Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 001 **VISIT** 1

DATE 6/4/2002 **Time** 8:08:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.06321 **Long. (dec. deg)** -151.36606

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Old Tyonek

Field Notes: Datum = WGS84. GPS Accuarcy 170 ft.

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

Culvert Measurements:

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

Length: 85.67 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 1 **Baffles Present:** No **Culvert Gradient:** 0.056

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** -3.14

Perch Ht. (Flow -Dep): -0.19

Encrochment Ratio:

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

	Inlet	Outlet
Width (ft):	4.90	4.90
Height (ft):	4.92	8.77
Manuf. Diameter:		
Water Depth (ft):	0.80	0.58
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Culvert ID: B **Category:** 8 **Classification:** GRAY

Length: 87.05 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 1 **Baffles Present:** No **Culvert Gradient:** 0.06

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** -3.28

Perch Ht. (Flow -Dep): -0.33

Encrochment Ratio:

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

	Inlet	Outlet
Width (ft):	5.00	5.00
Height (ft):	4.94	8.80
Manuf. Diameter:		
Water Depth (ft):	0.70	0.35
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	36.5	121
Upstrream OHW Width (50 ft.):	18	15
Upstrream OHW Width (5 ft.):	31	5
Tailcrest Width at OHW:	36.7	27
Outlet Pool OHW Line (Max Width.):	40	8
Downstream OHW Width (100 ft.):	34	100
Downstrream OHW Width (50 ft.):	44.5	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 22 **Life History:** Anadromous

Stat. ID: 001D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 86 92 94 72 111 85 74 68 64 68

Comments:

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

Stat. ID: 001U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 122 71

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	83.8	1	19.98	100	80.02	
Left Bank, Ordinary High Water	81.4	1	20.23	100	79.77	
Left Bank, Wetted Perimeter	79.5	1	20.75	100	79.25	
Left Bank/Bed Slope Break	78.5	1	21.02	100	78.98	
Station 1	76.3	1	21.08	100	78.92	
Station 2	75.4	1	20.4	100	79.6	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 001 **VISIT** 1

Station 3	74.2	1	21.02	100	78.98
Station 4	71.4	1	21.35	100	78.65
Station 5	63.5	1	21	100	79
Station 6	59.5	1	21.38	100	78.62
Station 7	54.7	1	20.66	100	79.34
Station 8	49.6	1	20.75	100	79.25
Right Bank/Bed Slope Break	46.7	1	20.71	100	79.29
Right Bank, Wetted Perimeter	46.7	1	20.71	100	79.29
Right Bank, Ordinary High Water	44.7	1	20.19	100	79.81
Right Bank, Terrace	42.5	1	19.44	100	80.56

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool water elev	8	1	24.3	100	75.67	
Upstream station, thalweg 4 (50 ft)	50	1	18.3	100	81.67	
Upstream station, water elev 2 (50 ft)	50	1	17.8	100	82.21	
Upstream station, OHW line 1 (50 ft)	50	1	17.2	100	82.77	
Upstream station, thalweg 5 (100 ft)	121	1	17.3	100	82.69	
Upstream station, water elev 1 (100 ft)	121	1	16.7	100	83.35	
Upstream station, OHW line 1 (100 ft)	121	1	15.4	100	84.6	
Inlet, edge-road	0	1	5.27	100	94.73	
Outlet, pool OHWS lijne 1 (within 5 ft.)		1	23.6	100	76.37	
Downstream station, thalweg 1 (tailcrest)	27	1	21.4	100	78.62	
Outlet, pool maximum depth 2	7	1	27.8	100	72.25	
Downstream station, thalweg 2 (50 ft)	50	1	22.3	100	77.75	
Downstream station, water elev 2 (50 ft)	50	1	20.8	100	79.19	
Downstream station, OHW line 2 (50)	50	1	20.3	100	79.75	
Downstream station, thalweg 3 (100 ft)	100	1	23.1	100	76.92	
Downstream station, water elev 3 (100 ft)	100	1	22.4	100	77.56	
Downstream station, OHW line 3 (100 ft)	100	1	21.6	100	78.44	
Outlet, edge-road		1	5.46	100	94.54	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert top	B	0	1	14.5	100	85.5	
Inlet, culvert invert	A	0	1	19.7	100	80.27	
Inlet, culvert rustline	A	0	1	18.6	100	81.4	
Inlet, culvert thalweg	A	0	1	19.7	100	80.27	
Upstream station, thalweg 1 (1 ft)	A	1	1	19.7	100	80.35	
Upstream station, thalweg 2 (5 ft)	A	5	1	19.3	100	80.73	
Upstream station, water elev 1 (5 ft)	A	5	1	18.7	100	81.27	
Upstream station, OHW line 1 (1 ft)	A	5	1	17.7	100	82.31	
Upstream station, thalweg 3 (2 CMP widths)	A	10	1	19.5	100	80.46	
Outlet, culvert top	A	0	1	15.8	100	84.25	
Outlet, culvert invert	A	0	1	24.5	100	75.48	
Outlet, thalweg	A	0	1	25.3	100	74.67	
Inlet, culvert top	A	0	1	14.8	100	85.19	
Outlet, pool maximum depth 1 (within 5 ft)	A	5	1	27.3	100	72.67	
Outlet, pool maximum depth 1 (within 5 ft)	B	5	1	26.5	100	73.48	
Inlet, culvert invert	B	0	1	19.4	100	80.56	
Inlet, culvert rustline	B	0	1	18.6	100	81.37	
Inlet, culvert thalweg	B	0	1	19.4	100	80.56	
Upstream station, thalweg 1 (1 ft)	B	1	1	19.4	100	80.56	
Upstream station, thalweg 2 (5 ft)	B	5	1	19.0	100	80.96	
Upstream station, water elev 1 (5 ft)	B	5	1	18.9	100	81.15	
Upstream station, OHW line 1 (1 ft)	B	5	1	17.9	100	82.08	
Upstream station, thalweg 3 (2 CMP widths)	B	10	1	19.6	100	80.42	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 001 **VISIT** 1

Outlet, culvert top	B	0	1	15.9	100	84.14
Outlet, culvert invert	B	0	1	24.7	100	75.34
Outlet, thalweg	B	0	1	25.3	100	74.75
Outlet, rustline	B	0	1	23.5	100	76.46
Outlet, rustline	A	0	1	23.2	100	76.83

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.6	57	40	Standard_Price AA	3.17
At Culvert Inlet Invert	A	0	0.9	45	40.7	Standard_Price AA	2.46
At Culvert Outlet Invert	B	0	0.4	58	40.2	Standard_Price AA	3.20
At Culvert Inlet Invert	B	0	0.7	51	40.4	Standard_Price AA	2.79

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	85.67	21.18	19.43	21.3			4.21 ft/sec.
B	87.05	25.66	25.86	24.31			3.44 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	45	40.5	Standard_Price AA	2.47
Upstream from Inlet of Culvert, Location 2	100	0.4	48	40	Standard_Price AA	2.66
Outlet Pool Tailcrest	9	0.45	27	40.2	Standard_Price AA	1.50
Downstream from Outlet of Culvert, Location 1	50	0.9	69	40.3	Standard_Price AA	3.79
Downstream from Outlet of Culvert, Location 2	100	0.7	29	40.5	Standard_Price AA	1.60

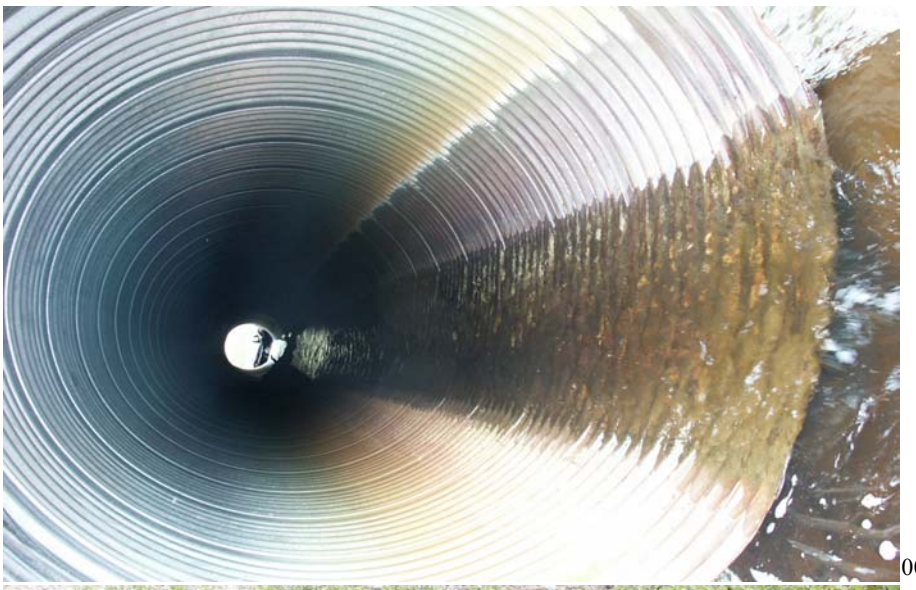
Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 001 **VISIT** 1

00101.JPG

00102.JPG

00103.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 001 **VISIT** 1



00105.JPG

00108.JPG

00109.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 001 **VISIT** 1

00111.JPG

00112.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 002 **VISIT** 1

DATE 6/4/2002 **Time** 5:20:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.06408 **Long. (dec. deg)** -151.14223

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Indian Creek

Field Notes: Datum = WGS84.

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

Culvert Measurements:

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

Length: 90.9 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.016

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** -0.42

Perch Ht. (Flow -Dep): -0.90

	Inlet	Outlet		Inlet	Outlet
Width (ft):	4.00	3.90			
Height (ft):	4.14	3.90			
Manuf. Diameter:					
Water Depth (ft):	0.36	0.42			
Substr. Dep (ft):	0.00	0.63			
Struc. Damage (%):	0	0			
Culv. Blockage (%):	0	0			

Substrate Type: None Coarse Gravel

Erosion: No Inlet Erosion Fill Slope Protection Needed

Culvert ID: B **Category:** 8 **Classification:** GRAY

Length: 90.9 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.017

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** -0.56

Perch Ht. (Flow -Dep): -1.04

	Inlet	Outlet		Inlet	Outlet
Width (ft):	4.20	3.90			
Height (ft):	4.02	3.90			
Manuf. Diameter:					
Water Depth (ft):	0.60	0.96			
Substr. Dep (ft):	0.00	0.13			
Struc. Damage (%):	0	0			
Culv. Blockage (%):	5	0			

Substrate Type: None Coarse Gravel

Erosion: No Inlet Erosion Fill Slope Protection Needed

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:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	19.7	94.5
Upstrream OHW Width (50 ft.):	17.3	50
Upstrream OHW Width (5 ft.):	9.1	5
Tailcrest Width at OHW:	18.2	9
Outlet Pool OHW Line (Max Width.):	18.2	3.75
Downstream OHW Width (100 ft.):	5	113
Downstrream OHW Width (50 ft.):	9.4	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 37 **Life History:** Anadromous

Stat. ID: 002U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 61 97 56 89 92 67 81 68 82 68

Comments: additional fish: 70, 128, 72, 80, 83, 106, 124, 95, 106, 112, 88, 115, 57, 69

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 12 **Life History:** Anadromous

Stat. ID: 002D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 112 66 63 47 82 101 74 65 78 68

Comments: additional fish: 59, 66

Species: threespine stickleback **Life Stage:** Not Recorded **Species/Life Stage Count:** 3 **Life History:** Resident

Stat. ID: 002D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

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

Comments:

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 002 **VISIT** 1

Species: rainbow trout **Life Stage:** Not Recorded **Species/Life Stage Count:** 1 **Life History:** Unknown

