None	Coarse Gravel		**Encrochment Ratio:**		**Struc. Damage (%):**	0 0
Erosion:	No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0 0

Culvert ID:	B	**Category:**		**Classification:**		**Inlet**	**Outlet**
Length:	93	**Cross. Structure Type:**	Corrugated Metal Pipe			**Width (ft):**	3.00 3.00
		Entrance Type:	Projecting	**Tidal Influence:**	No	**Height (ft):**	3.02 2.92
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:**		**Manuf. Diameter:**	
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.79 0.55
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00 0.25
Substrate Type:	None	Coarse Gravel		**Encrochment Ratio:**		**Struc. Damage (%):**	0 0
Erosion:	No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0 0

Culvert ID:	C	**Category:**		**Classification:**		**Inlet**	**Outlet**
Length:	93	**Cross. Structure Type:**	Corrugated Metal Pipe			**Width (ft):**	3.00 2.90
		Entrance Type:	Projecting	**Tidal Influence:**	No	**Height (ft):**	3.00 3.02
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:**		**Manuf. Diameter:**	
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.83 0.80
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00 0.19
Substrate Type:	None	Coarse Gravel		**Encrochment Ratio:**		**Struc. Damage (%):**	0 0
Erosion:	No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0 0

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 045 **VISIT** 1

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	SRO
Downstream:	Suitable for Resident fish	SRO

Stream Discharge: 4.95

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	7.8	100
Upstrream OHW Width (50 ft.):	21.5	50
Upstrream OHW Width (5 ft.):	109	5
Tailcrest Width at OHW:	30.3	19
Outlet Pool OHW Line (Max. Width.):	109	
Downstream OHW Width (100 ft.):	8	82
Downstrream OHW Width (50 ft.):	6	37

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 44 **Life History:** Resident
Stat. ID: 045U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3.1
Susp.Spawn? No **Fork Len. (mm)** 70 90 71 100 87 108 88 107 125 76
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 045U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3.1
Susp.Spawn? No **Fork Len. (mm)** 55 56
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous
Stat. ID: 045D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)** 43 81 38 65 53 45 50 49 51 53
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 31 **Life History:** Resident
Stat. ID: 045D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)** 102 99 85 65 93 105 128 120 102 75
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	23.3	1	8.75	100	91.25	
Left Bank, Ordinary High Water	24	1	8.83	100	91.17	
Left Bank, Wetted Perimeter	24	1	8.83	100	91.17	
Station 1	26	1	9.33	100	90.67	
Station 2	29.7	1	9	100	91	
Station 3	35.8	1	9.52	100	90.48	
Station 4	41	1	9.69	100	90.31	
Station 5	42.4	1	8.4	100	91.6	
Station 6	43.4	1	9.46	100	90.54	
Station 7	45	1	9.5	100	90.5	
Station 8	47.7	1	9.29	100	90.71	
Station 9	48.3	1	8.6	100	91.4	
Station 10	49.2	1	9.31	100	90.69	
Station 11	51.3	1	9.25	100	90.75	
Right Bank/Bed Slope Break	51.3	1	9.25	100	90.75	
Right Bank, Wetted Perimeter	52.3	1	8.79	100	91.21	
Right Bank, Ordinary High Water	54.3	1	8.73	100	91.27	
Right Bank, Terrace	57.2	1	8.92	100	91.08	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	7	1	10.3	100	89.75	
Upstream station, thalweg 4 (50 ft)	50	1	8.19	100	91.81	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 045 **VISIT** 1

Upstream station, water elev 2 (50 ft)	50	1	6.79	100	93.21
Upstream station, OHW line 1 (50 ft)	50	1	6.73	100	93.27
Upstream station, thalweg 5 (100 ft)	100	1	6.6	100	93.4
Upstream station, water elev 1 (100 ft)	100	1	5.85	100	94.15
Upstream station, OHW line 1 (100 ft)	100	1	6.04	100	93.96
Outlet, edge-road		1	2.27	100	97.73
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	8.96	100	91.04
Inlet, edge-road		1	2.15	100	97.85
Outlet, pool maximum depth 1 (within 5 ft)	5	1	9.96	100	90.04
Downstream station, OHW line 3 (100 ft)	82	1	9.4	100	90.6
Downstream station, thalweg 1 (tailcrest)	19	1	9.69	100	90.31
Downstream station, OHW line 1 (tailcrest)	19	1	8.78	100	91.22
Downstream station, water elev 1 (tailcrest)	19	1	8.81	100	91.19
Downstream station, thalweg 2 (50 ft)	37	1	10.4	100	89.58
Downstream station, water elev 2 (50 ft)	37	1	8.92	100	91.08
Downstream station, OHW line 2 (50)	37	1	8.9	100	91.1
Downstream station, thalweg 3 (100 ft)	82	1	10.5	100	89.54
Downstream station, water elev 3 (100 ft)	82	1	9.54	100	90.46
Outlet, pool water elev	5	1	8.79	100	91.21

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 2 (5 ft)	B	5	1	8.06	100	91.94	
Inlet, culvert invert	A	0	1	8.06	100	91.94	
Inlet, culvert thalweg	A	0	1	8.06	100	91.94	
Upstream station, thalweg 1 (1 ft)	A	1	1	8.85	100	91.15	
Upstream station, thalweg 2 (5 ft)	A	5	1	7.79	100	92.21	
Upstream station, water elev 1 (5 ft)	A	5	1	7.19	100	92.81	
Upstream station, OHW line 1 (1 ft)	A	5	1	7.42	100	92.58	
Upstream station, thalweg 3 (2 CMP widths)	A	6.9	1	7.77	100	92.23	
Outlet, culvert top	A	0	1	6.85	100	93.15	
Outlet, culvert invert	A	0	1	9.85	100	90.15	
Outlet, thalweg	A	0	1	9.46	100	90.54	
Inlet, culvert top	B	0	1	5.04	100	94.96	
Inlet, culvert invert	B	0	1	8.06	100	91.94	
Inlet, culvert top	A	0	1	5.06	100	94.94	
Upstream station, thalweg 1 (1 ft)	B	1	1	8.08	100	91.92	
Outlet, thalweg	C	0	1	9.48	100	90.52	
Upstream station, thalweg 3 (2 CMP widths)	B	6	1	8.06	100	91.94	
Outlet, culvert top	B	0	1	6.58	100	93.42	
Outlet, culvert invert	B	0	1	9.5	100	90.5	
Outlet, thalweg	B	0	1	9.31	100	90.69	
Inlet, culvert top	C	0	1	5.1	100	94.9	
Inlet, culvert invert	C	0	1	8.1	100	91.9	
Inlet, culvert thalweg	C	0	1	8.1	100	91.9	
Upstream station, thalweg 1 (1 ft)	C	1	1	8.46	100	91.54	
Upstream station, thalweg 2 (5 ft)	C	5	1	7.92	100	92.08	
Upstream station, thalweg 3 (2 CMP widths)	C	6	1	7.94	100	92.06	
Outlet, culvert top	C	0	1	6.71	100	93.29	
Outlet, culvert invert	C	0	1	9.73	100	90.27	
Inlet, culvert thalweg	B	0	1	8.06	100	91.94	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert. Location 1	50	0.8	118	40	Pygmy	2.85

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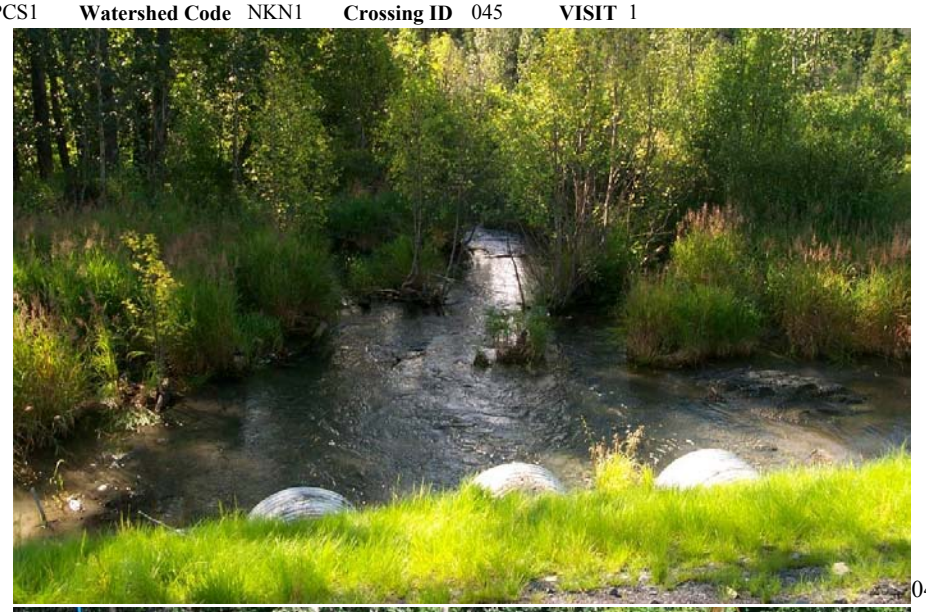
Upstream from Inlet of Culvert, Location 2	50	0.8	17	40.5	Pygmy	4.34
Upstream from Inlet of Culvert, Location 3	100	1	148	40	Pygmy	3.57
Upstream from Inlet of Culvert, Location 4	66	1.6	12	41.9	Pygmy	0.31
Downstream from Outlet of Culvert, Location 1	37	1.5	24	40.7	Pygmy	1.30
Downstream from Outlet of Culvert, Location 2	82	1.05	17	40.2	Pygmy	0.95
At Culvert Inlet, Location 1	0	0.7	106	40.8	Pygmy	2.53
At Culvert Outlet, Location 1	0	0.9	26	40.2	Standard_Price AA	1.44
At Culvert Inlet, Location 2	0	0.7	69	40.2	Pygmy	1.68
At Culvert Outlet, Location 2	0	0.5	37	40.1	Standard_Price AA	2.04
At Culvert Inlet, Location 3	0	0.8	83	40.4	Pygmy	2.00
At Culvert Outlet, Location 3	0	0.8	36	40.2	Standard_Price AA	1.99
Outlet Pool Tailcrest	19	0.75	28	40.2	Standard_Price AA	1.55

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 045 **VISIT** 1



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Culvert Survey Report

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 046 **VISIT** 1
DATE 8/22/2001 **Time** 9:15:00 AM **Observers:** Cecil Rich, William Glick

Site Information:

GPS Location: **Lat. (dec. deg)** 60.49371 **Long. (dec. deg)** 149.84178
Road Name Ptarmigan Place **Region:** SCN
Quad Name: Seward **ITM:** C-8 **Stream #:** 244-30-10010-2169
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Bean Creek

Field Notes: Two adjacent culverts - 148.5 feet between culverts. Riprap upstream. No outlet pool thus no tailcrest data.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 33.4	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.50	5.40
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	4.54	4.71
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0350		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.38	0.29
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.48
Substrate Type: None	Coarse Gravel	**Encrochment Ratio:** 0.77		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

Stream Discharge: N/A

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	6	69.5
Upstrream OHW Width (50 ft.):	8.2	42
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):	5	45
Downstrream OHW Width (50 ft.):	4.8	26

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 046D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 5.5
Susp.Spawn? No **Fork Len. (mm)** 95 118 102 120 88 80 80 85
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 046D1 **Gear:** Minnow Trap **# of Traps set:** 1 **Trap Dur. (h):** 5.5
Susp.Spawn? No **Fork Len. (mm)** 80
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Resident
Stat. ID: 046U1 **Gear:** Minnow Trap **# of Traps set:** 1 **Trap Dur. (h):** 5.45
Susp.Spawn? No **Fork Len. (mm)** 110 122 85 95 117 119 112 100 80 88
Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 3 (100 ft)	45	1	11.6	100	88.37	
Downstream station, water elev 3 (100 ft)	45	1	13.0	100	86.98	
Downstream station, thalweg 3 (100 ft)	45	1	13.4	100	86.65	
Downstream station, OHW line 2 (50)	26	1	11.5	100	88.48	
Downstream station, water elev 2 (50 ft)	26	1	12.3	100	87.75	
Downstream station, thalweg 2 (50 ft)	26	1	12.6	100	87.42	
Outlet, edge-road		1	3.33	100	96.67	
Upstream station, OHW line 1 (50 ft)	42	1	6.88	100	93.12	
Upstream station, water elev 1 (50 ft)	42	1	7.9	100	92.1	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 047 **VISIT** 1
DATE 8/22/2001 **Time** 1:30:00 PM **Observers:** Cecil Rich, William Glick

Site Information:

GPS Location: **Lat. (dec. deg)** 60.49362 **Long. (dec. deg)** 149.84262
Road Name Bean Creek **Region:** SCN
Quad Name: Seward **ITM:** C-8 **Stream #:** 244-30-10010-2169
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Bean Creek

Field Notes: Culvert less than one year old. 148 feet US of site 46. Estimated height of culvert based on average height of pipe at site 46.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 3 **Classification:**
Length: 33.1 **Cross. Structure Type:** Corrugated Metal Pipe
Entrance Type: Flush in Headwall **Tidal Influence:** No
Corrugation Depth (in.): 1 **Baffles Present:** No **Culvert Gradient:** -0.009
Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):**
Perch Ht. (Flow -Dep):
Encrochment Ratio: 1.06

	Inlet	Outlet
Substrate Type:	Coarse Gravel	Fine Gravel
Erosion:	No Inlet Erosion	No Outlet Erosion

	Inlet	Outlet
Width (ft):	5.60	5.10
Height (ft):	4.63	4.63
Manuf. Diameter:		
Water Depth (ft):	0.50	0.96
Substr. Dep (ft):	1.79	1.98
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

Stream Discharge: 0.96

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	5.3	85
Upstrream OHW Width (50 ft.):	5.3	55
Upstrream OHW Width (5 ft.):	6.6	5
Tailcrest Width at OHW:		11
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):	6	49
Downstrream OHW Width (50 ft.):	8.5	47

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 9 **Life History:** Resident
Stat. ID: 047U1 **Gear:** Minnow Trap **# of Traps set:** 2 **Trap Dur. (h):** 5.35
Susp.Spawn? No **Fork Len. (mm)** 62 104 94 62 57 60 51 53 90
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 047U1 **Gear:** Minnow Trap **# of Traps set:** 2 **Trap Dur. (h):** 5.35
Susp.Spawn? No **Fork Len. (mm)** 99
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Resident
Stat. ID: 047D1 **Gear:** Minnow Trap **# of Traps set:** 1 **Trap Dur. (h):** 5.45
Susp.Spawn? No **Fork Len. (mm)** 110 122 85 95 117 119 112 100 80 88
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	18.4	2	6.25	102.27	96.02	
Left Bank, Wetted Perimeter	15.5	2	8.71	102.27	93.56	
Left Bank/Bed Slope Break	15.5	2	8.71	102.27	93.56	
Station 1	13.5	2	9.1	102.27	93.17	
Station 2	12.1	2	9.17	102.27	93.1	
Station 3	10.5	2	8.21	102.27	94.06	
Station 4	9.9	2	9.38	102.27	92.89	
Station 5	8.2	2	8.96	102.27	93.31	
Station 6	8	2	8.52	102.27	93.75	
Station 7	606	2	8.21	102.27	94.06	
Station 8	3.3	2	6.23	102.27	96.04	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 048 **VISIT** 1
DATE 8/22/2001 **Time** 4:00:00 PM **Observers:** Cecil Rich, William Glick

Site Information:

GPS Location: **Lat. (dec. deg)** 60.5247 **Long. (dec. deg)** 149.64211
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-8 **Stream #:** 244-30-10010-2177-3020-4015
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: about three years old. In channel is channelized abou 20 feet upstream and degrading channel - produced lots of salmon spawning habitat downstream. No tailcrest distance.
Road Prism Type: Through Fill **Spec. Site Cond.:** Active Bedload upstream of drainage structure

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** gray

					Inlet	Outlet
Length:	113	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	6.40	6.50
		Entrance Type:	Projecting	**Tidal Influence:** No	**Height (ft):**	5.15	5.15
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** 0.0083	**Manuf. Diameter:**		
Corrugation Width (in.):	2.6			**Perch Ht. (Flow - Ind):** -0.98	**Water Depth (ft):**	0.90	1.45
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -1.84	**Substr. Dep (ft):**	0.41	0.46
Substrate Type:	Sands	Sands		**Encrochment Ratio:** 0.93	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Coarse Gravel
Sub Dominant Substrate Type:	Large Cobble	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	SRO
Downstream:	Suitable for anadromous fish	SRO

Stream Discharge: 6.30

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	6.8	100
Upstrream OHW Width (50 ft.):	6.9	50
Upstrream OHW Width (5 ft.):	5.8	5
Tailcrest Width at OHW:	21.4	
Outlet Pool OHW Line (Max. Width.):	26.4	
Downstream OHW Width (100 ft.):	12	100
Downstrream OHW Width (50 ft.):	17.2	63

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Anadromous
Stat. ID: 048U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 90 85 73 53 60 57 57 52 50 72
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 13 **Life History:** Resident
Stat. ID: 048U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 75 100 100 72 103 64 98 83 75 68
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 048D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.42
Susp.Spawn? No **Fork Len. (mm)** 80 70 74 48 47 62 49 52 49 61
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 22 **Life History:** Resident
Stat. ID: 048D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.42
Susp.Spawn? No **Fork Len. (mm)** 81 75 74 66 73 85 86 132 69 70
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	1.8	1	12.04	100	87.96	
Left Bank, Ordinary High Water	2.6	1	12.23	100	87.77	
Left Bank, Wetted Perimeter	2.7	1	12.31	100	87.69	
Left Bank/Bed Slope Break	3.6	1	12.98	100	87.02	
Station 1	7.8	1	13.08	100	86.92	
Station 2	10	1	13.15	100	86.85	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 049 **VISIT** 1
DATE 8/23/2001 **Time** 9:45:00 AM **Observers:** Cecil Rich, William Glick

Site Information:

GPS Location: **Lat. (dec. deg)** 60.52477 **Long. (dec. deg)** 149.6411
Road Name Sterling Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-8 **Stream #:** 244-30-10010-2177-3020-4015
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Very small channel drainingseepage. Large pool above culvert.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** green

					Inlet	Outlet
Length:	112	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	2.90	3.00
		Entrance Type:	Projecting	**Tidal Influence:** No	**Height (ft):**	2.90	3.00
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** 0.0035	**Manuf. Diameter:**		
Corrugation Width (in.):	2.6			**Perch Ht. (Flow - Ind):** -0.77	**Water Depth (ft):**	0.17	0.48
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -0.87	**Substr. Dep (ft):**	0.36	0.71
Substrate Type:	Coarse Gravel	Sands		**Encrochment Ratio:** 0.97	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Undetermined	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 0.08

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	3	70
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	3	5
Tailcrest Width at OHW:	3.4	2
Outlet Pool OHW Line (Max. Width.):	3.4	
Downstream OHW Width (100 ft.):	6	60
Downstrream OHW Width (50 ft.):	4.9	40

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 049U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 049D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 75
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.2	1	9.43	100	90.57	
Left Bank, Ordinary High Water	4.9	1	10.42	100	89.58	
Left Bank, Wetted Perimeter	5.3	1	10.65	100	89.35	
Left Bank/Bed Slope Break	5.3	1	10.65	100	89.35	
Station 1	6.4	1	10.9	100	89.1	
Station 2	6.8	1	10.5	100	89.5	
Station 3	7.1	1	10.88	100	89.12	
Right Bank/Bed Slope Break	7.1	1	10.88	100	89.12	
Right Bank, Wetted Perimeter	8.1	1	10.67	100	89.33	
Right Bank, Ordinary High Water	8.6	1	10.4	100	89.6	
Right Bank, Terrace	9.4	1	10.27	100	89.73	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 049 **VISIT** 1

Downstream station, thalweg 1 (tailcrest)	2	1	10.8	100	89.23
Upstream station, thalweg 5 (100 ft)	70	1	9.85	100	90.15
Upstream station, water elev 1 (100 ft)	70	1	9.71	100	90.29
Upstream station, OHW line 1 (100 ft)	70	1	8.96	100	91.04
Outlet, edge-road		1	2.73	100	97.27
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.5	100	89.48
Outlet, pool water elev	5	1	10.7	100	89.33
Inlet, edge-road		1	2.63	100	97.37
Outlet, pool maximum depth 2	5	1	11.1	100	88.92
Downstream station, OHW line 3 (100 ft)	60	1	11.8	100	88.17
Downstream station, OHW line 1 (tailcrest)	2	1	10.5	100	89.5
Downstream station, water elev 1 (tailcrest)	2	1	10.7	100	89.31
Downstream station, thalweg 2 (50 ft)	40	1	11.6	100	88.44
Downstream station, water elev 2 (50 ft)	40	1	11.4	100	88.62
Downstream station, OHW line 2 (50)	40	1	11.2	100	88.77
Downstream station, thalweg 3 (100 ft)	60	1	12.3	100	87.75
Downstream station, water elev 3 (100 ft)	60	1	12.1	100	87.94
Outlet, pool maximum depth 1 (within 5 ft)	5	1	11.1	100	88.92

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	10.7	100	89.29	
Outlet, thalweg	A	0	1	11.1	100	88.92	
Outlet, culvert invert	A	0	1	11.5	100	88.46	
Outlet, culvert top	A	0	1	8.54	100	91.46	
Upstream station, thalweg 3 (2 CMP widths)	A	5.9	1	10.4	100	89.56	
Upstream station, OHW line 1 (1 ft)	A	5	1	10.3	100	89.73	
Upstream station, water elev 1 (5 ft)	A	5	1	10.4	100	89.62	
Upstream station, thalweg 2 (5 ft)	A	5	1	10.5	100	89.48	
Upstream station, thalweg 1 (1 ft)	A	1	1	10.8	100	89.21	
Inlet, culvert thalweg	A	0	1	10.8	100	89.21	
Inlet, culvert rustline	A	0	1	10.7	100	89.35	
Inlet, culvert invert	A	0	1	11.2	100	88.85	
Inlet, culvert top	A	0	1	8.25	100	91.75	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	70	0.35			Pygmy	0.00
Downstream from Outlet of Culvert, Location 1	40	0.1	55	40.5	Pygmy	1.33
Downstream from Outlet of Culvert, Location 2	60	0.1	25	40.4	Pygmy	0.63
At Culvert Inlet, Location 1	0	0.15	24	41.5	Pygmy	0.59
At Culvert Outlet, Location 1	0	0.45	10	44.5	Pygmy	0.25
Outlet Pool Tailcrest	2	0.1	27	41	Pygmy	0.66

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 049 **VISIT** 1

04901.jpg

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 050 **VISIT** 1
DATE 8/23/2001 **Time** 1:30:00 PM **Observers:** Cecil Rich, William Glick

Site Information:

GPS Location: **Lat. (dec. deg)** 60.50546 **Long. (dec. deg)** 149.43753
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:** 244-30-10010-2225-3013
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Moose Creek

Field Notes: Two 5.5 ft squash pipes perched about 1 foot at outlet and jacked up at inlet. Aggradation above inlet control.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray **Inlet** **Outlet**
Length: 67 **Cross. Structure Type:** Corrugated Metal pipe arch (squash pipe) **Width (ft):** 5.40 5.50
Entrance Type: Projecting **Tidal Influence:** No **Height (ft):** 3.60 3.43
Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 2.77 0.90
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.00
Substrate Type: None None **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):** 0 0

Culvert ID: B **Category:** **Classification:** **Inlet** **Outlet**
Length: 67 **Cross. Structure Type:** Corrugated Metal pipe arch (squash pipe) **Width (ft):** 5.40 5.50
Entrance Type: Projecting **Tidal Influence:** No **Height (ft):** 3.50 3.36
Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 3.31 0.83
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.00
Substrate Type: None None **Encrochment Ratio:** **Struc. Damage (%):** 0 10
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):** 0 0

Stream-related

	Upstream	Downstream	Stream Discharge: 19.74	Width (ft)	Distance (ft)
Dominant Substrate Type:	Sands	Coarse Gravel	Upstrream OHW Width (100 ft.):	32	131
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel	Upstrream OHW Width (50 ft.):	37.2	72
Bank Comp:	Alluvium	Alluvium	Upstrream OHW Width (5 ft.):		
	Suit	**Type**	Tailcrest Width at OHW:	15.8	20
Upstream:	Suitable for anadromous fish	SRO	Outlet Pool OHW Line (Max. Width.):	29	
			Downstream OHW Width (100 ft.):	25	100
Downstream:	Suitable for anadromous fish	SRO	Downstrream OHW Width (50 ft.):	16.2	60

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 050U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 91 55 88 108
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 050U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 73 55 75 72 68 115 57 58 54
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 28 **Life History:** Resident
Stat. ID: 050D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)** 115 113 92 97 109 117 88 72 64 89
Comments:

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 050 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous

Stat. ID: 050D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4

Susp.Spawn? No **Fork Len. (mm)** 90 66 57 84 74 52 50 50 80 71

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	0.8	1	5.65	100	94.35	
Left Bank, Ordinary High Water	1	1	5.77	100	94.23	
Left Bank, Wetted Perimeter	3.2	1	6.19	100	93.81	
Left Bank/Bed Slope Break	4	1	6.73	100	93.27	
Station 1	5.5	1	6.96	100	93.04	
Station 2	6.3	1	6.79	100	93.21	
Station 3	7.4	1	7.08	100	92.92	
Station 4	12	1	7.13	100	92.87	
Station 5	14.2	1	7.42	100	92.58	
Station 6	15.5	1	7.46	100	92.54	
Right Bank/Bed Slope Break	15.5	1	7.46	100	92.54	
Right Bank, Wetted Perimeter	16.6	1	6.17	100	93.83	
Right Bank, Ordinary High Water	16.8	1	5.6	100	94.4	
Station 8		1	4.96	100	95.04	Right bank
Station 9	2.3	1	5.56	100	94.44	Side channel - LB bank terrace
Station 10	3.2	1	5.75	100	94.25	Side channel - LB OHW
Station 11	3.6	1	6.25	100	93.75	Side channel - LB wetted per.
Station 12	3.6	1	6.25	100	93.75	Side channel - LB slope break
Station 13	3.7	1	6.25	100	93.75	Side channel streambed 01
Station 14	4.1	1	5.92	100	94.08	Side channel streambed 02
Station 15	4.5	1	6	100	94	Side channel streambed 03
Station 16	4.7	1	6.19	100	93.81	Side channel streambed 04
Station 17	5.4	1	6.23	100	93.77	Side channel streambed 05
Station 18	5.5	1	5.83	100	94.17	Side channel streambed 06
Station 19	6.1	1	5.92	100	94.08	Side channel streambed 07
Station 20	6.5	1	6.56	100	93.44	Side channel streambed 08
Station 21	6.9	1	6.38	100	93.62	Side channel RB slope break
Station 22	6.9	1	6.23	100	93.77	Side channel RB Wetted per.
Station 23	7.3	1	5.85	100	94.15	Side channel RB OHW
Station 24	8	1	5.56	100	94.44	Side channel RB bank terrace

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	8.52	100	91.48	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	5.85	100	94.15	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	8.52	100	91.48	
Downstream station, OHW line 3 (100 ft)	100	1	6.81	100	93.19	
Downstream station, thalweg 1 (tailcrest)	20	1	7.42	100	92.58	
Downstream station, OHW line 1 (tailcrest)	20	1	5.69	100	94.31	
Downstream station, water elev 1 (tailcrest)	20	1	6.17	100	93.83	
Downstream station, thalweg 2 (50 ft)	60	1	8.1	100	91.9	
Downstream station, water elev 2 (50 ft)	60	1	7.02	100	92.98	
Downstream station, OHW line 2 (50)	60	1	6.85	100	93.15	
Downstream station, thalweg 3 (100 ft)	100	1	8.44	100	91.56	
Downstream station, water elev 3 (100 ft)	100	1	7.44	100	92.56	
Outlet, pool water elev	5	1	6.21	100	93.79	
Inlet, edge-road		2	2.13	108.35	106.22	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 050 **VISIT** 1

Outlet, edge-road		2	5.42	108.35	102.93
Upstream station, OHW line 1 (100 ft)	131	2	11.5	108.35	96.85
Upstream station, water elev 1 (100 ft)	131	2	11.9	108.35	96.47
Upstream station, thalweg 5 (100 ft)	131	2	13.3	108.35	95.04
Upstream station, OHW line 1 (50 ft)	72	2	11.3	108.35	97.02
Upstream station, water elev 2 (50 ft)	72	2	12	108.35	96.39
Upstream station, thalweg 4 (50 ft)	72	2	13.8	108.35	94.6

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	2	9.31	108.4	99.04	
Inlet, culvert invert	A	0	2	12.8	108.4	95.58	
Inlet, culvert rustline	A	0	2	11.6	108.4	96.77	
Inlet, culvert thalweg	A	0	2	12.8	108.4	95.58	
Upstream station, thalweg 1 (1 ft)	A	1	2	13.3	108.4	95.04	
Upstream station, thalweg 2 (5 ft)	A	5	2	13.8	108.4	94.6	
Upstream station, water elev 1 (5 ft)	A	5	2	12	108.4	96.35	
Upstream station, OHW line 1 (1 ft)	A	5	2	11.2	108.4	97.2	
Upstream station, thalweg 3 (2 CMP widths)	A	10.9	2	13.8	108.4	94.52	
Outlet, culvert top	A	0	1	2.42	100	97.58	
Outlet, culvert invert	A	0	1	5.85	100	94.15	
Inlet, culvert top	A	0	2	9.17	108.4	99.18	
Outlet, rustline	A	0	1	4.6	100	95.4	
Outlet, rustline	B	0	1	4.71	100	95.29	
Inlet, culvert invert	B	0	2	12.8	108.4	95.54	
Inlet, culvert rustline	B	0	2	12	108.4	96.37	
Inlet, culvert thalweg	B	0	2	12.8	108.4	95.54	
Upstream station, thalweg 1 (1 ft)	B	1	2	13.2	108.4	95.14	
Upstream station, thalweg 2 (5 ft)	B	5	2	13.5	108.4	94.85	
Upstream station, water elev 1 (5 ft)	B	5	2	12	108.4	96.35	
Upstream station, OHW line 1 (1 ft)	B	5	2	11.1	108.4	97.22	
Upstream station, thalweg 3 (2 CMP widths)	B	10.9	2	13.3	108.4	95.08	
Outlet, culvert top	B	0	1	2.56	100	97.44	
Outlet, culvert invert	B	0	1	5.92	100	94.08	
Outlet, thalweg	B	0	1	5.92	100	94.08	
Outlet, thalweg	A	0	1	5.85	100	94.15	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	67	13	12				5.36 ft/sec.
B	67	11	10				6.38 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	72	1.8	29	40.3	Standard_Price AA	1.60
Upstream from Inlet of Culvert, Location 2	131	1.6	23	41.5	Standard_Price AA	1.24
Downstream from Outlet of Culvert, Location 1	60	1.05	32	40.5	Standard_Price AA	1.76
Downstream from Outlet of Culvert, Location 2	100	0.7	33	40.5	Standard_Price AA	1.80
At Culvert Inlet, Location 1	0	0.7	22	40.2	Standard_Price AA	1.22
At Culvert Outlet, Location 1	0	0.4	85	40.4	Standard_Price AA	4.66
At Culvert Inlet, Location 2	0	0.8	26	40.5	Standard_Price AA	1.45
At Culvert Outlet, Location 2	0	0.5	88	40.2	Standard_Price AA	4.84
Outlet Pool Tailcrest	20	0.75	64	40.7	Standard_Price AA	3.48

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 050 **VISIT** 1

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 051 **VISIT** 1
DATE 8/27/2001 **Time** 10:30:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.5022 **Long. (dec. deg)** 149.4207
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:** 244-30-10010-2225-3013
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Moose Creek

Field Notes: Outlet pool ponded by Trail Lake. We removed beaver debris blocking right pipe and part of left pipe.
Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray **Inlet** **Outlet**
Length: 120 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 10.71 11.08
Entrance Type: Projecting **Tidal Influence:** No **Height (ft):** 7.00 7.10
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 1.50 1.75
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.21 0.00
Substrate Type: Boulder Large Cobble **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):** 0 0

Culvert ID: B **Category:** **Classification:** **Inlet** **Outlet**
Length: 120 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate **Width (ft):** 11.08 11.13
Entrance Type: Projecting **Tidal Influence:** No **Height (ft):** 7.00 7.08
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 1.00 1.69
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.31 0.33
Substrate Type: Boulder Large Cobble **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):** 0 0

Stream-related

Stream Discharge: 35.03

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	27.6	109
Upstrream OHW Width (50 ft.):	25.7	45
Upstrream OHW Width (5 ft.):	31.6	5
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max. Width.):	50.8	
Downstream OHW Width (100 ft.):		
Downstrream OHW Width (50 ft.):	50.8	50

	Suit	Type
Upstream:	Suitable for anadromous fish	SRO
Downstream:	Suitable for anadromous fish	SRO

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 051U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 145 110 75 109 84 80
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 13 **Life History:** Anadromous
Stat. ID: 051D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 46 56 69 79 52 78 45 71 50 51
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 051D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 98 112
Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 2 (50)	50	1	10.7	100	89.31	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 051 **VISIT** 1

Downstream station, water elev 2 (50 ft)	50	1	10.9	100	89.15
Downstream station, thalweg 2 (50 ft)	50	1	14.2	100	85.79
Outlet, pool maximum depth 2		1	15.1	100	84.92
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.4	100	85.62
Outlet, pool water elev	5	1	10.8	100	89.17
Upstream station, OHW line 1 (100 ft)	109	3	9.54	99.17	89.63
Upstream station, water elev 1 (100 ft)	109	3	9.65	99.17	89.52
Upstream station, thalweg 5 (100 ft)	109	3	12.1	99.17	87.09
Upstream station, OHW line 1 (50 ft)	45	3	9.38	99.17	89.79
Upstream station, water elev 2 (50 ft)	45	3	9.77	99.17	89.4
Upstream station, thalweg 4 (50 ft)	45	3	12.4	99.17	86.82
Outlet, edge-road		4	1.29	113.51	112.22
Inlet, edge-road		4	1.29	113.51	112.22

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	3	4.58	99.17	94.59	
Inlet, culvert invert	A	0	3	11.6	99.17	87.61	
Inlet, culvert rustline	A	0	3	9.75	99.17	89.42	
Inlet, culvert thalweg	A	0	3	11.4	99.17	87.82	
Upstream station, thalweg 1 (1 ft)	A	1	3	11.4	99.17	87.77	
Upstream station, thalweg 2 (5 ft)	A	5	3	12.1	99.17	87.04	
Upstream station, water elev 1 (5 ft)	A	5	3	9.83	99.17	89.34	
Upstream station, OHW line 1 (1 ft)	A	5	3	9.23	99.17	89.94	
Upstream station, thalweg 3 (2 CMP widths)	A	21.8	3	11.7	99.17	87.5	
Outlet, culvert top	A	0	1	5.4	100	94.6	
Outlet, culvert invert	A	0	1	12.5	100	87.5	
Inlet, culvert top	A	0	3	4.56	99.17	94.61	
Outlet, rustline	A	0	1	10.8	100	89.25	
Outlet, rustline	B	0	1	10.6	100	89.37	
Inlet, culvert invert	B	0	3	11.6	99.17	87.59	estimated
Inlet, culvert rustline	B	0	3	8.69	99.17	90.48	
Inlet, culvert thalweg	B	0	3	11.3	99.17	87.9	
Upstream station, thalweg 1 (1 ft)	B	1	3	11.5	99.17	87.65	
Upstream station, thalweg 2 (5 ft)	B	5	3	10.9	99.17	88.25	
Upstream station, water elev 1 (5 ft)	B	5	3	9.79	99.17	89.38	
Upstream station, OHW line 1 (1 ft)	B	5	3	9.48	99.17	89.69	
Upstream station, thalweg 3 (2 CMP widths)	B	22.2	3	11.3	99.17	87.84	
Outlet, culvert top	B	0	1	5.5	100	94.5	
Outlet, culvert invert	B	0	1	12.6	100	87.42	
Outlet, thalweg	B	0	1	12.3	100	87.75	
Outlet, thalweg	A	0	1	12.5	100	87.5	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	120	96	100				1.22 ft/sec.
B	120	85	87				1.40 ft/sec.

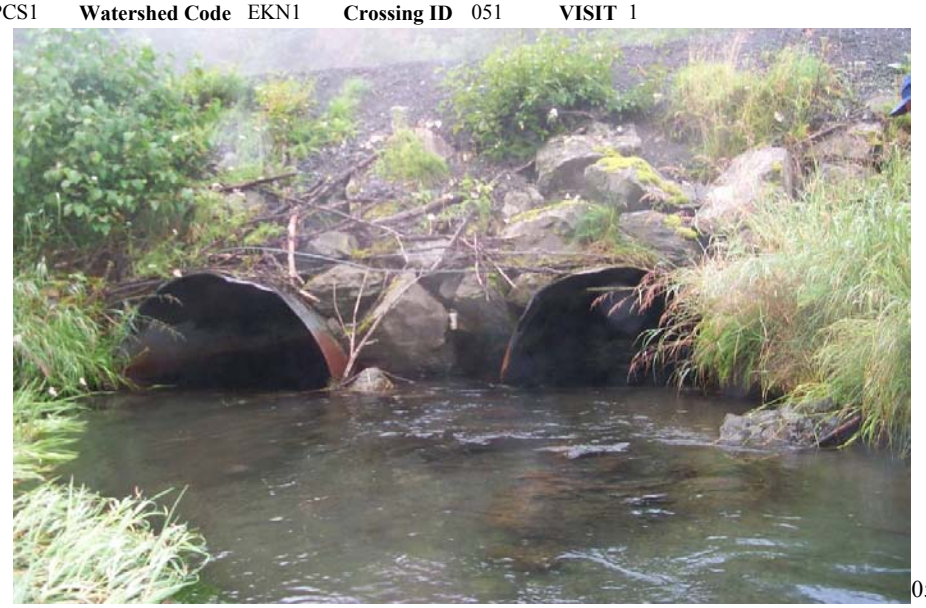
Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	2.5	17	40.1	Standard_Price AA	0.95
Upstream from Inlet of Culvert, Location 2	100	2.8	22	40.5	Standard_Price AA	1.22
Downstream from Outlet of Culvert, Location 1	50	2	7	40.2	Standard_Price AA	0.40
At Culvert Inlet, Location 1	0	1.3	37	40.5	Standard_Price AA	2.02

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 051 **VISIT** 1

At Culvert Outlet, Location 1	0	1.6	23	40		Standard_Price AA	1.29
At Culvert Inlet, Location 2	0	1.4	23	42		Standard_Price AA	1.23
At Culvert Outlet, Location 2	0	1.1	26	40.7		Standard_Price AA	1.43

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 051 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 052 **VISIT** 1
DATE 8/27/2001 **Time** 2:30:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.31101 **Long. (dec. deg)** 149.35806
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** B-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Channel 80 ft. above to 50 ft. below culvert. Flat bottom riffle from construction activities. New culverts with 2 overflow culverts above. Riffle below right culvert, shallow pool below left.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 93	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	12.70	12.90
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	8.25	8.25
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.35	0.33
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.35	0.33
Substrate Type: Small Cobble	Coarse Gravel	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 93	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	12.70	12.90
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	8.25	8.25
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.27	0.31
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.27	0.31
Substrate Type: Small Cobble	Coarse Gravel	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Small Cobble
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	SRO
Downstream:	Suitable for anadromous fish	SRO

Stream Discharge: 4.06

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	19.6	100
Upstrream OHW Width (50 ft.):	27.2	50
Upstrream OHW Width (5 ft.):	30.6	5
Tailcrest Width at OHW:	15.6	41.5
Outlet Pool OHW Line (Max. Width.):	33.1	
Downstream OHW Width (100 ft.):	15	96
Downstrream OHW Width (50 ft.):	14.4	50

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 052U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 65 86 72 142
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 052U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 78 122
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 052U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 70
Comments:

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 052 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 052D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 79 88 68 87 69 87 68
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous
Stat. ID: 052D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 46 90 54 50 54 100 105 56 50 53
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	1.8	1	12.79	100	87.21	LB bank slope
Station 2	3.8	1	13.63	100	86.37	LB slope
Left Bank, Ordinary High Water	4.1	1	13.58	100	86.42	
Station 4	4.3	1	14.25	100	85.75	LB bank
Left Bank/Bed Slope Break	4.9	1	14.63	100	85.37	
Left Bank, Wetted Perimeter	5.6	1	14.79	100	85.21	
Station 5	10.8	1	15.1	100	84.9	
Station 6	11.8	1	15.33	100	84.67	
Right Bank/Bed Slope Break	17.3	1	14.92	100	85.08	
Right Bank, Wetted Perimeter	17.3	1	14.92	100	85.08	
Station 7	19.2	1	14.02	100	85.98	RB bank slope
Right Bank, Ordinary High Water	19.6	1	13.1	100	86.9	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool water elev	5	1	14.8	100	85.19	
Upstream station, thalweg 4 (50 ft)	50	1	12.9	100	87.08	
Upstream station, water elev 2 (50 ft)	50	1	12.8	100	87.21	
Upstream station, OHW line 1 (50 ft)	50	1	12	100	88.04	
Upstream station, thalweg 5 (100 ft)	100	1	12.1	100	87.9	
Upstream station, water elev 1 (100 ft)	100	1	11.9	100	88.15	
Upstream station, OHW line 1 (100 ft)	100	1	11.5	100	88.54	
Inlet, edge-road		1	3.04	100	96.96	
Outlet, pool OHWS lijne 1 (within 5 ft.)	33.1	1	13.9	100	86.06	
Downstream station, OHW line 3 (100 ft)	96	1	15.0	100	84.96	
Outlet, pool maximum depth 1 (within 5 ft)		1	15.3	100	84.75	
Outlet, pool maximum depth 2		1	16	100	84.04	
Downstream station, thalweg 2 (50 ft)	50	1	15.4	100	84.65	
Downstream station, water elev 2 (50 ft)	50	1	14.9	100	85.1	
Downstream station, OHW line 2 (50)	50	1	14	100	86	
Downstream station, thalweg 3 (100 ft)	96	1	16.7	100	83.27	
Downstream station, water elev 3 (100 ft)	96	1	16.4	100	83.62	
Outlet, edge-road		1	3.06	100	96.94	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert invert	B	0	1	14.3	100	85.69	
Inlet, culvert thalweg	A	0	1	13.8	100	86.19	
Upstream station, thalweg 1 (1 ft)	A	1	1	13.9	100	86.06	
Upstream station, thalweg 2 (5 ft)	A	5	1	13.5	100	86.46	
Upstream station, water elev 1 (5 ft)	A	5	1	13.2	100	86.77	
Upstream station, thalweg 3 (2 CMP widths)	A	25.6	1	13.2	100	86.83	
Outlet, culvert top	A	0	1	7.1	100	92.9	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 052 **VISIT** 1

Inlet, culvert top	A	0	1	6	100	94
Inlet, culvert top	B	0	1	6.06	100	93.94
Outlet, thalweg	B	0	1	14.6	100	85.37
Inlet, culvert thalweg	B	0	1	13.8	100	86.25
Upstream station, thalweg 1 (1 ft)	B	1	1	13.8	100	86.25
Upstream station, thalweg 2 (5 ft)	B	5	1	13.5	100	86.46
Upstream station, water elev 1 (5 ft)	B	5	1	13.3	100	86.75
Upstream station, thalweg 3 (2 CMP widths)	B	25.6	1	13.3	100	86.67
Outlet, culvert top	B	0	1	7.21	100	92.79
Outlet, thalweg	A	0	1	15.1	100	84.92

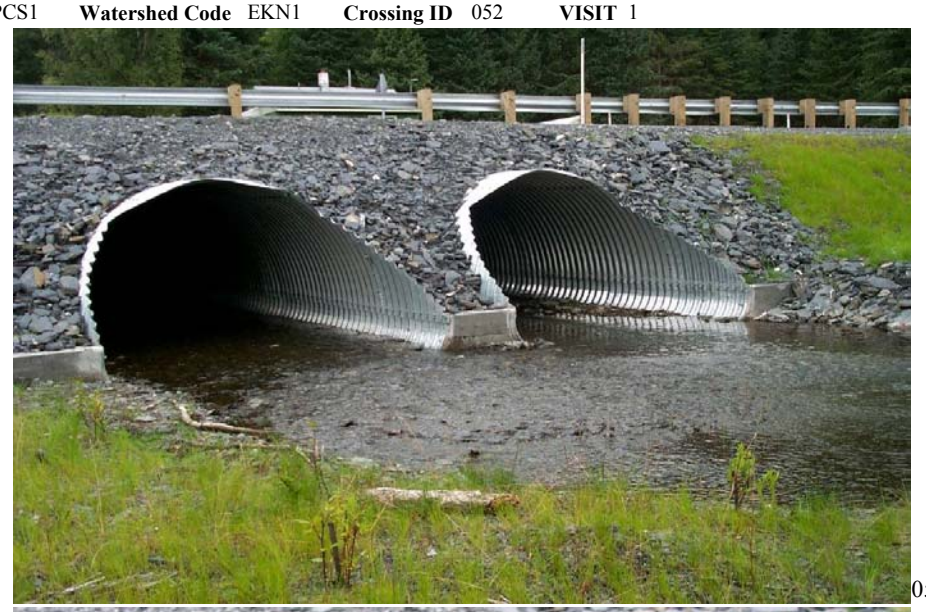
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
B	93	45	51	44	46		2.00 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.45	53	40.2	Standard_Price AA	1.30
Upstream from Inlet of Culvert, Location 2	100	0.5	44	40.7	Standard_Price AA	1.07
Downstream from Outlet of Culvert, Location 1	50	0.55	54	40	Standard_Price AA	1.32
Downstream from Outlet of Culvert, Location 2	98	0.4	102	40.2	Standard_Price AA	2.47
At Culvert Inlet, Location 1	0	0.3	90	40	Standard_Price AA	2.19
At Culvert Outlet, Location 1	0	0.3	25	41	Standard_Price AA	0.62
At Culvert Inlet, Location 2	0	0.5	81	40.5	Standard_Price AA	1.96
At Culvert Outlet, Location 2	0	0.3	85	40	Standard_Price AA	2.06
Outlet Pool Tailcrest	13.6	0.4	68	40.1	Standard_Price AA	1.66

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 052 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 053 **VISIT** 1
DATE 8/28/2001 **Time** 1:15:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.09019 **Long. (dec. deg)** 149.35013
Road Name Nash Road **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Spring Creek

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 70	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	11.60	12.60
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.90	6.90
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:** 0.0294		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.02		**Water Depth (ft):**	1.31	0.67
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.69	**Substr. Dep (ft):**	0.06	0.00
Substrate Type:	Coarse Gravel	Fine Gravel	**Encrochment Ratio:** 0.47	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous fish	Unknown
Downstream:	Suitable for anadromous fish	Unknown

Stream Discharge: 64.48

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	19.8	92
Upstrream OHW Width (50 ft.):	30	42
Upstrream OHW Width (5 ft.):	33.3	5
Tailcrest Width at OHW:	22	17
Outlet Pool OHW Line (Max. Width.):	19.4	
Downstream OHW Width (100 ft.):	25	87
Downstrream OHW Width (50 ft.):	31.5	45

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 053U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 45
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 053D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.4	1	12.38	100	87.62	
Left Bank, Ordinary High Water	4	1	12.71	100	87.29	
Left Bank, Wetted Perimeter	4.8	1	12.79	100	87.21	
Left Bank/Bed Slope Break	4.8	1	12.79	100	87.21	
Station 1	7.8	1	12.92	100	87.08	
Station 2	9.8	1	13.67	100	86.33	
Station 3	11.1	1	13.6	100	86.4	
Station 4	15.8	1	14	100	86	
Station 5	20.6	1	3.08	100	96.92	
Right Bank/Bed Slope Break	22.8	1	12.88	100	87.12	
Right Bank, Wetted Perimeter	22.8	1	12.88	100	87.12	
Right Bank, Ordinary High Water	22.8	1	12.88	100	87.12	
Right Bank, Terrace	24.4	1	12.48	100	87.52	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 053 **VISIT** 1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	14.8	100	85.25	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	13	100	87	
Inlet, edge-road		1	3.5	100	96.5	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.9	100	85.12	
Downstream station, OHW line 3 (100 ft)	87	1	17.9	100	82.12	
Downstream station, thalweg 1 (tailcrest)	17	1	13.7	100	86.33	
Downstream station, OHW line 1 (tailcrest)	17	1	12.8	100	87.2	
Downstream station, water elev 1 (tailcrest)	17	1	12.8	100	87.16	
Downstream station, thalweg 2 (50 ft)	45	1	15.2	100	84.83	
Downstream station, water elev 2 (50 ft)	45	1	14	100	86.04	
Downstream station, OHW line 2 (50)	45	1	13.9	100	86.08	
Downstream station, thalweg 3 (100 ft)	87	1	19.5	100	80.46	
Downstream station, water elev 3 (100 ft)	87	1	17.8	100	82.21	
Outlet, pool water elev	5	1	13	100	87	
Upstream station, OHW line 1 (100 ft)	92	2	10.2	100.02	89.87	
Upstream station, water elev 1 (100 ft)	92	2	9.81	100.02	90.21	
Upstream station, thalweg 5 (100 ft)	92	2	11.0	100.02	88.98	
Upstream station, OHW line 1 (50 ft)	42	2	9.94	100.02	90.08	
Upstream station, water elev 2 (50 ft)	42	2	10.2	100.02	89.87	
Upstream station, thalweg 4 (50 ft)	42	2	11.4	100.02	88.58	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	12.9	100	87.1	
Outlet, thalweg	A	0	1	13.7	100	86.31	
Outlet, culvert invert	A	0	1	13.7	100	86.31	
Outlet, culvert top	A	0	1	6.79	100	93.21	
Upstream station, thalweg 3 (2 CMP widths)	A	23.2	2	11.8	100.0	88.27	
Upstream station, OHW line 1 (1 ft)	A	5	1	10.7	100	89.31	
Upstream station, water elev 1 (5 ft)	A	5	1	10.1	100	89.87	
Upstream station, thalweg 2 (5 ft)	A	5	1	11.4	100	88.58	
Upstream station, thalweg 1 (1 ft)	A	1	1	11.3	100	88.75	
Inlet, culvert thalweg	A	0	1	11.7	100	88.31	
Inlet, culvert rustline	A	0	1	10.6	100	89.44	
Inlet, culvert invert	A	0	1	11.6	100	88.37	
Inlet, culvert top	A	0	1	5.73	100	94.27	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	70	11	13				5.83 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.3	31	40.8	Standard_Price AA	1.69
Upstream from Inlet of Culvert, Location 2	92	1	38	40.4	Standard_Price AA	2.08
Downstream from Outlet of Culvert, Location 1	50	1.6	23	41	Standard_Price AA	1.25
Downstream from Outlet of Culvert, Location 2	100	1.7	20	41.3	Standard_Price AA	1.09
At Culvert Inlet, Location 1	0	1.8	57	40	Standard_Price AA	3.16
At Culvert Outlet, Location 1	0	0.8	241	40	Standard_Price AA	13.30
Outlet Pool Tailcrest	17	1.2	75	40	Standard_Price AA	5.23

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 053 **VISIT** 1

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 054 **VISIT** 1
DATE 8/29/2001 **Time** 8:30:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.20491 **Long. (dec. deg)** 149.36989
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** A-7 **Stream #:** 231-30-10080-2010-3065
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Grouse Creek

Field Notes: Recent construction activities have altered flow patterns and levels. Difficult to determine OHW indicators. No invert measurements at inlet due to substrate. No tailcrest - large pool at outlet.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

							Inlet	Outlet
Culvert ID:	A	**Category:**	8	**Classification:**	gray		**Inlet**	**Outlet**
Length:	117	**Cross. Structure Type:**	Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	9.30	9.30
		Entrance Type:	Mitered	**Tidal Influence:**	No	**Height (ft):**		6.42
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	2.33	2.88
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		0.42
Substrate Type:	Fine Gravel	Fine Gravel		**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0
Culvert ID:	B	**Category:**		**Classification:**			**Inlet**	**Outlet**
Length:	117	**Cross. Structure Type:**	Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	9.20	9.20
		Entrance Type:	Mitered	**Tidal Influence:**	No	**Height (ft):**		6.32
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	2.13	2.77
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		0.21
Substrate Type:	Fine Gravel	Fine Gravel		**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0
Culvert ID:	C	**Category:**		**Classification:**			**Inlet**	**Outlet**
Length:	116	**Cross. Structure Type:**	Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	6.00	6.13
		Entrance Type:	Mitered	**Tidal Influence:**	No	**Height (ft):**		
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	2.04	2.13
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		
Substrate Type:	Fine Gravel	Fine Gravel		**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0
Culvert ID:	D	**Category:**		**Classification:**			**Inlet**	**Outlet**
Length:	116	**Cross. Structure Type:**	Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	8.00	6.30
		Entrance Type:	Mitered	**Tidal Influence:**	No	**Height (ft):**		
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.92	3.83
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		
Substrate Type:	Fine Gravel	Fine Gravel		**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 054 **VISIT** 1

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Fine Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous fish	SRO
Downstream:	Suitable for anadromous fish	SRO

Stream Discharge: 37.21

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	31	140
Upstrream OHW Width (50 ft.):	36	70
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):		
Downstrream OHW Width (50 ft.):		

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 054D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 66
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 054D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: sockeye salmon **Life Stage:** Adult **Species/Life Stage Count:** **Life History:** Anadromous
Stat. ID: 054D1 **Gear:** Visual Observation, Ground **# of Traps set:** **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments: at least one observed downstream

Species: sockeye salmon **Life Stage:** Adult **Species/Life Stage Count:** **Life History:** Anadromous
Stat. ID: 054U1 **Gear:** Visual Observation, Ground **# of Traps set:** **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments: at least one observed upstream

Species: pink salmon **Life Stage:** Adult **Species/Life Stage Count:** **Life History:** Anadromous
Stat. ID: 054D1 **Gear:** Visual Observation, Ground **# of Traps set:** **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments: more than one observed downstream

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 1 (within 5 ft)	5	1	17	100	83.02	
Outlet, pool water elev	5	1	14.1	100	85.87	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	14.4	100	85.65	
Inlet, edge-road		2	4.23	110.03	105.8	
Outlet, edge-road		2	2.73	110.03	107.3	
Upstream station, OHW line 1 (100 ft)	140	3	13.2	96.12	82.95	
Upstream station, water elev 1 (100 ft)	140	3	12.4	96.12	83.72	
Upstream station, thalweg 5 (100 ft)	140	3	13.3	96.12	82.87	
Upstream station, OHW line 1 (50 ft)	70	3	10.9	96.12	85.22	
Upstream station, water elev 2 (50 ft)	70	3	10.2	96.12	85.93	
Upstream station, thalweg 4 (50 ft)	70	3	11.8	96.12	84.3100	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 1 (1 ft)	C	1	3	11.9	96.12	84.27	
Inlet, culvert top	D	0	3	8.83	96.12	87.29	
Upstream station, water elev 1 (5 ft)	A	5	3	10.3	96.12	85.87	
Upstream station, thalweg 2 (5 ft)	D	5	3	11.3	96.12	84.83	
Upstream station, thalweg 2 (5 ft)	C	5	3	11.2	96.12	84.97	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 054 **VISIT** 1

Upstream station, thalweg 2 (5 ft)	B	5	3	12	96.12	84.12
Upstream station, thalweg 3 (2 CMP widths)	A	18.6	3	11.8	96.12	84.3500
Upstream station, thalweg 1 (1 ft)	D	1	3	11.9	96.12	84.2
Upstream station, thalweg 3 (2 CMP widths)	B	18.4	3	12	96.12	84.12
Upstream station, thalweg 1 (1 ft)	B	1	3	12.2	96.12	83.89
Upstream station, thalweg 1 (1 ft)	A	1	3	12.5	96.12	83.66
Inlet, culvert thalweg	D	0	3	12.1	96.12	84.04
Inlet, culvert thalweg	C	0	3	12.4	96.12	83.7
Inlet, culvert thalweg	B	0	3	12.1	96.12	84.04
Inlet, culvert thalweg	A	0	3	12.5	96.12	83.6000
Upstream station, thalweg 2 (5 ft)	A	5	3	12.4	96.12	83.77
Outlet, culvert invert	A	0	2	17.1	110.0	92.9
Inlet, culvert top	B	0	3	7.58	96.12	88.54
Inlet, culvert top	A	0	3	7.15	96.12	88.97
Outlet, thalweg	D	0	1	16.8	100	83.19
Outlet, thalweg	C	0	1	16.3	100	83.75
Outlet, thalweg	B	0	1	16.7	100	83.31
Upstream station, OHW line 1 (1 ft)	A	5	3	11.0	96.12	85.1000
Outlet, culvert invert	B	0	2	16.9	110.0	93.13
Inlet, culvert top	C	0	3	8.81	96.12	87.3100
Outlet, culvert top	D	0	1	13.1	100	86.94
Outlet, culvert top	C	0	1	13.1	100	86.92
Outlet, culvert top	B	0	1	10.6	100	89.42
Outlet, culvert top	A	0	1	10.7	100	89.29
Upstream station, thalweg 3 (2 CMP widths)	D	14.3	3	11.4	96.12	84.68
Upstream station, thalweg 3 (2 CMP widths)	C	12.14	3	11.3	96.12	84.8500
Outlet, thalweg	A	0	1	16.7	100	83.29

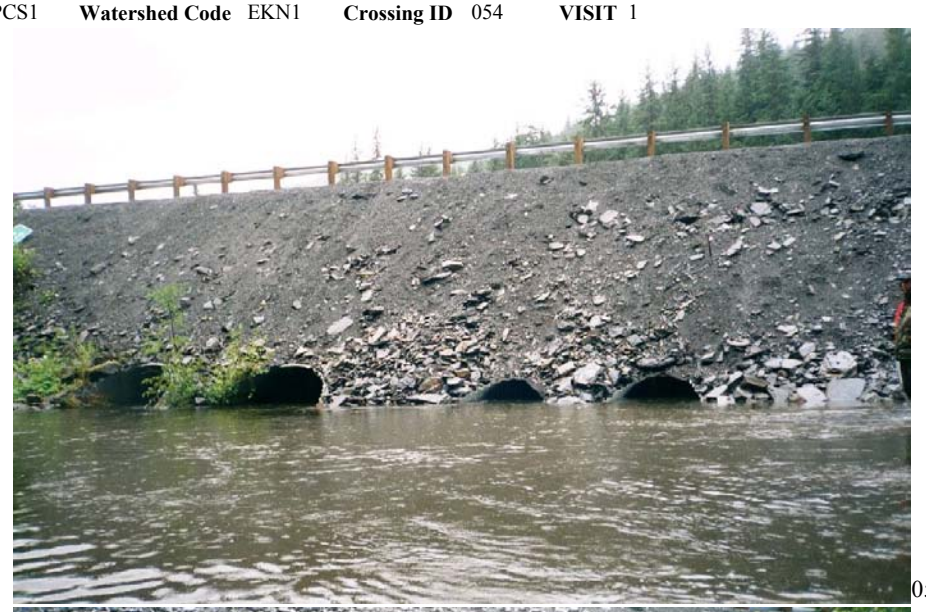
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	117	149	151				.78 ft/sec.
B	117	157	166				.72 ft/sec.
C	116	215	243				.51 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.6	24	40	Standard_Price AA	1.34
Upstream from Inlet of Culvert, Location 2	100	2.4	11	40.4	Standard_Price AA	0.62
At Culvert Inlet, Location 1	0	2.2	20	41	Standard_Price AA	1.09
At Culvert Outlet, Location 1	0	2	19	42	Standard_Price AA	1.00
At Culvert Inlet, Location 2	0	2	19	43	Standard_Price AA	0.99
At Culvert Outlet, Location 2	0	2.7	9	43	Standard_Price AA	0.48
At Culvert Inlet, Location 3	0	2.2	14	41.4	Standard_Price AA	0.76
At Culvert Outlet, Location 3	0	2.1	12	42.4	Standard_Price AA	0.64
At Culvert Inlet, Location 4	0	1.8	0	0	Standard_Price AA	0.00
At Culvert Outlet, Location 4	0	2.6	0	0	Standard_Price AA	0.00

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 054 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 055 **VISIT** 1
DATE 8/29/2001 **Time** 11:30:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.24256 **Long. (dec. deg)** 149.36267
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** A-7 **Stream #:** 231-30-10080-2010-3065
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** *Grouse Creek

Field Notes: Constructed this summer. Channel makes about a 90 degree bend going in and out of culverts.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** green

					Inlet	Outlet
Length:	89	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	4.90	4.90
		Entrance Type:	Projecting	**Tidal Influence:** No	**Height (ft):**	4.92	4.75
Corrugation Depth (in.):	3	**Baffles Present:**	No	**Culvert Gradient:** -0.002	**Manuf. Diameter:**		
Corrugation Width (in.):	1			**Perch Ht. (Flow - Ind):** -0.83	**Water Depth (ft):**	1.98	2.77
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -1.44	**Substr. Dep (ft):**	1.17	0.60
Substrate Type:	Coarse Gravel	Coarse Gravel		**Encrochment Ratio:** 1.26	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	Rearing
Downstream:	Suitable for anadromous fish	Rearing

Stream Discharge: 4.03

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	2.9	100
Upstrream OHW Width (50 ft.):	4.9	70
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:	7.5	5
Outlet Pool OHW Line (Max. Width.):	7.5	
Downstream OHW Width (100 ft.):	12	100
Downstrream OHW Width (50 ft.):	13.6	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Resident
Stat. ID: 055U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.27
Susp.Spawn? No **Fork Len. (mm)** 82 83 120 57 62 88 62 55 60 81
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 15 **Life History:** Resident
Stat. ID: 055D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 89 85 121 72 119 99 102 58 70 91
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Station 1	1.9	1	9.71	100	90.29	LB Bank
Left Bank, Wetted Perimeter	4	1	10.56	100	89.44	
Left Bank/Bed Slope Break	4	1	10.56	100	89.44	
Station 2	4.8	1	10.69	100	89.31	
Station 3	5.5	1	10.88	100	89.12	
Station 4	6.5	1	10.75	100	89.25	
Station 6	9.3	1	10.85	100	89.15	
Station 7	9.1	1	10.85	100	89.15	
Station 8	10.3	1	10.15	100	89.85	
Right Bank/Bed Slope Break	11.1	1	11.15	100	88.85	
Right Bank, Wetted Perimeter	11.5	1	10.46	100	89.54	
Right Bank, Ordinary High Water	11.5	1	10.44	100	89.56	

Longitudinal Section Elevation Common

Dist. from **Inst.**

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 055 **VISIT** 1

Station ID	Xing	No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	11.1	100	88.94	
Upstream station, thalweg 4 (50 ft)	70	1	7.92	100	92.08	
Upstream station, water elev 2 (50 ft)	70	1	7.4	100	92.6	
Upstream station, OHW line 1 (50 ft)	70	1	7.69	100	92.31	
Upstream station, thalweg 5 (100 ft)	100	1	7.29	100	92.71	
Upstream station, water elev 1 (100 ft)	100	1	6.48	100	93.52	
Upstream station, OHW line 1 (100 ft)	100	1	6.77	100	93.23	
Outlet, edge-road		1	2.81	100	97.19	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.4	100	89.56	
Inlet, edge-road		1	2.73	100	97.27	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	11.1	100	88.94	
Downstream station, OHW line 3 (100 ft)	100	1	13	100	87.02	
Downstream station, thalweg 1 (tailcrest)	5	1	10.9	100	89.06	
Downstream station, OHW line 1 (tailcrest)	5	1	10.4	100	89.56	
Downstream station, water elev 1 (tailcrest)	5	1	10.4	100	89.56	
Downstream station, thalweg 2 (50 ft)	50	1	11.5	100	88.46	
Downstream station, water elev 2 (50 ft)	50	1	10.7	100	89.31	
Downstream station, OHW line 2 (50)	50	1	10.6	100	89.44	
Downstream station, thalweg 3 (100 ft)	100	1	11.1	100	88.94	
Downstream station, water elev 3 (100 ft)	100	1	10.8	100	89.19	
Outlet, pool water elev	5	1	10.3	100	89.67	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, thalweg	A	0	1	11.2	100	88.83	
Outlet, culvert invert	A	0	1	11.8	100	88.23	
Outlet, culvert top	A	0	1	7.02	100	92.98	
Upstream station, thalweg 3 (2 CMP widths)	A	9.8	1	10.1	100	89.92	
Upstream station, OHW line 1 (1 ft)	A	5	1	10.4	100	89.6	
Upstream station, water elev 1 (5 ft)	A	5	1	10.0	100	89.98	
Upstream station, thalweg 2 (5 ft)	A	5	1	10.9	100	89.06	
Upstream station, thalweg 1 (1 ft)	A	1	1	11.2	100	88.83	
Inlet, culvert thalweg	A	0	1	10.8	100	89.19	
Inlet, culvert invert	A	0	1	12	100	88.02	
Inlet, culvert top	A	0	1	7.06	100	92.94	

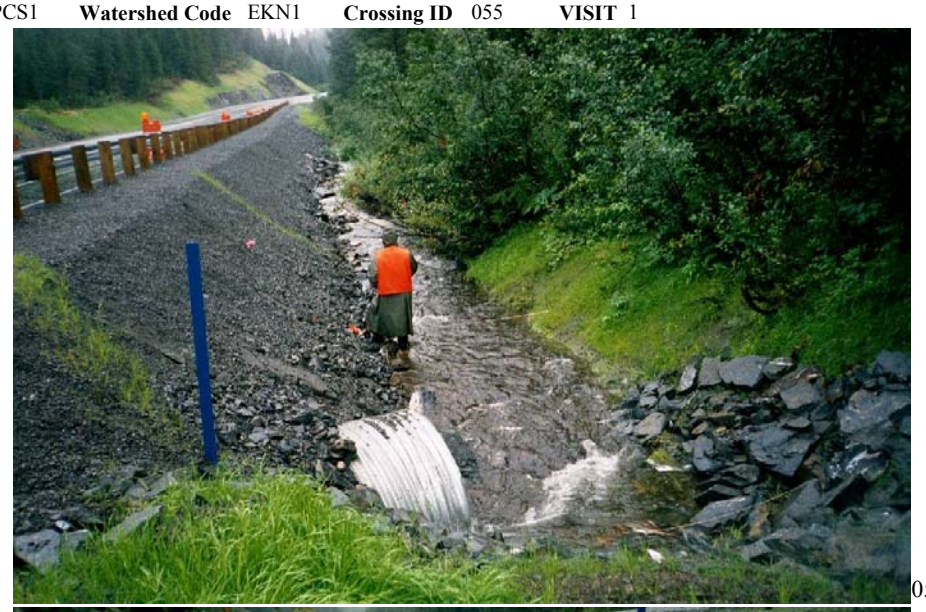
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	89	75	103	65	65		1.16 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	70	0.7	66	40.5	N/A	3.60
Upstream from Inlet of Culvert, Location 2	100	0.9	44	40	N/A	2.44
Downstream from Outlet of Culvert, Location 1	50	0.9	18	41.5	N/A	0.97
Downstream from Outlet of Culvert, Location 2	100	1.7	8	41.3	N/A	0.44
At Culvert Inlet, Location 1	0	1.1	48	40.3	N/A	2.64
At Culvert Outlet, Location 1	0	0.8	24	41.2	N/A	1.29
Outlet Pool Tailcrest	5	0.5	50	40	N/A	2.77

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 055 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 056 **VISIT** 1
DATE 8/29/2001 **Time** 2:00:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.16648 **Long. (dec. deg)** 149.40208
Road Name Seward Hwy **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Channel makes a 90 degree angle at outlet pool. Culverts not depressed, resting on channel bottom.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 81	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.90	4.90
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.12	5.08
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 0.5		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.17	1.38
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	Sands	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 81	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.90	4.90
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.15	5.06
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 0.5		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.21	1.33
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	Sands	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Fine Gravel	Fine Gravel
Sub Dominant Substrate Type:	Sands	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	SRO
Downstream:	Suitable for anadromous fish	SRO

Stream Discharge: 10.72

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	18.6	92
Upstrream OHW Width (50 ft.):	10.5	50
Upstrream OHW Width (5 ft.):	11.3	5
Tailcrest Width at OHW:	17.2	26
Outlet Pool OHW Line (Max. Width.):	21.5	
Downstream OHW Width (100 ft.):	13	102
Downstrream OHW Width (50 ft.):	13.8	67

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 056U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 71
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 056U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 42 45 78 71 55 74
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous
Stat. ID: 056D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 82 79 76 55 59 58 52 63 59 69
Comments:

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 056 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Resident

Stat. ID: 056D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2

Susp.Spawn? No **Fork Len. (mm)** 74 89 79 81 81 77 125 75 71 97

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	1	11.94	100	88.06	
Left Bank, Ordinary High Water	5	1	12.83	100	87.17	
Left Bank, Wetted Perimeter	4.82	1	12.69	100	87.31	
Left Bank/Bed Slope Break	3.8	1	12.4	100	87.6	
Station 1	6	1	13.33	100	86.67	
Station 2	10.6	1	13.69	100	86.31	
Station 4	16	1	13.19	100	86.81	
Station 5	20	1	13.17	100	86.83	
Station 6	21	1	13.15	100	86.85	
Right Bank, Terrace	21.7	1	12.52	100	87.48	
Right Bank/Bed Slope Break	21.4	1	12.71	100	87.29	
Right Bank, Wetted Perimeter	23.5	1	12.21	100	87.79	
Right Bank, Ordinary High Water	21	1	13.15	100	86.85	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	15.9	100	84.12	
Upstream station, thalweg 4 (50 ft)	50	1	12.8	100	87.21	
Upstream station, water elev 2 (50 ft)	50	1	11.9	100	88.1	
Upstream station, OHW line 1 (50 ft)	50	1	12.1	100	87.94	
Upstream station, thalweg 5 (100 ft)	92	1	12.4	100	87.56	
Upstream station, water elev 1 (100 ft)	92	1	11.5	100	88.46	
Upstream station, OHW line 1 (100 ft)	92	1	11.8	100	88.23	
Outlet, edge-road		1	1.77	100	98.23	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	12.6	100	87.42	
Inlet, edge-road	0	1	2.71	100	97.29	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	15.9	100	84.12	
Downstream station, thalweg 1 (tailcrest)	26	1	13.7	100	86.31	
Downstream station, OHW line 1 (tailcrest)	26	1	12.7	100	87.3	
Downstream station, water elev 1 (tailcrest)	26	1	12.5	100	87.54	
Outlet, pool water elev	5	1	12.4	100	87.58	
Downstream station, OHW line 3 (100 ft)	102	2	10.0	96.77	86.75	
Downstream station, thalweg 2 (50 ft)	67	2	10.1	96.77	86.69	
Downstream station, water elev 2 (50 ft)	67	2	9.5	96.77	87.27	
Downstream station, OHW line 2 (50)	67	2	9.75	96.77	87.02	
Downstream station, thalweg 3 (100 ft)	102	2	10.5	96.77	86.23	
Downstream station, water elev 3 (100 ft)	102	2	9.81	96.77	86.96	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	A	5	1	12.2	100	87.79	
Inlet, culvert top	B	0	1	8.29	100	91.71	
Inlet, culvert invert	A	0	1	13.4	100	86.65	
Inlet, culvert invert	B	0	1	13.4	100	86.56	
Inlet, culvert rustline	A	0	1	12.7	100	87.31	
Inlet, culvert rustline	B	0	1	12.8	100	87.25	
Inlet, culvert thalweg	A	0	1	13.4	100	86.65	

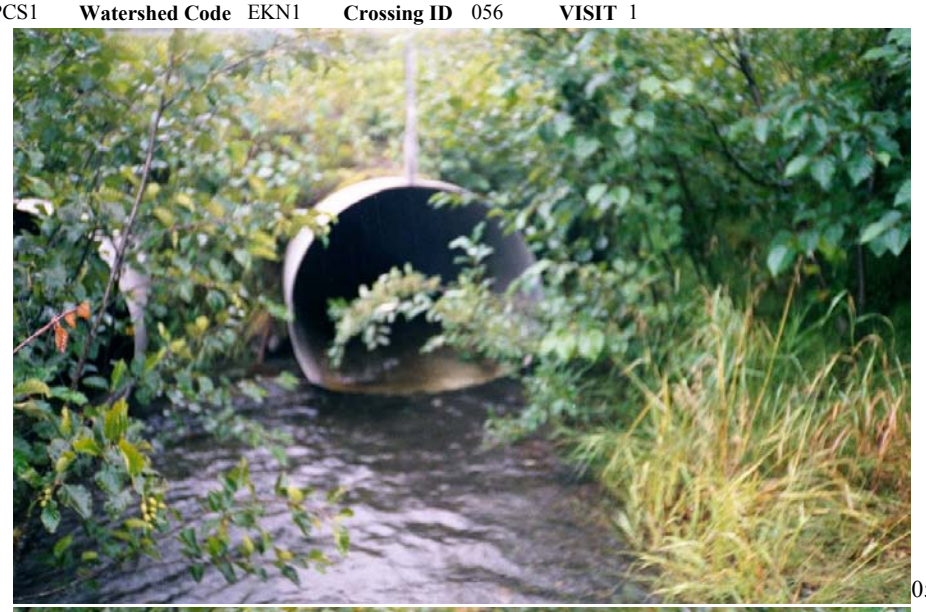
Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 056 **VISIT** 1

Inlet, culvert thalweg	B	0	1	13.4	100	86.56
Upstream station, thalweg 1 (1 ft)	A	1	1	13.2	100	86.79
Upstream station, thalweg 1 (1 ft)	B	1	1	13.4	100	86.6
Inlet, culvert top	A	0	1	8.23	100	91.77
Upstream station, thalweg 2 (5 ft)	B	5	1	12.8	100	87.21
Outlet, rustline	B	0	1	13.0	100	86.96
Upstream station, OHW line 1 (1 ft)	A	5	1	12.4	100	87.6
Upstream station, thalweg 3 (2 CMP widths)	A	9.8	1	12.7	100	87.33
Outlet, culvert top	A	0	1	8.75	100	91.25
Outlet, culvert top	B	0	1	8.67	100	91.33
Outlet, culvert invert	A	0	1	13.8	100	86.17
Outlet, culvert invert	B	0	1	13.7	100	86.27
Outlet, thalweg	A	0	1	13.8	100	86.17
Outlet, thalweg	B	0	1	13.7	100	86.27
Outlet, rustline	A	0	1	13.0	100	86.98
Upstream station, thalweg 2 (5 ft)	A	5	1	13.1	100	86.94

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.9	19	42.2	Standard_Price AA	1.00
Upstream from Inlet of Culvert, Location 2	92	0.7	28	41	Standard_Price AA	1.52
Downstream from Outlet of Culvert, Location 1	67	0.6	39	40.4	Standard_Price AA	2.15
Downstream from Outlet of Culvert, Location 2	102	0.7	49	40.2	Standard_Price AA	2.71
At Culvert Inlet, Location 1	0	1.2	19	40.8	Standard_Price AA	1.03
At Culvert Outlet, Location 1	0	1.2	10	45.2	Standard_Price AA	0.51
At Culvert Inlet, Location 2	0	1.2	30	40.1	Standard_Price AA	1.67
At Culvert Outlet, Location 2	0	1.2	53	40.5	Standard_Price AA	2.90
Outlet Pool Tailcrest	26	1.5	19	41.4	Standard_Price AA	1.03