Stat. ID: 002D1 **Gear:** Visual Observation, Ground **# of Traps set:** 3 **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	21	1	11	100	89	
Left Bank, Ordinary High Water	20.7	1	12.1	100	87.9	
Left Bank, Wetted Perimeter	15.3	1	12.73	100	87.27	
Left Bank/Bed Slope Break	20.3	1	12.48	100	87.52	
Station 1	15.3	1	12.73	100	87.27	
Station 2	12	1	12.94	100	87.06	
Station 3	10.9	1	13.04	100	86.96	
Station 4	9.8	1	12.9	100	87.1	
Station 5	6.4	1	12.98	100	87.02	
Station 6	5.7	1	13.13	100	86.87	
Right Bank/Bed Slope Break	4.1	1	13.04	100	86.96	
Right Bank, Wetted Perimeter	4	1	12.75	100	87.25	
Right Bank, Ordinary High Water	2.5	1	12.23	100	87.77	
Right Bank, Terrace	1.3	1	11.81	100	88.19	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool water elev	5	1	12.7	100	87.35	
Outlet, edge-road		1	4.58	100	95.42	
Downstream station, thalweg 3 (100 ft)	113	1	14.9	100	85.1	
Downstream station, water elev 3 (100 ft)	113	1	14.3	100	85.69	
Downstream station, OHW line 3 (100 ft)	113	1	13.8	100	86.21	
Downstream station, OHW line 2 (50)	50	1	13.0	100	86.98	
Downstream station, water elev 2 (50 ft)	50	1	13.9	100	86.12	
Inlet, edge-road		1	4.35	100	95.65	
Outlet, pool maximum depth 2	1	1	13.4	100	86.6	
Downstream station, thalweg 1 (tailcrest)	9	1	13.1	100	86.87	
Outlet, pool OHWS lijne 1 (within 5 ft.)	3.75	1	11.5	100	88.54	
Upstream station, water elev 2 (50 ft)	50	1	10.6	100	89.37	
Downstream station, thalweg 2 (50 ft)	50	1	14.4	100	85.6	
Upstream station, thalweg 4 (50 ft)	50	2	9.73	98.67	88.94	
Upstream station, OHW line 1 (50 ft)	50	2	9.04	98.67	89.63	
Upstream station, thalweg 5 (100 ft)	94.5	2	9.1	98.67	89.57	
Upstream station, water elev 1 (100 ft)	94.5	2	8.38	98.67	90.29	
Upstream station, OHW line 1 (100 ft)	94.5	2	7.85	98.67	90.82	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert thalweg	A	0	1	12.1	100	87.92	
Inlet, culvert invert	B	0	1	12.2	100	87.85	
Inlet, culvert rustline	B	0	1	11.1	100	88.87	
Inlet, culvert thalweg	B	0	1	12.2	100	87.85	
Upstream station, thalweg 1 (1 ft)	B	1	1	11.9	100	88.12	
Upstream station, thalweg 2 (5 ft)	B	5	1	11.7	100	88.34	
Outlet, culvert top	B	0	1	9.79	100	90.21	
Outlet, thalweg	B	0	1	13.6	100	86.44	
Outlet, rustline	B	0	1	11.8	100	88.25	
Outlet, pool maximum depth 1 (within 5 ft)	B	1	1	13.4	100	86.6	
Inlet, culvert top	A	0	1	7.94	100	92.06	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 002 **VISIT** 1

Inlet, culvert top	B	0	1	8.13	100	91.87
Inlet, culvert rustline	A	0	1	10.9	100	89.06
Outlet, culvert invert	B	0	1	13.7	100	86.31
Upstream station, thalweg 1 (1 ft)	A	1	1	12	100	88.02
Upstream station, OHW line 1 (1 ft)	A	5	1	10.8	100	89.17
Upstream station, thalweg 3 (2 CMP widths)	A	10	1	11.6	100	88.42
Outlet, culvert top	A	0	1	9.65	100	90.35
Outlet, culvert invert	A	0	1	13.6	100	86.45
Outlet, thalweg	A	0	1	12.9	100	87.08
Outlet, rustline	A	0	1	11.9	100	88.06
Outlet, pool maximum depth 1 (within 5 ft)	A	3.5	1	13.1	100	86.87
Upstream station, thalweg 2 (5 ft)	A	5	1	11.6	100	88.37
Upstream station, water elev 1 (5 ft)	A	5	1	11.2	100	88.79
Inlet, culvert invert	A	0	1	12.1	100	87.92

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.5	56	40.7	Pygmy	1.35
At Culvert Inlet Invert	A	0	0.6	109	40.3	Pygmy	2.63
At Culvert Outlet Invert	B	0	1	43	36.3	Pygmy	1.17
At Culvert Inlet Invert	B	0	0.4	124	38.5	Pygmy	3.11

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	89	40.4	Pygmy	2.15
Upstream from Inlet of Culvert, Location 2	100	0.8	62	40.6	Pygmy	1.50
Outlet Pool Tailcrest	9	0.5	63	40	Pygmy	1.53
Downstream from Outlet of Culvert, Location 1	50	0.6	110	39.3	Pygmy	2.72
Downstream from Outlet of Culvert, Location 2	100	1.2	100	40.2	Pygmy	2.41

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 002 **VISIT** 1

00201.JPG

00202.JPG

00203.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 002 **VISIT** 1

00204.JPG

00207.JPG

00210.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 003 **VISIT** 1

DATE 6/5/2002 **Time** 11:50:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.18735 **Long. (dec. deg)** -151.03372

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-3 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. gps accuracy = 21 ft. Eroding road fill stabilized by sandbags. Channel undefined in palustrine wetland about 30 ft upstream of culvert.

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

Culvert Measurements:

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

Length: 60.4 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 3 **Baffles Present:** No **Culvert Gradient:** 0.015

Corrugation Width (in.): 1 **Perch Ht. (Flow - Ind):** 2.18

Perch Ht. (Flow -Dep): 0.95

Encrochment Ratio:

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

	Inlet	Outlet
Width (ft):	5.80	5.90
Height (ft):	6.00	5.90
Manuf. Diameter:		
Water Depth (ft):	0.46	0.29
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Culvert ID: B **Category:** 8 **Classification:** GRAY

Length: 60.6 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 1 **Baffles Present:** No **Culvert Gradient:** 0.020

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** 2.10

Perch Ht. (Flow -Dep): 0.87

Encrochment Ratio:

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

	Inlet	Outlet
Width (ft):	5.70	5.70
Height (ft):	5.92	6.02
Manuf. Diameter:		
Water Depth (ft):	0.25	0.21
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:	26.8	29
Outlet Pool OHW Line (Max Width.):	26.8	
Downstream OHW Width (100 ft.):	10	96
Downstrream OHW Width (50 ft.):	9	60

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Anadromous

Stat. ID: 003U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 135 107 96 115 111 119

Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 25 **Life History:** Anadromous

Stat. ID: 003D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 102 92 72 60 80 68 81 76 79 68

Comments: additional fish: 76,69,67,68,76,63,82,62,83

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident

Stat. ID: 003D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 130 80 85 94 86 89 90 133

Comments:

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 003 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2	1	14.08	100	85.92	
Left Bank, Ordinary High Water	3.2	1	14.38	100	85.62	
Left Bank/Bed Slope Break	7	1	14.96	100	85.04	
Left Bank, Wetted Perimeter	4.4	1	14.83	100	85.17	
Station 1	8.2	1	15.15	100	84.85	
Station 2	13	1	15.29	100	84.71	
Station 3	18.6	1	15.66	100	84.34	
Station 4	24	1	15.17	100	84.83	mid-channel water edge
Station 5	26.6	1	14.79	100	85.21	top of island
Station 6	27.2	1	15.17	100	84.83	mid-channel water edge
Station 7	29.4	1	16.08	100	83.92	
Station 8	32.3	1	15.42	100	84.58	
Station 9	35.2	1	15.63	100	84.37	
Right Bank/Bed Slope Break	37	1	15.33	100	84.67	
Right Bank, Wetted Perimeter	37	1	15.33	100	84.67	
Right Bank, Ordinary High Water	38.8	1	14.46	100	85.54	
Right Bank, Terrace	39.7	1	13.44	100	86.56	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)	29	1	16.1	100	83.92	
Downstream station, OHW line 3 (100 ft)	96	1	14.9	100	85.12	
Downstream station, water elev 3 (100 ft)	96	1	15.6	100	84.42	
Downstream station, thalweg 3 (100 ft)	96	1	15.9	100	84.08	
Downstream station, OHW line 2 (50)	60	1	14.7	100	85.34	
Downstream station, water elev 2 (50 ft)	60	1	15.2	100	84.85	
Downstream station, thalweg 2 (50 ft)	60	1	15.6	100	84.4	
Outlet, pool maximum depth 2	10	1	19.5	100	80.54	pool gets deeper
Outlet, pool water elev		1	14.9	100	85.15	
Outlet, edge-road		1	4.23	100	95.77	
Upstream station, OHW line 1 (50 ft)	50	1	11.7	100	88.35	No channel beyond 50 ft US
Upstream station, water elev 2 (50 ft)	50	1	12.5	100	87.54	
Upstream station, thalweg 4 (50 ft)	50	1	13.5	100	86.5	
Inlet, edge-road		1	3.73	100	96.27	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool maximum depth 1 (within 5 ft)	A	5	1	19.3	100	80.67	
Inlet, culvert invert	A	0	1	13	100	87	
Inlet, culvert rustline	A	0	1	12.2	100	87.81	
Inlet, culvert thalweg	A	0	1	13.1	100	86.94	
Upstream station, thalweg 1 (1 ft)	A	1	1	13.1	100	86.94	
Upstream station, thalweg 2 (5 ft)	A	5	1	13.8	100	86.23	
Upstream station, water elev 1 (5 ft)	A	5	1	12.5	100	87.52	
Upstream station, OHW line 1 (1 ft)	A	5	1	11.9	100	88.12	
Upstream station, thalweg 3 (2 CMP widths)	A	9.5	1	15.7	100	84.31	
Outlet, culvert top	A	0	1	8	100	92	
Outlet, culvert invert	A	0	1	13.9	100	86.1	
Inlet, culvert top	A	0	1	7	100	93	
Outlet, rustline	A	0	1	13.1	100	86.9	
Outlet, pool maximum depth 1 (within 5 ft)	B	5	1	18.6	100	81.42	
Inlet, culvert top	B	0	1	6.83	100	93.17	
Inlet, culvert invert	B	0	1	12.8	100	87.25	
Inlet, culvert rustline	B	0	1	12.3	100	87.71	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 003 **VISIT** 1

Inlet, culvert thalweg	B	0	1	12.8	100	87.25
Upstream station, thalweg 1 (1 ft)	B	1	1	12.9	100	87.15
Upstream station, thalweg 2 (5 ft)	B	5	1	13.3	100	86.67
Outlet, culvert top	B	0	1	7.96	100	92.04
Outlet, culvert invert	B	0	1	14	100	86.02
Outlet, thalweg	B	0	1	16.0	100	83.98
Outlet, rustline	B	0	1	13.4	100	86.6
Outlet, thalweg	A	0	1	16.4	100	83.56

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.4	173	40.2	Pygmy	4.15
At Culvert Inlet Invert	A	0	0.5	50	40.7	Pygmy	1.21
At Culvert Outlet Invert	B	0	0.25	117	40.2	Pygmy	2.83
At Culvert Inlet Invert	B	0	0.3	58	40.2	Pygmy	1.40

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	60.4	19.54	16.38	17.14			3.42 ft/sec.
B	60.6	24.26	25.46				2.47 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	100	0.4	90	40	Pygmy	2.90
Downstream from Outlet of Culvert, Location 2	50	0.45	49	40.2	Pygmy	1.20
Outlet Pool Tailcrest	29	0.4	20	41.3	Pygmy	0.50

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 003 **VISIT** 1

00301.JPG

00303.JPG

00304.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 003 **VISIT** 1

00306.JPG

00313.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 004 **VISIT** 1

DATE 6/5/2002 **Time** 4:30:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.16167 **Long. (dec. deg)** -151.05522

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-3 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. gps accuracy = 19.6 ft.