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 056 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 057 **VISIT** 1
DATE 8/30/2001 **Time** 9:00:00 AM **Observers:** Cecil Rich, William Glick, Mike Thompson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.6107 **Long. (dec. deg)** 149.53314
Road Name Seward Hwy. **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Slate Creek

Field Notes: No outlet pool - only riffle at outlet
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 70	**Cross. Structure Type:** Structural plate arch - (open bottom-multi plate)			**Width (ft):**	5.90	6.00
	Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	4.48	3.79
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.63	0.79
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		
Substrate Type: Large Cobble	Small Cobble	**Encrochment Ratio:**		**Struc. Damage (%):**	0	1
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 70	**Cross. Structure Type:** Structural plate arch - (open bottom-multi plate)			**Width (ft):**	5.40	5.60
	Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	4.48	4.19
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.04	0.83
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		
Substrate Type: Large Cobble	Small Cobble	**Encrochment Ratio:**		**Struc. Damage (%):**	1	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**		**Width (ft)**	**Distance (ft)**
Dominant Substrate Type:	Large Cobble	Large Cobble	**Stream Discharge:** 49.08		
Sub Dominant Substrate Type:	Small Cobble	Small Cobble	**Upstrream OHW Width (100 ft.):**	9.7	100
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (50 ft.):**	16.5	50
			Upstrream OHW Width (5 ft.):	16.3	5
	Suit	**Type**	**Tailcrest Width at OHW:**		
Upstream:	Suitable for anadromous fish	SRO	**Outlet Pool OHW Line (Max. Width.):**		
			Downstream OHW Width (100 ft.):	11	100
Downstream:	Suitable for anadromous fish	SRO	**Downstrream OHW Width (50 ft.):**	23.9	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 057U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 100 110
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 057D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 78 95 81 70 97
Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 3 (100 ft)	100	1	13.8	100	86.21	
Downstream station, water elev 3 (100 ft)	100	1	13.6	100	86.44	
Downstream station, thalweg 3 (100 ft)	100	1	14.4	100	85.58	
Downstream station, OHW line 2 (50)	50	1	12.5	100	87.52	
Downstream station, water elev 2 (50 ft)	50	1	12.3	100	87.71	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 057 **VISIT** 1

Downstream station, thalweg 2 (50 ft)	50	1	13.2	100	86.77
Outlet, edge-road		1	5.48	100	94.52
Upstream station, OHW line 1 (100 ft)	94	1	6.65	100	93.35
Upstream station, water elev 1 (100 ft)	94	1	6.92	100	93.08
Upstream station, thalweg 5 (100 ft)	94	1	7.96	100	92.04
Upstream station, OHW line 1 (50 ft)	50	1	8.56	100	91.44
Upstream station, water elev 2 (50 ft)	50	1	8.33	100	91.67
Upstream station, thalweg 4 (50 ft)	50	1	9	100	91
Inlet, edge-road	0	1	4.19	100	95.81

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	A	5	1	9.52	100	90.48	
Inlet, culvert top	B	0	1	6.96	100	93.04	
Inlet, culvert rustline	A	0	1	9.77	100	90.23	
Inlet, culvert rustline	B	0	1	10.6	100	89.4	
Inlet, culvert thalweg	A	0	1	10.3	100	89.69	
Inlet, culvert thalweg	B	0	1	11.4	100	88.56	
Upstream station, thalweg 1 (1 ft)	A	1	1	10.2	100	89.85	
Upstream station, thalweg 1 (1 ft)	B	1	1	11	100	89.02	
Inlet, culvert top	A	0	1	2.04	100	97.96	
Upstream station, thalweg 2 (5 ft)	B	5	1	10.8	100	89.21	
Outlet, rustline	B	0	1	11.3	100	88.73	
Upstream station, OHW line 1 (1 ft)	A	5	1	9.94	100	90.06	
Upstream station, thalweg 3 (2 CMP widths)	A	11.9	1	10.0	100	89.98	
Upstream station, thalweg 3 (2 CMP widths)	B	11	1	10.3	100	89.69	
Outlet, culvert top	A	0	1	8	100	92	
Outlet, culvert top	B	0	1	7.94	100	92.06	
Outlet, thalweg	A	0	1	11.8	100	88.21	
Outlet, thalweg	B	0	1	12.1	100	87.87	
Outlet, rustline	A	0	1	11.0	100	88.96	
Upstream station, thalweg 2 (5 ft)	A	5	1	10.1	100	89.9	

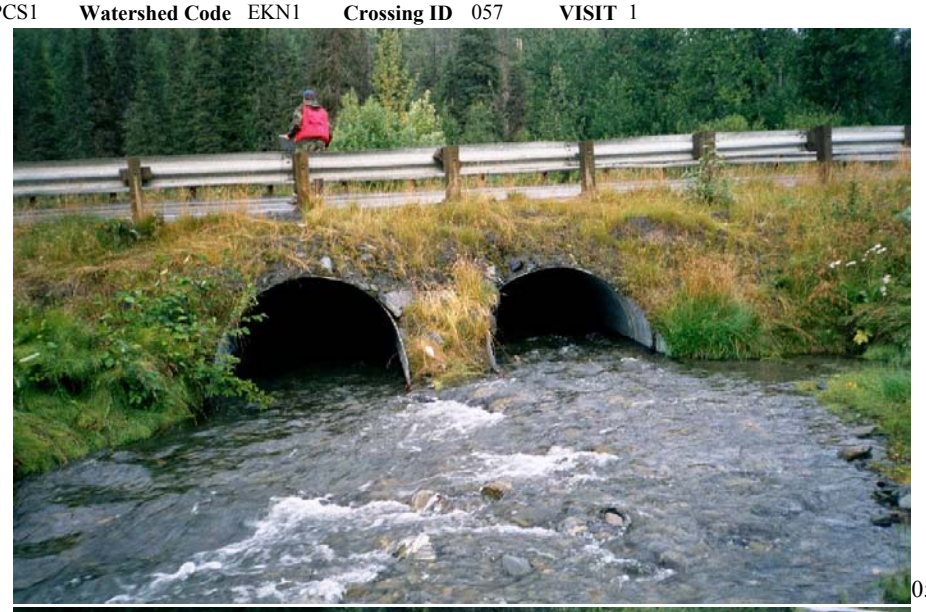
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	70	21	16	18			3.82 ft/sec.
B	70	20	23	15	16		3.78 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.8	54	40	Standard_Price AA	2.99
Upstream from Inlet of Culvert, Location 2	94	1.1	63	40	Standard_Price AA	3.49
Downstream from Outlet of Culvert, Location 1	50	1.2	45	40.4	Standard_Price AA	2.47
Downstream from Outlet of Culvert, Location 2	100	1.2	68	40.1	Standard_Price AA	3.76
At Culvert Inlet, Location 1	0	1.3	67	40.2	Standard_Price AA	3.68
At Culvert Outlet, Location 1	0	0.8	46	40.8	Standard_Price AA	2.50
At Culvert Inlet, Location 2	0	1.2	53	40.5	Standard_Price AA	2.90
At Culvert Outlet, Location 2	0	0.8	37	40.4	Standard_Price AA	2.04

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 057 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 058 **VISIT** 1
DATE 8/30/2001 **Time** 11:00:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.64384 **Long. (dec. deg)** 149.49545
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Colorado Creek

Field Notes: Agradation in left culvert has diverted flow to far right bank causing inlet erosion. No water in left culvert.
Road Prism Type: Through Fill **Spec. Site Cond.:** Active Bedload upstream of drainage structure

Culvert Measurements:

						Inlet	Outlet
Culvert ID: A		**Category:** 8	**Classification:** gray			**Inlet**	**Outlet**
Length: 73		**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	9.20	9.15
		Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**		
Corrugation Depth (in.):	2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.00	0.00
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		
Substrate Type:	Large Cobble	Boulder	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	Fill Slope Erosion Protection Needed	No Outlet Erosion			**Culv. Blockage (%):**		
Culvert ID: B		**Category:**	**Classification:**			**Inlet**	**Outlet**
Length: 73		**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	9.20	9.15
		Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	5.16	6.58
Corrugation Depth (in.):	2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.71	0.96
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0
Culvert ID: C		**Category:**	**Classification:**			**Inlet**	**Outlet**
Length: 73		**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	9.00	9.20
		Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	5.82	6.77
Corrugation Depth (in.):	2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.71	0.88
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 058 **VISIT** 1

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Large Cobble	Large Cobble
Sub Dominant Substrate Type:	Boulder	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous fish	Unknown
Downstream:	Suitable for anadromous fish	Unknown

Stream Discharge: 46.78

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	16.2	100
Upstrream OHW Width (50 ft.):	25.7	50
Upstrream OHW Width (5 ft.):	49.5	5
Tailcrest Width at OHW:	26	16.7
Outlet Pool OHW Line (Max. Width.):	29.5	
Downstream OHW Width (100 ft.):	13	90
Downstrream OHW Width (50 ft.):	12.7	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 058U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 151 131
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 058D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 114 118 102
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 058D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.15
Susp.Spawn? No **Fork Len. (mm)** 105
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.9	1	9.58	100	90.42	
Left Bank/Bed Slope Break	8	1	10.79	100	89.21	
Left Bank, Ordinary High Water	8	1	10.79	100	89.21	
Station 1	9.5	1	10.85	100	89.15	LB bank
Left Bank, Wetted Perimeter	10.4	1	11.06	100	88.94	
Station 2	12.2	1	11.25	100	88.75	
Station 3	13.1	1	11.69	100	88.31	
Station 4	15.7	1	12.23	100	87.77	
Station 5	19.2	1	12.17	100	87.83	
Station 6	22.5	1	12	100	88	
Station 7	28.2	1	11.27	100	88.73	
Station 8	32.8	1	11.31	100	88.69	
Station 9	36.4	1	10.79	100	89.21	
Right Bank/Bed Slope Break	38.2	1	11.08	100	88.92	
Right Bank, Wetted Perimeter	38.5	1	11.02	100	88.98	
Station 10	38.2	1	11.08	100	88.92	Right bank
Right Bank, Terrace	39.3	1	9.83	100	90.17	
Right Bank, Ordinary High Water	38.9	1	10.25	100	89.75	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	12.6	100	87.42	
Outlet, edge-road		1	2.33	100	97.67	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.2	100	89.79	
Inlet, edge-road		1	2.42	100	97.58	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	12.6	100	87.42	
Downstream station, OHW line 3 (100 ft)	90	1	13	100	87.04	
Downstream station, thalweg 1 (tailcrest)	16.7	1	12.2	100	87.77	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 058 **VISIT** 1

Downstream station, OHW line 1 (tailcrest)	16.7	1	10.3	100	89.75
Downstream station, water elev 1 (tailcrest)	16.7	1	11.0	100	88.98
Downstream station, thalweg 2 (50 ft)	50	1	14.2	100	85.83
Downstream station, water elev 2 (50 ft)	50	1	12.7	100	87.33
Downstream station, OHW line 2 (50)	50	1	12.9	100	87.12
Downstream station, thalweg 3 (100 ft)	90	1	14.2	100	85.79
Downstream station, water elev 3 (100 ft)	90	1	12.8	100	87.25
Outlet, pool water elev	5	1	10.8	100	89.17
Upstream station, OHW line 1 (100 ft)	100	2	3.79	100.73	96.94
Upstream station, water elev 1 (100 ft)	100	2	3.54	100.73	97.19
Upstream station, thalweg 5 (100 ft)	100	2	5	100.73	95.73
Upstream station, OHW line 1 (50 ft)	50	2	5.79	100.73	94.94
Upstream station, water elev 2 (50 ft)	50	2	5.29	100.73	95.44
Upstream station, thalweg 4 (50 ft)	50	2	6.15	100.73	94.58

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 3 (2 CMP widths)	A	18.35	2	7.29	100.7	93.44	
Inlet, culvert top	B	0	2	5.17	100.7	95.5600	
Inlet, culvert top	C	0	2	5.1	100.7	95.63	
Inlet, culvert rustline	A	0	2	8.81	100.7	91.9200	
Inlet, culvert rustline	B	0	2	8.77	100.7	91.9600	
Inlet, culvert rustline	C	0	2	9.65	100.7	91.08	
Inlet, culvert thalweg	A	0	2	7.71	100.7	93.02	
Inlet, culvert thalweg	B	0	2	10.3	100.7	90.4	
Inlet, culvert thalweg	C	0	2	10.9	100.7	89.8100	
Upstream station, thalweg 1 (1 ft)	B	1	2	9.08	100.7	91.65	
Upstream station, thalweg 1 (1 ft)	C	1	2	10.8	100.7	89.98	
Upstream station, thalweg 2 (5 ft)	B	5	2	9.04	100.7	91.69	
Upstream station, thalweg 2 (5 ft)	C	5	2	9.23	100.7	91.5	
Inlet, culvert top	A	0	2	5.25	100.7	95.48	
Upstream station, OHW line 1 (1 ft)	A	5	2	7.52	100.7	93.2100	
Outlet, rustline	C	0	1	10.1	100	89.9	
Upstream station, thalweg 3 (2 CMP widths)	B	18.35	2	7.21	100.7	93.52	
Upstream station, thalweg 3 (2 CMP widths)	C	18.2	2	7.04	100.7	93.69	
Outlet, culvert top	A	0	1	4.71	100	95.29	
Outlet, culvert top	B	0	1	4.63	100	95.37	
Outlet, culvert top	C	0	1	4.58	100	95.42	
Outlet, culvert invert	B	0	1	11.2	100	88.79	
Outlet, culvert invert	C	0	1	11.4	100	88.65	
Outlet, thalweg	A	0	1	10.7	100	89.31	
Outlet, thalweg	B	0	1	11.2	100	88.79	
Outlet, thalweg	C	0	1	11.4	100	88.65	
Outlet, rustline	A	0	1	10.4	100	89.65	
Outlet, rustline	B	0	1	10.0	100	89.96	
Upstream station, water elev 1 (5 ft)	B	5	2	6.81	100.7	93.9200	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
B	73	18	20				3.84 ft/sec.
C	73	15	15				4.87 ft/sec.

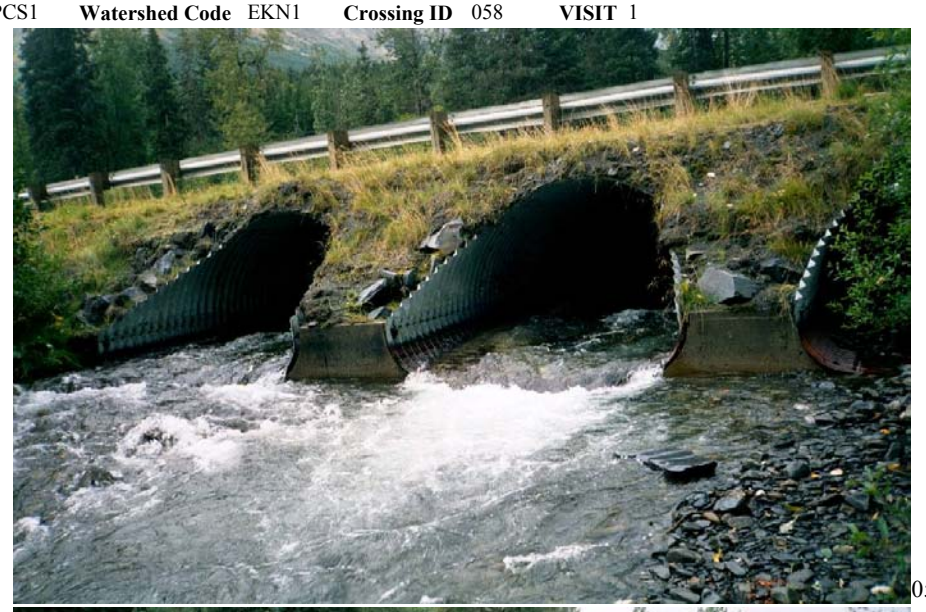
Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1	63	40.2	N/A	2.46

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 058 **VISIT** 1

Upstream from Inlet of Culvert, Location 1	50	1	65	40.2	N/A	3.46
Upstream from Inlet of Culvert, Location 2	100	1.2	76	40	N/A	4.21
Downstream from Outlet of Culvert, Location 1	50	1.2	89	40	N/A	4.92
Downstream from Outlet of Culvert, Location 2	100	1	70	40.3	N/A	3.85
At Culvert Inlet, Location 2	0	1.8	93	40.2	N/A	5.11
At Culvert Outlet, Location 2	0	0.8	82	40.4	N/A	4.48
At Culvert Inlet, Location 3	0	1.8	108	40	N/A	5.96
At Culvert Outlet, Location 3	0	0.8	65	40.4	N/A	3.57
Outlet Pool Tailcrest	16.7	1	74	40.2	N/A	4.07

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 058 **VISIT** 1



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Culvert Survey Report

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 060 **VISIT** 1
DATE 9/4/2001 **Time** 11:25:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.44244 **Long. (dec. deg)** 150.31564
Road Name Upper Skilak Lake Campground **Region:** SCN
Quad Name: Kenai **ITM:** B-1 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Lower Ohmer Creek

Field Notes: Shallow water in outlet and through culvert. Outlet perch (8 inches)) occasional very high flows in spring (B. Glick pers observ.). Check whether instrument 3 is needed.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 88.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	6.20	6.00
	Entrance Type: Flared Inlet	**Tidal Influence:** No		**Height (ft):**	4.55	4.60
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:** 0.0546		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.08	0.04
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.77		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:** 0.97		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

Stream Discharge: 0.43

	Upstream	Downstream		Width (ft)	Distance (ft)
Dominant Substrate Type:	Large Cobble	Large Cobble	**Upstrream OHW Width (100 ft.):**	5.91	67
Sub Dominant Substrate Type:	Boulder	Boulder	**Upstrream OHW Width (50 ft.):**	6.9	35
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	10.7	5
	Suit	**Type**	**Tailcrest Width at OHW:**		10
Upstream:	Suitable for Resident fish	Rearing	**Outlet Pool OHW Line (Max. Width.):**	13.9	
Downstream:	Suitable for Resident fish	Rearing	**Downstream OHW Width (100 ft.):**	7	75
			Downstrream OHW Width (50 ft.):	7.4	51

Fish Surveys

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 13 **Life History:** Resident
Stat. ID: 060U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.5
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 38 **Life History:** Resident
Stat. ID: 060D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.5
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	2	1	11.02	100	88.98	LB slope
Left Bank, Ordinary High Water	3.7	1	12.44	100	87.56	
Left Bank, Wetted Perimeter	4.1	1	13.63	100	86.37	
Left Bank/Bed Slope Break	7.9	1	13.81	100	86.19	
Right Bank, Wetted Perimeter	10	1	13.56	100	86.44	
Right Bank/Bed Slope Break	10.6	1	13.29	100	86.71	
Station 2	11.8	1	13.48	100	86.52	RB bank
Right Bank, Ordinary High Water	13.9	1	13.02	100	86.98	
Station 3	15	1	11.42	100	88.58	top of right bank

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 060 **VISIT** 1

Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.5	100	85.54
Outlet, edge-road		1	3.46	100	96.54
Inlet, edge-road		1	4	100	96
Outlet, pool water elev	5	1	13.5	100	86.46
Downstream station, OHW line 3 (100 ft)	75	1	17.1	100	82.9
Outlet, pool maximum depth 2	5	1	14.5	100	85.54
Downstream station, OHW line 1 (tailcrest)	10	1	12.7	100	87.27
Downstream station, water elev 1 (tailcrest)	10	1	13.6	100	86.4
Downstream station, thalweg 2 (50 ft)	51	1	17.3	100	82.67
Downstream station, water elev 2 (50 ft)	51	1	16.7	100	83.29
Downstream station, OHW line 2 (50)	51	1	15.7	100	84.29
Downstream station, thalweg 3 (100 ft)	75	1	18	100	82.04
Downstream station, water elev 3 (100 ft)	75	1	17.7	100	82.31
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	13.1	100	86.94
Upstream station, OHW line 1 (100 ft)	67	2	4	101.19	97.19
Upstream station, water elev 1 (100 ft)	67	2	4.85	101.19	96.34
Upstream station, thalweg 5 (100 ft)	67	2	4.9	101.19	96.29
Upstream station, OHW line 1 (50 ft)	35	2	3.79	101.19	97.4
Upstream station, water elev 2 (50 ft)	35	2	4.21	101.19	96.98
Upstream station, thalweg 4 (50 ft)	35	2	4.46	101.19	96.73

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	12.3	100	87.67	
Outlet, thalweg	A	0	1	12.8	100	87.23	
Outlet, culvert invert	A	0	1	12.8	100	87.23	
Outlet, culvert top	A	0	1	8.17	100	91.83	
Upstream station, thalweg 3 (2 CMP widths)	A	12.2	2	6.96	101.2	94.23	
Upstream station, OHW line 1 (1 ft)	A	5	2	7.58	101.2	93.61	
Upstream station, water elev 1 (5 ft)	A	5	2	9.69	101.2	91.5	
Upstream station, thalweg 2 (5 ft)	A	5	2	9.08	101.2	92.11	
Upstream station, thalweg 1 (1 ft)	A	1	2	9.52	101.2	91.67	
Inlet, culvert thalweg	A	0	2	9.15	101.2	92.04	
Inlet, culvert rustline	A	0	2	8.79	101.2	92.4	
Inlet, culvert invert	A	0	2	9.13	101.2	92.0600	
Inlet, culvert top	A	0	2	4.58	101.2	96.61	

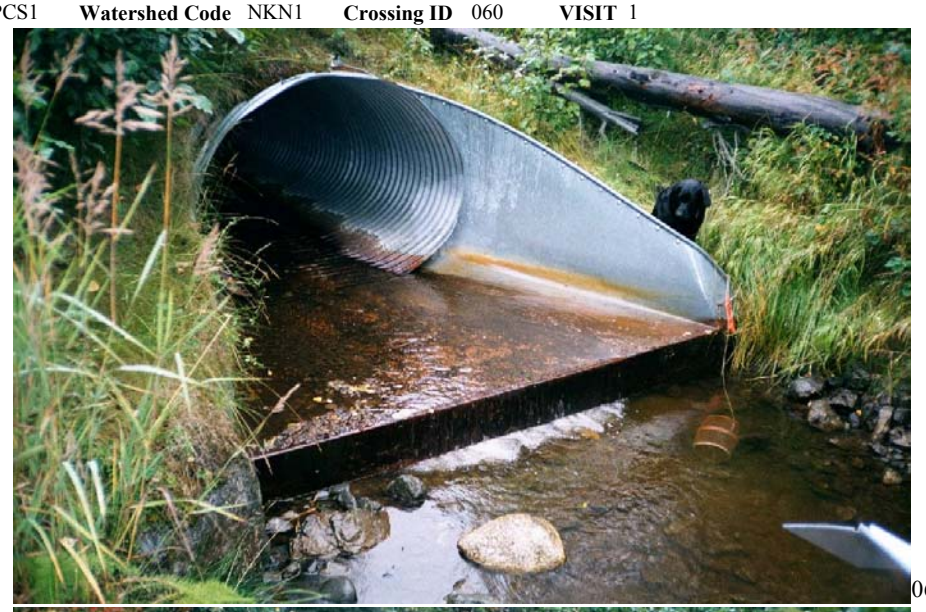
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	88.5	57	70				1.39 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	35	0.2	92	40.1	N/A	2.23
Upstream from Inlet of Culvert, Location 2	67	0.3	50	40	N/A	1.23
Downstream from Outlet of Culvert, Location 1	51	0.2	39	40	N/A	9.68
Downstream from Outlet of Culvert, Location 2	75	0.3	89	40.1	N/A	2.16
At Culvert Inlet, Location 1	0	0.05	35	40.6	N/A	8.59
At Culvert Outlet, Location 1	0	0.1	27	47	N/A	0.67
Outlet Pool Tailcrest	10	0.1	33	41	N/A	0.80

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 060 **VISIT** 1



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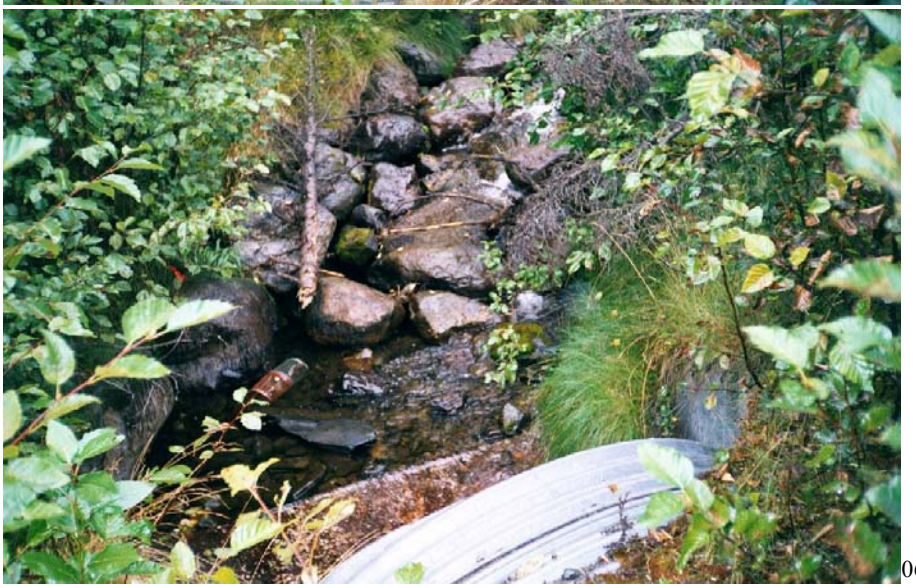

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 061 **VISIT** 1
DATE 9/4/2001 **Time** 2:00:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.44025 **Long. (dec. deg)** 150.31798
Road Name Upper Skilak Campground Rd. **Region:** SCN
Quad Name: Kenai **ITM:** B-1 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Lower Ohmer Creek

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 1 **Classification:** gray
Length: 52 **Cross. Structure Type:** Structural plate arch - (open bottom-multi plate)
Entrance Type: Mitered **Tidal Influence:** No
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** 0.0090
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** 2.59
Perch Ht. (Flow -Dep): 2.96
Encrochment Ratio: 1.32

	Inlet	Outlet
Substrate Type:	Boulder	Boulder
Erosion:	No Inlet Erosion	No Outlet Erosion

	Inlet	Outlet
Width (ft):	9.70	9.80
Height (ft):	3.84	4.12
Manuf. Diameter:		
Water Depth (ft):	0.33	0.13
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Large Cobble	Large Cobble
Sub Dominant Substrate Type:	Boulder	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Stream Discharge: 0.43

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	8.1	58
Upstrream OHW Width (50 ft.):	6.6	46
Upstrream OHW Width (5 ft.):	9.5	5
Tailcrest Width at OHW:	7.8	10
Outlet Pool OHW Line (Max. Width.):	10.8	
Downstream OHW Width (100 ft.):	6	83
Downstrream OHW Width (50 ft.):	7.3	50

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 061U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)** 157 75 71 75 75 90
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Resident
Stat. ID: 061U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)** 160 110 131 117 90 133 92 87 108 92
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 9 **Life History:** Resident
Stat. ID: 061D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 102 111 119 86 71 139 103 74 84
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 061D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 90 81 105 96
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Anadromous
Stat. ID: 061D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 60 70 64
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 061 **VISIT** 1

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 2 **Life History:** Resident

Stat. ID: 061D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3

Susp.Spawn? No **Fork Len. (mm)**

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	2	7.44	95.07	87.63	
Left Bank, Ordinary High Water	2.8	2	8.02	95.07	87.05	
Left Bank, Wetted Perimeter	3.1	2	9.02	95.07	86.05	
Left Bank/Bed Slope Break	3.1	2	9.02	95.07	86.05	
Station 1	3.9	2	9.33	95.07	85.74	
Station 2	4.9	2	8.96	95.07	86.11	
Station 3	5.8	2	9.29	95.07	85.78	
Station 4	7.3	2	9.65	95.07	85.42	
Right Bank/Bed Slope Break	8.8	2	9.17	95.07	85.9	
Right Bank, Wetted Perimeter	8.8	2	9.17	95.07	85.9	
Station 5	10.2	2	8.69	95.07	86.38	RB 2nd slope break
Right Bank, Ordinary High Water	10.6	2	7.96	95.07	87.11	
Right Bank, Terrace	11.2	2	7.85	95.07	87.22	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 3 (100 ft)	83	1	9.67	100	90.33	
Downstream station, thalweg 3 (100 ft)	83	1	10.7	100	89.31	
Downstream station, OHW line 2 (50)	50	1	7.52	100	92.48	
Downstream station, water elev 2 (50 ft)	50	1	8.65	100	91.35	
Downstream station, thalweg 2 (50 ft)	50	1	9.08	100	90.92	
Downstream station, OHW line 3 (100 ft)	83	1	9.67	100	90.33	
Outlet, pool maximum depth 2	5	2	9.23	95.07	85.84	
Outlet, edge-road		2	0.56	95.07	94.51	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	8.04	95.07	87.03	
Inlet, edge-road		2	0.5	95.07	94.57	
Outlet, pool maximum depth 1 (within 5 ft)	5	2	9.23	95.07	85.84	
Downstream station, thalweg 1 (tailcrest)	10	2	9.65	95.07	85.42	
Downstream station, OHW line 1 (tailcrest)	10	2	7.99	95.07	87.08	
Downstream station, water elev 1 (tailcrest)	10	2	9.1	95.07	85.97	
Outlet, pool water elev	5	2	10.0	95.07	85.05	
Upstream station, OHW line 1 (100 ft)	58	3	3.69	96.38	92.69	
Upstream station, water elev 1 (100 ft)	58	3	4.38	96.38	92	
Upstream station, thalweg 5 (100 ft)	58	3	4.88	96.38	91.5	
Upstream station, OHW line 1 (50 ft)	46	3	4.13	96.38	92.25	
Upstream station, water elev 2 (50 ft)	46	3	5	96.38	91.38	
Upstream station, thalweg 4 (50 ft)	46	3	5.96	96.38	90.42	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, thalweg	A	0	2	7.06	95.07	88.01	
Outlet, culvert invert	A	0	2	7.06	95.07	88.01	
Outlet, culvert top	A	0	2	2.94	95.07	92.13	
Upstream station, thalweg 3 (2 CMP widths)	A	19.5	3	6.52	96.38	89.86	
Upstream station, OHW line 1 (1 ft)	A	5	3	6.65	96.38	89.73	
Upstream station, water elev 1 (5 ft)	A	5	3	7.31	96.38	89.07	
Upstream station, thalweg 2 (5 ft)	A	5	3	7.46	96.38	88.92	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 061 **VISIT** 1

Upstream station, thalweg 1 (1 ft)	A	1	3	8.08	96.38	88.3
Inlet, culvert thalweg	A	0	3	7.9	96.38	88.48
Inlet, culvert invert	A	0	3	7.9	96.38	88.48
Inlet, culvert top	A	0	3	4.06	96.38	92.32

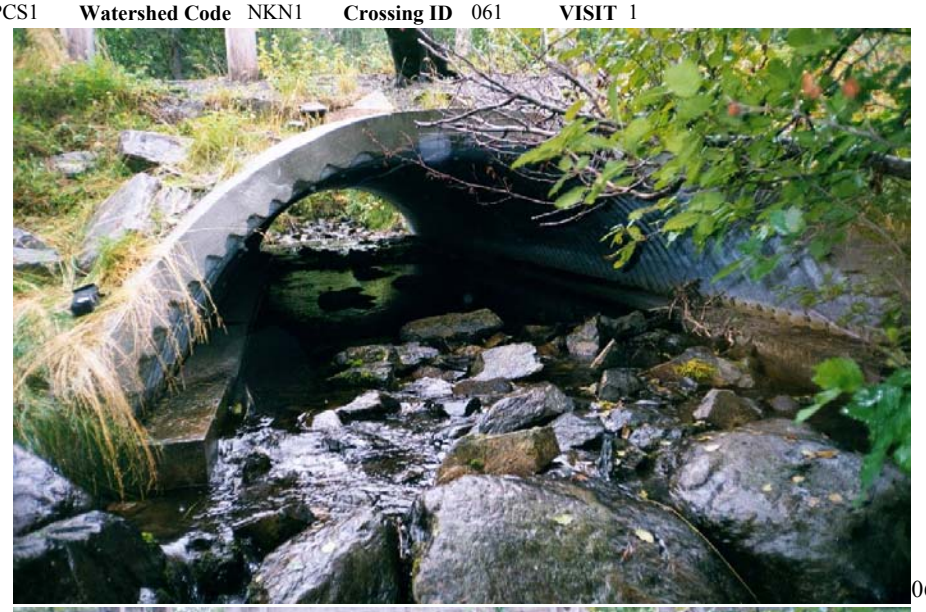
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	52	77	84	71			.67 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	46	0.2	36	41.2	N/A	0.87
Upstream from Inlet of Culvert, Location 2	58	0.2	66	40.3	N/A	1.60
Downstream from Outlet of Culvert, Location 1	50	0.3	29	41.1	N/A	0.71
Downstream from Outlet of Culvert, Location 2	83	0.25	70	40.2	N/A	1.70
At Culvert Inlet, Location 1	0	0.3	18	40.5	N/A	0.46
At Culvert Outlet, Location 1	0	0.5	26	41.5	N/A	0.63
Outlet Pool Tailcrest	10	0.3	42	41.1	N/A	1.00

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 061 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 062 **VISIT** 1
DATE 9/4/2001 **Time** 5:01:00 PM **Observers:** Cecil Rich, James Maple, William Glick

Site Information:

GPS Location: **Lat. (dec. deg)** 60.45619 **Long. (dec. deg)** 150.30798
Road Name Upper Skilak Campground Rd. **Region:** SCN
Quad Name: Kenai **ITM:** B-1 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:**

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length:	53	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	3.00	3.00
		Entrance Type:	Flared Inlet	**Tidal Influence:** No	**Height (ft):**	2.69	2.98
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** 0.0204	**Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** -0.06	**Water Depth (ft):**	0.50	2.75
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -0.19	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** 0.44	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Fine Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 0.23

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	6.5	91
Upstrream OHW Width (50 ft.):	7.1	50
Upstrream OHW Width (5 ft.):	6.3	5
Tailcrest Width at OHW:	9.5	8
Outlet Pool OHW Line (Max. Width.):	16.6	
Downstream OHW Width (100 ft.):	4	35
Downstrream OHW Width (50 ft.):	7.8	23

Fish Surveys

Species: sculpin, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 21 **Life History:** Resident
Stat. ID: 062U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 33 **Life History:** Resident
Stat. ID: 062D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: sculpin, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 16 **Life History:** Resident
Stat. ID: 062D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 062D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3
Susp.Spawn? No **Fork Len. (mm)** 40
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.8	1	9.08	100	90.92	
Left Bank/Bed Slope Break	3.8	1	9.08	100	90.92	
Left Bank, Ordinary High Water	5.5	1	9.21	100	90.79	
Left Bank, Wetted Perimeter	6.5	1	9.4	100	90.6	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 062 **VISIT** 1

Station 1	8	1	9.48	100	90.52
Station 2	10	1	9.48	100	90.52
Right Bank/Bed Slope Break	14.5	1	9.29	100	90.71
Right Bank, Wetted Perimeter	14.5	1	9.29	100	90.71
Right Bank, Ordinary High Water	15	1	8.94	100	91.06
Right Bank, Terrace	16.5	1	8.9	100	91.1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	10.6	100	89.37	
Outlet, edge-road		1	3.06	100	96.94	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	9.1	100	90.9	
Inlet, edge-road		1	3.25	100	96.75	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	10.6	100	89.37	
Downstream station, OHW line 3 (100 ft)	35	1	10.1	100	89.92	
Downstream station, thalweg 1 (tailcrest)	8	1	9.48	100	90.52	
Downstream station, OHW line 1 (tailcrest)	8	1	9.08	100	90.92	
Downstream station, water elev 1 (tailcrest)	8	1	9.35	100	90.65	
Downstream station, thalweg 2 (50 ft)	23	1	10.3	100	89.67	
Downstream station, water elev 2 (50 ft)	23	1	10.1	100	89.9	
Downstream station, OHW line 2 (50)	23	1	9.67	100	90.33	
Downstream station, thalweg 3 (100 ft)	35	1	10.7	100	89.35	
Downstream station, water elev 3 (100 ft)	35	1	10.5	100	89.5	
Outlet, pool water elev	5	1	9.35	100	90.65	
Upstream station, OHW line 1 (100 ft)	91	2	7.92	101.56	93.64	
Upstream station, water elev 1 (100 ft)	91	2	8.4	101.56	93.16	
Upstream station, thalweg 5 (100 ft)	91	2	8.85	101.56	92.71	
Upstream station, OHW line 1 (50 ft)	50	2	9.04	101.56	92.52	
Upstream station, water elev 2 (50 ft)	50	2	9.42	101.56	92.14	
Upstream station, thalweg 4 (50 ft)	50	2	9.71	101.56	91.85	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	9.19	100	90.81	
Outlet, thalweg	A	0	1	9.54	100	90.46	
Outlet, culvert invert	A	0	1	9.54	100	90.46	
Outlet, culvert top	A	0	1	6.56	100	93.44	
Upstream station, thalweg 3 (2 CMP widths)	A	6	1	8.5	100	91.5	
Upstream station, OHW line 1 (1 ft)	A	5	1	8.1	100	91.9	
Upstream station, water elev 1 (5 ft)	A	5	1	8.38	100	91.62	
Upstream station, thalweg 2 (5 ft)	A	5	1	8.69	100	91.31	
Upstream station, thalweg 1 (1 ft)	A	1	1	8.85	100	91.15	
Inlet, culvert thalweg	A	0	1	8.46	100	91.54	
Inlet, culvert rustline	A	0	1	8.25	100	91.75	
Inlet, culvert invert	A	0	1	8.46	100	91.54	
Inlet, culvert top	A	0	1	5.77	100	94.23	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	53	29	33	34	40		1.56 ft/sec.