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

Culvert Measurements:

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

Length: 45.5 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.106

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** 1.25

Perch Ht. (Flow -Dep): 0.94

Encrochment Ratio: 0.54

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

	Inlet	Outlet
Width (ft):	3.21	3.00
Height (ft):	2.88	3.13
Manuf. Diameter:		
Water Depth (ft):	0.17	0.13
Substr. Dep (ft):	0.00	0.00
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 and	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	6.9	100
Upstrream OHW Width (50 ft.):	5	50
Upstrream OHW Width (5 ft.):	12.4	5
Tailcrest Width at OHW:	5.7	12.2
Outlet Pool OHW Line (Max Width.):	22.5	
Downstream OHW Width (100 ft.):	8	77.3
Downstrream OHW Width (50 ft.):	8.5	50

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 004D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

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: 004U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **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	3	1	12.92	100	87.08	
Left Bank, Ordinary High Water	3.6	1	13.15	100	86.85	
Left Bank, Wetted Perimeter	4.2	1	13.38	100	86.62	
Left Bank/Bed Slope Break	5.2	1	13.69	100	86.31	
Right Bank, Wetted Perimeter	9.9	1	13.35	100	86.65	
Station 1	14.3	1	12.83	100	87.17	gravel bar top
Station 2	17.2	1	13.23	100	86.77	gravel bar bottom
Right Bank/Bed Slope Break	18.4	1	13.13	100	86.87	
Right Bank, Ordinary High Water	18.8	1	12.79	100	87.21	
Right Bank, Terrace	19.3	1	12.17	100	87.83	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 004 **VISIT** 1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road	0	1	3.42	100	96.58	
Downstream station, water elev 3 (100 ft)	77.3	1	14.2	100	85.85	
Downstream station, OHW line 3 (100 ft)	77.3	1	14	100	86.04	
Downstream station, thalweg 2 (50 ft)	50	1	14.4	100	85.6	
Downstream station, water elev 2 (50 ft)	50	1	13.9	100	86.12	
Downstream station, OHW line 2 (50)	50	1	13.4	100	86.6	
Outlet, pool maximum depth 2	4	1	15.3	100	84.71	
Downstream station, thalweg 3 (100 ft)	77.3	1	14.3	100	85.71	
Outlet, pool water elev	9.5	1	13.4	100	86.62	
Downstream station, thalweg 1 (tailcrest)	12.2	1	13.7	100	86.31	
Inlet, edge-road	0	1	3.31	100	96.69	
Upstream station, thalweg 4 (50 ft)	50	1	7.15	100	92.85	
Upstream station, water elev 2 (50 ft)	50	1	6.83	100	93.17	
Upstream station, OHW line 1 (50 ft)	50	1	6.56	100	93.44	
Upstream station, thalweg 5 (100 ft)	100	1	6.88	100	93.12	
Upstream station, water elev 1 (100 ft)	100	1	6.48	100	93.52	
Upstream station, OHW line 1 (100 ft)	100	1	6.08	100	93.92	
Outlet, pool OHWS lijne 1 (within 5 ft.)	8	1	12.7	100	87.31	

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	6.5	1	7.54	100	92.46	
Upstream station, water elev 1 (5 ft)	A	5	1	7.29	100	92.71	
Upstream station, thalweg 2 (5 ft)	A	5	1	7.48	100	92.52	
Upstream station, OHW line 1 (1 ft)	A	5	1	6.77	100	93.23	
Upstream station, thalweg 1 (1 ft)	A	1	1	7.81	100	92.19	
Inlet, culvert rustline	A	0	1	6.6	100	93.4	
Inlet, culvert thalweg	A	0	1	7.75	100	92.25	
Inlet, culvert invert	A	0	1	7.63	100	92.37	
Inlet, culvert top	A	0	1	4.75	100	95.25	
Outlet, culvert top	A	0	1	9.31	100	90.69	
Outlet, rustline	A	0	1	11.8	100	88.17	
Outlet, thalweg	A	0	1	14.2	100	85.79	
Outlet, culvert invert	A	0	1	12.4	100	87.56	
Outlet, pool maximum depth 1 (within 5 ft)	A	4	1	15.3	100	84.71	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.15	241	40.1	Pygmy	5.80
At Culvert Inlet Invert	A	0	0.2	61	40.5	Pygmy	1.47

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	45.5	17.49	15.98	13.39			2.97 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	100	0.2	30	40.3	Pygmy	0.75
Downstream from Outlet of Culvert, Location 2	50	0.5	42	40.6	Pygmy	1.01
Outlet Pool Tailcrest	12.2	0.45	18	41	Pygmy	0.45
Upstream from Inlet of Culvert, Location 1	50	0.2	19	41.4	Pygmy	0.47
Upstream from Inlet of Culvert, Location 2	100	0.2	17	40.2	Pygmy	0.44

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 004 **VISIT** 1

00404.JPG

00406.JPG

00407.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 004 **VISIT** 1

00409.JPG

00410.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 005 **VISIT** 1

DATE 6/6/2002 **Time** 10:22:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.14461 **Long. (dec. deg)** -151.08125

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-3 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** 3 mile creek

Field Notes: Datum = WGS84. Sheet pile stabilzing inlet and outlet. Water depth over the sheetpile 0.38 feet at both the inlet and outlet.

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

Culvert Measurements:

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

Length: 80.4 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Mitered **Tidal Influence:** No

Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** -0.009

Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** 0.87

Perch Ht. (Flow -Dep): 0.21

Encrochment Ratio: 0.70

	Inlet	Outlet
Width (ft):	25.00	25.00
Height (ft):	15.13	13.83
Manuf. Diameter:		
Water Depth (ft):	1.21	0.58
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	Fill Slope Protection Needed

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 and	SRO
Downstream:	Suitable for anadromous and	SRO

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	42	253
Upstrream OHW Width (50 ft.):	29.2	135
Upstrream OHW Width (5 ft.):	49	5
Tailcrest Width at OHW:	10.5	54
Outlet Pool OHW Line (Max Width.):	93	20.5
Downstream OHW Width (100 ft.):	46	252
Downstrream OHW Width (50 ft.):	43	125

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 20 **Life History:** Anadromous
Stat. ID: 005U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 74 129 92 75 68 66 65 66 74 76
Comments: additional fish: 76, 54, 68, 68, 76, 73, 73, 81, 63, 85

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Unknown
Stat. ID: 005U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 132 102 78 118 109
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 57 **Life History:** Anadromous
Stat. ID: 005D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 72 94 67 65 61 64 72 64 72 67
Comments: additional fish: 70, 69, 56, 52, 80, 60, 65

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Unknown
Stat. ID: 005D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 122 60 115 115 108
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	0	1	1.67	100	98.33	
Station 1	0.35	1	2.38	100	97.62	on bank
Left Bank, Ordinary High Water	6.3	1	3.8	100	96.2	
Left Bank/Bed Slope Break	12.6	1	5.04	100	94.96	
Station 2	19.8	1	4.63	100	95.37	bar-top

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 005 **VISIT** 1

Station 3	25.7	1	4.98	100	95.02	
Station 4	31	1	4.75	100	95.25	bartop
Left Bank, Wetted Perimeter	37	1	5.23	100	94.77	wetted perimeter
Station 5	39.3	1	5.83	100	94.17	thalweg
Station 6	42	1	5.48	100	94.52	
Station 7	58.3	1	5.73	100	94.27	
Right Bank, Wetted Perimeter	69.8	1	5.17	100	94.83	
Station 8	85.7	1	4.5	100	95.5	
Station 9	86.5	1	4.69	100	95.31	
Station 10	88	1	5.25	100	94.75	side channel wetted perimeter
Station 11	89.4	1	5.56	100	94.44	side channel thalweg
Station 12	91.3	1	5.17	100	94.83	
Station 13	100.7	1	3.04	100	96.96	
Right Bank, Ordinary High Water	111.3	1	2.29	100	97.71	
Right Bank, Terrace	112.6	1	1.93	100	98.07	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool OHWS lijne 1 (within 5 ft.)	20.5	1	3.75	100	96.25	
Downstream station, water elev 3 (100 ft)	251	1	5.92	100	94.08	
Downstream station, thalweg 3 (100 ft)	251	1	6.65	100	93.35	
Downstream station, OHW line 2 (50)	125	1	4.38	100	95.62	
Downstream station, water elev 2 (50 ft)	125	1	5.63	100	94.37	
Downstream station, thalweg 2 (50 ft)	125	1	6.15	100	93.85	
Outlet, pool maximum depth 2	2	1	8.48	100	91.52	
Downstream station, OHW line 3 (100 ft)	251	1	4.71	100	95.29	
Outlet, pool water elev	6.5	1	5.17	100	94.83	
Downstream station, thalweg 1 (tailcrest)	54	1	5.83	100	94.17	
Inlet, edge-road		3	4.94	118.25	113.31	
Upstream station, thalweg 4 (50 ft)	135	3	22.5	118.25	95.77	
Upstream station, water elev 2 (50 ft)	135	3	22.2	118.25	96.04	
Upstream station, OHW line 1 (50 ft)	135	3	20.4	118.25	97.81	
Upstream station, thalweg 5 (100 ft)	253	3	21.9	118.25	96.35	
Upstream station, water elev 1 (100 ft)	235	3	21.3	118.25	96.98	
Upstream station, OHW line 1 (100 ft)	235	3	20.5	118.25	97.75	
Outlet, edge-road		3	4.98	118.25	113.27	

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		3	24.2	118.3	94.02	
Upstream station, OHW line 1 (1 ft)	A	5	3	20.8	118.3	97.44	
Upstream station, water elev 1 (5 ft)	A	5	3	22.8	118.3	95.48	
Upstream station, thalweg 2 (5 ft)	A	5	3	25	118.3	93.29	
Upstream station, thalweg 1 (1 ft)	A	1	3	25.8	118.3	92.48	
Inlet, culvert thalweg	A	0	3	25.4	118.3	92.9	
Inlet, culvert rustline	A	0	3	21.6	118.3	96.67	
Inlet, culvert invert	A	0	3	24	118.3	94.29	
Inlet, culvert top	A	0	3	8.83	118.3	109.42	
Outlet, culvert top	A	0	3	9.38	118.3	108.87	
Outlet, culvert invert	A	0	2	4.52	99.56	95.04	weir backs up gravel DS culver
Outlet, thalweg	A	0	1	7.79	100	92.21	
Outlet, rustline	A	0	1	3.08	100	96.92	
Outlet, pool maximum depth 1 (within 5 ft)	A	2	1	8.48	100	91.52	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 005 **VISIT** 1

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.3	52	40.6	Pygmy	1.26
At Culvert Inlet Invert	A	0	0.3	48	40.8	Pygmy	1.15

Barrel Velocity(Float Ball)

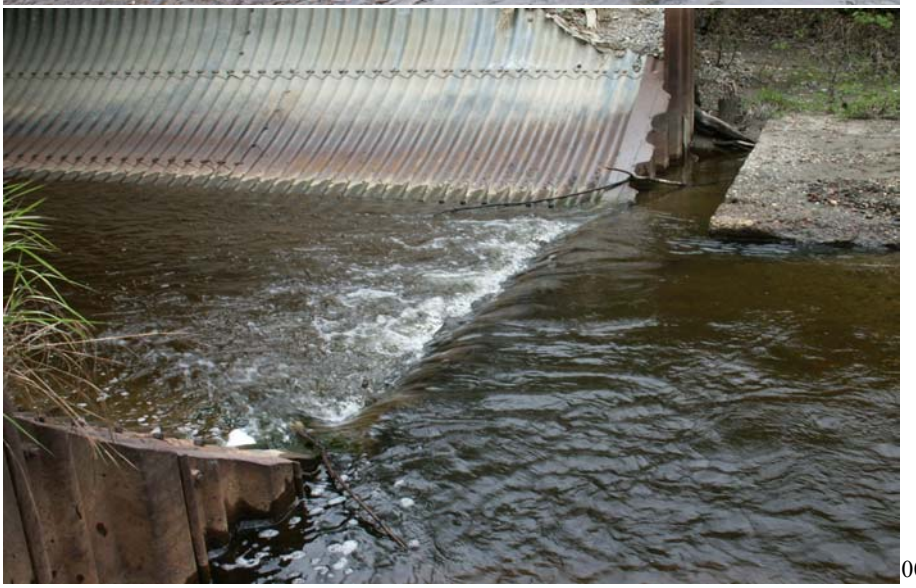
Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	80.4	80.18	66.47	77.61			1.08 ft/sec.

Channel Velocity

Stream Locator	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
Downstream from Outlet of Culvert, Location 2	251	0.7	75	40.3	Pygmy	1.82
Downstream from Outlet of Culvert, Location 1	125	0.7	48	40.4	Pygmy	1.16
Upstream from Inlet of Culvert, Location 1	135	0.2	84	40.4	Pygmy	2.03
Upstream from Inlet of Culvert, Location 2	253	0.6	131	40	Pygmy	3.17
Outlet Pool Tailcrest	54	0.4	60	40.5	Pygmy	1.45

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 005 **VISIT** 1

00501.JPG



00505.JPG

00507.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 005 **VISIT** 1

00508.JPG

00509.JPG

00510.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 005 **VISIT** 1

00511.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 006 **VISIT** 1

DATE 6/6/2002 **Time** 8:30:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.11345 **Long. (dec. deg)** -151.1499

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Chuitbuna Lk outlet stream

Field Notes: Datum = WGS84. gps accuracy = 28.0 ft. Palustrine wetland US of crossing - no channel. No outlet pool.

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

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

Length: 34.7 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): **Baffles Present:** No **Culvert Gradient:** 0.014 **Manuf. Diameter:**

Corrugation Width (in.): **Perch Ht. (Flow - Ind):**

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

Perch Ht. (Flow -Dep): **Encrochment Ratio:**

	Inlet	Outlet
Width (ft):	4.13	4.00
Height (ft):	4.09	4.48
Water Depth (ft):	0.60	0.35
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max Width.):		
Downstream OHW Width (100 ft.):	7	82
Downstrream OHW Width (50 ft.):	10.2	59

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 7 **Life History:** Unknown
Stat. ID: 006U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 82 92 79 74 108
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 13 **Life History:** Anadromous
Stat. ID: 006U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 83 74 95 68 70 66 130 132
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 20 **Life History:** Resident
Stat. ID: 006U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 118 113 118 99 97 111 113 88 99 102
Comments: additional fish: 101,82,93,75

Species: stickleback, undifferentiated **Life Stage:** Not Applicable **Species/Life Stage Count:** 34 **Life History:** Resident
Stat. ID: 006U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 21 **Life History:** Resident
Stat. ID: 006D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 111 112 115 109 101 89 108 81 105 71
Comments: additional fish: 111,100,105,85,109,102,84,102

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 006 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Anadromous
Stat. ID: 006D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 78 88 70 65 115 77
Comments:

Species: stickleback, undifferentiated **Life Stage:** Not Applicable **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 006D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, edge-road		1	3.75	100	96.25	
Outlet, edge-road		1	4	100	96	
Downstream station, OHW line 2 (50)	59	1	7.94	100	92.06	
Downstream station, water elev 2 (50 ft)	59	1	8.73	100	91.27	
Downstream station, thalweg 2 (50 ft)	59	1	9.29	100	90.71	
Downstream station, OHW line 3 (100 ft)	82	1	8.73	100	91.27	
Downstream station, water elev 3 (100 ft)	82	1	8.75	100	91.25	
Downstream station, thalweg 3 (100 ft)	82	1	9.4	100	90.6	

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	6.92	100	93.08	
Upstream station, thalweg 2 (5 ft)	A	5	1	8.44	100	91.56	
Upstream station, OHW line 1 (1 ft)	A	5	1	6.33	100	93.67	
Upstream station, thalweg 1 (1 ft)	A	1	1	7.75	100	92.25	
Inlet, culvert rustline	A	0	1	5.29	100	94.71	
Inlet, culvert thalweg	A	0	1	7.65	100	92.35	
Inlet, culvert invert	A	0	1	8.13	100	91.87	
Inlet, culvert top	A	0	1	4.04	100	95.96	
Outlet, culvert top	A	0	1	4.48	100	95.52	
Outlet, culvert invert	A	0	1	8.6	100	91.4	
Outlet, thalweg	A	0	1	8.31	100	91.69	
Outlet, rustline	A	0	1	6.83	100	93.17	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.4	76	40.1	Pygmy	1.85
At Culvert Inlet Invert	A	0	0.6	36	40	Pygmy	0.89

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	34.7	14.31	13.2	12.95			2.60 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	82	0.55	52	40.2	Pygmy	1.26
Downstream from Outlet of Culvert, Location 2	59	0.55	51	40.2	Pygmy	1.25

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 006 **VISIT** 1

00601.JPG

00602.JPG

00603.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 006 **VISIT** 1

00604.JPG

00605.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 007 **VISIT** 1

DATE 6/6/2002 **Time** 3:50:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.11132 **Long. (dec. deg)** -151.17389

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. gps accuracy = 24.7 ft. Erosion control fabric wrapped around entire inlet fill slope. Beaver pond located upstream of culvert.

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

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

Length: 59.9 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.6 **Baffles Present:** No **Culvert Gradient:** 0.007

Corrugation Width (in.): 2.3 **Perch Ht. (Flow - Ind):** -0.14

Perch Ht. (Flow -Dep): -0.64

Encrochment Ratio: 0.15

	Inlet	Outlet
Width (ft):	3.50	3.50
Height (ft):	3.50	3.52
Manuf. Diameter:		
Water Depth (ft):	0.92	0.85
Substr. Dep (ft):	0.00	0.00
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:	Sands	Coarse Gravel
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:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):	24	40
Upstrream OHW Width (5 ft.):	13.8	5
Tailcrest Width at OHW:	19.5	37
Outlet Pool OHW Line (Max Width.):	32	
Downstream OHW Width (100 ft.):	9	93
Downstrream OHW Width (50 ft.):	16	62

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 49 **Life History:** Anadromous

Stat. ID: 007D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 103 87 73 82 63 62 62 72 73 61

Comments: additional fish: 61,73,74,72,63,70

Species: Dolly Varden **Life Stage:** Adult **Species/Life Stage Count:** 1 **Life History:** Unknown

Stat. ID: 007D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 111

Comments:

Species: threespine stickleback **Life Stage:** Not Applicable **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 007D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **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	0	1	8.46	100	91.54	
Left Bank, Ordinary High Water	3.7	1	8.6	100	91.4	
Left Bank, Wetted Perimeter	4.9	1	8.71	100	91.29	
Left Bank/Bed Slope Break	4.9	1	8.71	100	91.29	
Station 1	6.9	1	8.9	100	91.1	
Station 2	17	1	8.79	100	91.21	
Right Bank/Bed Slope Break	22.5	1	9.13	100	90.87	
Right Bank, Wetted Perimeter	22.5	1	8.67	100	91.33	
Right Bank, Ordinary High Water	23.2	1	8.33	100	91.67	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 007 **VISIT** 1

Right Bank, Terrace	23.9	1	8.13	100	91.87	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)	37	1	9.13	100	90.87	
Inlet, edge-road		1	3.04	100	96.96	
Outlet, edge-road		1	3.13	100	96.87	
Outlet, pool OHWS lijne 1 (within 5 ft.)		1	8.35	100	91.65	
Outlet, pool water elev		1	8.63	100	91.37	
Outlet, pool maximum depth 2	10	1	13.1	100	86.9	
Downstream station, OHW line 2 (50)	61.5	1	9.06	100	90.94	
Downstream station, water elev 2 (50 ft)	61.5	1	9.54	100	90.46	
Downstream station, thalweg 2 (50 ft)	61.5	1	10.3	100	89.67	
Downstream station, OHW line 3 (100 ft)	93	1	9.79	100	90.21	
Downstream station, water elev 3 (100 ft)	93	1	10.3	100	89.75	
Downstream station, thalweg 3 (100 ft)	93	1	10.5	100	89.46	
Upstream station, OHW line 1 (50 ft)	40	2	9.92	102.32	92.4	beaver pond upstream
Upstream station, water elev 2 (50 ft)	40	2	10.2	102.32	92.15	
Upstream station, thalweg 4 (50 ft)	40	2	10.6	102.32	91.76	

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	7	2	11.2	102.3	91.09	
Upstream station, water elev 1 (5 ft)	A	5	2	10.2	102.3	92.11	
Upstream station, thalweg 2 (5 ft)	A	5	2	11.4	102.3	90.97	
Upstream station, OHW line 1 (1 ft)	A	5	2	9.83	102.3	92.49	
Upstream station, thalweg 1 (1 ft)	A	1	2	11.4	102.3	90.94	
Inlet, culvert rustline	A	0	2	10.1	102.3	92.22	
Inlet, culvert thalweg	A	0	2	11.5	102.3	90.82	
Inlet, culvert invert	A	0	2	11.2	102.3	91.15	
Inlet, culvert top	A	0	2	7.67	102.3	94.65	
Outlet, culvert top	A	0	1	5.75	100	94.25	
Outlet, rustline	A	0	1	8.46	100	91.54	
Outlet, thalweg	A	0	1	10.2	100	89.77	
Outlet, culvert invert	A	0	1	9.27	100	90.73	
Outlet, pool maximum depth 1 (within 5 ft)	A	5	1	12.9	100	87.15	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.75	161	44.76	Pygmy	3.49
At Culvert Inlet Invert	A	0	0.9	62	40.5	Pygmy	1.50

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	59.9	15.11	15.66	15.96			3.82 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	93	0.5	112	40.43	Pygmy	2.69
Downstream from Outlet of Culvert, Location 2	61.5	0.2	136	42.32	Pygmy	3.12
Outlet Pool Tailcrest	47	0.2	42	40.5	Pygmy	1.03
Upstream from Inlet of Culvert, Location 1	40	0.6	30	40.2	Pygmy	0.75

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 007 **VISIT** 1

00701.JPG

00702.JPG

00706.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 007 **VISIT** 1

00707.JPG

00709.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 008 **VISIT** 1

DATE 6/7/2002 **Time** 8:00:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.07677 **Long. (dec. deg)** -151.31543

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Tyonek Creek

Field Notes: Datum = WGS84. Short culvert and steep fill yield fill sedimentation (fines) in streambed.