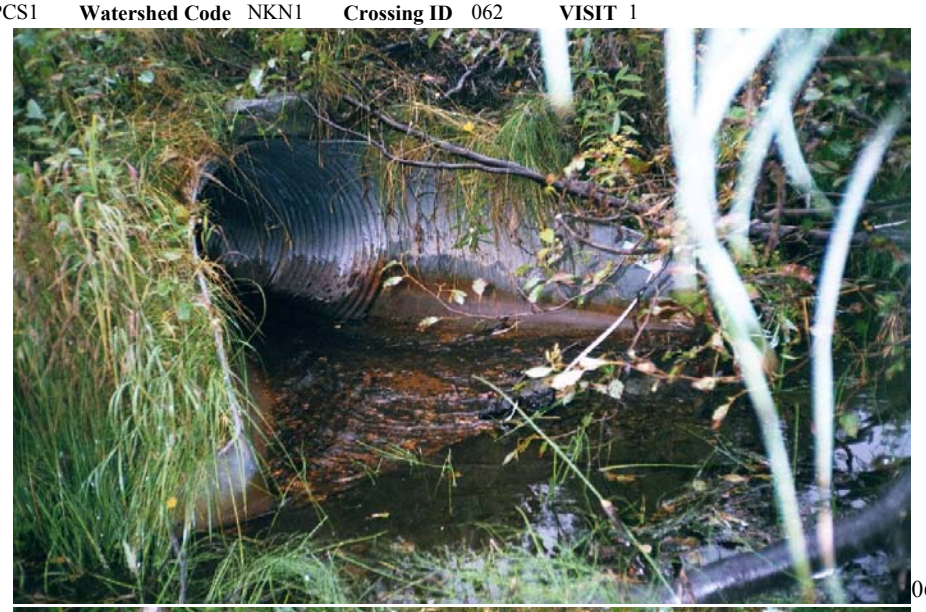
Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.2	49	40	N/A	1.20

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 062 **VISIT** 1

Upstream from Inlet of Culvert, Location 2	91	0.1	98	40	N/A	2.38
Downstream from Outlet of Culvert, Location 1	35	0.2	47	40.6	N/A	1.13
Downstream from Outlet of Culvert, Location 2	23	0.15	63	40.3	N/A	1.52
At Culvert Inlet, Location 1	0	0.05	76	40.2	N/A	1.85
At Culvert Outlet, Location 1	0	0.25	29	40.4	N/A	0.72
Outlet Pool Tailcrest	8	0.2	43	40.5	N/A	1.04

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 062 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 063 **VISIT** 1
DATE 9/5/2001 **Time** 9:00:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.72544 **Long. (dec. deg)** 150.67616
Road Name Swan Lake Road **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Sucker Creek

Field Notes: Right pipe is abandoned. Creek known to be used by andromonous fish for spawning but none were observed. Inlet pipe near outlet to lake.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 56	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	3.90	3.90
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	3.90	3.90
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.48	0.56
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.43	0.35
Substrate Type: Small Cobble	Small Cobble	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 57.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.00	4.00
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	4.06	3.96
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**		
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		
Substrate Type: Small Cobble	Small Cobble	**Encrochment Ratio:**		**Struc. Damage (%):**		
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**		

Stream-related

	Upstream	**Downstream**	**Stream Discharge:** 2.15	**Width (ft)**	**Distance (ft)**
Dominant Substrate Type:	Coarse Gravel	Small Cobble	**Upstrream OHW Width (100 ft.):**	31.6	95
Sub Dominant Substrate Type:	Small Cobble	Large Cobble	**Upstrream OHW Width (50 ft.):**	21.8	50
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	7.5	5
	Suit	**Type**	**Tailcrest Width at OHW:**	9.9	38
Upstream:	Suitable for anadromous and	SRO	**Outlet Pool OHW Line (Max. Width.):**	17.6	
Downstream:	Suitable for anadromous and	SRO	**Downstream OHW Width (100 ft.):**	22	97
			Downstrream OHW Width (50 ft.):	14.4	70

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 063U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 69 76 81 77 71 74 68 58 61 71
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 063U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 118 94 124 107
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 063U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 063 **VISIT** 1

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 063D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 109 108 85 89 83
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Anadromous
Stat. ID: 063D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 75 53 63 83 67 62 60 68 70 65
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 13 **Life History:** Resident
Stat. ID: 063D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.6	2	5.83	101.42	95.59	
Left Bank, Ordinary High Water	3.6	2	6.92	101.42	94.5	
Left Bank, Wetted Perimeter	3.7	2	7.63	101.42	93.79	LB streambed slopebreak
Left Bank/Bed Slope Break	3.6	2	6.92	101.42	94.5	LB upper
Station 1	5.9	2	8.1	101.42	93.32	
Station 2	6.6	2	7.96	101.42	93.46	
Station 3	9.2	2	8	101.42	93.42	
Station 4	11.3	2	11.27	101.42	90.15	
Right Bank/Bed Slope Break	11.7	2	8.21	101.42	93.21	
Right Bank, Wetted Perimeter	12.9	2	7.67	101.42	93.75	
Right Bank, Ordinary High Water	13.5	2	7.17	101.42	94.25	
Right Bank, Terrace	14.4	2	6.65	101.42	94.77	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 3 (100 ft)	97	1	7.02	100	92.98	
Downstream station, thalweg 3 (100 ft)	97	1	7.79	100	92.21	
Downstream station, OHW line 2 (50)	70	1	6.19	100	93.81	
Downstream station, water elev 2 (50 ft)	70	1	6.65	100	93.35	
Downstream station, thalweg 2 (50 ft)	70	1	7.04	100	92.96	
Downstream station, OHW line 3 (100 ft)	97	1	6.96	100	93.04	
Outlet, pool maximum depth 2		2	8.56	101.42	92.86	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	7.6	101.42	93.82	
Outlet, pool maximum depth 1 (within 5 ft)	5	2	7.88	101.42	93.54	
Downstream station, thalweg 1 (tailcrest)	38	2	11.3	101.42	90.15	
Downstream station, OHW line 1 (tailcrest)	38	2	7.05	101.42	94.37	
Downstream station, water elev 1 (tailcrest)	38	2	7.65	101.42	93.77	
Outlet, pool water elev	5	2	7.54	101.42	93.88	
Inlet, edge-road		3	3.54	106.7	103.16	
Outlet, edge-road		3	3.48	106.7	103.22	
Upstream station, OHW line 1 (100 ft)	95	3	10.7	106.7	96.03	
Upstream station, water elev 1 (100 ft)	95	3	11.7	106.7	94.99	
Upstream station, thalweg 5 (100 ft)	95	3	12.4	106.7	94.28	
Upstream station, OHW line 1 (50 ft)	50	3	11.4	106.7	95.28	
Upstream station, water elev 2 (50 ft)	50	3	11.8	106.7	94.87	
Upstream station, thalweg 4 (50 ft)	50	3	13.1	106.7	93.62	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 063 **VISIT** 1

Upstream station, OHW line 1 (1 ft)	A	5	3	11.6	106.7	95.14
Inlet, culvert top	B	0	3	7.54	106.7	99.16
Inlet, culvert invert	A	0	3	12.4	106.7	94.3
Inlet, culvert invert	B	0	3	11.6	106.7	95.1
Inlet, culvert rustline	A	0	3	12.3	106.7	94.43
Inlet, culvert thalweg	A	0	3	12.9	106.7	93.82
Upstream station, thalweg 1 (1 ft)	A	1	3	12.9	106.7	93.85
Inlet, culvert top	A	0	3	8.5	106.7	98.2
Upstream station, water elev 1 (5 ft)	A	5	3	12.3	106.7	94.39
Outlet, rustline	A	0	2	6.88	101.4	94.54
Upstream station, thalweg 3 (2 CMP widths)	A	7.8	3	12.8	106.7	93.89
Outlet, culvert top	A	0	2	4.27	101.4	97.15
Outlet, culvert top	B	0	2	2.58	101.4	98.84
Outlet, culvert invert	A	0	2	8.17	101.4	93.25
Outlet, culvert invert	B	0	2	6.54	101.4	94.88
Outlet, thalweg	A	0	2	7.81	101.4	93.61
Upstream station, thalweg 2 (5 ft)	A	5	3	12.8	106.7	93.87

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	56	38	39				1.45 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.9	7	44.4	N/A	0.37
Upstream from Inlet of Culvert, Location 2	95	0.8	9	40.2	N/A	0.51
Downstream from Outlet of Culvert, Location 1	70	0.4	19	40.7	N/A	1.03
Downstream from Outlet of Culvert, Location 2	97	0.5	17	40.2	N/A	0.95
At Culvert Inlet, Location 1	0	0.4	24	40	N/A	1.34
At Culvert Outlet, Location 1	0	0.65	54	40.8	N/A	2.94
Outlet Pool Tailcrest	38	0.4	11	42.4	N/A	0.59

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 063 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 064 **VISIT** 1
DATE 9/5/2001 **Time** 12:00:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.73205 **Long. (dec. deg)** 150.73932
Road Name Swan Lake **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Current culvert is adjacent to old squashed non-functional one. Newer one is bowed in middle but still functional. Wetland above crossing, channel below feeding Swanson River.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length: 49	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	3.70	3.60
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	4.42	4.34
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0204		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.29		**Water Depth (ft):**	0.29	0.25
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.08		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Small Cobble
Sub Dominant Substrate Type:	None	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 0.75

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	6.5	5
Tailcrest Width at OHW:	5.1	7.8
Outlet Pool OHW Line (Max. Width.):	6.4	
Downstream OHW Width (100 ft.):	8	100
Downstrream OHW Width (50 ft.):	5.7	50

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 064U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 132 83 118 115 118 91 95
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 064U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 064D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.05
Susp.Spawn? No **Fork Len. (mm)** 94
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	1	3.83	100	96.17	
Left Bank, Ordinary High Water	3.9	1	4.08	100	95.92	
Left Bank, Wetted Perimeter	4.2	1	4.48	100	95.52	
Left Bank/Bed Slope Break	4.2	1	4.48	100	95.52	
Station 1	5	1	4.73	100	95.27	
Station 2	6.6	1	4.73	100	95.27	
Right Bank/Bed Slope Break	8.8	1	4.6	100	95.4	
Right Bank, Wetted Perimeter	8.8	1	4.6	100	95.4	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 064 **VISIT** 1

Right Bank, Ordinary High Water	9	1	3.81	100	96.19	
Station 3	10	1	3.17	100	96.83	RB slope break

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 3 (100 ft)	100	1	6.33	100	93.67	
Downstream station, water elev 3 (100 ft)	100	1	6.63	100	93.37	
Downstream station, thalweg 3 (100 ft)	100	1	7.31	100	92.69	
Downstream station, OHW line 2 (50)	50	1	5.15	100	94.85	
Downstream station, water elev 2 (50 ft)	50	1	5.65	100	94.35	
Downstream station, thalweg 2 (50 ft)	50	1	5.79	100	94.21	
Downstream station, water elev 1 (tailcrest)	7.8	1	4.54	100	95.46	
Downstream station, OHW line 1 (tailcrest)	7.8	1	3.95	100	96.05	
Downstream station, thalweg 1 (tailcrest)	7.8	1	4.73	100	95.27	
Outlet, pool maximum depth 2	5	1	5.21	100	94.79	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	5.21	100	94.79	
Outlet, pool water elev	5	1	4.52	100	95.48	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	3.58	100	96.42	
Outlet, edge-road		2	2.23	105.98	103.75	
Inlet, edge-road		2	1.75	105.98	104.23	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	3.5	100	96.5	
Outlet, thalweg	A	0	1	4.44	100	95.56	
Outlet, culvert invert	A	0	1	4.44	100	95.56	
Outlet, culvert top	A	0	1	0.1	100	99.9	
Upstream station, thalweg 3 (2 CMP widths)	A	7.4	2	10	106	95.98	
Upstream station, OHW line 1 (1 ft)	A	5	2	8.54	106	97.44	
Upstream station, water elev 1 (5 ft)	A	5	2	9.08	106	96.9	
Upstream station, thalweg 2 (5 ft)	A	5	2	9.77	106	96.2100	
Upstream station, thalweg 1 (1 ft)	A	1	2	9.77	106	96.2100	
Inlet, culvert thalweg	A	0	2	9.42	106	96.5600	
Inlet, culvert rustline	A	0	2	8.5	106	97.48	
Inlet, culvert invert	A	0	2	9.42	106	96.5600	
Inlet, culvert top	A	0	2	5	106	100.98	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	49	32	33				1.51 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 1	50	0.25	40	40	N/A	0.99
Downstream from Outlet of Culvert, Location 2	100	0.7	38	40.4	N/A	0.94
At Culvert Inlet, Location 1	0	0.3	77	40	N/A	1.88
At Culvert Outlet, Location 1	0	0.25	147	40.2	N/A	3.53
Outlet Pool Tailcrest	7.8	0.25	45	40.5	N/A	1.10

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 064 **VISIT** 1

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Culvert Survey Report

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 065 **VISIT** 1
DATE 9/5/2001 **Time** 3:00:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** **Long. (dec. deg)**
Road Name Fish Hatchery **Region:** SCN
Quad Name: Kenai **ITM:** B-4 **Stream #:** 244-30-10050-2024
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Crooked Creek

Field Notes: Fill slope erosion on both sides.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

						Inlet	Outlet
Culvert ID: A		**Category:** 8		**Classification:** gray			
Length: 46		**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	7.70	7.70
		Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	6.96	5.87
Corrugation Depth (in.): 0.5		**Baffles Present:** No		**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 3				**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	2.13	1.96
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Sands	Fine Gravel		**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

						Inlet	Outlet
Culvert ID: B		**Category:**		**Classification:**			
Length: 46		**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	7.70	7.80
		Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	8.15	6.83
Corrugation Depth (in.): 0.5		**Baffles Present:** No		**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 3				**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	3.63	2.96
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Sands	Fine Gravel		**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Sands	Sands
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge: 64.69

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	36.4	100
Upstrream OHW Width (50 ft.):	24.7	50
Upstrream OHW Width (5 ft.):	24.1	5
Tailcrest Width at OHW:	35.1	52
Outlet Pool OHW Line (Max. Width.):	35.1	
Downstream OHW Width (100 ft.):	37	110
Downstrream OHW Width (50 ft.):	32	55

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 065U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 55 61 73 55
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Anadromous
Stat. ID: 065U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 53 79 62 61 60
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident
Stat. ID: 065U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 86 90 100 112 151
Comments:

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 065 **VISIT** 1

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 065D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 111 100 85
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 065D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 53 61 58 58 65 60 60 65 50 62
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 065D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 45 57 55 70
Comments:

Species: sculpin, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 065U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	7.7	1	4.25	100	95.75	
Left Bank, Ordinary High Water	6.9	1	4.92	100	95.08	
Left Bank, Wetted Perimeter	6.9	1	5.17	100	94.83	
Left Bank/Bed Slope Break	6.9	1	6.31	100	93.69	bank undercut
Station 1	13.2	1	7.27	100	92.73	
Station 2	17	1	7.21	100	92.79	
Station 3	22.7	1	6.69	100	93.31	
Station 4	27.6	1	6.21	100	93.79	
Right Bank/Bed Slope Break	40.6	1	5.4	100	94.6	
Right Bank, Wetted Perimeter	41	1	5.23	100	94.77	
Right Bank, Ordinary High Water	42	1	4.79	100	95.21	
Right Bank, Terrace	42.5	1	4.4	100	95.6	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	7.88	100	92.12	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	4.92	100	95.08	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	7.88	100	92.12	
Downstream station, OHW line 3 (100 ft)	110	1	5.29	100	94.71	
Downstream station, thalweg 1 (tailcrest)	52	1	7.27	100	92.73	
Downstream station, OHW line 1 (tailcrest)	52	1	4.86	100	95.14	
Downstream station, water elev 1 (tailcrest)	52	1	5.2	100	94.8	
Downstream station, thalweg 2 (50 ft)	55	1	7.29	100	92.71	
Downstream station, water elev 2 (50 ft)	55	1	5.27	100	94.73	
Downstream station, OHW line 2 (50)	55	1	4.92	100	95.08	
Downstream station, thalweg 3 (100 ft)	110	1	6.31	100	93.69	
Downstream station, water elev 3 (100 ft)	110	1	5.38	100	94.62	
Outlet, pool water elev	5	1	5.19	100	94.81	
Inlet, edge-road		2	3.79	105.87	102.08	
Outlet, edge-road		2	4.27	105.87	101.6	
Upstream station, OHW line 1 (100 ft)	100	2	11.8	105.87	94.04	
Upstream station, water elev 1 (100 ft)	100	2	10.9	105.87	94.97	
Upstream station, thalweg 5 (100 ft)	100	2	13.9	105.87	91.9900	

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 065 **VISIT** 1

Upstream station, OHW line 1 (50 ft)	50	2	10.6	105.87	95.2400
Upstream station, water elev 2 (50 ft)	50	2	10.8	105.87	95.0600
Upstream station, thalweg 4 (50 ft)	50	2	14.9	105.87	90.97

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert invert	A	0	2	13.2	105.9	92.68	
Upstream station, thalweg 3 (2 CMP widths)	A	15.4	2	13.6	105.9	92.29	
Outlet, culvert top	A	0	1	1.17	100	98.83	
Outlet, culvert top	B	0	1	1.21	100	98.79	
Outlet, culvert invert	A	0	1	7.04	100	92.96	
Outlet, culvert invert	B	0	1	8.04	100	91.96	
Outlet, thalweg	A	0	1	7.04	100	92.96	
Outlet, thalweg	B	0	1	8.04	100	91.96	
Outlet, rustline	A	0	1	4.94	100	95.06	
Outlet, rustline	B	0	1	5	100	95	
Upstream station, OHW line 1 (1 ft)	A	5	2	10.5	105.9	95.33	
Inlet, culvert top	B	0	2	6.31	105.9	99.5600	
Upstream station, water elev 1 (5 ft)	A	5	2	10.9	105.9	94.97	
Inlet, culvert invert	B	0	2	14.5	105.9	91.41	
Inlet, culvert rustline	A	0	2	10.8	105.9	95.04	
Inlet, culvert rustline	B	0	2	11	105.9	94.89	
Inlet, culvert thalweg	A	0	2	13.2	105.9	92.68	
Inlet, culvert thalweg	B	0	2	14.5	105.9	91.41	
Upstream station, thalweg 1 (1 ft)	A	1	2	13.4	105.9	92.4900	
Upstream station, thalweg 1 (1 ft)	B	1	2	14.4	105.9	91.43	
Upstream station, thalweg 2 (5 ft)	A	5	2	13.1	105.9	92.8100	
Upstream station, thalweg 2 (5 ft)	B	5	2	14.1	105.9	91.8100	
Inlet, culvert top	A	0	2	6.23	105.9	99.64	

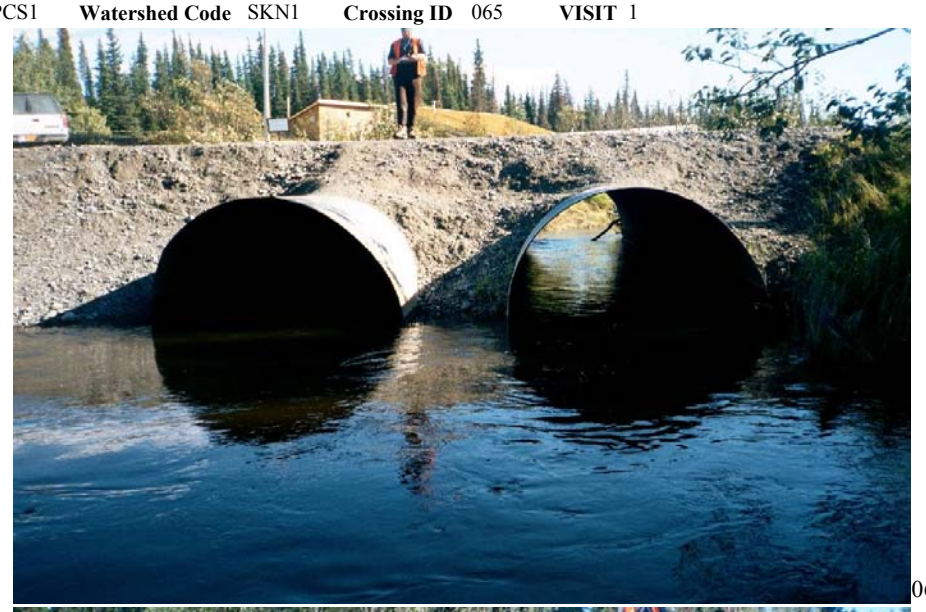
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	46	23	24				1.96 ft/sec.
B	46	24	26	27	29		1.74 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	3.7	23	41.2	Standard_Price AA	1.25
Upstream from Inlet of Culvert, Location 2	100	2.7	23	40	Standard_Price AA	1.27
Upstream from Inlet of Culvert, Location 3	100	1.8	26	40.9	Standard_Price AA	1.42
Downstream from Outlet of Culvert, Location 1	55	2	41	40.3	Standard_Price AA	2.26
Downstream from Outlet of Culvert, Location 2	110	1.2	40	40.7	Standard_Price AA	1.96
At Culvert Inlet, Location 1	0	2	31	40.5	Standard_Price AA	1.71
At Culvert Outlet, Location 1	0	1.95	32	40.1	Standard_Price AA	1.78
At Culvert Inlet, Location 2	0	3.5	45	40.3	Standard_Price AA	2.48
At Culvert Outlet, Location 2	0	2.8	36	40.9	Standard_Price AA	1.96
Outlet Pool Tailcrest	52	2.5	25	40.5	Standard_Price AA	1.38

Project Code KPCS1 **Watershed Code** SKN1 **Crossing ID** 065 **VISIT** 1



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Culvert Survey Report

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 066 **VISIT** 1
DATE 9/6/2001 **Time** 9:30:00 AM **Observers:** Cecil Rich, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.52557 **Long. (dec. deg)** 149.60808
Road Name Sterling Hwy. **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Daves Creek

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length: 86	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	10.70	11.40
	Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	11.81	11.69
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:** 0.0069		**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):** 0.50		**Water Depth (ft):**	2.25	2.71
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -2.56	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Boulder	None	**Encrochment Ratio:** 0.64	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	None	None
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	OR
Downstream:	Suitable for anadromous fish	OR

Stream Discharge: 52.57

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	16.2	85
Upstrream OHW Width (50 ft.):	17.1	50
Upstrream OHW Width (5 ft.):	20.8	5
Tailcrest Width at OHW:	27.8	39
Outlet Pool OHW Line (Max. Width.):	31.7	
Downstream OHW Width (100 ft.):	21	106
Downstrream OHW Width (50 ft.):	23.8	60

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 9 **Life History:** Anadromous
Stat. ID: 066U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3.1
Susp.Spawn? No **Fork Len. (mm)** 44 73 106 70 63 59 53 47 80
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 066U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 3.1
Susp.Spawn? No **Fork Len. (mm)** 78
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Anadromous
Stat. ID: 066D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.35
Susp.Spawn? No **Fork Len. (mm)** 51 67 60 87 58 56 49
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 066D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.35
Susp.Spawn? No **Fork Len. (mm)** 115 88
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.8	1	13.38	100	86.62	
Left Bank, Ordinary High Water	3.2	1	13.9	100	86.1	
Left Bank, Wetted Perimeter	3.2	1	14.02	100	85.98	
Left Bank/Bed Slope Break	3.2	1	14.75	100	85.25	
Station 1	6.4	1	14.9	100	85.1	

Culvert Survey Report

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 067 **VISIT** 1
DATE 9/6/2001 **Time** 3:30:00 PM **Observers:** Cecil Rich, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.51417 **Long. (dec. deg)** 149.46826
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Moose Creek

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length: 113.6	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	2.10	1.90
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	2.15	1.48
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0198		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.08		**Water Depth (ft):**	0.63	0.75
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.62		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Coarse Gravel	Small Cobble	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: N/A

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	3.1	5
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max. Width.):		
Downstream OHW Width (100 ft.):		
Downstrream OHW Width (50 ft.):		

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 067U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.45
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 067D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.5
Susp.Spawn? No **Fork Len. (mm)** 140
Comments: Two additional fish observed (approx. 150 cm) in culvert outlet

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 1 (tailcrest)	3.1	1	21.5	100	78.52	
Downstream station, OHW line 1 (tailcrest)	3.1	1	21.3	100	78.75	
Downstream station, thalweg 1 (tailcrest)	3.1	1	21.9	100	78.08	
Outlet, pool maximum depth 2		1	22.0	100	77.96	
Outlet, pool water elev	5	1	21.4	100	78.62	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	21.2	100	78.79	
Outlet, edge-road		1	2.71	100	97.29	
Inlet, edge-road		1	3.04	100	96.96	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	21.2	100	78.79	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 067 **VISIT** 1

Outlet, thalweg	A	0	1	22	100	78	
Outlet, culvert invert	A	0	1	22	100	78	
Outlet, culvert top	A	0	1	20.5	100	79.48	
Upstream station, thalweg 3 (2 CMP widths)	A	4	1	19.3	100	80.73	
Upstream station, OHW line 1 (1 ft)	A	5	1	18.3	100	81.71	
Upstream station, water elev 1 (5 ft)	A	5	1	18.8	100	81.23	
Upstream station, thalweg 2 (5 ft)	A	5	1	19.6	100	80.44	
Upstream station, thalweg 1 (1 ft)	A	1	1	19.4	100	80.58	
Inlet, culvert thalweg	A	0	1	19.8	100	80.25	
Inlet, culvert rustline	A	0	1	18.6	100	81.44	
Inlet, culvert invert	A	0	1	19.8	100	80.25	estimated
Inlet, culvert top	A	0	1	17.6	100	82.4	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Inlet, Location 1	0	0.4	115	40.2	Pygmy	2.78
At Culvert Outlet, Location 1	0	0.7	41	40.7	Pygmy	1.00
Outlet Pool Tailcrest	3.1	0.7	52	40	Pygmy	1.28

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 067 **VISIT** 1

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 068 **VISIT** 1
DATE 9/10/2001 **Time** 9:50:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.14431 **Long. (dec. deg)** 149.41231
Road Name Salmon Creek Road **Region:** SCN
Quad Name: Seward **ITM:** A-7 **Stream #:** 231-30-10080-2010
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Tributary of Salmon Creek. Marshy on both sides of creek. Lots of course gravel accum. Above Salmon Creek Rd. culvert. Left culvert highly aggraded - very little flow in it. Many pink salmon observed in spawning area above Salmon Creek Rd.
Road Prism Type: Through Fill **Spec. Site Cond.:** Other consequence (comment in notes)

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray **Inlet** **Outlet**
Length: 69 **Cross. Structure Type:** Corrugated Metal Pipe **Width (ft):** 5.40 5.80
Entrance Type: Mitered **Tidal Influence:** No **Height (ft):** 2.33 4.14
Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 0.25 2.27
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.02
Substrate Type: Coarse Gravel Small Cobble **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):**

Culvert ID: B **Category:** **Classification:** **Inlet** **Outlet**
Length: 70 **Cross. Structure Type:** Corrugated Metal Pipe **Width (ft):** 5.50 5.50
Entrance Type: Mitered **Tidal Influence:** No **Height (ft):** 3.31 4.08
Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 1.17 2.19
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):** 0.00 0.00
Substrate Type: Coarse Gravel Small Cobble **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):** 0 0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Fine Gravel
Sub Dominant Substrate Type:	Small Cobble	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Undetermined	Unknown
Downstream:	Suitable for anadromous fish	SRO

Stream Discharge: 5.02

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	25	69
Upstrream OHW Width (50 ft.):	20	42
Upstrream OHW Width (5 ft.):	84.2	5
Tailcrest Width at OHW:	16	38
Outlet Pool OHW Line (Max. Width.):	47.4	
Downstream OHW Width (100 ft.):	73	127
Downstrream OHW Width (50 ft.):	29	95

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 068U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 105 118 132
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 67 **Life History:** Anadromous
Stat. ID: 068U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 129 55 80 82 82 80 72 82 112 79
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 068D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 125 119
Comments:

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 068 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 131 **Life History:** Anadromous

Stat. ID: 068D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1

Susp.Spawn? No **Fork Len. (mm)** 68 90 53 80 77 120 88 69 52 79

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.8	1	8.19	100	91.81	
Left Bank, Ordinary High Water	4.3	1	8.29	100	91.71	
Left Bank, Wetted Perimeter	4.4	1	8.4	100	91.6	
Left Bank/Bed Slope Break	4.5	1	8.54	100	91.46	
Station 1	5.5	1	9.17	100	90.83	
Station 2	10.2	1	9.08	100	90.92	
Station 3	12.5	1	9	100	91	
Station 4	17.3	1	9.83	100	90.17	
Right Bank/Bed Slope Break	20	1	9.83	100	90.17	
Right Bank, Wetted Perimeter	20.3	1	8.38	100	91.62	
Right Bank, Ordinary High Water	20.3	1	8.25	100	91.75	
Right Bank, Terrace	21.1	1	8.19	100	91.81	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	4	1	13.1	100	86.92	
Upstream station, thalweg 4 (50 ft)	42	1	8.79	100	91.21	
Upstream station, water elev 2 (50 ft)	42	1	8.23	100	91.77	
Upstream station, OHW line 1 (50 ft)	42	1	8.21	100	91.79	
Upstream station, thalweg 5 (100 ft)	69	1	9.21	100	90.79	
Upstream station, water elev 1 (100 ft)	69	1	8.19	100	91.81	
Upstream station, OHW line 1 (100 ft)	69	1	8.17	100	91.83	
Outlet, edge-road		1	3.15	100	96.85	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	8.33	100	91.67	
Inlet, edge-road		1	3.1	100	96.9	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	12.7	100	87.29	
Downstream station, OHW line 3 (100 ft)	127	1	8.54	100	91.46	
Downstream station, thalweg 1 (tailcrest)	38	1	9.6	100	90.4	
Downstream station, OHW line 1 (tailcrest)	38	1	8.33	100	91.67	
Downstream station, water elev 1 (tailcrest)	38	1	8.46	100	91.54	
Downstream station, thalweg 2 (50 ft)	95	1	8.94	100	91.06	
Downstream station, water elev 2 (50 ft)	95	1	8.46	100	91.54	
Downstream station, OHW line 2 (50)	95	1	8.4	100	91.6	
Downstream station, thalweg 3 (100 ft)	127	1	9.06	100	90.94	
Downstream station, water elev 3 (100 ft)	127	1	8.5	100	91.5	
Outlet, pool water elev	5	1	8.38	100	91.62	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	B	5	1	8.31	100	91.69	
Inlet, culvert top	B	0	1	6.19	100	93.81	
Inlet, culvert invert	A	0	1	8.6	100	91.4	
Inlet, culvert invert	B	0	1	9.5	100	90.5	
Inlet, culvert rustline	A	0	1	8.29	100	91.71	
Inlet, culvert rustline	B	0	1	9.33	100	90.67	
Inlet, culvert thalweg	A	0	1	8.6	100	91.4	
Inlet, culvert thalweg	B	0	1	9.5	100	90.5	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 068 **VISIT** 1

Upstream station, thalweg 1 (1 ft)	A	1	1	8.6	100	91.4
Upstream station, thalweg 1 (1 ft)	B	1	1	9.5	100	90.5
Upstream station, thalweg 2 (5 ft)	A	5	1	8.52	100	91.48
Inlet, culvert top	A	0	1	6.27	100	93.73
Upstream station, water elev 1 (5 ft)	A	5	1	8.33	100	91.67
Outlet, rustline	B	0	1	8.27	100	91.73
Upstream station, OHW line 1 (1 ft)	A	5	1	8.21	100	91.79
Upstream station, OHW line 1 (1 ft)	B	5	1	8.25	100	91.75
Upstream station, thalweg 3 (2 CMP widths)	A	11.2	1	9	100	91
Upstream station, thalweg 3 (2 CMP widths)	B	11	1	9.23	100	90.77
Outlet, culvert top	A	0	1	6.63	100	93.37
Outlet, culvert top	B	0	1	6.44	100	93.56
Outlet, culvert invert	A	0	1	10.8	100	89.23
Outlet, culvert invert	B	0	1	10.5	100	89.48
Outlet, thalweg	A	0	1	10.8	100	89.25
Outlet, thalweg	B	0	1	10.5	100	89.48
Outlet, rustline	A	0	1	8.19	100	91.81
Upstream station, thalweg 2 (5 ft)	B	5	1	9.5	100	90.5

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
B	70	89	103	76	81		.80 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	42	0.9	7	44.9	N/A	0.36
Upstream from Inlet of Culvert, Location 2	69	0.8	10	41.9	N/A	0.54
Downstream from Outlet of Culvert, Location 1	95	0.5	13	40.8	N/A	0.72
Downstream from Outlet of Culvert, Location 2	127	0.4	21	40.7	N/A	1.16
At Culvert Inlet, Location 1	0	0.15	18	40.5	N/A	1.00
At Culvert Outlet, Location 1	0	2.2	0	0	N/A	0.00
At Culvert Inlet, Location 2	0	1.3	21	40.5	N/A	1.15
At Culvert Outlet, Location 2	0	2.1	10	44.2	N/A	0.51
Outlet Pool Tailcrest	38	0.7	9	44.4	N/A	0.47

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 068 **VISIT** 1

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 069 **VISIT** 1
DATE 9/10/2001 **Time** 1:00:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.12309 **Long. (dec. deg)** 149.36758
Road Name Nash Road **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Creek next to Afognak Logging. Adult Coho spawning up and downstream. Observed small fish in vicinity of traps downstream. None caught. Moved traps to different location but still none caught.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 75	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.30	5.50
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.39	5.63
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 2.75		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.08	0.69
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 75	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.30	5.50
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	5.63	5.64
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 2.75		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**		0.63
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**		**Width (ft)**	**Distance (ft)**
			Stream Discharge: 11.97		
Dominant Substrate Type:	Fine Gravel	Fine Gravel	**Upstrream OHW Width (100 ft.):**	20	102
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel	**Upstrream OHW Width (50 ft.):**	18.2	57
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	33.8	5
	Suit	**Type**	**Tailcrest Width at OHW:**	89.7	40
Upstream:	Suitable for anadromous fish	Spawning and Rearing	**Outlet Pool OHW Line (Max. Width.):**	105.5	
Downstream:	Suitable for anadromous fish	Spawning and Rearing	**Downstream OHW Width (100 ft.):**	42	108
			Downstrream OHW Width (50 ft.):	29.7	150

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 069U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 069D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 069 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	1.8	1	8.25	100	91.75	
Left Bank, Bankful	4.7	1	8.54	100	91.46	LB bank
Left Bank, Ordinary High Water	4.7	1	10.67	100	89.33	
Left Bank, Wetted Perimeter	4.7	1	10.54	100	89.46	
Station 1	10	1	11.6	100	88.4	
Station 2	14	1	11.63	100	88.37	
Station 3	20.5	1	11.15	100	88.85	
Station 4	21.7	1	11.31	100	88.69	
Station 5	24.3	1	11.25	100	88.75	
Station 6	25	1	10.75	100	89.25	
Station 7	25.3	1	10.75	100	89.25	
Station 8	25.4	1	11.67	100	88.33	
Station 9	28.5	1	11.38	100	88.62	
Station 10	30.7	1	11.67	100	88.33	
Station 11	32.3	1	12.19	100	87.81	
Station 12	33.7	1	12.31	100	87.69	
Station 13	35.6	1	11.75	100	88.25	
Station 14	36.2	1	10.9	100	89.1	
Station 15	50.4	1	11.08	100	88.92	Water surface
Station 16	63.6	1	11.5	100	88.5	
Station 17	67	1	11.08	100	88.92	
Station 18	80	1	10.98	100	89.02	
Station 19	82.5	1	10.92	100	89.08	
Station 20	89	1	10.71	100	89.29	RB bank
Station 21	90	1	11.71	100	88.29	RB
Right Bank/Bed Slope Break	93.6	1	12.04	100	87.96	
Right Bank, Wetted Perimeter	93.6	1	11	100	89	
Right Bank, Ordinary High Water	94.4	1	10.08	100	89.92	
Right Bank, Terrace	95.4	1	7.42	100	92.58	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2		1	15.2	100	84.79	
Outlet, pool OHWS lijne 1 (within 5 ft.)	105.5	1	9.92	100	90.08	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.6	100	85.37	
Downstream station, OHW line 3 (100 ft)	150	1	10.7	100	89.35	
Downstream station, thalweg 1 (tailcrest)	40	1	12.3	100	87.69	
Downstream station, OHW line 1 (tailcrest)	40	1	10.4	100	89.62	
Downstream station, water elev 1 (tailcrest)	40	1	10.8	100	89.23	
Downstream station, thalweg 2 (50 ft)	108	1	11.8	100	88.17	
Downstream station, water elev 2 (50 ft)	108	1	11.3	100	88.75	
Downstream station, OHW line 2 (50)	108	1	10.9	100	89.1	
Downstream station, thalweg 3 (100 ft)	150	1	12.2	100	87.83	
Downstream station, water elev 3 (100 ft)	150	1	11.3	100	88.73	
Outlet, pool water elev		1	11.0	100	88.98	
Inlet, edge-road		2	4.04	102.65	98.61	
Outlet, edge-road		2	2.63	102.65	100.02	
Upstream station, OHW line 1 (50 ft)	57	2	11.3	102.65	91.4	
Upstream station, water elev 2 (50 ft)	57	2	11.8	102.65	90.86	
Upstream station, thalweg 4 (50 ft)	57	2	12.9	102.65	89.73	
Upstream station, OHW line 1 (100 ft)	102	3	4.65	96.92	92.27	
Upstream station, water elev 1 (100 ft)	102	3	5.63	96.92	91.29	
Upstream station, thalweg 5 (100 ft)	102	3	6.33	96.92	90.59	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 070 **VISIT** 1
DATE 9/10/2001 **Time** 4:15:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.183331 **Long. (dec. deg)** 149.36758
Road Name Bear Lake **Region:** SCN
Quad Name: Seward **ITM:** B-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Bear Creek