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

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

Length: 60.1 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 1 **Baffles Present:** No **Culvert Gradient:** 0.001

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** -0.21

Perch Ht. (Flow -Dep): -1.06

Encrochment Ratio:

	Inlet	Outlet
Substrate Type:	Fine Gravel	Fine Gravel
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

	Inlet	Outlet
Width (ft):	8.80	8.95
Height (ft):	7.61	7.08
Manuf. Diameter:		
Water Depth (ft):	1.25	
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Culvert ID: B **Category:** 8 **Classification:** GRAY

Length: 60.3 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 1 **Baffles Present:** No **Culvert Gradient:** 0.014

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** 0.08

Perch Ht. (Flow -Dep): -0.77

Encrochment Ratio:

	Inlet	Outlet
Substrate Type:	Fine Gravel	Fine Gravel
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

	Inlet	Outlet
Width (ft):	8.90	9.00
Height (ft):		7.12
Manuf. Diameter:		
Water Depth (ft):	5.25	
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	23.8	198.4
Upstrream OHW Width (50 ft.):	15.7	97.5
Upstrream OHW Width (5 ft.):	41	5
Tailcrest Width at OHW:	24.6	5.7
Outlet Pool OHW Line (Max Width.):	27.1	3.5
Downstream OHW Width (100 ft.):	16	97
Downstrream OHW Width (50 ft.):	14.8	50

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 38 **Life History:** Anadromous

Stat. ID: 008U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 101 76 79 91 75 80 77 75 71 74

Comments: additional fish: 75,78,98,81,72,66,85,69,66,70,75,69,73,87,74,60,76,83,68,75

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 25 **Life History:** Anadromous

Stat. ID: 008D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 134 130 93 69 111 119 82 69 97 89

Comments: additional fish: 78,80,72,85,70,119,72,59,64,80,66,75,77,69,78

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Unknown

Stat. ID: 008D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 125 168

Comments:

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 008 **VISIT** 1

Species: sculpin, undifferentiated **Life Stage:** Not Recorded **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 008D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 89

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	29.6	1	12.98	100	87.02	
Left Bank, Ordinary High Water	27.7	1	13.83	100	86.17	
Left Bank, Wetted Perimeter	25.4	1	14.44	100	85.56	
Left Bank/Bed Slope Break	25.4	1	14.44	100	85.56	
Station 1	23	1	15.02	100	84.98	
Station 2	20.6	1	15.33	100	84.67	
Station 3	17.4	1	15.13	100	84.87	
Station 4	14.7	1	14.54	100	85.46	bar perim h20 elev
Station 5	12.3	1	14	100	86	bar top
Station 6	10.5	1	14.29	100	85.71	bar perim h20 elev
Station 7	8.2	1	14.6	100	85.4	
Station 8	5.8	1	14.42	100	85.58	
Right Bank/Bed Slope Break	5	1	14.42	100	85.58	
Right Bank, Wetted Perimeter	4.9	1	14.15	100	85.85	
Right Bank, Ordinary High Water	3.1	1	13.65	100	86.35	
Right Bank, Terrace	2.5	1	12.94	100	87.06	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road		1	5.88	100	94.12	
Downstream station, water elev 3 (100 ft)	97	1	15.3	100	84.67	
Downstream station, thalweg 3 (100 ft)	97	1	15.9	100	84.12	
Downstream station, OHW line 2 (50)	50	1	14.6	100	85.42	
Downstream station, water elev 2 (50 ft)	50	1	14.8	100	85.17	
Downstream station, thalweg 2 (50 ft)	50	1	15.4	100	84.6	
Outlet, pool maximum depth 2	3	1	15.4	100	84.62	culv b = 14.63
Downstream station, OHW line 3 (100 ft)	97	1	15.3	100	84.75	
Outlet, pool OHWS lijne 1 (within 5 ft.)	3.5	1	13.5	100	86.54	
Downstream station, thalweg 1 (tailcrest)	5.7	1	15.3	100	84.67	
Inlet, edge-road		1	5.88	100	94.12	
Upstream station, thalweg 4 (50 ft)	97.5	1	15.9	100	84.06	
Upstream station, water elev 2 (50 ft)	97.5	1	13.9	100	86.1	
Upstream station, OHW line 1 (50 ft)	97.5	1	13.8	100	86.25	
Upstream station, thalweg 5 (100 ft)	198.4	1	15.2	100	84.77	
Upstream station, water elev 1 (100 ft)	198.4	1	13.9	100	86.08	
Upstream station, OHW line 1 (100 ft)	198.4	1	13.2	100	86.81	
Outlet, pool water elev	3.5	1	14.5	100	85.52	culv b = 14.02

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	13.4	100	86.56	
Outlet, rustline	A	0	1	14.5	100	85.46	
Outlet, thalweg	A	0	1	15.5	100	84.5	
Outlet, culvert invert	A	0	1	15.5	100	84.46	
Outlet, culvert top	A	0	1	8.46	100	91.54	
Inlet, culvert top	A	0	1	7.85	100	92.15	
Inlet, culvert invert	A	0	1	15.5	100	84.54	
Inlet, culvert rustline	A	0	1	14.4	100	85.65	
Inlet, culvert thalweg	A	0	1	15.1	100	84.87	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 008 **VISIT** 1

Upstream station, thalweg 1 (1 ft)	A	1	1	15	100	85
Outlet, pool maximum depth 1 (within 5 ft)	A	3	1	15.4	100	84.62
Upstream station, water elev 1 (5 ft)	A	5	1	14	100	86.04
Upstream station, thalweg 3 (2 CMP widths)	B	17.8	1	15.2	100	84.83
Upstream station, thalweg 3 (2 CMP widths)	A	17.8	1	15.5	100	84.5
Outlet, pool maximum depth 1 (within 5 ft)	B	3	1	14.6	100	85.37
Outlet, rustline	B	0	1	14.3	100	85.69
Outlet, thalweg	B	0	1	14.6	100	85.37
Outlet, culvert invert	B	0	1	15.3	100	84.75
Outlet, culvert top	B	0	1	8.13	100	91.87
Inlet, culvert top	B	0	1	8.17	100	91.83
Inlet, culvert thalweg	B	0	1	14.4	100	85.58
Upstream station, thalweg 1 (1 ft)	B	1	1	14.5	100	85.5
Upstream station, thalweg 2 (5 ft)	B	5	1	15.2	100	84.85
Upstream station, thalweg 2 (5 ft)	A	5	1	15.0	100	84.96

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.9	37	40	Standard_Price AA	2.04
At Culvert Inlet Invert	A	0	1	46	40	Standard_Price AA	2.53
At Culvert Outlet Invert	B	0	0.75	13	42	Standard_Price AA	0.69
At Culvert Inlet Invert	B	0	0.35	16	40	Standard_Price AA	0.89

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	60.1	145.27					.41 ft/sec.
B	60.3	18.75	15.96	18.18			3.41 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	97	0.75	38	40.5	Standard_Price AA	2.07
Downstream from Outlet of Culvert, Location 2	50	0.5	34	40.7	Standard_Price AA	1.86
Outlet Pool Tailcrest	5.7	0.9	35	40	Standard_Price AA	1.93
Upstream from Inlet of Culvert, Location 1	50	1.35	13	40	Standard_Price AA	0.73
Upstream from Inlet of Culvert, Location 2	100	1.15	13	41	Standard_Price AA	0.71

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 008 **VISIT** 1

00801.JPG

00804.JPG

00805.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 008 **VISIT** 1

00806.JPG

00808.JPG

00809.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 008 **VISIT** 1

00812.JPG

00813.JPG

00814.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 008 **VISIT** 1

00815.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 009 **VISIT** 1

DATE 6/7/2002 **Time** 3:00:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.06656 **Long. (dec. deg)** -151.326

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. outlet perched, non-corrugated pipe

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

Culvert Measurements:

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

Length: 31.9 **Cross. Structure Type:** Non corrugated metal pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0 **Baffles Present:** No **Culvert Gradient:** 0.005

Corrugation Width (in.): 0 **Perch Ht. (Flow - Ind):** 0.50

Perch Ht. (Flow -Dep): 0.16

Encrochment Ratio: 0.43

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

	Inlet	Outlet
Width (ft):	1.60	1.60
Height (ft):	1.71	1.52
Manuf. Diameter:		
Water Depth (ft):	4.75	2.75
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
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 anadromous and	Rearing
Downstream:	Suitable for anadromous and	Rearing

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	4	116
Upstrream OHW Width (50 ft.):	3.5	88
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:	7.7	4.5
Outlet Pool OHW Line (Max Width.):	5.25	3.25
Downstream OHW Width (100 ft.):	4	131
Downstrream OHW Width (50 ft.):	5.92	45

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 009U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 0.75

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

Comments:

Species: sculpin, undifferentiated **Life Stage:** Not Recorded **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 009D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 0.75

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	1	1	6.95	100	93.05	
Left Bank, Ordinary High Water	1.3	1	6.88	100	93.12	
Left Bank/Bed Slope Break	1.6	1	7.19	100	92.81	
Left Bank, Wetted Perimeter	3	1	7.63	100	92.37	
Station 1	3.6	1	7.42	100	92.58	
Station 2	4.5	1	7.31	100	92.69	
Station 3	5.6	1	7.46	100	92.54	
Station 4	6.5	1	7.65	100	92.35	thalweg
Station 5	7.5	1	7.48	100	92.52	
Right Bank/Bed Slope Break	8.7	1	7.5	100	92.5	
Right Bank, Wetted Perimeter	8.7	1	7.31	100	92.69	
Right Bank, Ordinary High Water	9	1	7.06	100	92.94	
Right Bank, Terrace	9.9	1	6.81	100	93.19	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 009 **VISIT** 1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)	4.5	1	7.65	100	92.35	
Upstream station, thalweg 4 (50 ft)	88	1	7.54	100	92.46	
Upstream station, water elev 2 (50 ft)	88	1	6.42	100	93.58	
Upstream station, OHW line 1 (50 ft)	88	1	6.21	100	93.79	
Outlet, edge-road		1	5.25	100	94.75	
Outlet, pool water elev	2	1	7.31	100	92.69	
Inlet, edge-road		1	4.92	100	95.08	
Outlet, pool maximum depth 2	1.9	1	7.88	100	92.12	
Downstream station, OHW line 2 (50)	45	1	8.88	100	91.12	
Downstream station, water elev 2 (50 ft)	45	1	8.44	100	91.56	
Downstream station, thalweg 2 (50 ft)	45	1	8.13	100	91.87	
Downstream station, OHW line 3 (100 ft)	131	1	10.1	100	89.87	
Downstream station, water elev 3 (100 ft)	131	1	9.63	100	90.37	
Downstream station, thalweg 3 (100 ft)	131	1	9.33	100	90.67	

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	3.4	1	7.17	100	92.83	
Upstream station, OHW line 1 (1 ft)	A	5	1	6.35	100	93.65	
Upstream station, water elev 1 (5 ft)	A	5	1	6.56	100	93.44	
Upstream station, thalweg 2 (5 ft)	A	5	1	7.29	100	92.71	
Upstream station, thalweg 1 (1 ft)	A	1	1	7.1	100	92.9	
Inlet, culvert thalweg	A	0	1	7.13	100	92.875	
Inlet, culvert invert	A	0	1	6.98	100	93.02	
Inlet, culvert top	A	0	1	5.27	100	94.73	
Outlet, culvert top	A	0	1	5.63	100	94.37	
Outlet, rustline	A	0	1	7.61	100	92.39	
Outlet, thalweg	A	0	1	7.61	100	92.39	
Outlet, culvert invert	A	0	1	7.15	100	92.85	
Outlet, pool maximum depth 1 (within 5 ft)	A	1.9	1	7.88	100	92.12	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.3	159	40	Pygmy	3.85
At Culvert Inlet Invert	A	0	0.4	35	40.4	Pygmy	0.86

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	31.9	9.09	8.93				3.54 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	45	0.2	62	40.3	Pygmy	1.51
Downstream from Outlet of Culvert, Location 2	131	0.3	29	40.4	Pygmy	0.72
Upstream from Inlet of Culvert, Location 1	88	2	10	41.2	Pygmy	0.26
Outlet Pool Tailcrest	45	0.2	46	40.5	Pygmy	1.12

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 009 **VISIT** 1

00901.JPG

00902.JPG

00903.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 009 **VISIT** 1

00904.JPG

00905.JPG

00906.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 010 **VISIT** 1

DATE 6/10/2002 **Time** 8:30:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.12854 **Long. (dec. deg)** -151.22807

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. bearing of culvert A is 139.

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: 30.13	**Cross. Structure Type:** Corrugated Metal Pipe				**Width (ft):**	2.00	2.00
	Entrance Type: Projecting		**Tidal Influence:** No		**Height (ft):**	2.04	1.97
Corrugation Depth (in.): 0.5	**Baffles Present:** No		**Culvert Gradient:** 0.005		**Manuf. Diameter:**		
Corrugation Width (in.): 3			**Perch Ht. (Flow - Ind):** -0.02		**Water Depth (ft):**	0.40	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	Fill Slope Protection Needed			**Culv. Blockage (%):**	0	0

						Inlet	Outlet
Culvert ID: B	**Category:** 8		**Classification:** GRAY				
Length: 24.14	**Cross. Structure Type:** Corrugated Metal Pipe				**Width (ft):**	3.00	3.00
	Entrance Type: Projecting		**Tidal Influence:** No		**Height (ft):**	3.02	3.03
Corrugation Depth (in.): 0.5	**Baffles Present:** No		**Culvert Gradient:** 0.004		**Manuf. Diameter:**		
Corrugation Width (in.): 3			**Perch Ht. (Flow - Ind):** -0.02		**Water Depth (ft):**	0.40	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:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed			**Culv. Blockage (%):**	0	0

Stream-related

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

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

Stream Discharge:	**Width (ft)**	**Distance (ft)**
Upstrream OHW Width (100 ft.):	9.6	112
Upstrream OHW Width (50 ft.):	11.4	82
Upstrream OHW Width (5 ft.):	14.6	5
Tailcrest Width at OHW:	15.5	12
Outlet Pool OHW Line (Max Width.):	31.8	5
Downstream OHW Width (100 ft.):	10	118
Downstrream OHW Width (50 ft.):	7.8	47

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Recorded **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 010U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 3

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

Comments:

Species: no fish collected or observed **Life Stage:** Not Recorded **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 010D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 3

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

Comments:

Cross Section Elevation

Locator ID	**Distance Along Cross Section**	**Inst. #**	**FS**	**HI**	**Elevation**	**Field Comments**
Station 25	4	1	7.68	100	92.32	edge of lb
Left Bank/Bed Slope Break	4.3	1	8.33	100	91.67	= thalweg
Left Bank, Wetted Perimeter	4.3	1	7.91	100	92.09	
Station 1	9.5	1	7.87	100	92.13	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 010 **VISIT** 1

Station 2	15.5	1	8.14	100	91.86	
Right Bank/Bed Slope Break	16.9	1	7.95	100	92.05	
Right Bank, Wetted Perimeter	16.9	1	7.83	100	92.17	
Right Bank, Ordinary High Water	17.5	1	7.5	100	92.5	
Right Bank, Terrace	19.7	1	7.04	100	92.96	
Left Bank, Terrace	1	1	7.3	100	92.7	16.5 ft = outlet to tailcrest
Left Bank, Ordinary High Water	2	1	7.54	100	92.46	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, edge-road		1	4.68	100	95.32	
Downstream station, water elev 3 (100 ft)	118	1	9.52	100	90.48	
Downstream station, OHW line 3 (100 ft)	118	1	9.23	100	90.77	
Downstream station, thalweg 2 (50 ft)	47	1	8.87	100	91.13	
Downstream station, water elev 2 (50 ft)	47	1	8.42	100	91.58	
Downstream station, OHW line 2 (50)	47	1	7.81	100	92.19	
Outlet, pool maximum depth 2	4.5	1	9.76	100	90.24	
Outlet, pool maximum depth 1 (within 5 ft)	4.5	1	9.76	100	90.24	
Downstream station, thalweg 3 (100 ft)	118	1	9.67	100	90.33	
Outlet, edge-road		1	4.66	100	95.34	
Downstream station, thalweg 1 (tailcrest)	4.3	1	8.33	100	91.67	
	5	1	7.09	100	92.91	
	5	1	7.76	100	92.24	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	7.44	100	92.56	
Upstream station, thalweg 4 (50 ft)	82	2	8.81	100.52	91.71	
Upstream station, water elev 2 (50 ft)	82	2	8.22	100.52	92.3	
Upstream station, OHW line 1 (50 ft)	82	2	7.12	100.52	93.4	
Upstream station, thalweg 5 (100 ft)	112	3	6.95	98.3	91.3500	
Upstream station, water elev 1 (100 ft)	112	3	6	98.3	92.3	
Upstream station, OHW line 1 (100 ft)	112	3	4.8	98.3	93.5	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, culvert invert	B	0	1	8.35	100	91.65	
Inlet, culvert invert	A	0	1	8.21	100	91.79	
Upstream station, thalweg 1 (1 ft)	A	1	1	8.11	100	91.89	
Upstream station, thalweg 2 (5 ft)	A	5	1	8.31	100	91.69	
Upstream station, thalweg 3 (2 CMP widths)	A	4	1	8.38	100	91.62	
Outlet, culvert invert	A	0	1	8.35	100	91.65	
Inlet, culvert top	A	0	1	6.17	100	93.83	
Outlet, culvert top	A	0	1	6.38	100	93.62	
Upstream station, thalweg 3 (2 CMP widths)	B	6	1	8.48	100	91.52	
Outlet, thalweg	B	0	1	8.55	100	91.45	
Outlet, culvert top	B	0	1	5.32	100	94.68	
Inlet, culvert top	B	0	1	5.24	100	94.76	
Inlet, culvert invert	B	0	1	8.26	100	91.74	
Upstream station, thalweg 1 (1 ft)	B	1	1	8.02	100	91.98	
Upstream station, thalweg 2 (5 ft)	B	5	1	8.42	100	91.58	
Outlet, thalweg	A	0	1	8.67	100	91.33	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.5	30	41.4	Pygmy	0.73
At Culvert Inlet Invert	A	0	0.4	49	41.8	Pygmy	1.18
At Culvert Outlet Invert	B	0	0.5	22	40.42	Pygmy	0.55
At Culvert Inlet Invert	B	0	0.4	74	40.44	Pygmy	1.78

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 010 **VISIT** 1

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	30.13	27.93	28.42	27.17			1.09 ft/sec.
B	24.14	26.97	27.02	29.98			.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	82	0.95	40	40.97	Pygmy	0.97
Upstream from Inlet of Culvert, Location 2	112	1.2	21	40.51	Pygmy	0.53
Downstream from Outlet of Culvert, Location 1	47	0.45	53	42.25	Pygmy	1.24
Downstream from Outlet of Culvert, Location 2	118	0.3	39	40.32	Pygmy	0.96
Outlet Pool Tailcrest		0.3	35	40.3	Pygmy	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 010 **VISIT** 1

01001.jpg

01003.jpg

01006.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 010 **VISIT** 1

01007.jpg

01008.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 011 **VISIT** 1

DATE 6/10/2002 **Time** 12:30:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.17966 **Long. (dec. deg)** -151.20171

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** 3 Mile Creek

Field Notes: Datum = WGS84. gps error-30.9 ft.

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

Culvert Measurements:

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

Length: 101.5 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** -0.008

Corrugation Width (in.): 3 **Perch Ht. (Flow - Ind):** 2.42

Perch Ht. (Flow -Dep): 1.37

Encrochment Ratio: 0.59

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

	Inlet	Outlet
Width (ft):	4.90	4.90
Height (ft):		19.90
Manuf. Diameter:		
Water Depth (ft):	0.30	0.50
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	9.5	243
Upstrream OHW Width (50 ft.):	7.2	185
Upstrream OHW Width (5 ft.):	15.6	5
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max Width.):	11.7	26.8
Downstream OHW Width (100 ft.):	16	169
Downstrream OHW Width (50 ft.):	7.3	108

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Recorded **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 011U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.75

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

Comments:

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

Stat. ID: 011D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# 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, Bankful	2.3	1	9.22	100	90.78	
Station 23	3.5	1	12.51	100	87.49	
Left Bank, Wetted Perimeter	6	1	13.62	100	86.38	
Left Bank/Bed Slope Break	6	1	13.68	100	86.32	
Station 1	20	1	14.47	100	85.53	
Right Bank, Wetted Perimeter	20.8	1	13.5	100	86.5	
Station 24	21.4	1	13.18	100	86.82	bank
Station 25	22.5	1	13.02	100	86.98	bank
Station 15	25.8	1	13.19	100	86.81	bank
Station 16	28	1	12.67	100	87.33	bank
Station 17	28.5	1	11.47	100	88.53	bank
Station 18	30.3	1	11.22	100	88.78	bank
Station 19	32.9	1	12.2	100	87.8	bank
Right Bank, Ordinary High Water	35.2	1	10.58	100	89.42	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 011 **VISIT** 1

Right Bank, Bankfull	39.3	1	9.79	100	90.21	no terrace

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
	5	1	12.3	100	87.68	
Downstream station, water elev 3 (100 ft)	169.8	1	14.3	100	85.71	
Downstream station, OHW line 3 (100 ft)	169.8	1	12.1	100	87.92	
Downstream station, thalweg 2 (50 ft)	108	1	14.2	100	85.8	
Downstream station, water elev 2 (50 ft)	108	1	13.9	100	86.09	
Downstream station, OHW line 2 (50)	108	1	13.0	100	86.98	
Outlet, pool maximum depth 2	11.7	1	17.2	100	82.81	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	16.4	100	83.58	
Downstream station, thalweg 3 (100 ft)	169.88	1	14.5	100	85.48	
Outlet, pool water elev		1	13.4	100	86.58	
Downstream station, thalweg 1 (tailcrest)		1	14.5	100	85.53	
Inlet, edge-road		2	2.46	114.81	112.35	
Outlet, edge-road		2	2.54	114.81	112.27	
Upstream station, thalweg 4 (50 ft)	185	3	11.3	97.41	86.16	
Upstream station, water elev 2 (50 ft)	185	3	10	97.41	87.41	
Upstream station, OHW line 1 (50 ft)	185	3	9.22	97.41	88.19	
Upstream station, thalweg 5 (100 ft)	243	3	11.2	97.41	86.25	
Upstream station, water elev 1 (100 ft)	243	3	9.94	97.41	87.47	
Upstream station, OHW line 1 (100 ft)	243	3	8.23	97.41	89.1800	

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	9.8	3	11.0	97.41	86.37	
Upstream station, thalweg 2 (5 ft)	A	5	3	10.8	97.41	86.65	
Upstream station, thalweg 1 (1 ft)	A	1	3	11.4	97.41	85.97	
Inlet, culvert rustline	A	0	3	8.35	97.41	89.0600	
Inlet, culvert thalweg	A	0	3	11.4	97.41	85.98	
Inlet, culvert invert	A	0	3	10.3	97.41	87.16	
Outlet, culvert top	A	0	2	6.96	114.8	107.85	
Outlet, thalweg	A	0	1	14.8	100	85.25	
Outlet, rustline	A	0	1	11	100	89	
Outlet, culvert invert	A	0	1	12.1	100	87.95	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.15	70	40	Pygmy	
At Culvert Inlet Invert	A	0	0.3	48	41	Pygmy	1.16