Field Notes: There is a weir upstream at about 35 feet.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 61	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.10	4.40
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	4.25	3.46
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 2.75		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	2.17	1.88
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Large Cobble	Large Cobble	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 61	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.90	4.80
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	4.64	3.37
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 2.75		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	2.46	2.04
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Large Cobble	Large Cobble	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Large Cobble	Large Cobble
Sub Dominant Substrate Type:	Boulder	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

Stream Discharge: 28.60

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):	16.8	18
Upstrream OHW Width (5 ft.):	21.5	5
Tailcrest Width at OHW:	24.7	16
Outlet Pool OHW Line (Max. Width.):	25.9	
Downstream OHW Width (100 ft.):	23	100
Downstrream OHW Width (50 ft.):	21.3	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 13 **Life History:** Anadromous
Stat. ID: 070U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.05
Susp.Spawn? No **Fork Len. (mm)** 112 130 110 111 118 119 71 103 118 109
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Anadromous
Stat. ID: 070D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 69 71 77 130 102
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Station 1	2	1	13.02	100	86.98	LB bank
Left Bank, Wetted Perimeter	3.5	1	15	100	85	
Left Bank/Bed Slope Break	3.5	1	15.17	100	84.83	
Station 2	4	1	15.38	100	84.62	
Station 3	7.3	1	15.56	100	84.44	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 070 **VISIT** 1

Station 4	11.4	1	15.92	100	84.08	
Station 5	13.4	1	16.04	100	83.96	
Station 6	21.8	1	15.9	100	84.1	
Right Bank/Bed Slope Break	27.1	1	15.92	100	84.08	
Right Bank, Wetted Perimeter	28.2	1	15.06	100	84.94	
Right Bank, Ordinary High Water	28.2	1	14.73	100	85.27	
Station 7	28.6	1	12.79	100	87.21	RB slope break

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 2 (50)	50	1	15.4	100	84.65	
Outlet, pool water elev		1	15.0	100	84.98	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	16.9	100	83.12	
Outlet, pool maximum depth 2	5	1	16.9	100	83.12	
Downstream station, thalweg 1 (tailcrest)	16	1	16.0	100	83.96	
Downstream station, OHW line 1 (tailcrest)	16	1	14.7	100	85.27	
Downstream station, water elev 1 (tailcrest)	16	1	15.0	100	84.97	
Outlet, pool OHWS lijne 1 (within 5 ft.)	25.9	1	14.9	100	85.08	
Downstream station, water elev 2 (50 ft)	50	1	16	100	84	
Outlet, edge-road		1	4.96	100	95.04	
Downstream station, thalweg 3 (100 ft)	100	1	17.9	100	82.15	
Downstream station, water elev 3 (100 ft)	100	1	16.8	100	83.17	
Downstream station, OHW line 3 (100 ft)	100	1	15.5	100	84.48	
Inlet, edge-road		1	5.02	100	94.98	
Upstream station, thalweg 4 (50 ft)	18	1	15.6	100	84.42	
Upstream station, water elev 2 (50 ft)	18	1	14.7	100	85.35	
Upstream station, OHW line 1 (50 ft)	18	1	14.2	100	85.85	
Downstream station, thalweg 2 (50 ft)	50	1	17	100	83.04	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	A	5	1	14.9	100	85.08	
Inlet, culvert top	B	0	1	12.7	100	87.31	
Inlet, culvert invert	A	0	1	17	100	83	
Inlet, culvert invert	B	0	1	17.3	100	82.67	
Inlet, culvert rustline	A	0	1	14.6	100	85.37	
Inlet, culvert rustline	B	0	1	14.7	100	85.31	
Inlet, culvert thalweg	A	0	1	17	100	83	
Inlet, culvert thalweg	B	0	1	17.3	100	82.67	
Upstream station, thalweg 1 (1 ft)	A	1	1	16.9	100	83.1	
Upstream station, thalweg 1 (1 ft)	B	1	1	17	100	83	
Inlet, culvert top	A	0	1	12.8	100	87.25	
Upstream station, thalweg 2 (5 ft)	B	5	1	16.2	100	83.79	
Outlet, rustline	B	0	1	15.9	100	84.15	
Upstream station, OHW line 1 (1 ft)	A	5	1	14.5	100	85.48	
Upstream station, thalweg 3 (2 CMP widths)	A	9.5	1	15.8	100	84.25	
Upstream station, thalweg 3 (2 CMP widths)	B	9.7	1	18.7	100	81.31	
Outlet, culvert top	A	0	1	13.4	100	86.58	
Outlet, culvert top	B	0	1	13.7	100	86.35	
Outlet, culvert invert	A	0	1	16.9	100	83.12	
Outlet, culvert invert	B	0	1	17.0	100	82.98	
Outlet, thalweg	A	0	1	16.9	100	83.12	
Outlet, thalweg	B	0	1	17.0	100	82.98	
Outlet, rustline	A	0	1	14.8	100	85.17	
Upstream station, thalweg 2 (5 ft)	A	5	1	16	100	84	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 070 **VISIT** 1

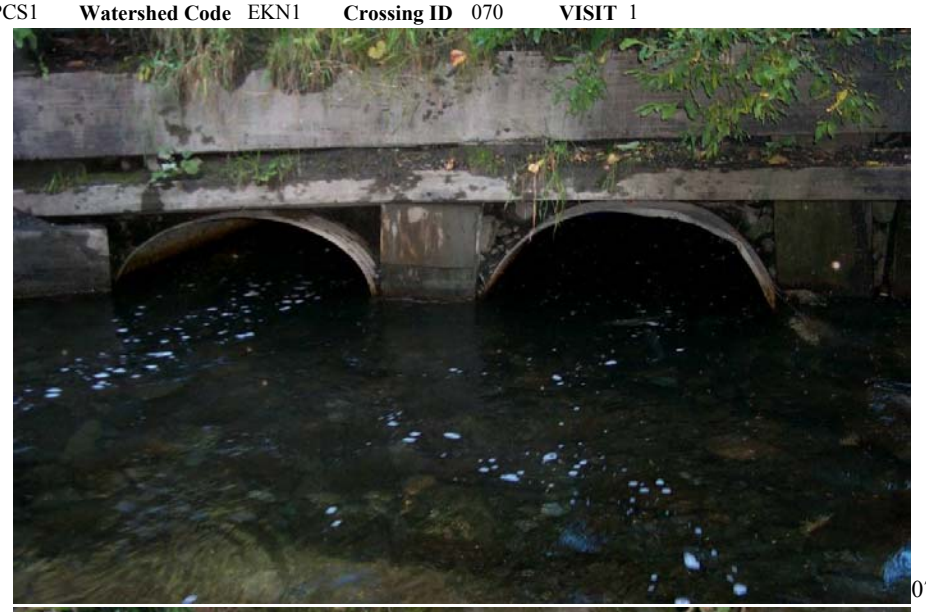
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	61	30	35	30	35		1.88 ft/sec.
B	61	43	44				1.40 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	18	1.2	42	40.5	N/A	2.79
Downstream from Outlet of Culvert, Location 1	50	0.9	53	40	N/A	2.93
Downstream from Outlet of Culvert, Location 2	100	1	36	40.6	N/A	1.97
At Culvert Inlet, Location 1	0	2.2	33	40	N/A	1.40
At Culvert Outlet, Location 1	0	1.8	27	40	N/A	1.51
At Culvert Inlet, Location 2	0	2.2	23	41.2	N/A	1.25
At Culvert Outlet, Location 2	0	1.9	27	40.1	N/A	1.50
Outlet Pool Tailcrest	16	1	55	40.1	N/A	3.03

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 070 **VISIT** 1



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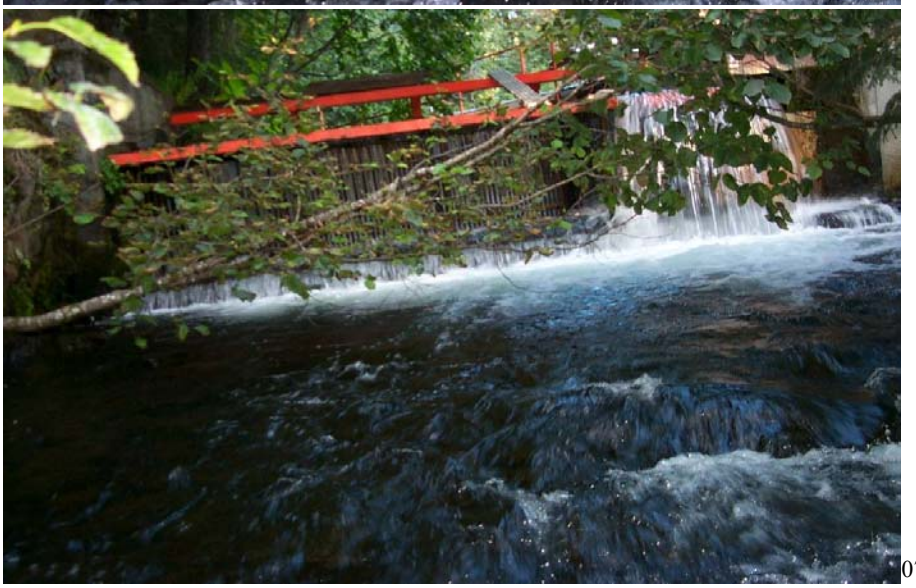

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 071 **VISIT** 1
DATE 9/11/2001 **Time** 9:00:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.60002 **Long. (dec. deg)** 149.53886
Road Name Seward Hwy **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Summit Creek

Field Notes: Channel one makes a 90 degree turn at inlet. Nice adult Dolly Varden observed.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

						Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray					
Length: 88	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate				**Width (ft):**	9.60	9.50
	Entrance Type: Mitered	**Tidal Influence:** No			**Height (ft):**	6.71	6.04
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:**			**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):**			**Water Depth (ft):**	1.83	1.17
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**			**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Small Cobble	Large Cobble	**Encrochment Ratio:**			**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0

						Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**					
Length: 88	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate				**Width (ft):**	9.50	9.60
	Entrance Type: Mitered	**Tidal Influence:** No			**Height (ft):**	6.79	7.25
Corrugation Depth (in.): 2	**Baffles Present:** No	**Culvert Gradient:**			**Manuf. Diameter:**		
Corrugation Width (in.): 6		**Perch Ht. (Flow - Ind):**			**Water Depth (ft):**	1.92	1.08
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**			**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Small Cobble	Large Cobble	**Encrochment Ratio:**			**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion				**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**		**Width (ft)**	**Distance (ft)**
			Stream Discharge: 42.53		
Dominant Substrate Type:	Large Cobble	Large Cobble	**Upstrream OHW Width (100 ft.):**	18	100
Sub Dominant Substrate Type:	Boulder	Boulder	**Upstrream OHW Width (50 ft.):**	15	50
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	13.3	5
	Suit	**Type**	**Tailcrest Width at OHW:**	30	7.5
Upstream:	Suitable for anadromous fish	SRO	**Outlet Pool OHW Line (Max. Width.):**	30	
			Downstream OHW Width (100 ft.):	18	100
Downstream:	Suitable for anadromous fish	SRO	**Downstrream OHW Width (50 ft.):**	20.8	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 071U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 138
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 071U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 48 42 47 43 41 41 43 42 53 45
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 071D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 94
Comments: adults observed three times

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 071 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.4	1	15.25	100	84.75	
Left Bank, Ordinary High Water	3.8	1	15.67	100	84.33	
Left Bank, Wetted Perimeter	5	1	16.1	100	83.9	
Left Bank/Bed Slope Break	6	1	16.58	100	83.42	
Station 1	8.6	1	16.65	100	83.35	
Station 2	9	1	16.29	100	83.71	
Station 3	9.9	1	16.25	100	83.75	
Station 4	10.3	1	16.73	100	83.27	
Station 5	15	1	17.35	100	82.65	
Station 6	17	1	17.42	100	82.58	
Station 7	21	1	17.46	100	82.54	
Station 8	28	1	17.69	100	82.31	
Station 9	29.5	1	17.23	100	82.77	
Station 10	30.9	1	16.69	100	83.31	
Right Bank/Bed Slope Break	32.1	1	16.58	100	83.42	
Right Bank, Wetted Perimeter	32.1	1	16.5	100	83.5	
Right Bank, Ordinary High Water	33.8	1	16.06	100	83.94	
Right Bank, Terrace	34.4	1	15.33	100	84.67	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	17.1	100	82.92	
Upstream station, thalweg 4 (50 ft)	50	1	16.1	100	83.87	
Upstream station, water elev 2 (50 ft)	50	1	14.7	100	85.29	
Upstream station, OHW line 1 (50 ft)	50	1	14.3	100	85.71	
Upstream station, thalweg 5 (100 ft)	100	1	15.2	100	84.83	
Upstream station, water elev 1 (100 ft)	100	1	14	100	86	
Upstream station, OHW line 1 (100 ft)	100	1	13.5	100	86.54	
Outlet, edge-road		1	4.08	100	95.92	
Outlet, pool OHWS lijne 1 (within 5 ft.)	30	1	17.7	100	82.31	
Inlet, edge-road		1	4.29	100	95.71	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	17.1	100	82.92	
Downstream station, OHW line 3 (100 ft)	100	1	16.9	100	83.12	
Downstream station, thalweg 1 (tailcrest)	7.5	1	17.7	100	82.31	
Downstream station, OHW line 1 (tailcrest)	7.5	1	15.9	100	84.13	
Downstream station, water elev 1 (tailcrest)	7.5	1	16.3	100	83.7	
Downstream station, thalweg 2 (50 ft)	50	1	18.1	100	81.9	
Downstream station, water elev 2 (50 ft)	50	1	16.7	100	83.35	
Downstream station, OHW line 2 (50)	50	1	16.1	100	83.87	
Downstream station, thalweg 3 (100 ft)	100	1	18.6	100	81.4	
Downstream station, water elev 3 (100 ft)	100	1	17.3	100	82.75	
Outlet, pool water elev		1	16.1	100	83.92	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	A	5	1	15.6	100	84.44	
Inlet, culvert top	B	0	1	10.8	100	89.25	
Inlet, culvert invert	A	0	1	17.5	100	82.54	
Inlet, culvert invert	B	0	1	17.5	100	82.46	
Inlet, culvert rustline	A	0	1	15.5	100	84.5	
Inlet, culvert rustline	B	0	1	15.6	100	84.4	
Inlet, culvert thalweg	A	0	1	17.5	100	82.54	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 071 **VISIT** 1

Inlet, culvert thalweg	B	0	1	17.5	100	82.46
Upstream station, thalweg 1 (1 ft)	A	1	1	17.4	100	82.6
Upstream station, thalweg 1 (1 ft)	B	1	1	17.6	100	82.44
Inlet, culvert top	A	0	1	10.8	100	89.25
Upstream station, thalweg 2 (5 ft)	B	5	1	17.1	100	82.94
Outlet, rustline	B	0	1	16.2	100	83.79
Upstream station, OHW line 1 (1 ft)	A	5	1	14.8	100	85.17
Upstream station, thalweg 3 (2 CMP widths)	A	19.1	1	16.9	100	83.08
Upstream station, thalweg 3 (2 CMP widths)	B	19.1	1	16.2	100	83.83
Outlet, culvert top	A	0	1	11.2	100	88.79
Outlet, culvert top	B	0	1	10.1	100	89.94
Outlet, culvert invert	A	0	1	17.3	100	82.75
Outlet, culvert invert	B	0	1	17.3	100	82.69
Outlet, thalweg	A	0	1	17.3	100	82.75
Outlet, thalweg	B	0	1	17.3	100	82.69
Outlet, rustline	A	0	1	15.9	100	84.08
Upstream station, thalweg 2 (5 ft)	A	5	1	17.7	100	82.29

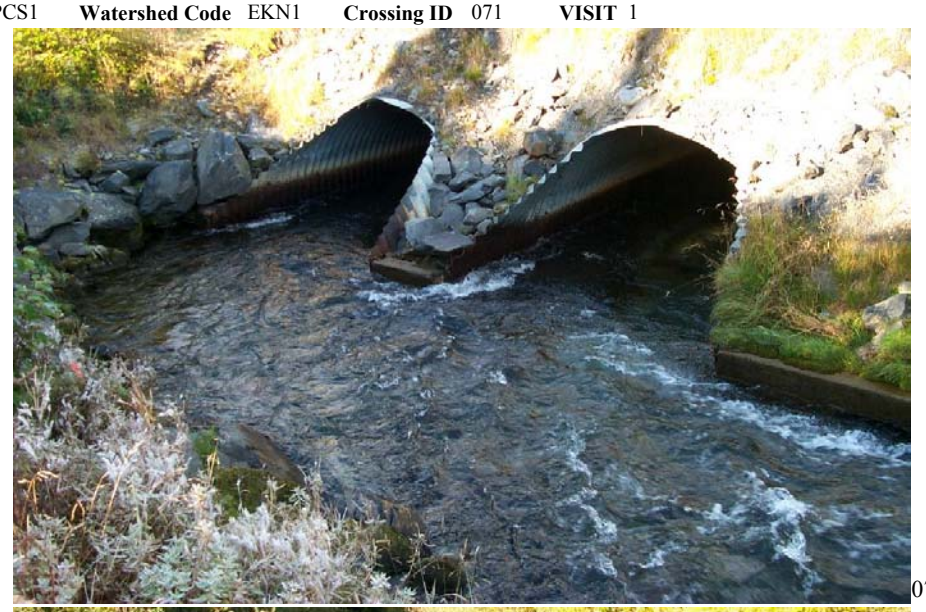
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	88	33	33				2.67 ft/sec.
B	88	23	29	23			3.52 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.7	64	40.2	N/A	3.53
Upstream from Inlet of Culvert, Location 2	100	1.3	55	40.1	N/A	3.03
Downstream from Outlet of Culvert, Location 1	50	1.4	54	40.7	N/A	2.97
Downstream from Outlet of Culvert, Location 2	100	1.5	78	40.3	N/A	4.29
At Culvert Inlet, Location 1	0	1.8	54	40.5	N/A	2.96
At Culvert Outlet, Location 1	0	1.1	28	40.2	N/A	1.54
At Culvert Inlet, Location 2	0	1.8	68	40.5	N/A	3.71
At Culvert Outlet, Location 2	0	1	53	41	N/A	2.87
Outlet Pool Tailcrest	7.5	0.7	55	40.6	N/A	3.00

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 071 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 072 **VISIT** 1
DATE 9/11/2001 **Time** 11:30:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** **Long. (dec. deg)**
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** John's Creek

Field Notes: Very steep channel, perch at outlet. Bedrock falls above cascading boulder caused pools below.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length:	96	**Cross. Structure Type:**	Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	7.20	7.10
		Entrance Type:	Mitered	**Tidal Influence:** No	**Height (ft):**	6.90	8.29
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:** 0.0647	**Manuf. Diameter:**	
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):** 1.04	**Water Depth (ft):**	0.75	0.71
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** 0.08	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** 0.52	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Bedrock/Bould	Boulder
Sub Dominant Substrate Type:	Boulder	Large Cobble
Bank Comp:	Mixed	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Unknown
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 12.72

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	13.7	78
Upstrream OHW Width (50 ft.):	14	46
Upstrream OHW Width (5 ft.):	22.4	5
Tailcrest Width at OHW:	12.9	22
Outlet Pool OHW Line (Max. Width.):	14	
Downstream OHW Width (100 ft.):	15	100
Downstrream OHW Width (50 ft.):	15.2	50

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 072U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 072D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.8	1	13.67	100	86.33	
Left Bank, Ordinary High Water	5.1	1	15.31	100	84.69	
Left Bank, Wetted Perimeter	6	1	15.85	100	84.15	
Left Bank/Bed Slope Break	7.9	1	16.54	100	83.46	
Station 1	9	1	17	100	83	
Station 2	10.7	1	16.29	100	83.71	
Station 3	11.6	1	16.13	100	83.87	
Station 4	12.1	1	16.63	100	83.37	
Station 5	16.1	1	16.48	100	83.52	
Right Bank/Bed Slope Break	17.1	1	16.25	100	83.75	
Right Bank, Wetted Perimeter	17.4	1	15.94	100	84.06	
Right Bank, Ordinary High Water	18	1	15.29	100	84.71	
Right Bank, Terrace	19.4	1	13.29	100	86.71	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 072 **VISIT** 1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	18.2	100	81.85	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	15.6	100	84.44	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	18.2	100	81.85	
Downstream station, OHW line 3 (100 ft)	100	1	20	100	80.04	
Downstream station, thalweg 1 (tailcrest)	22	1	17	100	83	
Downstream station, OHW line 1 (tailcrest)	22	1	15.3	100	84.71	
Downstream station, water elev 1 (tailcrest)	22	1	15.9	100	84.1	
Downstream station, thalweg 2 (50 ft)	50	1	17.7	100	82.29	
Downstream station, water elev 2 (50 ft)	50	1	17.1	100	82.92	
Downstream station, OHW line 2 (50)	50	1	16.5	100	83.54	
Downstream station, thalweg 3 (100 ft)	100	1	21.7	100	78.29	
Downstream station, water elev 3 (100 ft)	100	1	20.7	100	79.27	
Outlet, pool water elev	5	1	16.0	100	83.96	
Inlet, edge-road		2	2.67	104.75	102.08	
Outlet, edge-road		2	2.69	104.75	102.06	
Upstream station, OHW line 1 (100 ft)	78	2	2.98	104.75	101.77	
Upstream station, water elev 1 (100 ft)	78	2	3.46	104.75	101.29	
Upstream station, thalweg 5 (100 ft)	78	2	4.92	104.75	99.83	
Upstream station, OHW line 1 (50 ft)	46	2	3.92	104.75	100.83	
Upstream station, water elev 2 (50 ft)	46	2	5.42	104.75	99.33	
Upstream station, thalweg 4 (50 ft)	46	2	6.56	104.75	98.19	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	14.9	100	85.08	
Outlet, thalweg	A	0	1	16	100	84.04	
Outlet, culvert invert	A	0	1	16	100	84.04	
Outlet, culvert top	A	0	1	7.67	100	92.33	
Upstream station, thalweg 3 (2 CMP widths)	A	14.3	2	11.8	104.8	92.94	
Upstream station, OHW line 1 (1 ft)	A	5	2	11.8	104.8	93	
Upstream station, water elev 1 (5 ft)	A	5	2	12.9	104.8	91.81	
Upstream station, thalweg 2 (5 ft)	A	5	2	14.4	104.8	90.31	
Upstream station, thalweg 1 (1 ft)	A	1	2	14.4	104.8	90.4	
Inlet, culvert thalweg	A	0	2	14.5	104.8	90.25	
Inlet, culvert rustline	A	0	2	13.1	104.8	91.69	
Inlet, culvert invert	A	0	2	14.5	104.8	90.25	
Inlet, culvert top	A	0	2	7.6	104.8	97.15	

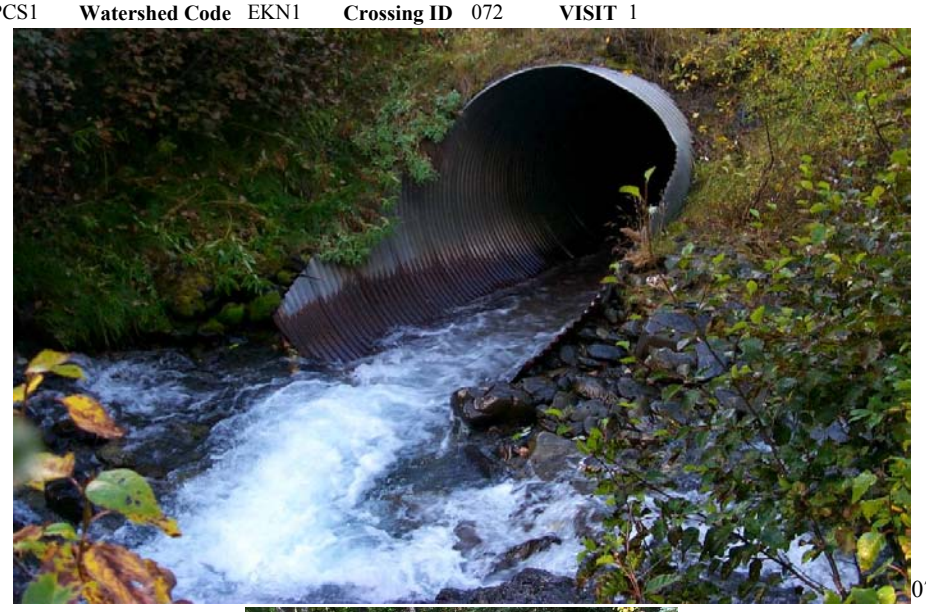
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	96	9	10				10.11 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	46	1.3	106	40.2	N/A	5.82
Upstream from Inlet of Culvert, Location 2	78	0.8	33	40.4	N/A	1.82
Downstream from Outlet of Culvert, Location 1	50	0.7	51	40.1	N/A	2.81
Downstream from Outlet of Culvert, Location 2	100	0.7	35	40.5	N/A	1.91
At Culvert Inlet, Location 1	0	0.7	82	40.2	N/A	4.50
At Culvert Outlet, Location 1	0	0.75	153	40.2	N/A	8.41
Outlet Pool Tailcrest	22	0.9	33	40	N/A	1.84

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 072 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 073 **VISIT** 1
DATE 9/11/2001 **Time** 2:00:00 PM **Observers:** Cecil Rich, William Glick, Joe Meehan

Site Information:

GPS Location: **Lat. (dec. deg)** 60.67084 **Long. (dec. deg)** 149.47667
Road Name Seward Hwy **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Fresno Creek

Field Notes: High perch at outlet
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

			Inlet	Outlet
Length: 105.5	**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate	**Width (ft):**	10.20	10.00
	Entrance Type: Mitered **Tidal Influence:** No	**Height (ft):**	11.67	11.67
Corrugation Depth (in.): 2.5	**Baffles Present:** No **Culvert Gradient:** 0.0438	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):** 1.71	**Water Depth (ft):**	0.92	1.08
Inlet	**Outlet** **Perch Ht. (Flow -Dep):** 0.69	**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None **Encrochment Ratio:** 0.60	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion	**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	Large Cobble	Large Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	SRO
Downstream:	Suitable for Resident fish	SRO

Stream Discharge: 44.85

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	14.3	100
Upstrream OHW Width (50 ft.):	19.9	50
Upstrream OHW Width (5 ft.):	17.8	5
Tailcrest Width at OHW:	20.6	17
Outlet Pool OHW Line (Max. Width.):	20.6	
Downstream OHW Width (100 ft.):	18	84
Downstrream OHW Width (50 ft.):	16.2	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 073U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 94
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 073D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.45
Susp.Spawn? No **Fork Len. (mm)** 160 126 122 128
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	1	10.88	100	89.12	
Left Bank, Ordinary High Water	2.9	1	11.46	100	88.54	
Left Bank/Bed Slope Break	3.2	1	12.04	100	87.96	
Left Bank, Wetted Perimeter	4	1	12.27	100	87.73	
Station 1	4.8	1	12.75	100	87.25	
Station 2	8.9	1	12.85	100	87.15	
Station 3	11	1	13.46	100	86.54	
Station 4	14.3	1	13.52	100	86.48	
Station 5	17.7	1	13.4	100	86.6	
Station 6	18.2	1	12.63	100	87.37	
Right Bank/Bed Slope Break	23.5	1	11.54	100	88.46	
Right Bank, Wetted Perimeter	20.2	1	12.38	100	87.62	
Right Bank, Ordinary High Water	23.5	1	11.54	100	88.46	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 073 **VISIT** 1

Right Bank, Terrace	24.5	1	11.02	100	88.98

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	15.3	100	84.75	
Outlet, pool OHWS lijne 1 (within 5 ft.)	26.6	1	11.5	100	88.5	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	15.3	100	84.75	
Downstream station, OHW line 3 (100 ft)	84	1	16.3	100	83.67	
Downstream station, thalweg 1 (tailcrest)	17	1	13.5	100	86.48	
Downstream station, OHW line 1 (tailcrest)	17	1	11.5	100	88.5	
Downstream station, water elev 1 (tailcrest)	17	1	12.3	100	87.69	
Downstream station, thalweg 2 (50 ft)	50	1	16.2	100	83.79	
Downstream station, water elev 2 (50 ft)	50	1	14.8	100	85.21	
Downstream station, OHW line 2 (50)	50	1	14	100	86.04	
Downstream station, thalweg 3 (100 ft)	84	1	18.0	100	81.96	
Downstream station, water elev 3 (100 ft)	84	1	17.0	100	82.96	
Outlet, pool water elev	5	1	12.5	100	87.5	
Inlet, edge-road		2	2.04	110.73	108.69	
Outlet, edge-road		2	2.98	110.73	107.75	
Upstream station, OHW line 1 (100 ft)	100	2	11.1	110.73	99.6000	
Upstream station, water elev 1 (100 ft)	100	2	11.8	110.73	98.98	
Upstream station, thalweg 5 (100 ft)	100	2	12.7	110.73	98.02	
Upstream station, OHW line 1 (50 ft)	50	2	12.2	110.73	98.58	
Upstream station, water elev 2 (50 ft)	50	2	13.3	110.73	97.48	
Upstream station, thalweg 4 (50 ft)	50	2	14.4	110.73	96.3500	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	11.5	100	88.54	
Outlet, thalweg	A	0	1	11.8	100	88.19	
Outlet, culvert invert	A	0	1	11.8	100	88.19	
Outlet, culvert top	A	0	2	8.96	110.7	101.77	
Upstream station, thalweg 3 (2 CMP widths)	A	20.1	2	16.4	110.7	94.3100	
Upstream station, OHW line 1 (1 ft)	A	5	2	15.6	110.7	95.15	
Upstream station, water elev 1 (5 ft)	A	5	2	16.5	110.7	94.23	
Upstream station, thalweg 2 (5 ft)	A	5	2	17.4	110.7	93.29	
Upstream station, thalweg 1 (1 ft)	A	1	2	17.5	110.7	93.25	
Inlet, culvert thalweg	A	0	2	17.9	110.7	92.8100	
Inlet, culvert rustline	A	0	2	16.7	110.7	94.08	
Inlet, culvert invert	A	0	2	17.9	110.7	92.8100	
Inlet, culvert top	A	0	2	6.25	110.7	104.48	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	105.5	15	10	15			7.91 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.1	56	40	N/A	3.09
Upstream from Inlet of Culvert, Location 2	100	1.2	79	40.2	N/A	4.34
Downstream from Outlet of Culvert, Location 1	50	1.1	91	40.2	N/A	5.01
Downstream from Outlet of Culvert, Location 2	84	1	64	40.5	N/A	3.50
At Culvert Inlet, Location 1	0	0.8	88	40	N/A	4.87
At Culvert Outlet, Location 1	0	0.8	152	40.2	N/A	8.35

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 073 **VISIT** 1

Outlet Pool Tailcrest	17	1	52	40.5	N/A	2.85	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 073 **VISIT** 1

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 074 **VISIT** 1
DATE 9/12/2001 **Time** 9:00:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.59526 **Long. (dec. deg)** 149.54541
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Quartz Creek

Field Notes: right culvert has no flow due to aggradation. Channel has diverted all flow to left culvert. Island has formed above inlet.Cobble deposited covering endls of mitered cluvert.

Road Prism Type: Through Fill **Spec. Site Cond.:** Active Bedload upstream of drainage structure

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray **Inlet** **Outlet**
Length: 94 **Cross. Structure Type:** Structural plate arch - (open bottom-multi plate) **Width (ft):** 11.90 11.90
Entrance Type: Mitered **Tidal Influence:** No **Height (ft):** 5.90
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 2.25 1.33
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):**
Substrate Type: Boulder Large Cobble **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):** 0 0

Culvert ID: B **Category:** **Classification:** **Inlet** **Outlet**
Length: 91 **Cross. Structure Type:** Structural plate arch - (open bottom-multi plate) **Width (ft):** 11.90 11.90
Entrance Type: Mitered **Tidal Influence:** No **Height (ft):** 4.67
Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** **Manuf. Diameter:**
Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** **Water Depth (ft):** 0.27
Inlet **Outlet** **Perch Ht. (Flow -Dep):** **Substr. Dep (ft):**
Substrate Type: Boulder Large Cobble **Encrochment Ratio:** **Struc. Damage (%):** 0 0
Erosion: No Inlet Erosion No Outlet Erosion **Culv. Blockage (%):** 100 100

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	Small Cobble	Large Cobble
Bank Comp:	Alluvium	Alluvium
	Suit	**Type**
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Stream Discharge: 56.61

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	34.2	100
Upstrream OHW Width (50 ft.):	16	50
Upstrream OHW Width (5 ft.):	32	5
Tailcrest Width at OHW:	35.1	19
Outlet Pool OHW Line (Max. Width.):	27.6	
Downstream OHW Width (100 ft.):	20	100
Downstrream OHW Width (50 ft.):	22.8	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 074U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 136 118 165 138 130 119 102
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 074D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 62 82 102 105 151 109 87
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	1	12.17	100	87.83	
Left Bank, Ordinary High Water	3.3	1	12.85	100	87.15	
Left Bank, Wetted Perimeter	3.9	1	13.54	100	86.46	
Left Bank/Bed Slope Break	4	1	13.83	100	86.17	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 074 **VISIT** 1

Station 1	5	1	14.13	100	85.87	
Station 2	8	1	14.63	100	85.37	
Station 3	18.5	1	14.63	100	85.37	
Station 4	21.1	1	13.71	100	86.29	
Right Bank, Wetted Perimeter	26	1	13.52	100	86.48	
Station 5	32	1	13.08	100	86.92	RB Bank
Station 6	37.1	1	13.69	100	86.31	RB Bank
Right Bank, Ordinary High Water	38.4	1	12.73	100	87.27	
Right Bank, Terrace	40	1	12.15	100	87.85	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	14.9	100	85.08	
Upstream station, thalweg 4 (50 ft)	50	1	10.2	100	89.77	split channel -left channel
Upstream station, water elev 2 (50 ft)	50	1	9.25	100	90.75	split channel - left channel
Upstream station, OHW line 1 (50 ft)	50	1	8.85	100	91.15	split channel - left channel
Upstream station, thalweg 5 (100 ft)	100	1	8.17	100	91.83	
Upstream station, water elev 1 (100 ft)	100	1	7.17	100	92.83	
Upstream station, OHW line 1 (100 ft)	100	1	6.63	100	93.37	
Outlet, edge-road		1	3.79	100	96.21	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	13.0	100	86.98	
Inlet, edge-road		1	5.15	100	94.85	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	14.9	100	85.08	
Downstream station, OHW line 3 (100 ft)	100	1	16.4	100	83.58	
Downstream station, thalweg 1 (tailcrest)	19	1	14.6	100	85.37	
Downstream station, OHW line 1 (tailcrest)	19	1	13	100	87.04	
Downstream station, water elev 1 (tailcrest)	19	1	13.5	100	86.48	
Downstream station, thalweg 2 (50 ft)	50	1	15.6	100	84.44	
Downstream station, water elev 2 (50 ft)	50	1	14.0	100	85.96	
Downstream station, OHW line 2 (50)	50	1	13.5	100	86.52	
Downstream station, thalweg 3 (100 ft)	100	1	14.6	100	85.37	
Downstream station, water elev 3 (100 ft)	100	1	15.2	100	84.77	
Outlet, pool water elev	5	1	13.4	100	86.6	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, OHW line 1 (1 ft)	A	5	1	10.6	100	89.37	
Inlet, culvert top	B	0	1	8.52	100	91.48	
Inlet, culvert rustline	A	0	1	11.7	100	88.27	
Inlet, culvert rustline	B	0	1	11	100	89.02	
Inlet, culvert thalweg	A	0	1	14.1	100	85.9	
Inlet, culvert thalweg	B	0	1	11.1	100	88.87	
Upstream station, thalweg 1 (1 ft)	A	1	1	12.9	100	87.06	
Upstream station, thalweg 1 (1 ft)	B	1	1	11.3	100	88.67	
Upstream station, thalweg 2 (5 ft)	A	5	1	12.5	100	87.54	
Upstream station, thalweg 2 (5 ft)	B	5	1	11.8	100	88.25	
Inlet, culvert top	A	0	1	8.75	100	91.25	
Upstream station, water elev 1 (5 ft)	B	5	1	10.6	100	89.44	
Outlet, rustline	B	0	1	13.3	100	86.71	
Upstream station, OHW line 1 (1 ft)	B	5	1	10.3	100	89.69	
Upstream station, thalweg 3 (2 CMP widths)	A	23.8	1	11	100	89	
Upstream station, thalweg 3 (2 CMP widths)	B	23.8	1	11.5	100	88.5	R. thalw only goes to L culv.
Outlet, culvert top	A	0	1	8.81	100	91.19	
Outlet, culvert top	B	0	1	9.04	100	90.96	
Outlet, culvert invert	A	0	1	14.7	100	85.29	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 074 **VISIT** 1

Outlet, culvert invert	B	0	1	13.7	100	86.29
Outlet, thalweg	A	0	1	14.7	100	85.29
Outlet, thalweg	B	0	1	13.7	100	86.29
Outlet, rustline	A	0	1	13.7	100	86.27
Upstream station, water elev 1 (5 ft)	A	5	1	11.5	100	88.5