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	101.5	38.36	42.54	42	45.5		2.42 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	108	0.3	67	40	Pygmy	
Downstream from Outlet of Culvert, Location 2	169	0.15	64	40	Pygmy	
Upstream from Inlet of Culvert, Location 1	185	1.15	0	40	Pygmy	0.00
Upstream from Inlet of Culvert, Location 2	243	0.3	15	42	Pygmy	
Outlet Pool Tailcrest	41	0.4	26	41	Pygmy	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 011 **VISIT** 1

01102.jpg

01104.jpg

01105.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 011 **VISIT** 1

01106.jpg

01107.jpg

01108.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 012 **VISIT** 1

DATE 6/11/2002 **Time** 9:15:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.0812 **Long. (dec. deg)** -151.17688

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. GPS error 17.4

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity downstream of drainage structure

Culvert Measurements:

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

Length: 50.4 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.026

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** -0.94

Perch Ht. (Flow -Dep): -2.53

Encrochment Ratio: 0.31

	Inlet	Outlet
Width (ft):	3.90	3.90
Height (ft):	3.70	3.99
Manuf. Diameter:		
Water Depth (ft):	1.26	2.58
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	25	0
Culv. Blockage (%):	15	0

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

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	13.3	140
Upstrream OHW Width (50 ft.):	12.1	95
Upstrream OHW Width (5 ft.):	85	5
Tailcrest Width at OHW:		63
Outlet Pool OHW Line (Max Width.):	38.8	10
Downstream OHW Width (100 ft.):	11	123
Downstrream OHW Width (50 ft.):	5.5	72

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Unknown
Stat. ID: 012U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 135
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 35 **Life History:** Anadromous
Stat. ID: 012U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 99 99 105 80 102 94 105 106 101 83
Comments: additional fish: 70,82,90,93,115,109,91,87,96,111,110,77,81,103,118,80,113,91,77,63,72

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Unknown
Stat. ID: 012D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 83 118
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Unknown
Stat. ID: 012D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 115
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 10 **Life History:** Anadromous
Stat. ID: 012D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 71 89 95 79 98 102 83 86 72 69
Comments:

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 012 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Bankful	4.8	1	3.82	100	96.18	
Station 10	6.8	1	5.13	100	94.87	toe of bank
Left Bank, Ordinary High Water	10.4	1	5.55	100	94.45	
Station 11	13.8	1	5.63	100	94.37	
Station 12	21.6	1	5.26	100	94.74	
Station 13	24.6	1	4.97	100	95.03	
Left Bank, Wetted Perimeter	26.7	1	5.31	100	94.69	beaver pond surface
Left Bank/Bed Slope Break	26	1	6.67	100	93.33	substrate surface ds of dam
Station 1	28.8	1	6.79	100	93.21	
Station 2	29.2	1	5.92	100	94.08	
Right Bank, Wetted Perimeter	30.2	1	5.38	100	94.62	
Station 14	35.5	1	5.2	100	94.8	edge of beaver pond
Station 15	41.9	1	5.22	100	94.78	edge of beaver pond
Station 16	46.6	1	4.92	100	95.08	
Right Bank, Terrace	52.5	1	4.28	100	95.72	
Right Bank, Ordinary High Water	43.4	1	4.95	100	95.05	better est. of OHW

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 3 (100 ft)	123	1	7.4	100	92.6	
Downstream station, OHW line 3 (100 ft)	123	1	7.15	100	92.85	
Downstream station, thalweg 2 (50 ft)	72	1	6.63	100	93.37	
Downstream station, water elev 2 (50 ft)	72	1	6.06	100	93.94	
Downstream station, OHW line 2 (50)	72	1	5.78	100	94.22	
Downstream station, thalweg 1 (tailcrest)		1	6.79	100	93.21	
Downstream station, thalweg 3 (100 ft)	123	1	7.8	100	92.2	
Outlet, edge-road		2	5.79	106.62	100.83	
Outlet, pool maximum depth 2	5.4	2	15.2	106.62	91.39	
Outlet, pool maximum depth 1 (within 5 ft)	5	2	15.0	106.62	91.58	
Outlet, pool OHWS lijne 1 (within 5 ft.)	1	2	11.6	106.62	95.04	
Inlet, edge-road		2	5.3	106.62	101.32	
Upstream station, thalweg 4 (50 ft)	95	2	14.4	106.62	92.27	
Upstream station, water elev 2 (50 ft)	95	2	11.8	106.62	94.82	
Upstream station, OHW line 1 (50 ft)	95	2	11.8	106.62	94.82	
Upstream station, thalweg 5 (100 ft)	140	2	13.8	106.62	92.8500	
Upstream station, water elev 1 (100 ft)	140	2	11.9	106.62	94.76	
Upstream station, OHW line 1 (100 ft)	140	2	11.9	106.62	94.76	
Outlet, pool water elev	1	2	11.8	106.62	94.8	

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	1	2	11.3	106.6	95.3	
Upstream station, thalweg 3 (2 CMP widths)	A	8	2	14.4	106.6	92.26	
Upstream station, water elev 1 (5 ft)	A	5	2	11.8	106.6	94.8	
Upstream station, thalweg 2 (5 ft)	A	5	2	14.1	106.6	92.55	
Upstream station, thalweg 1 (1 ft)	A	1	2	13.8	106.6	92.79	
Inlet, culvert thalweg	A	0	2	13.4	106.6	93.23	
Inlet, culvert invert	A	0	2	13.0	106.6	93.6000	
Inlet, culvert rustline	A	0	2	11.6	106.6	95.02	
Inlet, culvert top	A	0	2	9.32	106.6	97.3	top mangled, apex
Outlet, culvert top	A	0	2	10.4	106.6	96.26	
Outlet, rustline	A	0	2	11.6	106.6	95.02	
Outlet, culvert invert	A	0	2	14.4	106.6	92.27	
Outlet, thalweg	A	0	2	14.5	106.6	92.09	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 012 **VISIT** 1

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	2.65	0	40	Pygmy	0.00
At Culvert Inlet Invert	A	0	0.7	8	43.2	Pygmy	0.19

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	50.4	292.1	292.7	315.8			.17 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	72	1.05	22	40.36	Pygmy	0.55
Downstream from Outlet of Culvert, Location 2	123	0.9	39	40.41	Pygmy	0.96
Upstream from Inlet of Culvert, Location 1	95		0		Pygmy	
Upstream from Inlet of Culvert, Location 2	140		0		Pygmy	
Outlet Pool Tailcrest	63	1.7	15	40.47	Pygmy	0.40

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 012 **VISIT** 1

01201.jpg

01202.jpg

01203.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 012 **VISIT** 1

01204.jpg

01205.jpg

01206.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 013 **VISIT** 1

DATE 6/11/2002 **Time** 1:15:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.06993 **Long. (dec. deg)** -151.17418

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. GPS accuracy 18.1 ft

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

Culvert Measurements:

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

Length: 30.7 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.050

Corrugation Width (in.): 3

	Inlet	Outlet
Substrate Type:	Coarse Gravel	None
Erosion:	Fill Slope Erosion Protection Needed	No Outlet Erosion

	Inlet	Outlet
Width (ft):	2.90	3.00
Height (ft):		
Manuf. Diameter:		
Water Depth (ft):	0.50	0.15
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Perch Ht. (Flow - Ind):
Perch Ht. (Flow -Dep):
Encrochment Ratio:

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	14.7	5
Tailcrest Width at OHW:		
Outlet Pool OHW Line (Max Width.):	21.9	15
Downstream OHW Width (100 ft.):	5	95
Downstrream OHW Width (50 ft.):	8.2	46

Fish Surveys

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

Stat. ID: 013D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 1.75

Susp.Spawn? No **Fork Len. (mm)** 97

Comments:

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

Stat. ID: 013U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 1.5

Susp.Spawn? No **Fork Len. (mm)** 78 85

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	3.9	1	5.18	100	94.82	
Left Bank/Bed Slope Break	5	1	5.56	100	94.44	
Station 10	9.1	1	5.22	100	94.78	bank
Station 11	10.5	1	5.36	100	94.64	bank
Left Bank, Wetted Perimeter	11	1	5.52	100	94.48	
Station 1	11.8	1	5.8	100	94.2	
Station 2	12.4	1	5.58	100	94.42	edge of island
Station 3	12.75	1	5.38	100	94.62	
Station 4	13.4	1	5.48	100	94.52	top of island
Station 5	14	1	5.6	100	94.4	
Station 6	15.3	1	5.8	100	94.2	thalweg
Station 7	16.8	1	5.62	100	94.38	
Station 8	18.3	1	5.68	100	94.32	
Right Bank/Bed Slope Break	22.6	1	5.86	100	94.14	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 013 **VISIT** 1

Right Bank, Wetted Perimeter	22.6	1	5.7	100	94.3	
Station 12	24.1	1	4.03	100	95.97	bank slope break
Right Bank, Terrace	25.7	1	3.8	100	96.2	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)		1	5.8	100	94.2	
Downstream station, OHW line 3 (100 ft)	95	1	6.95	100	93.05	
Downstream station, water elev 3 (100 ft)	95	1	7.11	100	92.89	
Downstream station, thalweg 3 (100 ft)	95	1	7.21	100	92.79	
Outlet, pool OHWS lijne 1 (within 5 ft.)	2	1	5.16	100	94.84	
Outlet, pool water elev	3	1	5.52	100	94.48	
Outlet, pool maximum depth 1 (within 5 ft)	2	1	6.42	100	93.58	
Outlet, pool maximum depth 2	12.5	1	7.06	100	92.94	
Upstream station, OHW line 1 (50 ft)	46	1	6.13	100	93.87	
Downstream station, water elev 2 (50 ft)	46	1	6.33	100	93.67	
Downstream station, thalweg 2 (50 ft)	46	1	6.58	100	93.42	
Inlet, edge-road		2	3.49	103.19	99.6990	
Outlet, edge-road		2	3.63	103.19	99.5590	

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	3	2	6.56	103.2	96.6290	
Upstream station, water elev 1 (5 ft)	A	3	2	6.67	103.2	96.519	
Upstream station, thalweg 3 (2 CMP widths)	A	5.8	2	7.62	103.2	95.569	
Upstream station, thalweg 2 (5 ft)	A	5	2	7.62	103.2	95.569	
Upstream station, thalweg 1 (1 ft)	A	1	2	7.04	103.2	96.149	
Inlet, culvert thalweg	A	0	2	7.74	103.2	95.4490	inlet control
Inlet, culvert rustline	A	0	2	6.79	103.2	96.399	
Inlet, culvert top	A	0	2	4.78	103.2	98.409	
Outlet, rustline	A	0	2	7.69	103.2	95.499	
Outlet, culvert top	A	0	1	2.02	100	97.98	
Outlet, thalweg	A	0	1	6.1	100	93.9	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.2	99	40.06	Pygmy	2.40
At Culvert Inlet Invert	A	0	0.3	103	40.66	Pygmy	2.46

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	30.7	144.2	145.1	108.8			.23 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	46	0.2	30	41.29	Pygmy	0.73
Downstream from Outlet of Culvert, Location 2	95	0.2	33	40.71	Pygmy	0.81
Outlet Pool Tailcrest	22.5	0.2	26	40.35	Pygmy	0.65

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 013 **VISIT** 1

01301.jpg

01302.jpg

01304.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 013 **VISIT** 1

01305.jpg

01306.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 014 **VISIT** 1

DATE 6/11/2002 **Time** 4:00:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.04512 **Long. (dec. deg)** -151.18024

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Tyonek Creek

Field Notes: Datum = WGS84. accuracy 19.3 ft

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

Culvert Measurements:

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

Length: 106.3 **Cross. Structure Type:** Structural plate pipe arch - (closed bottom multi-plate

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 2 **Baffles Present:** No **Culvert Gradient:** 0.012