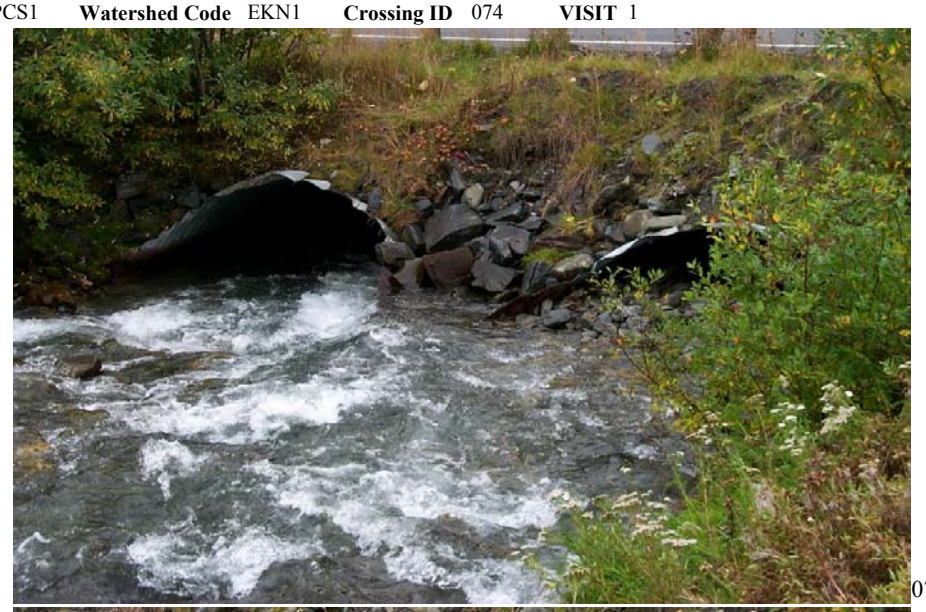
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	94	16	17				5.70 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.7	59	40.7	N/A	3.21
Upstream from Inlet of Culvert, Location 2	50	1.4	97	40.2	N/A	5.34
Upstream from Inlet of Culvert, Location 3	100	0.8	63	40.3	N/A	3.46
Downstream from Outlet of Culvert, Location 1	50	1.2	61	40.1	N/A	3.36
Downstream from Outlet of Culvert, Location 2	100	1.3	52	40.7	N/A	2.83
At Culvert Inlet, Location 1	0	2.5	159	40.2	N/A	8.74
At Culvert Outlet, Location 1	0	1.2	79	40.1	N/A	4.36
Outlet Pool Tailcrest	19	1	80	40.2	N/A	4.38

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 074 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 075 **VISIT** 1
DATE 9/12/2001 **Time** 1:30:00 PM **Observers:** Cecil Rich, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.9193 **Long. (dec. deg)** 149.61951
Road Name Hope Hwy FH14 **Region:** SCN
Quad Name: Seward **ITM:** D-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Bear Creek

Field Notes: Goes subsurface in winter. Landowner has right to divert water - diverting 1/2 channel (10%). DOT put in rip-rap below to prevent outlet pool scouring and out channel degradation. Need to depress pipe to promote aggradation in culvert.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 4 **Classification:** red

					Inlet	Outlet
Length:	74.5	**Cross. Structure Type:**	Corrugated Metal pipe arch (squash pipe)	**Width (ft):**	14.00	15.10
		Entrance Type:	Mitered	**Tidal Influence:** No	**Height (ft):**	8.17	9.04
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:** 0.0328	**Manuf. Diameter:**		
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):** 0.58	**Water Depth (ft):**	0.70	0.85
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -0.34	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** 0.82	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Large Cobble	Large Cobble
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

Stream Discharge: 17.92

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	19.5	100
Upstrream OHW Width (50 ft.):	14.6	50
Upstrream OHW Width (5 ft.):	19.2	5
Tailcrest Width at OHW:	22.3	14
Outlet Pool OHW Line (Max. Width.):	20.7	
Downstream OHW Width (100 ft.):	18	100
Downstrream OHW Width (50 ft.):	12.1	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 075U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)** 131
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 075D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 133
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Bankful	2	1	2.85	100	97.15	
Station 1	3.3	1	2.94	100	97.06	bank elevation
Left Bank/Bed Slope Break	7.2	1	5	100	95	
Left Bank, Wetted Perimeter	8.5	1	5.44	100	94.56	
Left Bank, Ordinary High Water	6	1	4.25	100	95.75	
Station 2	12	1	6.25	100	93.75	
Station 3	16.3	1	6.17	100	93.83	
Station 4	18.6	1	5.38	100	94.62	
Station 5	22.4	1	5.73	100	94.27	
Station 6	25	1	5.35	100	94.65	
Right Bank, Wetted Perimeter	26.1	1	5.96	100	94.04	
Right Bank, Terrace	28.3	1	3.63	100	96.37	
Station 7	31.7	1	3.27	100	96.73	RB upper bank

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 075 **VISIT** 1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	6.58	100	93.42	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	4.21	100	95.79	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	6.58	100	93.42	
Downstream station, OHW line 3 (100 ft)	100	1	9.17	100	90.83	
Downstream station, thalweg 1 (tailcrest)	14	1	6.25	100	93.75	
Downstream station, OHW line 1 (tailcrest)	14	1	4.25	100	95.75	
Downstream station, water elev 1 (tailcrest)	14	1	5.69	100	94.31	
Downstream station, thalweg 2 (50 ft)	50	1	8.56	100	91.44	
Downstream station, water elev 2 (50 ft)	50	1	7.52	100	92.48	
Downstream station, OHW line 2 (50)	50	1	6.92	100	93.08	
Downstream station, thalweg 3 (100 ft)	100	1	10.0	100	89.98	
Downstream station, water elev 3 (100 ft)	100	1	9.17	100	90.83	
Outlet, pool water elev	5	1	5.33	100	94.67	
Inlet, edge-road		2	3.75	112.25	108.5	
Outlet, edge-road		2	3.63	112.25	108.62	
Upstream station, OHW line 1 (100 ft)	100	3	0.35	102.17	101.82	
Upstream station, water elev 1 (100 ft)	100	3	0.9	102.17	101.27	
Upstream station, thalweg 5 (100 ft)	100	3	2.1	102.17	100.07	
Upstream station, OHW line 1 (50 ft)	50	3	2.67	102.17	99.5	
Upstream station, water elev 2 (50 ft)	50	3	3.23	102.17	98.94	
Upstream station, thalweg 4 (50 ft)	50	3	4.46	102.17	97.71	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	4.56	100	95.44	
Outlet, thalweg	A	0	1	5.67	100	94.33	
Outlet, culvert invert	A	0	1	5.67	100	94.33	
Outlet, culvert top	A	0	2	8.88	112.3	103.37	
Upstream station, thalweg 3 (2 CMP widths)	A	29	3	4.54	102.2	97.63	
Upstream station, OHW line 1 (1 ft)	A	5	3	3.58	102.2	98.59	
Upstream station, water elev 1 (5 ft)	A	5	3	4.4	102.2	97.77	
Upstream station, thalweg 2 (5 ft)	A	5	3	5.13	102.2	97.04	
Upstream station, thalweg 1 (1 ft)	A	1	3	5.6	102.2	96.57	
Inlet, culvert thalweg	A	0	3	5.4	102.2	96.77	
Inlet, culvert rustline	A	0	3	4.46	102.2	97.71	
Inlet, culvert invert	A	0	3	5.4	102.2	96.77	
Inlet, culvert top	A	0	2	7.31	112.3	104.94	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	74.5	13	12	12			6.04 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.7	74	40.4	N/A	4.06
Upstream from Inlet of Culvert, Location 2	100	1.2	73	40.6	N/A	3.98
Downstream from Outlet of Culvert, Location 1	50	0.8	82	40	N/A	4.53
Downstream from Outlet of Culvert, Location 2	100	0.9	43	40.2	N/A	2.38
At Culvert Inlet, Location 1	0	0.7	51	40	N/A	2.83
At Culvert Outlet, Location 1	0	0.85	52	40.5	N/A	2.85
Outlet Pool Tailcrest	14	0.8	65	40.5	N/A	3.56

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 075 **VISIT** 1

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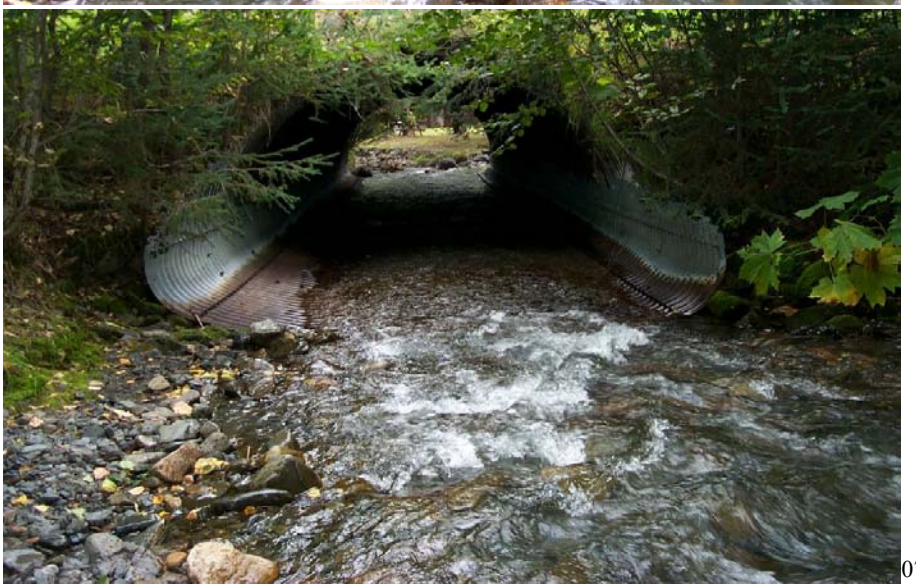

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 076 **VISIT** 1
DATE 9/13/2001 **Time** 9:30:00 AM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.80197 **Long. (dec. deg)** 149.4357
Road Name Hope Hwy FH14 **Region:** SCN
Quad Name: Seward **ITM:** D-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Beaver Dam Creek

Field Notes: Terraced beaver ponds below site. Small woody debris accumulations has produced broad braided outchannel. No defined outchannel.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

				Inlet	Outlet
Length: 68	**Cross. Structure Type:** Corrugated Metal Pipe		**Width (ft):**	6.00	6.00
	Entrance Type: Flared Inlet	**Tidal Influence:** No	**Height (ft):**	3.14	3.06
Corrugation Depth (in.): 0.3	**Baffles Present:** No	**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.79	0.50
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.31	0.00
Substrate Type: None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Culvert ID: B **Category:** **Classification:**

				Inlet	Outlet
Length: 69.5	**Cross. Structure Type:** Corrugated Metal Pipe		**Width (ft):**	4.00	4.00
	Entrance Type: Mitered	**Tidal Influence:** No	**Height (ft):**	1.96	2.27
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.13	0.13
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type: None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Small Cobble	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 9.51

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	21.5	100
Upstrream OHW Width (50 ft.):	8.9	50
Upstrream OHW Width (5 ft.):	16	5
Tailcrest Width at OHW:	40.8	7
Outlet Pool OHW Line (Max. Width.):	40.8	
Downstream OHW Width (100 ft.):		
Downstrream OHW Width (50 ft.):		

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 076U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.1
Susp.Spawn? No **Fork Len. (mm)** 102 87
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 076D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.4
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	3	1	12.25	100	87.75	channel from left culvert
Left Bank, Ordinary High Water	3.8	1	12.33	100	87.67	channel from left culvert
Left Bank, Wetted Perimeter	4	1	12.65	100	87.35	channel from left culvert
Left Bank/Bed Slope Break	4.6	1	13.13	100	86.87	channel from left culvert

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 076 **VISIT** 1

Station 1	10.3	1	13.06	100	86.94	channel from left cuvert
Station 2	17.2	1	12.73	100	87.27	water surface - from L culver
Station 3	28	1	13.33	100	86.67	channel from left culvert
Station 4	33	1	13.77	100	86.23	water surface
Station 5	36.7	1	14.29	100	85.71	
Station 6	38	1	14.13	100	85.87	
Station 7	39	1	14.21	100	85.79	
Right Bank, Wetted Perimeter	41.8	1	13.83	100	86.17	
Station 8	43	1	13.63	100	86.37	RB bank/bar
Right Bank/Bed Slope Break	44	1	13.81	100	86.19	RB bank bar
Right Bank, Ordinary High Water	44.6	1	13.46	100	86.54	
Right Bank, Terrace	45.7	1	13.31	100	86.69	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 1 (tailcrest)	7	1	12.7	100	87.35	
Downstream station, OHW line 1 (tailcrest)	7	1	12.9	100	87.1	
Downstream station, thalweg 1 (tailcrest)	7	1	14.3	100	85.71	
Outlet, pool maximum depth 2	5	1	13.8	100	86.21	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	13.8	100	86.21	
Outlet, pool water elev	5	1	13.8	100	86.17	
Outlet, pool OHWS lijne 1 (within 5 ft.)	40.8	1	12.3	100	87.67	
Outlet, edge-road		1	4.69	100	95.31	
Inlet, edge-road		1	3.52	100	96.48	
Upstream station, OHW line 1 (100 ft)	100	2	5.96	100.22	94.26	
Upstream station, water elev 1 (100 ft)	100	2	5.96	100.22	94.26	
Upstream station, thalweg 5 (100 ft)	100	2	6.35	100.22	93.87	
Upstream station, OHW line 1 (50 ft)	50	2	8.27	100.22	91.95	
Upstream station, water elev 2 (50 ft)	50	2	8.63	100.22	91.59	
Upstream station, thalweg 4 (50 ft)	50	2	9.44	100.22	90.78	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	B	5	1	9.65	100	90.35	
Inlet, culvert top	B	0	1	8.21	100	91.79	
Inlet, culvert invert	A	0	1	12.1	100	87.9	
Inlet, culvert invert	B	0	1	10.2	100	89.83	
Inlet, culvert rustline	A	0	1	10.8	100	89.21	
Inlet, culvert rustline	B	0	1	9.88	100	90.12	
Inlet, culvert thalweg	A	0	1	11.8	100	88.21	
Inlet, culvert thalweg	B	0	1	10.2	100	89.83	
Upstream station, thalweg 1 (1 ft)	A	1	1	11.8	100	88.21	
Upstream station, thalweg 1 (1 ft)	B	1	1	10.1	100	89.9	
Upstream station, thalweg 2 (5 ft)	A	5	1	11	100	89	
Inlet, culvert top	A	0	1	8.96	100	91.04	
Upstream station, water elev 1 (5 ft)	A	5	1	10.1	100	89.87	
Outlet, rustline	B	0	1	13.4	100	86.58	
Upstream station, OHW line 1 (1 ft)	A	5	1	9.75	100	90.25	
Upstream station, OHW line 1 (1 ft)	B	5	1	9.27	100	90.73	
Upstream station, thalweg 3 (2 CMP widths)	A	12	1	10.8	100	89.17	
Upstream station, thalweg 3 (2 CMP widths)	B	8	1	9.85	100	90.15	
Outlet, culvert top	A	0	1	10.2	100	89.85	
Outlet, culvert top	B	0	1	11.5	100	88.5	
Outlet, culvert invert	A	0	1	13.2	100	86.79	
Outlet, culvert invert	B	0	1	13.8	100	86.23	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 076 **VISIT** 1

Outlet, thalweg	A	0	1	13.2	100	86.79
Outlet, thalweg	B	0	1	13.8	100	86.23
Outlet, rustline	A	0	1	12.7	100	87.31
Upstream station, thalweg 2 (5 ft)	B	5	1	9.88	100	90.12

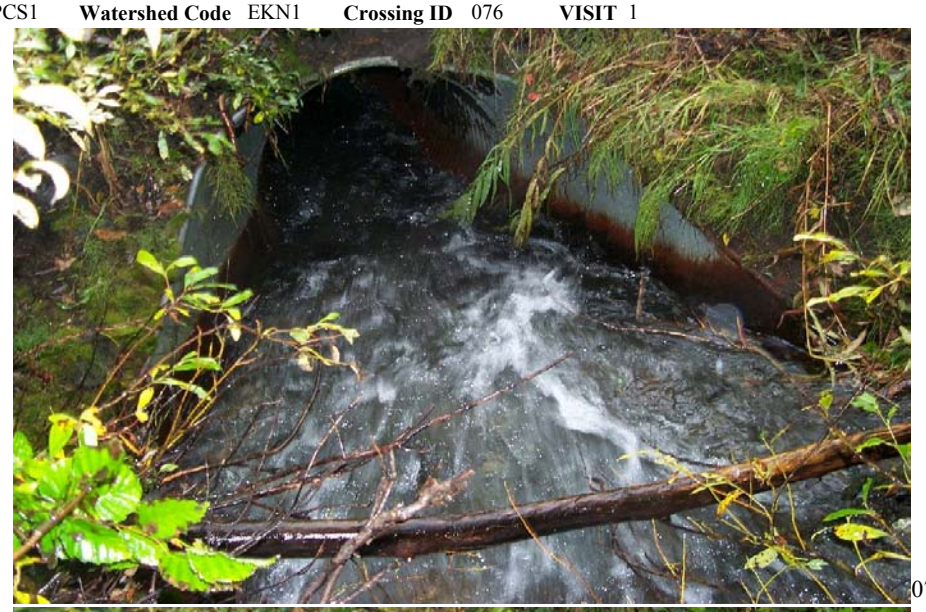
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	68	11	12				5.91 ft/sec.
B	69.5	24	24				2.90 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.35	108	40	N/A	2.61
Upstream from Inlet of Culvert, Location 2	50	0.75	146	40.3	N/A	3.51
Upstream from Inlet of Culvert, Location 3	100	0.6	122	40	N/A	2.96
At Culvert Inlet, Location 1	0	0.6	226	40.1	N/A	5.44
At Culvert Outlet, Location 1	0	0.65	255	40.1	N/A	6.14
At Culvert Inlet, Location 2	0	0.15	51	40.2	N/A	1.25
At Culvert Outlet, Location 2	0	0.1	90	40	N/A	2.19
Outlet Pool Tailcrest	7	0.5	146	40	N/A	3.53

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 076 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 077 **VISIT** 1
DATE 9/13/2001 **Time** 12:45:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.81795 **Long. (dec. deg)** 149.4297
Road Name Hope Hwy FH 14 **Region:** SCN
Quad Name: Seward **ITM:** D-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Alder Creek

Field Notes: Riffle through culvert - no outlet pool
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 1 **Classification:** gray

					Inlet	Outlet
Length:	48	**Cross. Structure Type:**	Structural plate arch - (open bottom-multi plate)	**Width (ft):**	13.00	13.00
		Entrance Type:	Flush in Headwall	**Tidal Influence:** No	**Height (ft):**	7.48	7.71
Corrugation Depth (in.):	2	**Baffles Present:**	No	**Culvert Gradient:** 0.0533	**Manuf. Diameter:**	
Corrugation Width (in.):	6			**Perch Ht. (Flow - Ind):** -0.35	**Water Depth (ft):**	0.79	0.13
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -1.16	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Boulder	None		**Encrochment Ratio:** 0.88	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 17.21

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	14.5	100
Upstrream OHW Width (50 ft.):	15	50
Upstrream OHW Width (5 ft.):	22.9	5
Tailcrest Width at OHW:	13.2	4
Outlet Pool OHW Line (Max. Width.):	13.2	
Downstream OHW Width (100 ft.):	15	100
Downstrream OHW Width (50 ft.):	14	50

Longitudinal Section Elevation Common

Station ID	**Dist. from Xing**	**Inst. No.**	**FS**	**HI**	**Elevation**	**Field Comments**
Outlet, pool maximum depth 2	5	1	15.8	100	84.21	
Outlet, edge-road		1	4.02	100	95.98	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	14.3	100	85.71	
Inlet, edge-road		1	3.96	100	96.04	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	15.8	100	84.21	
Downstream station, OHW line 3 (100 ft)	100	1	19.4	100	80.56	
Downstream station, thalweg 1 (tailcrest)	4	1	15.4	100	84.56	
Downstream station, OHW line 1 (tailcrest)	4	1	14.3	100	85.73	
Downstream station, water elev 1 (tailcrest)	4	1	14.6	100	85.37	
Downstream station, thalweg 2 (50 ft)	50	1	18.4	100	81.62	
Downstream station, water elev 2 (50 ft)	50	1	17.5	100	82.5	
Downstream station, OHW line 2 (50)	50	1	16.8	100	83.17	
Downstream station, thalweg 3 (100 ft)	100	1	21.1	100	78.87	
Downstream station, water elev 3 (100 ft)	100	1	20.6	100	79.4	
Outlet, pool water elev	5	1	14.6	100	85.37	
Upstream station, OHW line 1 (100 ft)	100	2	6.21	101.31	95.1	
Upstream station, water elev 1 (100 ft)	100	2	9.08	101.31	92.23	
Upstream station, thalweg 5 (100 ft)	100	2	7.35	101.31	93.96	
Upstream station, OHW line 1 (50 ft)	50	2	9.04	101.31	92.27	
Upstream station, water elev 2 (50 ft)	50	2	10.4	101.31	90.93	
Upstream station, thalweg 4 (50 ft)	50	2	11.3	101.31	89.98	

Longitudinal Section Elevation Specific

Station ID	**Seq**	**Dist. from Xing**	**Inst. No.**	**FS**	**HI**	**Elevation**	**Field Comments**
Outlet, rustline	A	0	1	14	100	86	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 077 **VISIT** 1

Outlet, rustline	A	0	1	14	100	86
Outlet, thalweg	A	0	1	15.8	100	84.21
Outlet, culvert invert	A	0	1	15.8	100	84.21
Outlet, culvert top	A	0	1	8.08	100	91.92
Upstream station, thalweg 3 (2 CMP widths)	A	26	2	12.9	101.3	88.39
Upstream station, OHW line 1 (1 ft)	A	5	2	12.5	101.3	88.85
Upstream station, water elev 1 (5 ft)	A	5	2	13.3	101.3	88.06
Upstream station, thalweg 2 (5 ft)	A	5	2	14.0	101.3	87.29
Upstream station, thalweg 1 (1 ft)	A	1	2	14.5	101.3	86.85
Inlet, culvert thalweg	A	0	2	14.5	101.3	86.77
Inlet, culvert rustline	A	0	2	13.1	101.3	88.23
Inlet, culvert invert	A	0	2	14.5	101.3	86.77
Inlet, culvert top	A	0	2	7.06	101.3	94.25

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	48	10	11				4.57 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.7	43	40.5	N/A	2.36
Upstream from Inlet of Culvert, Location 2	100	0.7	94	40.1	N/A	5.19
Downstream from Outlet of Culvert, Location 1	50	0.5	66	40.4	N/A	3.62
Downstream from Outlet of Culvert, Location 2	100	1.2	87	40	N/A	4.80
At Culvert Inlet, Location 1	0	0.8	60	40.5	N/A	3.27
At Culvert Outlet, Location 1	0	0.9	38	40.7	N/A	2.08
Outlet Pool Tailcrest	4	0.7	56	40	N/A	3.09

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 077 **VISIT** 1

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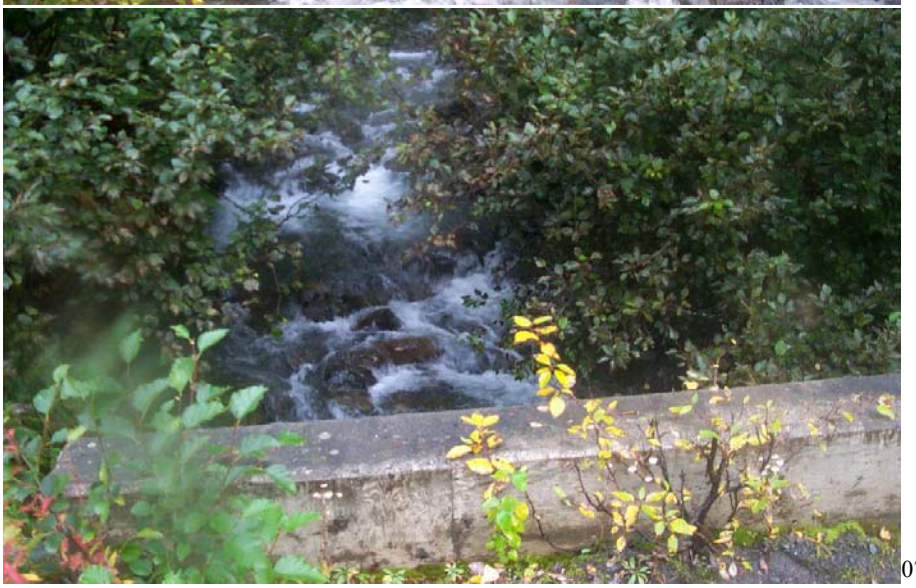

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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 078 **VISIT** 1
DATE 9/13/2001 **Time** 3:10:00 PM **Observers:** Cecil Rich, William Glick, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.74067 **Long. (dec. deg)** 149.35733
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Silvertip Creek

Field Notes: Downstream outlet - flow directed outward and eroding bank - needs repair.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

			Inlet	Outlet
Length: 115	**Cross. Structure Type:** Structural plate arch - (open bottom-multi plate)	**Width (ft):**	16.50	16.50
	Entrance Type: Flush in Headwall **Tidal Influence:** No	**Height (ft):**	9.04	10.12
Corrugation Depth (in.): 2	**Baffles Present:** Yes **Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 6	**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.81	0.16
	Perch Ht. (Flow -Dep):	**Substr. Dep (ft):**	0.00	0.00
	Encrochment Ratio:	**Struc. Damage (%):**	0	0
		Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	Large Cobble	Large Cobble
Erosion:	No Inlet Erosion	Other

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Large Cobble	Large Cobble
Sub Dominant Substrate Type:	Boulder	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous fish	SRO
Downstream:	Suitable for anadromous fish	SRO

Stream Discharge: 27.94

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	29.4	100
Upstrream OHW Width (50 ft.):	18.6	50
Upstrream OHW Width (5 ft.):	28.7	5
Tailcrest Width at OHW:	30.3	19
Outlet Pool OHW Line (Max. Width.):	26.8	
Downstream OHW Width (100 ft.):	33	162
Downstrream OHW Width (50 ft.):	34.4	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 078U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 132
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 078D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	3.4	1	14.85	100	85.15	LB bank
Left Bank, Ordinary High Water	9.2	1	17.81	100	82.19	
Station 2	16.6	1	17.67	100	82.33	
Station 3	18.5	1	18.06	100	81.94	
Station 4	20.9	1	17.33	100	82.67	
Left Bank, Wetted Perimeter	22.3	1	18.96	100	81.04	
Station 5	23.2	1	19.21	100	80.79	
Station 6	23.8	1	18.48	100	81.52	
Station 7	25.7	1	19	100	81	
Station 8	26.1	1	20.5	100	79.5	
Station 9	28.8	1	19.9	100	80.1	
Station 10	32.7	1	20.38	100	79.62	
Station 11	34.7	1	20.31	100	79.69	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 078 **VISIT** 1

Station 12	36.4	1	20.23	100	79.77	
Left Bank/Bed Slope Break	37.9	1	19.35	100	80.65	
Right Bank, Wetted Perimeter	38.5	1	19.31	100	80.69	
Right Bank, Ordinary High Water	39.4	1	18.06	100	81.94	
Station 13	39.5	1	18.71	100	81.29	RB bank
Station 14	40	1	16.83	100	83.17	RB Top of bank

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	20.9	100	79.15	
Upstream station, thalweg 4 (50 ft)	50	1	16.2	100	83.77	
Upstream station, water elev 2 (50 ft)	50	1	14.7	100	85.31	
Upstream station, OHW line 1 (50 ft)	50	1	14.4	100	85.6	
Upstream station, thalweg 5 (100 ft)	100	1	14.6	100	85.37	
Upstream station, water elev 1 (100 ft)	100	1	13.7	100	86.33	
Upstream station, OHW line 1 (100 ft)	100	1	13.2	100	86.85	
Outlet, edge-road		1	3.54	100	96.46	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	17.8	100	82.21	
Inlet, edge-road		1	2.96	100	97.04	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	20.9	100	79.15	
Downstream station, OHW line 3 (100 ft)	162	1	23.7	100	76.31	
Downstream station, thalweg 1 (tailcrest)	19	1	19.9	100	80.1	
Downstream station, OHW line 1 (tailcrest)	19	1	18.3	100	81.73	
Downstream station, water elev 1 (tailcrest)	19	1	19	100	81.04	
Downstream station, thalweg 2 (50 ft)	80	1	23.6	100	76.44	
Downstream station, water elev 2 (50 ft)	80	1	22.2	100	77.85	
Downstream station, OHW line 2 (50)	80	1	21.5	100	78.46	
Downstream station, thalweg 3 (100 ft)	162	1	25.1	100	74.94	
Downstream station, water elev 3 (100 ft)	162	1	24.3	100	75.73	
Outlet, pool water elev	5	1	19.0	100	80.96	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	18.3	100	81.69	
Outlet, thalweg	A	0	1	20.9	100	79.15	
Outlet, culvert invert	A	0	1	20.9	100	79.15	
Outlet, culvert top	A	0	1	10.7	100	89.27	
Upstream station, thalweg 3 (2 CMP widths)	A	33	1	15.8	100	84.23	
Upstream station, OHW line 1 (1 ft)	A	5	1	14.4	100	85.56	
Upstream station, water elev 1 (5 ft)	A	5	1	14.9	100	85.1	
Upstream station, thalweg 2 (5 ft)	A	5	1	16	100	84.02	
Upstream station, thalweg 1 (1 ft)	A	1	1	16.0	100	83.98	
Inlet, culvert thalweg	A	0	1	16.5	100	83.5	
Inlet, culvert invert	A	0	1	16.1	100	83.92	
Inlet, culvert top	A	0	1	7.04	100	92.96	

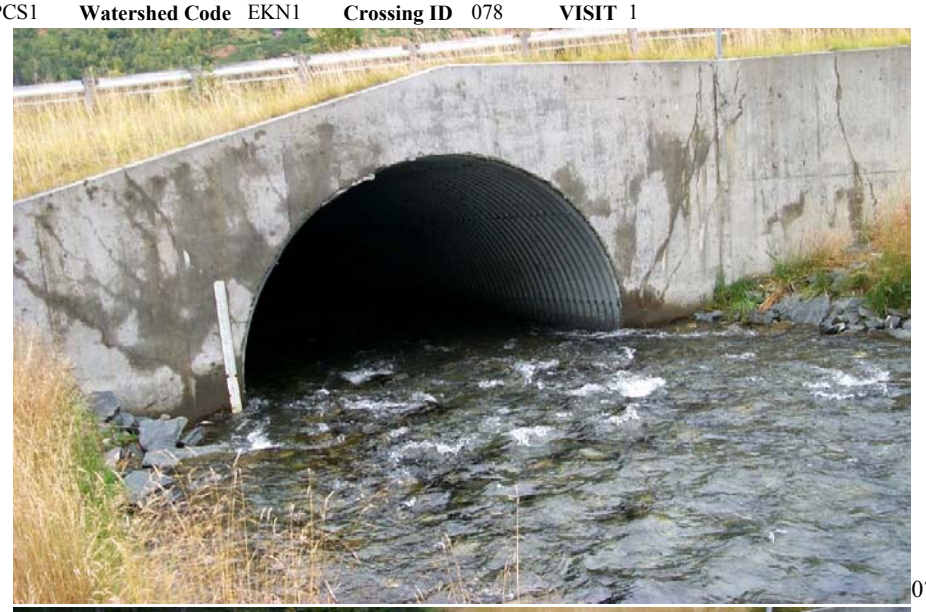
Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.5	63	40.1	N/A	3.48
Upstream from Inlet of Culvert, Location 2	100	0.9	80	40.5	N/A	4.36
Downstream from Outlet of Culvert, Location 1	80	1.5	62	40.2	N/A	3.42
Downstream from Outlet of Culvert, Location 2	162	0.9	47	40.5	N/A	2.58
At Culvert Inlet, Location 1	0	0.6	61	40.2	N/A	3.36
At Culvert Outlet, Location 1	0	0.9	44	40.3	N/A	2.42

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 078 **VISIT** 1

Outlet Pool Tailcrest	19	1.5	39	41.1	N/A	2.11	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 078 **VISIT** 1



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Culvert Survey Report

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 079 **VISIT** 1
DATE 9/26/2001 **Time** 1:10:00 PM **Observers:** Cecil Rich, Jeff Davis, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.53587 **Long. (dec. deg)** 151.20906
Road Name Bridge Access Rd **Region:** SCN
Quad Name: Kenai **ITM:** C-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: 200 M. north of viewing platform. Inlet pipe seperated at flare, eroding around pipe. Flares have rusted and falling apart at outlet, Inlet OK. Retorfit outlet ext. & apron inlet apron rusted through and separted CMP. Observed dead coho fry 100' US.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 109.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.50	5.40
	Entrance Type: Flared Inlet	**Tidal Influence:** No		**Height (ft):**	3.02	3.48
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0074		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.60		**Water Depth (ft):**	0.27	0.75
		Perch Ht. (Flow -Dep): -0.83		**Substr. Dep (ft):**	0.00	0.00
		Encrochment Ratio: 1.27		**Struc. Damage (%):**	0	0
				Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	Fine Gravel	None
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Fine Gravel	Silt/Sand
Sub Dominant Substrate Type:	Silt/Sand	None
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

Stream Discharge: N/A

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	2.8	100
Upstrream OHW Width (50 ft.):	4.3	50
Upstrream OHW Width (5 ft.):	8.9	5
Tailcrest Width at OHW:	6.5	17
Outlet Pool OHW Line (Max. Width.):	8.7	
Downstream OHW Width (100 ft.):	2	100
Downstrream OHW Width (50 ft.):	2.4	52

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Anadromous
Stat. ID: 079U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.03
Susp.Spawn? No **Fork Len. (mm)** 99 91 99 55 58 55 65
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Anadromous
Stat. ID: 079U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.03
Susp.Spawn? No **Fork Len. (mm)** 95 75 55
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 36 **Life History:** Anadromous
Stat. ID: 079D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.08
Susp.Spawn? No **Fork Len. (mm)** 55 55 50 52 58 62 54 65 62 55
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Anadromous
Stat. ID: 079D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.08
Susp.Spawn? No **Fork Len. (mm)** 75 65 73
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.8	1	12.65	100	87.35	
Station 1	5.9	1	12.63	100	87.37	LB terrace
Left Bank, Ordinary High Water	5.9	1	12.69	100	87.31	
Left Bank, Wetted Perimeter	5.6	1	13.17	100	86.83	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 080 **VISIT** 1
DATE 9/26/2001 **Time** 4:08:00 PM **Observers:** Cecil Rich, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.54485 **Long. (dec. deg)** 151.20959
Road Name Bridge Access **Region:** SCN
Quad Name: Kenai **ITM:** C-4 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Beaver Loop Creek

Field Notes: Heavy siltation aquatic veg. Growth. Flow very slow. Many salmon smolt below. Channel was pooled about 95 feet above culveert before natural channel resumed.

Road Prism Type: Through Fill **Spec. Site Cond.:**

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** gray

					Inlet	Outlet
Length:	109.5	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	5.50	5.40
		Entrance Type:	Flared Inlet	**Tidal Influence:** No	**Height (ft):**	3.25	3.85
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** -0.009	**Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** 0.08	**Water Depth (ft):**	0.25	1.44
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -1.50	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** 0.92	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Silt/Sand	Silt/Sand
Sub Dominant Substrate Type:	Silt/Sand	Silt/Sand
Bank Comp:	Alluvium	Alluvium

Stream Discharge: N/A

	Suit	Type
Upstream:	Suitable for anadromous and	RO
Downstream:	Suitable for anadromous and	RO

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	4.8	95
Upstrream OHW Width (50 ft.):	7.2	50
Upstrream OHW Width (5 ft.):	7.1	5
Tailcrest Width at OHW:	16.8	16
Outlet Pool OHW Line (Max. Width.):	22.4	
Downstream OHW Width (100 ft.):	13	100
Downstrream OHW Width (50 ft.):	8.4	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 080U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.37
Susp.Spawn? No **Fork Len. (mm)** 70 97 68 81
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 37 **Life History:** Anadromous
Stat. ID: 080D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 112 127 110 91 131 109 109 60 66 104
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 080D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 98 106 93 109
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 080D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)** 114
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 080D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.33
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.5	1	15.48	100	84.52	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 081 **VISIT** 1
DATE 9/27/2001 **Time** 10:00:00 AM **Observers:** Cecil Rich, James Maple, Jeff Davis, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.70463 **Long. (dec. deg)** 150.86696
Road Name off of Swanson River Road **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 247-90-10020-2036
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Mink Creek

Field Notes: Damaged inlet pipe but still functional. Outlet pipe invert about two inches above substrate.
Road Prism Type: Through Fill **Spec. Site Cond.:**

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

					Inlet	Outlet
Length:	39	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	3.90	3.90
		Entrance Type:	Projecting	**Tidal Influence:** No	**Height (ft):**	3.95	4.08
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** 0.0097	**Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** 0.67	**Water Depth (ft):**	0.40	0.54
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** -0.54	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None		**Encrochment Ratio:** 0.47	**Struc. Damage (%):**	10	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Boulder	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

Stream Discharge: 2.11

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	6.4	100
Upstrream OHW Width (50 ft.):	10.1	50
Upstrream OHW Width (5 ft.):	8	5
Tailcrest Width at OHW:	11.7	31
Outlet Pool OHW Line (Max. Width.):	16.6	
Downstream OHW Width (100 ft.):	11	122
Downstrream OHW Width (50 ft.):	11.9	79

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 18 **Life History:** Resident
Stat. ID: 081U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.02
Susp.Spawn? No **Fork Len. (mm)** 112 69 107 97 76 121 89 125 113 106
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 15 **Life History:** Anadromous
Stat. ID: 081U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.02
Susp.Spawn? No **Fork Len. (mm)** 69 72 80 83 62 59 100 91 88 87
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 10 **Life History:** Resident
Stat. ID: 081U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.02
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 18 **Life History:** Anadromous
Stat. ID: 081D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.34
Susp.Spawn? No **Fork Len. (mm)** 91 98 96 62 75 80 83 95 94 55
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 081D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.34
Susp.Spawn? No **Fork Len. (mm)** 91 72 70 74 71 66
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 081 **VISIT** 1

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 9 **Life History:** Resident
Stat. ID: 081D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.34
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 081D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 2.34
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	5.1	2	8.92	103.95	95.03	
Left Bank, Ordinary High Water	6.7	2	9.19	103.95	94.76	
Left Bank, Wetted Perimeter	7.3	2	9.31	103.95	94.64	
Left Bank/Bed Slope Break	7.8	2	10.1	103.95	93.85	
Station 1	9	2	10.13	103.95	93.82	
Station 2	10	2	9.88	103.95	94.07	
Station 3	11	2	9.54	103.95	94.41	
Station 4	15.5	2	9.79	103.95	94.16	
Station 5	16.3	2	9.48	103.95	94.47	
Station 6	17.1	2	10.17	103.95	93.78	
Right Bank/Bed Slope Break	17.7	2	10.4	103.95	93.55	
Right Bank, Wetted Perimeter	17.7	2	9.63	103.95	94.32	
Right Bank, Ordinary High Water	18.4	2	9.1	103.95	94.85	
Right Bank, Terrace	20	2	8.52	103.95	95.43	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 3 (100 ft)	122	1	7.56	100	92.44	
Downstream station, thalweg 3 (100 ft)	122	1	7.02	100	92.98	
Downstream station, OHW line 2 (50)	79	1	6.23	100	93.77	
Downstream station, water elev 2 (50 ft)	79	1	6.71	100	93.29	
Downstream station, thalweg 2 (50 ft)	79	1	7.4	100	92.6	
Downstream station, OHW line 3 (100 ft)	122	1	8.21	100	91.79	
Outlet, pool maximum depth 2		2	11.8	103.95	92.2	
Upstream station, thalweg 4 (50 ft)	50	2	11	103.95	92.97	
Upstream station, water elev 2 (50 ft)	50	2	8.77	103.95	95.18	
Upstream station, OHW line 1 (50 ft)	50	2	8.4	103.95	95.55	
Upstream station, thalweg 5 (100 ft)	100	2	11.3	103.95	92.64	
Upstream station, water elev 1 (100 ft)	100	2	8.77	103.95	95.18	
Upstream station, OHW line 1 (100 ft)	100	2	8.42	103.95	95.53	
Outlet, edge-road		2	4.35	103.95	99.6	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	8.79	103.95	95.16	
Inlet, edge-road		2	5.02	103.95	98.93	
Outlet, pool maximum depth 1 (within 5 ft)	5	2	10.7	103.95	93.3	
Downstream station, thalweg 1 (tailcrest)	31	2	10.4	103.95	93.55	
Downstream station, OHW line 1 (tailcrest)	31	2	9.15	103.95	94.8	
Downstream station, water elev 1 (tailcrest)	31	2	9.48	103.95	94.47	
Outlet, pool water elev	5	2	9.19	103.95	94.76	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	2	8.77	104	95.18	
Outlet, thalweg	A	0	2	9.73	104	94.22	
Outlet, culvert invert	A	0	2	9.73	104	94.22	
Outlet, culvert top	A	0	2	5.65	104	98.3	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 082 **VISIT** 1
DATE 9/27/2001 **Time** 1:20:00 PM **Observers:** Cecil Rich, James Maple, Jeff Davis, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.70634 **Long. (dec. deg)** 150.85968
Road Name off of Swanson River Road **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 247-90-10020-2036
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Mink Creek

Field Notes: Both banks D/S(but particularly LB) are undercut.
Road Prism Type: Through Fill **Spec. Site Cond.:**

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** gray

			Inlet	Outlet
Length: 47	**Cross. Structure Type:** Corrugated Metal Pipe	**Width (ft):**	5.60	6.10
	Entrance Type: Projecting	**Tidal Influence:** No	**Height (ft):**	3.56	4.29
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0189	**Manuf. Diameter:**	
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.68	**Water Depth (ft):**	0.48	0.67
		Perch Ht. (Flow -Dep): -1.10	**Substr. Dep (ft):**	0.00	0.33
		Encrochment Ratio: 0.86	**Struc. Damage (%):**	0	0
			Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	Coarse Gravel	None
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

Stream Discharge: 1.39

	Upstream	Downstream		Width (ft)	Distance (ft)
Dominant Substrate Type:	Sands	Coarse Gravel	**Upstrream OHW Width (100 ft.):**	7.2	86
Sub Dominant Substrate Type:	None	Small Cobble	**Upstrream OHW Width (50 ft.):**	5.8	32
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	6.5	5
			Tailcrest Width at OHW:	8.6	12
			Outlet Pool OHW Line (Max. Width.):	8.4	
			Downstream OHW Width (100 ft.):	5	109
			Downstrream OHW Width (50 ft.):	5.3	64

	Suit	Type
Upstream:	Suitable for anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 082U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 70 150 75
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous
Stat. ID: 082U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 46 58 87 103 92 80 71 96 62 76
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 082U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 96 78
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 082U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 082D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.07
Susp.Spawn? No **Fork Len. (mm)** 89 92 58 76 104 102
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 082D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.07
Susp.Spawn? No **Fork Len. (mm)** 61
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 083 **VISIT** 1
DATE 9/27/2001 **Time** 3:25:00 PM **Observers:** Cecil Rich, Tom Sigurdsson, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.70467 **Long. (dec. deg)** 150.82326
Road Name off of Swanson River Road **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 247-90-10020-2040
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Breeze Lake Creek

Field Notes: new culvert, no outlet pool. No rustline, hard to find OHW work at outlet. Pipe is set hight at both ends. Substrate 9 inches below inlet invert.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** gray

					Inlet	Outlet
Length: 58.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.20	4.20
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	2.86	2.83
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.006		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.00		**Water Depth (ft):**	0.13	0.13
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	1.50	1.50
Substrate Type: None	None	**Encrochment Ratio:** 0.88		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Coarse Gravel
Sub Dominant Substrate Type:	None	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: 0.29

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	3.7	125
Upstrream OHW Width (50 ft.):	5.8	80
Upstrream OHW Width (5 ft.):	11.5	5
Tailcrest Width at OHW:	6.2	1
Outlet Pool OHW Line (Max. Width.):	6.2	
Downstream OHW Width (100 ft.):	5	100
Downstrream OHW Width (50 ft.):	2.9	59

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 19 **Life History:** Resident
Stat. ID: 083U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 127 81 83 111 109 87 82 89 112 102
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Anadromous
Stat. ID: 083U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 95 90 88
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 49 **Life History:** Resident
Stat. ID: 083U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident
Stat. ID: 083D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 85 95 91 85
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 083D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 83
Comments:

Species: stickleback, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 083D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 084 **VISIT** 1
DATE 9/28/2001 **Time** 10:00:00 AM **Observers:** Cecil Rich, Tom Sigurdsson, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.70372 **Long. (dec. deg)** 150.83717
Road Name off Swanson River Road **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 247-90-10020-2040
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Breeze Lake Creek

Field Notes: Road grader pushing material into stream. Pipe inlet jacked up.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red

			Inlet	Outlet
Length: 43	**Cross. Structure Type:** Corrugated Metal Pipe	**Width (ft):**	3.00	2.90
	Entrance Type: Projecting	**Tidal Influence:** No	**Height (ft):**	2.88	2.90
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0214	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.35	0.33
		Perch Ht. (Flow -Dep):	**Substr. Dep (ft):**	0.00	0.79
		Encrochment Ratio: 0.76	**Struc. Damage (%):**	0	0
			Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	Coarse Gravel	None
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

Stream Discharge: 0.36

	Upstream	Downstream
Dominant Substrate Type:	Silt/Sand	Coarse Gravel
Sub Dominant Substrate Type:	None	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	3.1	100
Upstrream OHW Width (50 ft.):	4.8	50
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:	3.4	1.6
Outlet Pool OHW Line (Max. Width.):	3.4	1.6
Downstream OHW Width (100 ft.):	4	100
Downstrream OHW Width (50 ft.):	6.4	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 30 **Life History:** Anadromous
Stat. ID: 084U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.45
Susp.Spawn? No **Fork Len. (mm)** 58 57 62 63 68 72 57 58 65 64
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 084U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.45
Susp.Spawn? No **Fork Len. (mm)** 75
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Anadromous
Stat. ID: 084D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 105 83 57 59 62 51 46 64 57 48
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 084D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 73 77 45 52 75 45
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	2	1	6.9	100	93.1	LB bank - no terrace
Left Bank, Ordinary High Water	2.5	1	7.27	100	92.73	
Left Bank, Wetted Perimeter	3.6	1	7.85	100	92.15	
Left Bank/Bed Slope Break	3.6	1	7.85	100	92.15	
Station 2	4	1	8.04	100	91.96	
Station 3	4.6	1	7.83	100	92.17	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 085 **VISIT** 1
DATE 10/1/2001 **Time** 1:50:00 PM **Observers:** Cecil Rich, Tom Sigurdsson, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.50789 **Long. (dec. deg)** 150.85414
Road Name Stephens Rd. **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 244-30-10010-2057
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: About a two inch perch at outlet. Inlet peeled open about 2 feet on top 1/2 of pipe. Eight inch overflow pipe about 4 feet higher than main pipe.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 40	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.10	4.10
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	3.98	4.08
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0475		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.46		**Water Depth (ft):**	0.25	0.21
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.08	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None	**Encrochment Ratio:** 0.96	**Struc. Damage (%):**	10	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Fine Gravel	Fine Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

Stream Discharge: 0.80

	Suit	**Type**
Upstream:	Suitable for anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	3.7	100
Upstrream OHW Width (50 ft.):	4.8	59
Upstrream OHW Width (5 ft.):	4.7	5
Tailcrest Width at OHW:	8.9	7.3
Outlet Pool OHW Line (Max. Width.):	8.8	
Downstream OHW Width (100 ft.):	6	100
Downstrream OHW Width (50 ft.):	4.3	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Anadromous
Stat. ID: 085D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.07
Susp.Spawn? No **Fork Len. (mm)** 45 48 58 50 52 42 51 57
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Anadromous
Stat. ID: 085U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.25
Susp.Spawn? No **Fork Len. (mm)** 60 56 53 50 65
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.9	2	10.33	108.39	98.06	
Left Bank, Ordinary High Water	4.8	2	10.85	108.39	97.54	
Left Bank, Wetted Perimeter	5.9	2	11.52	108.39	96.87	
Left Bank/Bed Slope Break	5.9	2	11.52	108.39	96.87	
Station 1	6.6	2	11.75	108.39	96.64	
Station 2	7.8	2	11.81	108.39	96.58	
Station 3	8.7	2	11.9	108.39	96.49	
Station 4	9.8	2	11.92	108.39	96.47	
Right Bank/Bed Slope Break	12.5	2	11.6	108.39	96.79	
Right Bank, Wetted Perimeter	12.5	2	11.6	108.39	96.79	
Right Bank, Ordinary High Water	13.9	2	11.29	108.39	97.1	
Right Bank, Terrace	16	2	10.1	108.39	98.29	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 086 **VISIT** 1
DATE 10/1/2001 **Time** 3:40:00 PM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.51367 **Long. (dec. deg)** 150.85739
Road Name Scout Lake Rd. **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 244-30-10010-2057
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Culvert is bowed and has large grassy build up on upstream side.
Road Prism Type: Through Fill **Spec. Site Cond.:** ATV activity upstream

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

					Inlet	Outlet
Length:	130	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	5.80	5.60
		Entrance Type:	Flared Inlet	**Tidal Influence:** No **Height (ft):**	2.14	3.13
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** **Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** **Water Depth (ft):**	0.40	1.46
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** **Substr. Dep (ft):**	0.00	0.48
Substrate Type:	Silt/Sand	Silt/Sand		**Encrochment Ratio:** **Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Culvert ID: B **Category:** **Classification:**

					Inlet	Outlet
Length:		**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	3.50	3.60
		Entrance Type:	N/A	**Tidal Influence:** No **Height (ft):**	1.89	1.65
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** **Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** **Water Depth (ft):**		
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** **Substr. Dep (ft):**		
Substrate Type:				**Encrochment Ratio:** **Struc. Damage (%):**		
Erosion:	N/A	N/A		**Culv. Blockage (%):**		

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Silt/Sand	Silt/Sand
Sub Dominant Substrate Type:	None	None
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 0.83

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	56	100
Upstrream OHW Width (50 ft.):	33	50
Upstrream OHW Width (5 ft.):	13	5
Tailcrest Width at OHW:	17	17
Outlet Pool OHW Line (Max. Width.):	17	
Downstream OHW Width (100 ft.):	10	100
Downstrream OHW Width (50 ft.):	9.6	70

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 086U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 97 93 93 108 122 104
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Anadromous
Stat. ID: 086U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 92
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 086D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 89 96 100 91 106 86
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	3.8	1	9.58	100	90.42	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 086 **VISIT** 1

Left Bank, Ordinary High Water	6.5	1	9.63	100	90.37
Left Bank, Wetted Perimeter	11.9	1	9.73	100	90.27
Left Bank/Bed Slope Break	12	1	10.29	100	89.71
Station 1	13.2	1	10.29	100	89.71
Station 2	14.2	1	10.02	100	89.98
Station 3	14.6	1	9.83	100	90.17
Station 4	15.2	1	10.21	100	89.79
Station 5	18.8	1	10.48	100	89.52
Station 6	18.7	1	9.85	100	90.15
Station 7	20	1	9.92	100	90.08
Right Bank/Bed Slope Break	23.3	1	10.33	100	89.67
Right Bank, Wetted Perimeter	23.3	1	10.06	100	89.94
Right Bank, Ordinary High Water	23.5	1	9.92	100	90.08
Right Bank, Terrace	24.3	1	9.33	100	90.67

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	11.1	100	88.92	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	9.77	100	90.23	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	11.1	100	88.92	
Downstream station, OHW line 3 (100 ft)	100	1	11.8	100	88.23	
Downstream station, thalweg 1 (tailcrest)	17	1	10.3	100	89.67	
Downstream station, OHW line 1 (tailcrest)	17	1	9.77	100	90.23	
Downstream station, water elev 1 (tailcrest)	17	1	10.1	100	89.94	
Downstream station, thalweg 2 (50 ft)	70	1	12.5	100	87.54	
Downstream station, water elev 2 (50 ft)	70	1	11.8	100	88.21	
Downstream station, OHW line 2 (50)	70	1	11.6	100	88.37	
Downstream station, thalweg 3 (100 ft)	100	1	12.5	100	87.5	
Downstream station, water elev 3 (100 ft)	100	1	11.9	100	88.1	
Outlet, pool water elev	5	1	9.67	100	90.33	
Inlet, edge-road		2	3.29	113.69	110.4	
Outlet, edge-road		2	3.69	113.69	110	
Upstream station, OHW line 1 (100 ft)	100	3	9.21	99.86	90.65	
Upstream station, water elev 1 (100 ft)	100	3	9.17	99.86	90.69	
Upstream station, thalweg 5 (100 ft)	100	3	10.8	99.86	89.03	
Upstream station, OHW line 1 (50 ft)	50	3	9.38	99.86	90.48	
Upstream station, water elev 2 (50 ft)	50	3	9.52	99.86	90.34	
Upstream station, thalweg 4 (50 ft)	50	3	10.3	99.86	89.53	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, OHW line 1 (1 ft)	A	5	3	9.46	99.86	90.4	
Inlet, culvert top	B	0	3	7.69	99.86	92.17	
Inlet, culvert invert	A	0	3	9.83	99.86	90.03	
Inlet, culvert invert	B	0	3	9.58	99.86	90.28	
Inlet, culvert rustline	A	0	3	9.48	99.86	90.38	
Inlet, culvert thalweg	A	0	3	9.83	99.86	90.03	
Upstream station, thalweg 1 (1 ft)	A	1	3	10.7	99.86	89.19	
Inlet, culvert top	A	0	3	7.69	99.86	92.17	
Upstream station, water elev 1 (5 ft)	A	5	3	9.48	99.86	90.38	
Outlet, rustline	A	0	1	9.73	100	90.27	
Upstream station, thalweg 3 (2 CMP widths)	A	11.4	3	12.2	99.86	87.71	
Outlet, culvert top	A	0	1	8.35	100	91.65	
Outlet, culvert top	B	0	1	7.06	100	92.94	
Outlet, culvert invert	A	0	1	11.5	100	88.52	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 086 **VISIT** 1

Outlet, culvert invert	B	0	1	8.71	100	91.29
Outlet, thalweg	A	0	1	11	100	89
Upstream station, thalweg 2 (5 ft)	A	5	3	11.2	99.86	88.65

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	130	0.5	3				43.33 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.8	7	41.9	Pygmy	0.19
Upstream from Inlet of Culvert, Location 2	100	0.8	17	41.8	Pygmy	0.42
Downstream from Outlet of Culvert, Location 1	70	0.8	17	41.8	Pygmy	0.68
Downstream from Outlet of Culvert, Location 2	100	0.6	31	41.1	Pygmy	0.76
At Culvert Inlet, Location 1	0	0.3	18	40.2	Pygmy	0.46
At Culvert Outlet, Location 1	0	1.4	3	46	Pygmy	0.09
Outlet Pool Tailcrest	17	0.5	22	41.3	Pygmy	0.54

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 086 **VISIT** 1

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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 087 **VISIT** 1
DATE 10/1/2001 **Time** 5:30:00 PM **Observers:** Celia Rozen, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.51871 **Long. (dec. deg)** 150.79225
Road Name Scout Lake Loop Rd. **Region:** SCN
Quad Name: Kenai **ITM:** C-3 **Stream #:** 244-30-10010-2057
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Marsh below and above Inlet control (inlet pool tailcrest just above inlet opening).
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 40.3	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.10	4.10
	Entrance Type: Projecting	**Tidal Influence:** No		**Height (ft):**	2.85	
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0203		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.27	0.29
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**		0.00
Substrate Type: Small Cobble	None	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**		**Width (ft)**	**Distance (ft)**
Dominant Substrate Type:	Silt/Sand	Fine Gravel	**Stream Discharge:** 0.59		
Sub Dominant Substrate Type:	None	None	**Upstrream OHW Width (100 ft.):**		
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (50 ft.):**		
			Upstrream OHW Width (5 ft.):		
	Suit	**Type**	**Tailcrest Width at OHW:**	3.5	2
Upstream:	Suitable for anadromous fish	RO	**Outlet Pool OHW Line (Max. Width.):**	3.5	
			Downstream OHW Width (100 ft.):	2	100
Downstream:	Suitable for anadromous fish	RO	**Downstrream OHW Width (50 ft.):**	2.9	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 32 **Life History:** Resident
Stat. ID: 087U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.3
Susp.Spawn? No **Fork Len. (mm)** 165 118 120 140 138 150 140 140 124 95
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 23 **Life History:** Anadromous
Stat. ID: 087U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.3
Susp.Spawn? No **Fork Len. (mm)** 65 75 65 60 98 95 106 78 71 73
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 11 **Life History:** Anadromous
Stat. ID: 087D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.35
Susp.Spawn? No **Fork Len. (mm)** 60 63 65 78 88 70 77 65 66 70
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident
Stat. ID: 087D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.35
Susp.Spawn? No **Fork Len. (mm)** 82 117 80 98 89 100 89 76
Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Left Bank, Terrace	5.1	1	8.88	100	91.12	
Left Bank, Ordinary High Water	5.7	1	8.98	100	91.02	
Left Bank, Wetted Perimeter	5.9	1	9.02	100	90.98	
Left Bank/Bed Slope Break	5.9	1	9.27	100	90.73	

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 087 **VISIT** 1

Station 1	8	1	9.33	100	90.67
Right Bank/Bed Slope Break	8.9	1	9.31	100	90.69
Right Bank, Wetted Perimeter	9	1	9.04	100	90.96
Right Bank, Ordinary High Water	9.2	1	8.94	100	91.06
Right Bank, Terrace	9.6	1	8.75	100	91.25

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 3 (100 ft)	100	1	10.7	100	89.27	
Downstream station, water elev 3 (100 ft)	100	1	10.9	100	89.12	
Downstream station, thalweg 3 (100 ft)	100	1	11.5	100	88.52	
Downstream station, OHW line 2 (50)	50	1	10.0	100	89.96	
Downstream station, water elev 2 (50 ft)	50	1	10.2	100	89.77	
Downstream station, thalweg 2 (50 ft)	50	1	10.7	100	89.27	
Downstream station, water elev 1 (tailcrest)	2	1	9.04	100	90.96	
Downstream station, OHW line 1 (tailcrest)	2	1	8.96	100	91.04	
Downstream station, thalweg 1 (tailcrest)	2	1	9.33	100	90.67	
Outlet, pool maximum depth 2	5	1	9.38	100	90.62	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	9.38	100	90.62	
Outlet, pool water elev	5	1	9.08	100	90.92	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	8.94	100	91.06	
Outlet, edge-road		1	3.69	100	96.31	
Inlet, edge-road		1	4.17	100	95.83	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	8.9	100	91.1	
Outlet, thalweg	A	0	1	9.38	100	90.62	
Outlet, culvert top	A	0	1	5.65	100	94.35	
Upstream station, thalweg 3 (2 CMP widths)	A	8.1	1	10.6	100	89.4	
Upstream station, water elev 1 (5 ft)	A	5	1	8.17	100	91.83	
Upstream station, thalweg 2 (5 ft)	A	5	1	9.52	100	90.48	
Upstream station, thalweg 1 (1 ft)	A	1	1	8.48	100	91.52	
Inlet, culvert thalweg	A	0	1	8.56	100	91.44	
Inlet, culvert rustline	A	0	1	8.29	100	91.71	
Inlet, culvert top	A	0	1	5.71	100	94.29	Apex crushed

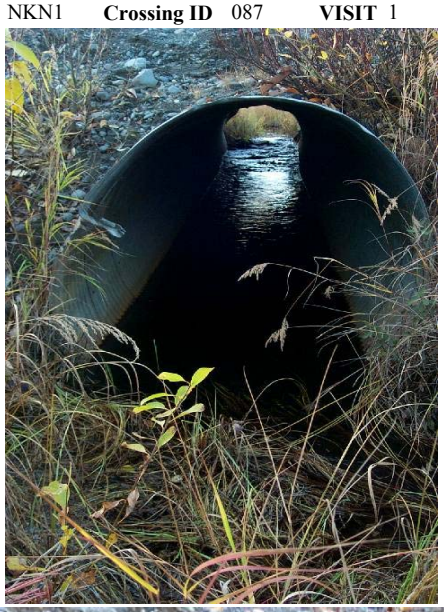
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	40.3	57	37	43	51		.86 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0	0	0	Pygmy	0.00
Upstream from Inlet of Culvert, Location 2	100	0	0	0	Pygmy	0.00
Downstream from Outlet of Culvert, Location 1	50	0.45	37	40.8	Pygmy	0.90
Downstream from Outlet of Culvert, Location 2	100	0.5	22	40	Pygmy	0.56
At Culvert Inlet, Location 1	0	0.3	100	40.1	Pygmy	2.43
At Culvert Outlet, Location 1	0	0.25	18	42	Pygmy	0.44
Outlet Pool Tailcrest	2	0.25	18	42	Pygmy	0.44

Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 087 **VISIT** 1



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Project Code KPCS1 **Watershed Code** NKN1 **Crossing ID** 088 **VISIT** 1
DATE 10/2/2001 **Time** 9:45:00 AM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.74995 **Long. (dec. deg)** 149.37349
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** D-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Very high gradient about 25% upstream. Flared inlet high encroach ratio.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 3 **Classification:** red

					Inlet	Outlet
Length: 94.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	6.10	5.40
	Entrance Type: Flared Inlet	**Tidal Influence:** No		**Height (ft):**	6.62	3.07
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0408		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.98		**Water Depth (ft):**	0.77	0.44
		Perch Ht. (Flow -Dep): -1.42		**Substr. Dep (ft):**	1.29	1.17
		Encrochment Ratio: 0.65		**Struc. Damage (%):**	0	0
				Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	Large Cobble	Large Cobble
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Large Cobble
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 2.10

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	6.9	100
Upstrream OHW Width (50 ft.):	11.9	50
Upstrream OHW Width (5 ft.):	9.7	5
Tailcrest Width at OHW:	10.9	2.5
Outlet Pool OHW Line (Max. Width.):	10.9	
Downstream OHW Width (100 ft.):	7	100
Downstrream OHW Width (50 ft.):	6.8	50

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 088U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 088D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	1	10.42	100	89.58	
Left Bank, Ordinary High Water	4.9	1	10.42	100	89.58	
Left Bank, Wetted Perimeter	5.6	1	10.48	100	89.52	
Left Bank/Bed Slope Break	6.7	1	10.75	100	89.25	
Station 1	7.9	1	10.9	100	89.1	
Station 2	11.5	1	10.63	100	89.37	
Right Bank/Bed Slope Break	15.6	1	10.54	100	89.46	
Right Bank, Wetted Perimeter	15.6	1	10.54	100	89.46	
Right Bank, Ordinary High Water	15.8	1	10.21	100	89.79	
Right Bank, Terrace	16	1	10.02	100	89.98	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	10.7	100	89.29	
Outlet, edge-road		1	2.77	100	97.23	
Outlet, pool OHWS line 1 (within 5 ft.)	5	1	10.2	100	89.81	

Culvert Survey Report

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 089 **VISIT** 1
DATE 10/2/2001 **Time** 11:30:00 AM **Observers:** Cecil Rich, Tom Sigurdsson, James Maple

Site Information:

GPS Location: **Lat. (dec. deg)** 60.74387 **Long. (dec. deg)** 149.36197
Road Name Seward Hwy. **Region:** SCN
Quad Name: **ITM:** **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Riprap used to narrow and direct outchannel. A second pool below outlet pool made with rebar and wood. Outlet pool backwater extends about 3/8 of way up culvert.

Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** gray

					Inlet	Outlet
Length: 129.4	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	7.70	7.60
	Entrance Type: Flared Inlet	**Tidal Influence:** No		**Height (ft):**	4.15	4.02
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0076		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.77		**Water Depth (ft):**	0.38	0.90
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -1.29	**Substr. Dep (ft):**	0.33	0.52
Substrate Type:	None	Silt/Sand	**Encrochment Ratio:** 2.08	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Sands	Sands
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 1.64

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	3.5	100
Upstrream OHW Width (50 ft.):	3.9	50
Upstrream OHW Width (5 ft.):	26.9	5
Tailcrest Width at OHW:	9.8	13
Outlet Pool OHW Line (Max. Width.):	9.8	
Downstream OHW Width (100 ft.):	4	100
Downstrream OHW Width (50 ft.):	6.9	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 089U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 128
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 089D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.12
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	1	9.58	100	90.42	
Station 1	3	1	9.31	100	90.69	artificial terrace
Left Bank, Ordinary High Water	3	1	9.31	100	90.69	
Left Bank, Wetted Perimeter	3.8	1	9.77	100	90.23	
Left Bank/Bed Slope Break	4	1	9.94	100	90.06	
Station 2	5	1	10.06	100	89.94	
Station 3	7	1	10.29	100	89.71	
Right Bank/Bed Slope Break	9.7	1	10.06	100	89.94	
Right Bank, Wetted Perimeter	10.2	1	9.79	100	90.21	
Right Bank, Ordinary High Water	12.8	1	9.23	100	90.77	
Right Bank, Terrace	13.9	1	9.13	100	90.87	

Longitudinal Section Elevation Common

Station ID	Dist. from	Inst.				

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 090 **VISIT** 1
DATE 10/2/2001 **Time** 1:30:00 PM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.74547 **Long. (dec. deg)** 149.36374
Road Name Seward Hwy **Region:** SCN
Quad Name: Seward **ITM:** C-6 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Outlet side is beaver meadow with defined "E" channel.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

			Inlet	Outlet
Length: 113.7	**Cross. Structure Type:** Corrugated Metal Pipe	**Width (ft):**	6.30	6.00
	Entrance Type: Flared Inlet	**Tidal Influence:** No	**Height (ft):**	2.60	2.12
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0042	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.34	**Water Depth (ft):**	0.35	0.90
		Perch Ht. (Flow -Dep): -0.83	**Substr. Dep (ft):**	0.00	0.00
		Encrochment Ratio: 1.13	**Struc. Damage (%):**	0	0
			Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	None	Large Cobble
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Sands	Sands
Sub Dominant Substrate Type:	None	None
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 0.26

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	6	100
Upstrream OHW Width (50 ft.):	5.2	50
Upstrream OHW Width (5 ft.):	8.3	5
Tailcrest Width at OHW:	5.8	55
Outlet Pool OHW Line (Max. Width.):	23.8	
Downstream OHW Width (100 ft.):	7	100
Downstrream OHW Width (50 ft.):	5.4	70

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 090U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 090D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1
Susp.Spawn? No **Fork Len. (mm)** 82 63
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	1	10.52	100	89.48	
Left Bank, Ordinary High Water	3.6	1	10.69	100	89.31	
Left Bank, Wetted Perimeter	3.8	1	10.92	100	89.08	
Station 1	5.5	1	10.92	100	89.08	LB bank
Left Bank/Bed Slope Break	6.3	1	11.88	100	88.12	
Right Bank/Bed Slope Break	8	1	11.58	100	88.42	
Station 2	8.7	1	10.94	100	89.06	RB point on slope
Right Bank, Wetted Perimeter	9	1	10.83	100	89.17	
Right Bank, Ordinary High Water	9.4	1	10.63	100	89.37	
Right Bank, Terrace	9.7	1	10.35	100	89.65	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	13	100	87.04	
Upstream station, thalweg 4 (50 ft)	50	1	11.3	100	88.67	
Upstream station, water elev 2 (50 ft)	50	1	10.5	100	89.48	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 091 **VISIT** 1
DATE 10/2/2001 **Time** 3:20:00 PM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.72834 **Long. (dec. deg)** 149.27774
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Ditch Creek

Field Notes: Creek is almost just a ditch along road. Riprap in outlet pool. Creek follows ditch.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 179.5	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	6.10	6.10
	Entrance Type: Flared Inlet	**Tidal Influence:** No		**Height (ft):**	2.96	2.58
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0072		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** 0.35		**Water Depth (ft):**	0.23	0.10
		Perch Ht. (Flow -Dep): -0.08		**Substr. Dep (ft):**	0.00	0.00
		Encrochment Ratio: 1.18		**Struc. Damage (%):**	0	0
				Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

Stream Discharge: 0.32

	Upstream	Downstream
Dominant Substrate Type:	Silt/Sand	Coarse Gravel
Sub Dominant Substrate Type:	None	Large Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	2.3	113
Upstrream OHW Width (50 ft.):	8	89
Upstrream OHW Width (5 ft.):	13.2	5
Tailcrest Width at OHW:	6.6	8
Outlet Pool OHW Line (Max. Width.):	6.6	
Downstream OHW Width (100 ft.):	7	105
Downstrream OHW Width (50 ft.):	8.3	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous
Stat. ID: 091U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.25
Susp.Spawn? No **Fork Len. (mm)** 77 57 59 60 64 53 62 59 62 52
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 091D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.4
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.2	1	16.23	100	83.77	
Left Bank, Ordinary High Water	4	1	16.54	100	83.46	
Left Bank, Wetted Perimeter	4.3	1	16.67	100	83.33	
Left Bank/Bed Slope Break	4.3	1	16.67	100	83.33	
Station 1	5.5	1	16.79	100	83.21	
Station 2	6.2	1	17.1	100	82.9	
Station 3	8.2	1	16.85	100	83.15	
Right Bank/Bed Slope Break	8.2	1	16.85	100	83.15	
Right Bank, Wetted Perimeter	9.1	1	16.69	100	83.31	
Right Bank, Ordinary High Water	10.6	1	16.17	100	83.83	
Right Bank, Terrace	11.1	1	15.79	100	84.21	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	17.5	100	82.54	
Outlet, edge-road		1	5.13	100	94.87	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 092 **VISIT** 1
DATE 10/3/2001 **Time** 9:40:00 AM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.73248 **Long. (dec. deg)** 149.26765
Road Name Seward Hwy **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Pete's Creek

Field Notes: baffles throughout culvert. Direct current/substrate in zig zag pattern. Rip rap in outlet channel below tailcrest.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 8 **Classification:** gray

					Inlet	Outlet
Length: 108.4	**Cross. Structure Type:** Corrugated Metal Arch -- open bottom			**Width (ft):**	6.96	6.60
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	3.61	3.56
Corrugation Depth (in.): 0.5	**Baffles Present:** Yes	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.56	0.60
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**		
Substrate Type:	Small Cobble	Coarse Gravel	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Large Cobble	
Sub Dominant Substrate Type:	Coarse Gravel	
Bank Comp:	Alluvium	Alluvium
	Suit	**Type**
Upstream:	Suitable for Resident fish	Rearing
Downstream:	Suitable for Resident fish	Rearing

Stream Discharge: 2.71

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	12	103
Upstrream OHW Width (50 ft.):	9.7	48
Upstrream OHW Width (5 ft.):	17	5
Tailcrest Width at OHW:	13.1	4
Outlet Pool OHW Line (Max. Width.):	13.1	
Downstream OHW Width (100 ft.):	22	100
Downstrream OHW Width (50 ft.):	22.7	50

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 092U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.35
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 092D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 160 105 115
Comments: 160 mm fish in spawning colors

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3	1	15.08	100	84.92	
Left Bank, Ordinary High Water	4.6	1	15.54	100	84.46	
Left Bank, Wetted Perimeter	4.8	1	15.81	100	84.19	
Left Bank/Bed Slope Break	5.1	1	16.13	100	83.87	
Station 1	7.5	1	16.08	100	83.92	
Station 2	8	1	15.92	100	84.08	
Station 3	8.7	1	15.56	100	84.44	
Station 4	9.4	1	15.81	100	84.19	
Station 5	10.3	1	15.94	100	84.06	
Station 6	11	1	15.79	100	84.21	
Station 7	11.5	1	15.63	100	84.37	
Station 8	12.1	1	15.77	100	84.23	
Station 9	14	1	15.65	100	84.35	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 092 **VISIT** 1

Station 10	15.3	1	15.96	100	84.04
Station 11	16.9	1	16.21	100	83.79
Right Bank/Bed Slope Break	17.5	1	15.94	100	84.06
Right Bank, Wetted Perimeter	17.5	1	15.65	100	84.35
Right Bank, Ordinary High Water	17.7	1	15.79	100	84.21
Right Bank, Terrace	18.7	1	14.81	100	85.19

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	16.3	100	83.69	
Upstream station, thalweg 4 (50 ft)	48	1	8.29	100	91.71	
Upstream station, water elev 2 (50 ft)	48	1	8.13	100	91.87	
Upstream station, OHW line 1 (50 ft)	48	1	8	100	92	
Upstream station, thalweg 5 (100 ft)	103	1	4.6	100	95.4	
Upstream station, water elev 1 (100 ft)	103	1	4.06	100	95.94	
Upstream station, OHW line 1 (100 ft)	103	1	3.77	100	96.23	
Outlet, edge-road		1	5.29	100	94.71	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	15.5	100	84.54	
Inlet, edge-road		1	5.19	100	94.81	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	16.3	100	83.69	
Downstream station, OHW line 3 (100 ft)	100	1	20.4	100	79.6	
Downstream station, thalweg 1 (tailcrest)	4	1	16.2	100	83.79	
Downstream station, OHW line 1 (tailcrest)	4	1	15.5	100	84.54	
Downstream station, water elev 1 (tailcrest)	4	1	15.7	100	84.27	
Downstream station, thalweg 2 (50 ft)	50	1	18.2	100	81.77	
Downstream station, water elev 2 (50 ft)	50	1	18	100	82.04	
Downstream station, OHW line 2 (50)	50	1	17.4	100	82.6	
Downstream station, thalweg 3 (100 ft)	100	1	21	100	79.04	
Downstream station, water elev 3 (100 ft)	100	1	20.5	100	79.46	
Outlet, pool water elev	5	1	15.6	100	84.37	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, rustline	A	0	1	15.7	100	84.29	
Outlet, thalweg	A		1	16.3	100	83.69	
Outlet, culvert top	A		1	12.8	100	87.25	
Upstream station, thalweg 3 (2 CMP widths)	A	13.56	1	10.8	100	89.23	
Upstream station, OHW line 1 (1 ft)	A	5	1	10.6	100	89.4	
Upstream station, water elev 1 (5 ft)	A	5	1	10.8	100	89.23	
Upstream station, thalweg 2 (5 ft)	A	5	1	11.3	100	88.71	
Upstream station, thalweg 1 (1 ft)	A	1	1	11.7	100	88.35	
Inlet, culvert thalweg	A	0	1	11.7	100	88.29	
Inlet, culvert rustline	A	0	1	11.4	100	88.6	
Inlet, culvert top	A	0	1	8.1	100	91.9	

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	108.4	40	64	125			1.42 ft/sec.

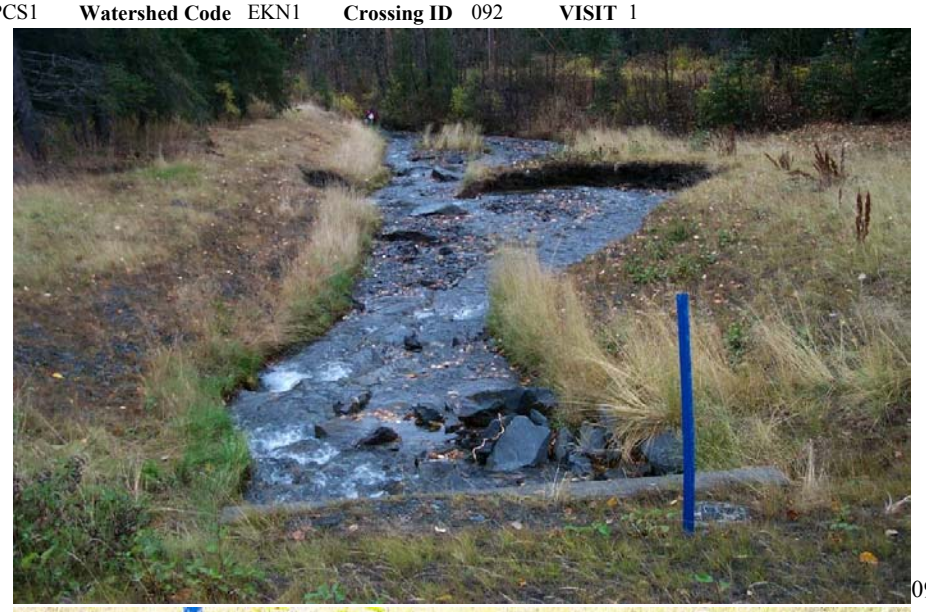
Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	48	0.35	25	40.2	Standard_Price AA	1.39
Upstream from Inlet of Culvert, Location 2	103	0.35	23	40.8	Standard_Price AA	
Downstream from Outlet of Culvert, Location 1	50	0.2	33	41.2	Standard_Price AA	1.78

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 092 **VISIT** 1

Downstream from Outlet of Culvert, Location 2	100	0.3	32	40.5		Standard_Price AA	1.76
At Culvert Inlet, Location 1	0	0.4	60	40.4		Standard_Price AA	3.28
At Culvert Outlet, Location 1	0	0.3	57	40.5		Standard_Price AA	3.10
Outlet Pool Tailcrest	4	0.3	41	40.4		Standard_Price AA	2.26

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 092 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 093 **VISIT** 1
DATE 10/3/2001 **Time** 11:20:00 AM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.74207 **Long. (dec. deg)** 149.25774
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Spokane Creek

Field Notes: Right outlet filled with gravel about halfway up width. Concrete headwall & steel brush guards at inlet. Baffles in left culv. that form 2 large pools - hinder barrel vel. Measurement.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

						Inlet	Outlet
Culvert ID: A		**Category:** 8	**Classification:** gray				
Length: 119		**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	9.50	9.00
		Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	6.00	4.17
Corrugation Depth (in.):	2	**Baffles Present:** Yes	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.83	0.50
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Coarse Gravel	Boulder	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

						Inlet	Outlet
Culvert ID: B		**Category:**	**Classification:**				
Length: 120		**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.50	5.50
		Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	4.35	2.18
Corrugation Depth (in.):	1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.21	0.17
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Coarse Gravel	Boulder	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**	**Stream Discharge:** 6.43	**Width (ft)**	**Distance (ft)**
Dominant Substrate Type:	Boulder	Boulder	**Upstrream OHW Width (100 ft.):**	27.5	100
Sub Dominant Substrate Type:	Coarse Gravel	Coarse Gravel	**Upstrream OHW Width (50 ft.):**	14.3	50
Bank Comp:	Alluvium	Alluvium	**Upstrream OHW Width (5 ft.):**	26.6	5
	Suit	**Type**	**Tailcrest Width at OHW:**	32.5	6.5
Upstream:	Suitable for anadromous fish	Spawning and Rearing	**Outlet Pool OHW Line (Max. Width.):**	32.5	
Downstream:	Suitable for anadromous fish	Spawning and Rearing	**Downstream OHW Width (100 ft.):**	17	109
			Downstrream OHW Width (50 ft.):	17.8	90

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 093U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 093D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 093 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	1	16.69	100	83.31	
Left Bank, Ordinary High Water	4	1	17.29	100	82.71	
Left Bank, Wetted Perimeter	7.3	1	17.92	100	82.08	
Left Bank/Bed Slope Break	8.4	1	18.19	100	81.81	
Station 1	15.5	1	18.38	100	81.62	
Station 2	16.7	1	18.77	100	81.23	
Station 3	17.9	1	18.4	100	81.6	
Station 4	19.8	1	18.63	100	81.37	
Station 5	22.1	1	18.46	100	81.54	
Station 6	26.8	1	18.98	100	81.02	
Station 7	29.7	1	19.5	100	80.5	
Right Bank/Bed Slope Break	33.4	1	18.63	100	81.37	
Right Bank, Wetted Perimeter	33.4	1	18.6	100	81.4	
Station 8	33.6	1	18.17	100	81.83	RB bank
Right Bank, Ordinary High Water	36.5	1	16.96	100	83.04	
Station 9	38.1	1	16.27	100	83.73	RB Bank

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	18.7	100	81.33	
Upstream station, thalweg 4 (50 ft)	50	1	10.6	100	89.42	
Upstream station, water elev 2 (50 ft)	50	1	10.2	100	89.81	
Upstream station, OHW line 1 (50 ft)	50	1	10.1	100	89.92	
Upstream station, thalweg 5 (100 ft)	100	1	7.56	100	92.44	
Upstream station, water elev 1 (100 ft)	100	1	6.75	100	93.25	
Upstream station, OHW line 1 (100 ft)	100	1	6.02	100	93.98	
Outlet, edge-road		1	5.19	100	94.81	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	16.8	100	83.21	
Inlet, edge-road		1	5.1	100	94.9	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	18.7	100	81.33	
Downstream station, OHW line 3 (100 ft)	109	1	22.4	100	77.58	
Downstream station, thalweg 1 (tailcrest)	6.5	1	19.5	100	80.5	
Downstream station, OHW line 1 (tailcrest)	6.5	1	16.8	100	83.21	
Downstream station, water elev 1 (tailcrest)	6.5	1	18.3	100	81.73	
Downstream station, thalweg 2 (50 ft)	90	1	23.2	100	76.77	
Downstream station, water elev 2 (50 ft)	90	1	22.5	100	77.52	
Downstream station, OHW line 2 (50)	90	1	21.7	100	78.31	
Downstream station, thalweg 3 (100 ft)	109	1	23.3	100	76.71	
Downstream station, water elev 3 (100 ft)	109	1	22.7	100	77.29	
Outlet, pool water elev	5	1	17.9	100	82.08	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert thalweg	B	0	1	12.7	100	87.27	
Outlet, culvert invert	A	0	1	18.7	100	81.29	Open bottom (used thalweg)
Outlet, culvert invert	B	0	1	18.6	100	81.44	Open bottom (used thalweg)
Outlet, thalweg	A	0	1	18.7	100	81.29	
Outlet, thalweg	B	0	1	18.6	100	81.44	
Outlet, rustline	A	0	1	18	100	82.04	
Inlet, culvert top	A	0	1	8.13	100	91.87	
Inlet, culvert top	B	0	1	8.38	100	91.62	
Inlet, culvert invert	A	0	1	14.1	100	85.87	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 093 **VISIT** 1

Inlet, culvert invert	B	0	1	12.7	100	87.27
Inlet, culvert rustline	A	0	1	13.2	100	86.79
Outlet, culvert top	B	0	1	16.4	100	83.62
Inlet, culvert thalweg	A	0	1	14.1	100	85.87
Outlet, culvert top	A	0	1	14.5	100	85.46
Upstream station, thalweg 1 (1 ft)	A	1	1	13.8	100	86.19
Upstream station, thalweg 1 (1 ft)	B	1	1	12.6	100	87.37
Upstream station, thalweg 2 (5 ft)	A	5	1	13	100	87
Upstream station, thalweg 2 (5 ft)	B	5	1	13.0	100	86.98
Upstream station, water elev 1 (5 ft)	A	5	1	12.6	100	87.42
Upstream station, water elev 1 (5 ft)	B	5	1	11.9	100	88.08
Upstream station, OHW line 1 (1 ft)	A	5	1	12.2	100	87.79
Upstream station, OHW line 1 (1 ft)	B	5	1	11.7	100	88.33
Upstream station, thalweg 3 (2 CMP widths)	A	18.5	1	11.8	100	88.17
Upstream station, thalweg 3 (2 CMP widths)	B	11	1	12.0	100	87.96
Inlet, culvert rustline	B	0	1	12.5	100	87.52

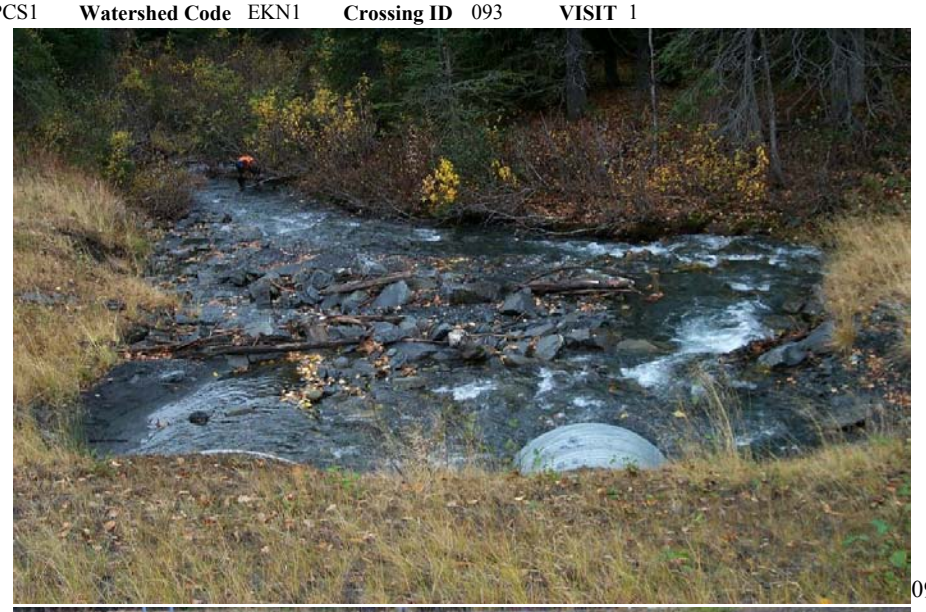
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	119	2	6				29.75 ft/sec.
B	120	1	3				40.00 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.6	29	41	Standard_Price AA	1.58
Upstream from Inlet of Culvert, Location 2	100	0.7	35	40.2	Standard_Price AA	1.94
Downstream from Outlet of Culvert, Location 1	90	0.7	35	40.2	Standard_Price AA	2.73
Downstream from Outlet of Culvert, Location 2	109	0.3	27	40.4	Standard_Price AA	1.49
At Culvert Inlet, Location 1	0	0.7	42	40.5	Standard_Price AA	2.29
At Culvert Outlet, Location 1	0	0.7	44	40.9	Standard_Price AA	
At Culvert Inlet, Location 2	0	0.2	20	41.7	Standard_Price AA	1.08
At Culvert Outlet, Location 2	0	0.5	20	41.9	Standard_Price AA	
Outlet Pool Tailcrest	6.5	0.4	50	40.7	Standard_Price AA	2.73

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 093 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 094 **VISIT** 1
DATE 10/3/2001 **Time** 1:30:00 PM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.75146 **Long. (dec. deg)** 149.24898
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** D-6 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Bertha Creek

Field Notes: Riprap in banks 50 - 60 feet upstream. Debris rack in need of repair.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8	**Classification:** gray				
Length: 128	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	8.70	9.70
	Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	9.73	7.62
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.94	2.42
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	2.08
Substrate Type: Boulder	Coarse Gravel	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:**	**Classification:**				
Length: 129	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	8.60	9.90
	Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	8.06	8.96
Corrugation Depth (in.): 1	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.92	1.08
Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Boulder	Coarse Gravel	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	Large Cobble	Large Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

Stream Discharge: 11.17

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	26.9	100
Upstrream OHW Width (50 ft.):	18.4	50
Upstrream OHW Width (5 ft.):	22.7	5
Tailcrest Width at OHW:	28	
Outlet Pool OHW Line (Max. Width.):	28	
Downstream OHW Width (100 ft.):	16	100
Downstrream OHW Width (50 ft.):	17.4	50

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 094U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 094D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.3
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Longitudinal Section Elevation Common

Station ID	**Dist. from Xing**	**Inst. No.**	**FS**	**HI**	**Elevation**	**Field Comments**
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	11.2	100	88.79	
Downstream station, water elev 3 (100 ft)	100	1	20.3	100	79.71	
Downstream station, thalweg 3 (100 ft)	100	1	21.5	100	78.5	
Downstream station, OHW line 2 (50)	50	1	16.4	100	83.62	
Downstream station, water elev 2 (50 ft)	50	1	17.2	100	82.81	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 094 **VISIT** 1

Downstream station, thalweg 2 (50 ft)	50	1	18.1	100	81.87
Outlet, pool water elev	5	1	13.9	100	86.06
Downstream station, OHW line 3 (100 ft)	100	1	19.2	100	80.83
Upstream station, thalweg 4 (50 ft)	50	2	19.5	114.29	94.75
Upstream station, water elev 2 (50 ft)	50	2	18.4	114.29	95.87
Upstream station, OHW line 1 (50 ft)	50	2	16.7	114.29	97.58
Upstream station, thalweg 5 (100 ft)	100	2	16.7	114.29	97.56
Upstream station, water elev 1 (100 ft)	100	2	16	114.29	98.31
Inlet, edge-road		2	3.08	114.29	111.21
Outlet, edge-road		2	3.35	114.29	110.94
Upstream station, OHW line 1 (100 ft)	100	2	15.2	114.29	99.1

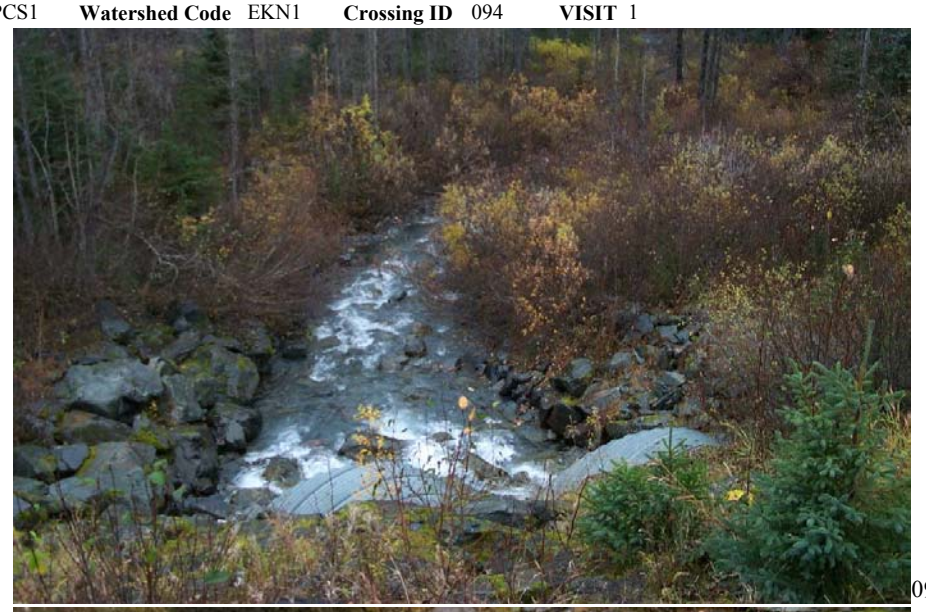
Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	A	5	2	21.6	114.3	92.69	
Inlet, culvert top	B	0	2	13.0	114.3	101.27	
Inlet, culvert invert	A	0	2	23.2	114.3	91.12	
Inlet, culvert invert	B	0	2	21.1	114.3	93.21	
Inlet, culvert rustline	A	0	2	21.4	114.3	92.85	
Inlet, culvert rustline	B	0	2	20.2	114.3	94.12	
Inlet, culvert thalweg	A	0	2	23.2	114.3	91.12	
Inlet, culvert thalweg	B	0	2	21.1	114.3	93.21	
Upstream station, thalweg 1 (1 ft)	A	1	2	21.7	114.3	92.58	
Upstream station, thalweg 1 (1 ft)	B	1	2	21.1	114.3	93.23	
Inlet, culvert top	A	0	2	13.4	114.3	100.85	
Upstream station, thalweg 2 (5 ft)	B	5	2	21	114.3	93.29	
Outlet, rustline	B	0	1	12.4	100	87.56	
Upstream station, water elev 1 (5 ft)	B	5	2	20.1	114.3	94.21	
Upstream station, OHW line 1 (1 ft)	A	5	2	19.2	114.3	95.06	
Upstream station, OHW line 1 (1 ft)	B	5	2	18.6	114.3	95.71	
Upstream station, thalweg 3 (2 CMP widths)	A	18.4	2	20.5	114.3	93.79	
Upstream station, thalweg 3 (2 CMP widths)	B	18.5	2	20.5	114.3	93.79	
Outlet, culvert top	A	0	1	5.88	100	94.12	
Outlet, culvert top	B	0	1	5.71	100	94.29	
Outlet, thalweg	A	0	1	13.5	100	86.5	
Outlet, thalweg	B	0	1	14.7	100	85.33	
Outlet, rustline	A	0	1	12.2	100	87.77	
Upstream station, thalweg 2 (5 ft)	A	5	2	21.7	114.3	92.58	

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	1.2	38	40.2	Standard_Price AA	2.10
Upstream from Inlet of Culvert, Location 2	100	0.6	47	40.1	Standard_Price AA	2.59
Downstream from Outlet of Culvert, Location 1	50	0.6	65	40	Standard_Price AA	3.59
Downstream from Outlet of Culvert, Location 2	100	0.7	47	40.7	Standard_Price AA	2.55
At Culvert Inlet, Location 1	0	1	44	40.7	Standard_Price AA	2.40
At Culvert Outlet, Location 1	0	0.6	29	40.2	Standard_Price AA	1.60
At Culvert Inlet, Location 2	0	0.7	59	40	Standard_Price AA	3.27
At Culvert Outlet, Location 2	0	0.9	27	41.2	Standard_Price AA	1.46
Outlet Pool Tailcrest					N/A	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 094 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 095 **VISIT** 1
DATE 10/3/2001 **Time** 3:35:00 PM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.77942 **Long. (dec. deg)** 149.21901
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** D-6 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Lyon Creek

Field Notes: large accumulation of woody debris on debris rack at inlet, particuarly on left culvert has caused much aggredation. Area around crossing is rip-rapped heavily.

Road Prism Type: Through Fill **Spec. Site Cond.:** Active Bedload upstream of drainage structure

Culvert Measurements:

						Inlet	Outlet
Culvert ID: A		**Category:** 8	**Classification:** gray			**Inlet**	**Outlet**
Length: 139		**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	16.20	16.50
		Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	9.02	9.35
Corrugation Depth (in.):	2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	0.88	0.54
Inlet		**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Boulder		Coarse Gravel	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion		No Outlet Erosion			**Culv. Blockage (%):**	95	0

						Inlet	Outlet
Culvert ID: B		**Category:**	**Classification:**			**Inlet**	**Outlet**
Length: 140.5		**Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate			**Width (ft):**	16.50	16.50
		Entrance Type: Mitered	**Tidal Influence:** No		**Height (ft):**	10.43	9.71
Corrugation Depth (in.):	2	**Baffles Present:** No	**Culvert Gradient:**		**Manuf. Diameter:**		
Corrugation Width (in.):	6		**Perch Ht. (Flow - Ind):**		**Water Depth (ft):**	1.88	1.67
Inlet		**Outlet**	**Perch Ht. (Flow -Dep):**		**Substr. Dep (ft):**	0.00	0.00
Substrate Type: Boulder		Coarse Gravel	**Encrochment Ratio:**		**Struc. Damage (%):**	0	0
Erosion: No Inlet Erosion		No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Boulder	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

Stream Discharge: 46.20

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	15.5	100
Upstrream OHW Width (50 ft.):	58.3	50
Upstrream OHW Width (5 ft.):	31.3	5
Tailcrest Width at OHW:	41	2
Outlet Pool OHW Line (Max. Width.):	41	
Downstream OHW Width (100 ft.):	41	100
Downstrream OHW Width (50 ft.):	48.4	50

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 095U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.55
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 095D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.4
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 095 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	2	1	9.65	100	90.35	LB Riprap
Left Bank, Ordinary High Water	3	1	11.83	100	88.17	
Station 2	3.2	1	12.29	100	87.71	LB
Station 3	5.1	1	12.44	100	87.56	LB Bank/Bed
Station 4	6.5	1	12.02	100	87.98	
Left Bank, Wetted Perimeter	7.2	1	12.9	100	87.1	
Left Bank/Bed Slope Break	7.2	1	13.42	100	86.58	
Station 5	9.2	1	13.67	100	86.33	
Station 6	11.9	1	13.19	100	86.81	
Station 7	14.1	1	12.96	100	87.04	
Station 8	15.9	1	13.04	100	86.96	
Station 9	21.3	1	12.88	100	87.12	
Station 10	21.8	1	12.13	100	87.87	
Station 11	23.5	1	12.33	100	87.67	
Station 12	24.2	1	11.5	100	88.5	
Station 13	25.5	1	13.17	100	86.83	
Station 14	31.2	1	13.52	100	86.48	boulder
Station 15	32.3	1	12.96	100	87.04	boulder
Station 16	33.3	1	12.73	100	87.27	boulder
Station 17	35.4	1	13.17	100	86.83	boulder
Station 18	37	1	14.02	100	85.98	
Right Bank/Bed Slope Break	42.6	1	12.88	100	87.12	
Right Bank, Wetted Perimeter	43.2	1	12.44	100	87.56	
Right Bank, Ordinary High Water	44	1	11.25	100	88.75	
Station 19	47.5	1	7.69	100	92.31	RB Bank rip-rap

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	13.6	100	86.37	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	11.2	100	88.83	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	13.6	100	86.37	
Downstream station, OHW line 3 (100 ft)	100	1	14.1	100	85.9	
Downstream station, thalweg 1 (tailcrest)	2	1	13.7	100	86.33	
Downstream station, OHW line 1 (tailcrest)	2	1	11.7	100	88.3	
Downstream station, water elev 1 (tailcrest)	2	1	12.7	100	87.33	
Downstream station, thalweg 2 (50 ft)	50	1	15.5	100	84.5	
Downstream station, water elev 2 (50 ft)	50	1	13.9	100	86.15	
Downstream station, OHW line 2 (50)	50	1	13	100	87.02	
Downstream station, thalweg 3 (100 ft)	100	1	16.1	100	83.9	
Downstream station, water elev 3 (100 ft)	100	1	14.9	100	85.12	
Outlet, pool water elev	5	1	12.3	100	87.71	
Inlet, edge-road		2	2.54	106.6	104.06	
Outlet, edge-road		2	4.15	106.6	102.45	
Upstream station, OHW line 1 (100 ft)	100	2	13.9	106.6	92.68	
Upstream station, water elev 1 (100 ft)	100	2	14.7	106.6	91.93	
Upstream station, thalweg 5 (100 ft)	100	2	15.9	106.6	90.66	
Upstream station, OHW line 1 (50 ft)	50	2	14.0	106.6	92.58	
Upstream station, water elev 2 (50 ft)	50	2	15.2	106.6	91.41	
Upstream station, thalweg 4 (50 ft)	50	2	16.3	106.6	90.35	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, water elev 1 (5 ft)	B	5	2	15.9	106.6	90.66	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 095 **VISIT** 1

Upstream station, water elev 1 (5 ft)	B	5	2	15.9	106.6	90.06	
Inlet, culvert top	B	0	2	7.88	106.6	98.72	
Inlet, culvert invert	A	0	2	17	106.6	89.64	
Inlet, culvert invert	B	0	2	18.3	106.6	88.29	
Inlet, culvert rustline	A	0	2	15.8	106.6	90.77	
Inlet, culvert thalweg	A	0	2	17	106.6	89.64	
Inlet, culvert thalweg	B	0	2	18.3	106.6	88.29	
Upstream station, thalweg 1 (1 ft)	A	1	2	17	106.6	89.62	
Upstream station, thalweg 1 (1 ft)	B	1	2	18.1	106.6	88.54	
Upstream station, thalweg 2 (5 ft)	A	5	2	16.7	106.6	89.95	
Inlet, culvert top	A	0	2	7.94	106.6	98.66	
Upstream station, water elev 1 (5 ft)	A	5	2	16.3	106.6	90.33	
Outlet, rustline	B	0	1	11.8	100	88.25	
Upstream station, OHW line 1 (1 ft)	B	5	2	14.1	106.6	92.52	
Upstream station, thalweg 3 (2 CMP widths)	A	32.7	2	17.2	106.6	89.45	
Outlet, culvert top	A	0	1	4.15	100	95.85	
Outlet, culvert top	B	0	1	4.17	100	95.83	
Outlet, culvert invert	A	0	1	13.5	100	86.5	used thalweg
Outlet, culvert invert	B	0	1	13.9	100	86.12	used thalweg
Outlet, thalweg	A	0	1	13.5	100	86.5	
Outlet, thalweg	B	0	1	13.9	100	86.12	
Outlet, rustline	A	0	1	11.6	100	88.37	
Upstream station, thalweg 2 (5 ft)	B	5	2	17.3	106.6	89.31	

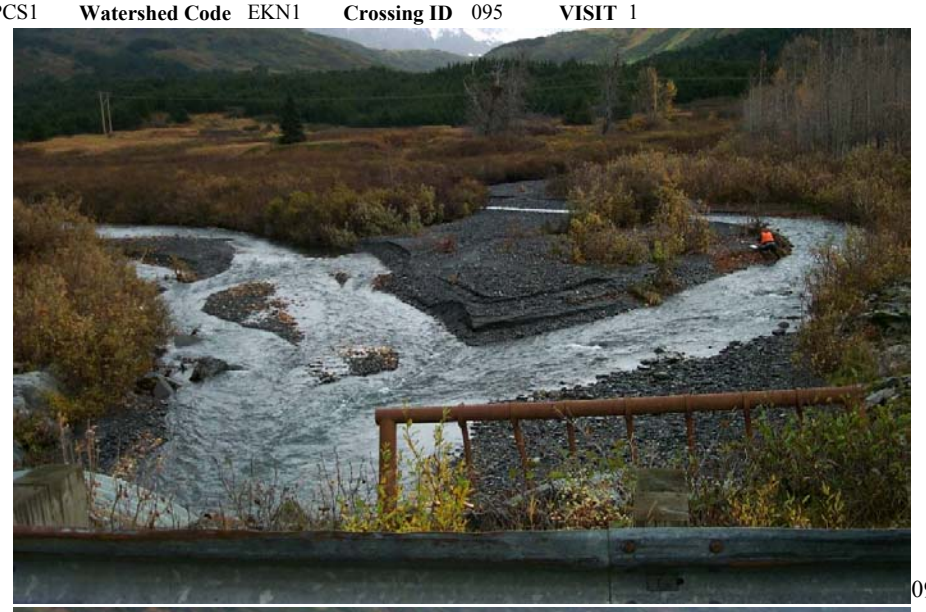
Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
B	140.5	26	25				5.51 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Upstream from Inlet of Culvert, Location 1	50	0.9	59	40.1	Standard_Price AA	3.26
Upstream from Inlet of Culvert, Location 2	100	1.5	71	40	Standard_Price AA	3.93
Upstream from Inlet of Culvert, Location 3	100	0.6	83	40	Standard_Price AA	4.59
Downstream from Outlet of Culvert, Location 1	50	1.2	70	40	Standard_Price AA	3.87
Downstream from Outlet of Culvert, Location 2	100	1.1	62	40	Standard_Price AA	3.43
At Culvert Inlet, Location 1	0	0.6	51	44	Standard_Price AA	2.56
At Culvert Outlet, Location 1	0	0.5	26	41	Standard_Price AA	1.42
At Culvert Inlet, Location 2	0	1.6	67	40.2	Standard_Price AA	3.68
At Culvert Outlet, Location 2	0	1.5	50	40.7	Standard_Price AA	2.72
Outlet Pool Tailcrest	2	1.5	46	40.7	Standard_Price AA	2.51

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 095 **VISIT** 1



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Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 096 **VISIT** 1
DATE 10/4/2001 **Time** 9:10:00 AM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.73149 **Long. (dec. deg)** 149.33328
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** D-6 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Observed adult coho 130 feet downstream. Scoured outlet pool. Material from inlet fill slope scoured during high flow event and deposited in large bar midchannel below outlet pool.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 6 **Classification:** red
Length: 111.6 **Cross. Structure Type:** Corrugated Metal Pipe
Entrance Type: Flared Inlet **Tidal Influence:** No
Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.0060
Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** 0.21
Perch Ht. (Flow -Dep): 0.00
Encrochment Ratio: 0.21

	Inlet	Outlet
Width (ft):	4.00	4.00
Height (ft):	4.02	3.83
Manuf. Diameter:		
Water Depth (ft):	0.46	0.06
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	Fill Slope Erosion Protection Needed	Other

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Coarse Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

Stream Discharge: 0.34

	Suit	Type
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	29.5	103
Upstrream OHW Width (50 ft.):	8.7	50
Upstrream OHW Width (5 ft.):	8.2	5
Tailcrest Width at OHW:	8.5	13
Outlet Pool OHW Line (Max. Width.):	15.2	
Downstream OHW Width (100 ft.):	3	111.5
Downstrream OHW Width (50 ft.):	11.2	54

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous
Stat. ID: 096U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 59 45 43 53 56 60
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 096U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 125
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 53 **Life History:** Anadromous
Stat. ID: 096D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 65 58 56 68 57 54 53 49 54 66
Comments:

Species: chinook salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Anadromous
Stat. ID: 096D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 54 55
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 096D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 0.55
Susp.Spawn? No **Fork Len. (mm)** 105 74
Comments:

Cross Section Elevation

Location ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	5.3	1	9.5	100	90.5	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 097 **VISIT** 1
DATE 10/4/2001 **Time** 11:20:00 AM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.79028 **Long. (dec. deg)** 149.20749
Road Name Seward Hwy **Region:** SCN
Quad Name: Seward **ITM:** D-6 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Headwall separated 1-2 feet from outlet.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length: 160.8	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.40	4.40
	Entrance Type: Flush in Headwall	**Tidal Influence:** No		**Height (ft):**	4.54	4.39
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0133		**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.02		**Water Depth (ft):**	1.29	0.98
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -1.04	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	Boulder	None	**Encrochment Ratio:** 0.32	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Fine Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Boulder
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for anadromous fish	Spawning and Rearing
Downstream:	Suitable for anadromous fish	Spawning and Rearing

Stream Discharge: 1.71

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	15.1	100
Upstrream OHW Width (50 ft.):	12.3	50
Upstrream OHW Width (5 ft.):	12.4	5
Tailcrest Width at OHW:	15.7	18
Outlet Pool OHW Line (Max. Width.):	17.3	
Downstream OHW Width (100 ft.):	12	100
Downstrream OHW Width (50 ft.):	12.1	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident
Stat. ID: 097U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.15
Susp.Spawn? No **Fork Len. (mm)** 120 158 159 29 133 120 125 115
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Resident
Stat. ID: 097D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.05
Susp.Spawn? No **Fork Len. (mm)** 114 130 142 116 111 122 118 85 85 73
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.1	1	11.63	100	88.37	
Left Bank, Ordinary High Water	5.6	1	12.48	100	87.52	
Left Bank/Bed Slope Break	5.9	1	12.79	100	87.21	
Station 1	8.5	1	12.48	100	87.52	LB Bank
Left Bank, Wetted Perimeter	12.1	1	12.81	100	87.19	
Right Bank/Bed Slope Break	20	1	13.79	100	86.21	
Right Bank, Wetted Perimeter	20.8	1	12.81	100	87.19	
Right Bank, Ordinary High Water	21.3	1	12.65	100	87.35	
Station 2	21.8	1	12.46	100	87.54	RB Bank
Station 3	25	1	12.6	100	87.4	RB Bank
Right Bank, Terrace	35	1	11.48	100	88.52	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 2	5	1	14.1	100	85.9	
Outlet, pool OHWS liine 1 (within 5 ft.)	5	1	12.3	100	87.71	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 098 **VISIT** 1
DATE 10/4/2001 **Time** 1:50:00 PM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.82419 **Long. (dec. deg)** 149.13025
Road Name Seward Hwy. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** unnamed

Field Notes:
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** red

					Inlet	Outlet
Length:	104	**Cross. Structure Type:**	Corrugated Metal Pipe	**Width (ft):**	4.70	4.70
		Entrance Type:	Flared Inlet	**Tidal Influence:** No	**Height (ft):**	2.58	2.77
Corrugation Depth (in.):	0.5	**Baffles Present:**	No	**Culvert Gradient:** 0.0359	**Manuf. Diameter:**		
Corrugation Width (in.):	3			**Perch Ht. (Flow - Ind):** 1.00	**Water Depth (ft):**	0.46	0.25
	Inlet	**Outlet**		**Perch Ht. (Flow -Dep):** 0.13	**Substr. Dep (ft):**	0.00	0.40
Substrate Type:	Small Cobble	None		**Encrochment Ratio:** 0.41	**Struc. Damage (%):**	0	0
Erosion:	No Inlet Erosion	No Outlet Erosion			**Culv. Blockage (%):**	0	0

Stream-related

	Upstream	**Downstream**
Dominant Substrate Type:	Small Cobble	Coarse Gravel
Sub Dominant Substrate Type:	Coarse Gravel	Small Cobble
Bank Comp:	Alluvium	Alluvium

	Suit	**Type**
Upstream:	Suitable for Resident fish	Spawning and Rearing
Downstream:	Suitable for Resident fish	Spawning and Rearing

Stream Discharge: 2.72

	Width (ft)	**Distance (ft)**
Upstrream OHW Width (100 ft.):	8.5	100
Upstrream OHW Width (50 ft.):	14.2	50
Upstrream OHW Width (5 ft.):	8.5	5
Tailcrest Width at OHW:	9.4	4
Outlet Pool OHW Line (Max. Width.):	9.4	
Downstream OHW Width (100 ft.):	15	103
Downstrream OHW Width (50 ft.):	7.1	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident
Stat. ID: 098U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.2
Susp.Spawn? No **Fork Len. (mm)** 55 80 105 100 73 138
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 3 **Life History:** Resident
Stat. ID: 098D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 99 102 111
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	4.5	1	10.19	100	89.81	
Left Bank, Ordinary High Water	6.7	1	10.65	100	89.35	
Left Bank, Wetted Perimeter	7.1	1	10.79	100	89.21	
Left Bank/Bed Slope Break	7.3	1	10.94	100	89.06	
Station 1	8	1	10.75	100	89.25	
Station 2	9.3	1	10.9	100	89.1	
Station 4	9.9	1	10.83	100	89.17	
Station 5	10.3	1	10.69	100	89.31	
Station 6	10.5	1	10.4	100	89.6	
Station 7	11.1	1	10.38	100	89.62	
Station 8	11.9	1	11.15	100	88.85	
Station 9	12.2	1	10.67	100	89.33	
Station 10	14	1	10.4	100	89.6	
Station 11	14.3	1	11.58	100	88.42	
Right Bank/Bed Slope Break	15	1	11.13	100	88.87	
Right Bank, Wetted Perimeter	15.9	1	10.63	100	89.37	

Project Code KPCS1 **Watershed Code** EKN1 **Crossing ID** 099 **VISIT** 1
DATE 10/5/2001 **Time** 10:00:00 AM **Observers:** Cecil Rich, James Maple, Tom Sigurdsson

Site Information:

GPS Location: **Lat. (dec. deg)** 60.55163 **Long. (dec. deg)** 149.5863
Road Name Jerome lake FS Rd. **Region:** SCN
Quad Name: Seward **ITM:** C-7 **Stream #:**
Legal Desc: S.M.04N11W13 **Data Office:** ANC **Stream Name:** Jerome Lake

Field Notes: Meadow stream with many large bolders in channel. Culvert heavily rip-rapped.
Road Prism Type: Through Fill **Spec. Site Cond.:** No significant special site condition

Culvert Measurements:

Culvert ID: A **Category:** 5 **Classification:** gray

			Inlet	Outlet
Length: 64	**Cross. Structure Type:** Corrugated Metal Pipe		**Width (ft):**	5.90	5.80
	Entrance Type: Projecting	**Tidal Influence:** No	**Height (ft):**	4.48	4.94
Corrugation Depth (in.): 0.5	**Baffles Present:** No	**Culvert Gradient:** 0.0091	**Manuf. Diameter:**		
Corrugation Width (in.): 3		**Perch Ht. (Flow - Ind):** -0.40	**Water Depth (ft):**	0.65	0.88
		Perch Ht. (Flow -Dep): -0.98	**Substr. Dep (ft):**	0.46	0.11
		Encrochment Ratio: 1.37	**Struc. Damage (%):**	0	0
			Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	Coarse Gravel	Sands
Erosion:	No Inlet Erosion	No Outlet Erosion

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Boulder	Boulder
Sub Dominant Substrate Type:	Fine Gravel	Fine Gravel
Bank Comp:	Alluvium	Alluvium

	Suit	Type
Upstream:	Suitable for Resident fish	SRO
Downstream:	Suitable for Resident fish	SRO

Stream Discharge: 1.66

	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	4.1	50
Upstrream OHW Width (50 ft.):	4.5	50
Upstrream OHW Width (5 ft.):	5.7	5
Tailcrest Width at OHW:	7.5	7
Outlet Pool OHW Line (Max. Width.):	7.5	
Downstream OHW Width (100 ft.):	5	100
Downstrream OHW Width (50 ft.):	5.6	50

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 099U1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 104 51
Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 099D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 97
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Resident
Stat. ID: 099D1 **Gear:** Minnow Trap **# of Traps set:** 3 **Trap Dur. (h):** 1.1
Susp.Spawn? No **Fork Len. (mm)** 9858 86 67 60 84 46
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.3	1	9.6	100	90.4	
Left Bank, Ordinary High Water	4.5	1	11.44	100	88.56	
Left Bank, Wetted Perimeter	4.7	1	11.77	100	88.23	
Left Bank/Bed Slope Break	4.7	1	11.92	100	88.08	
Station 1	9	1	12.31	100	87.69	
Station 2	10.1	1	12.31	100	87.69	
Station 3	10.5	1	11.65	100	88.35	
Station 4	11.5	1	11.71	100	88.29	
Station 5	11.7	1	12.17	100	87.83	
Station 6	11.9	1	12.1	100	87.9	
Right Bank/Bed Slope Break	11.9	1	12.1	100	87.9	