Corrugation Width (in.): 6 **Perch Ht. (Flow - Ind):** -1.41

Perch Ht. (Flow -Dep): -2.48

Encrochment Ratio: 0.37

	Inlet	Outlet
Width (ft):	6.10	7.10
Height (ft):	5.05	5.54
Manuf. Diameter:		
Water Depth (ft):	1.35	2.42
Substr. Dep (ft):	0.00	
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:	None	Coarse Gravel
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	None	Large Cobble
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:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	16.5	84
Upstrream OHW Width (50 ft.):	16.4	58
Upstrream OHW Width (5 ft.):	17.6	5
Tailcrest Width at OHW:		42
Outlet Pool OHW Line (Max Width.):	33	28.5
Downstream OHW Width (100 ft.):	18	180
Downstrream OHW Width (50 ft.):	19.3	120

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 1 **Life History:** Unknown

Stat. ID: 014D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 125

Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 65 **Life History:** Anadromous

Stat. ID: 014D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 70 85 88 78 85 65 70 62 110 109

Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 19 **Life History:** Anadromous

Stat. ID: 014U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2

Susp.Spawn? No **Fork Len. (mm)** 102 69 85 102 108 99 111 70 110 82

Comments: additional fish: 56, 80, 79, 75, 60, 78, 71, 68, 60, 59

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	7.2	1	4.46	100	95.54	
Station 15	9.3	1	5	100	95	top of bank
Station 16	11	1	4.73	100	95.27	boulder
Station 17	13	1	4.9	100	95.1	boulder
Station 18	13.3	1	5.8	100	94.2	top of second boulder
Station 19	14.6	1	5.49	100	94.51	same
Left Bank, Ordinary High Water	9.6	1	5.24	100	94.76	
Station 20	9.7	1	6.58	100	93.42	
Station 21	10.5	1	5.78	100	94.22	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 014 **VISIT** 1

Left Bank, Wetted Perimeter	15.2	1	5.95	100	94.05	
Station 1	15.5	1	7.03	100	92.97	thalweg
Station 2	23	1	6.82	100	93.18	
Station 3	27.1	1	6.64	100	93.36	
Station 4	31.4	1	6.09	100	93.91	edge of island
Station 5	32.2	1	5.48	100	94.52	top of island
Station 6	33.8	1	6.01	100	93.99	edge of island
Right Bank/Bed Slope Break	37.6	1	6.23	100	93.77	
Right Bank, Wetted Perimeter	37.6	1	5.94	100	94.06	
Right Bank, Ordinary High Water	37.6	1	5.48	100	94.52	
Right Bank, Terrace	38.4	1	4.49	100	95.51	

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	5.26	100	94.74	
Downstream station, water elev 3 (100 ft)	180	1	7.57	100	92.43	
Downstream station, OHW line 3 (100 ft)	180	1	6.59	100	93.41	
Downstream station, thalweg 2 (50 ft)	120	1	7.24	100	92.76	
Downstream station, water elev 2 (50 ft)	120	1	6.59	100	93.41	
Downstream station, OHW line 2 (50)	120	1	6.06	100	93.94	
Outlet, pool maximum depth 2	22	1	10.0	100	89.97	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	8.42	100	91.58	
Downstream station, thalweg 3 (100 ft)	180	1	8.49	100	91.51	
Outlet, pool water elev		1	5.96	100	94.04	
Downstream station, thalweg 1 (tailcrest)		1	7.03	100	92.97	
Outlet, edge-road		2	3.5	121.95	118.45	
Inlet, edge-road		2	2.7	121.95	119.25	
Upstream station, thalweg 4 (50 ft)	58	3	10.2	103.84	93.68	
Upstream station, water elev 2 (50 ft)	58	3	9.2	103.84	94.64	
Upstream station, OHW line 1 (50 ft)	58	3	8.5	103.84	95.34	
Upstream station, thalweg 5 (100 ft)	84	3	9.57	103.84	94.27	
Upstream station, water elev 1 (100 ft)	84	3	9.02	103.84	94.82	
Upstream station, OHW line 1 (100 ft)	84	3	8	103.84	95.84	

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	12.2	3	10.7	103.8	93.18	
Upstream station, OHW line 1 (1 ft)	A	1	3	9.42	103.8	94.42	
Upstream station, thalweg 2 (5 ft)	A	5	3	10.8	103.8	93.09	
Upstream station, water elev 1 (5 ft)	A	5	3	9.71	103.8	94.13	
Inlet, culvert invert	A	0	3	11	103.8	92.84	
Inlet, culvert thalweg	A	0	3	11	103.8	92.84	
Upstream station, thalweg 1 (1 ft)	A	0	3	10.9	103.8	92.96	
Inlet, culvert rustline	A	0	3	9.22	103.8	94.62	
Inlet, culvert top	A	0	3	5.95	103.8	97.89	
Outlet, culvert top	A	0	1	2.9	100	97.1	
Outlet, rustline	A	0	1	5.48	100	94.52	evidence of algal growth~5 in
Outlet, culvert invert	A	0	1	8.44	100	91.56	
Outlet, thalweg	A	0	1	8.13	100	91.87	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	2.2	18	40.7	Standard_Price AA	0.98
At Culvert Inlet Invert	A	0	1.4	43	40.46	Standard_Price AA	2.34

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 014 **VISIT** 1

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	106.3	144.2	145.1	108.8	111.5		.83 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	120	0.7	46	39.94	Standard_Price AA	2.53
Downstream from Outlet of Culvert, Location 2	180	0.95	63	40.47	Standard_Price AA	3.41
Upstream from Inlet of Culvert, Location 1	58	0.75	57	40.55	Standard_Price AA	3.08
Upstream from Inlet of Culvert, Location 2	84	0.75	50	40.15	Standard_Price AA	2.73
Outlet Pool Tailcrest	42	0.95	31	41.01	Standard_Price AA	1.67

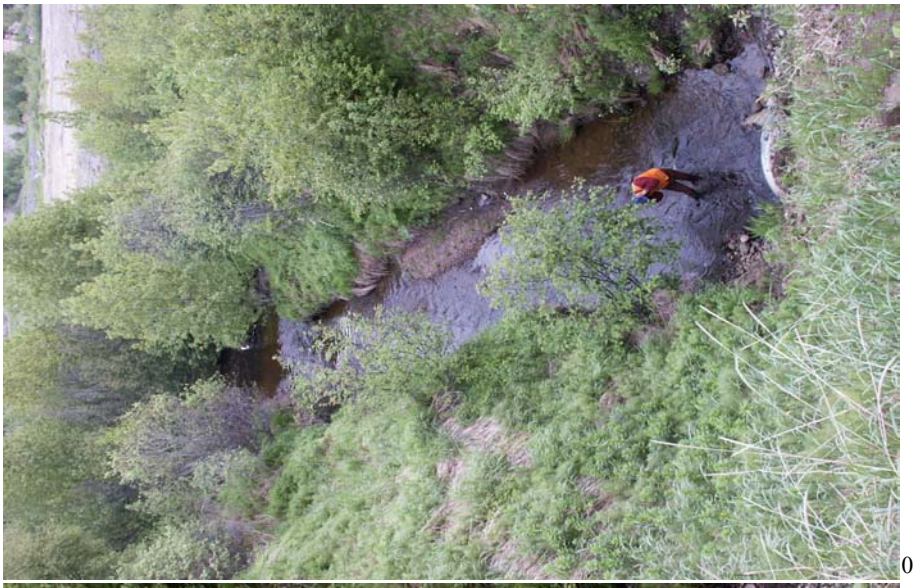
Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 014 **VISIT** 1

01401.JPG

01402.JPG

01403.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 014 **VISIT** 1



01404.JPG

01405.JPG

01406.JPG

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 015 **VISIT** 1

DATE 6/12/2002 **Time** 10:00:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.03323 **Long. (dec. deg)** -151.31096

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Old Tyonek Creek

Field Notes: Datum = WGS84. accuracy 19.8 ft

Road Prism Type: Through Fill **Spec. Site Cond.:** Road prism material entering stream

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8		**Classification:** GRAY			
Length: 39.8	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	5.20	5.30
	Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	4.49	4.40
Corrugation Depth (in.): 0.5	**Baffles Present:** No		**Culvert Gradient:** 0.011	**Manuf. Diameter:**		
Corrugation Width (in.): 2.6			**Perch Ht. (Flow - Ind):** 0.30	**Water Depth (ft):**	1.00	0.88
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.78	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	0
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed		**Culv. Blockage (%):**	0	0

					Inlet	Outlet
Culvert ID: B	**Category:** 8		**Classification:** GRAY			
Length: 39.7	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.90	5.15
	Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	5.08	4.91
Corrugation Depth (in.): 0.5	**Baffles Present:** No		**Culvert Gradient:** 0.013	**Manuf. Diameter:**		
Corrugation Width (in.): 2.6			**Perch Ht. (Flow - Ind):** 0.34	**Water Depth (ft):**	0.80	0.86
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -0.74	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	5	0
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed		**Culv. Blockage (%):**	5	0

					Inlet	Outlet
Culvert ID: C	**Category:** 8		**Classification:** GRAY			
Length: 39.8	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	4.75	5.00
	Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	5.18	4.55
Corrugation Depth (in.): 0.5	**Baffles Present:** No		**Culvert Gradient:** 0.020	**Manuf. Diameter:**		
Corrugation Width (in.): 2.6			**Perch Ht. (Flow - Ind):** 0.06	**Water Depth (ft):**	0.60	1.05
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** -1.02	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	5
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed		**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:	**Width (ft)**	**Distance (ft)**
Upstrream OHW Width (100 ft.):	49	203
Upstrream OHW Width (50 ft.):	41.5	136
Upstrream OHW Width (5 ft.):	28.6	5
Tailcrest Width at OHW:	65.6	46
Outlet Pool OHW Line (Max Width.):	9	42.3
Downstream OHW Width (100 ft.):	44	183
Downstrream OHW Width (50 ft.):	49.7	111

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 20 **Life History:** Anadromous

Stat. ID: 015D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.5

Susp.Spawn? No **Fork Len. (mm)** 110 58 77 65 72 65 72 72 128 63

Comments: additional fish: 74 74 71 70 69 65 105

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 015 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 21 **Life History:** Anadromous
Stat. ID: 015U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 61 108 57 100 118 104 72 59 62 79
Comments: additional fish: 70 72 84 63 66 78 105 114 105 115 114

Species: sculpin, undifferentiated **Life Stage:** Adult **Species/Life Stage Count:** 22 **Life History:** Resident
Stat. ID: 015U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 109
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	1.6	1	8.28	100	91.72	bankslope
Left Bank, Ordinary High Water	3.4	1	9.48	100	90.52	
Left Bank/Bed Slope Break	4	1	9.71	100	90.29	
Station 2	10.9	1	10.09	100	89.91	overflow channel thalweg (dry)
Station 3	15.4	1	9.61	100	90.39	top of bar
Station 4	20.8	1	10.92	100	89.08	
Left Bank, Wetted Perimeter	24.2	1	11.01	100	88.99	
Station 5	24.2	1	11.05	100	88.95	
Station 6	27.6	1	11.38	100	88.62	
Station 7	27.7	1	10.84	100	89.16	
Station 8	30	1	11.25	100	88.75	
Station 9	39.1	1	11.51	100	88.49	
Station 10	46.7	1	11.29	100	88.71	
Station 11	47.5	1	11.57	100	88.43	
Station 12	48.7	1	11.99	100	88.01	
Station 13	52.4	1	12	100	88	
Station 14	55.1	1	11.95	100	88.05	
Station 15	59.4	1	11.5	100	88.5	
Station 16	62.5	1	11.17	100	88.83	
Right Bank/Bed Slope Break	63.6	1	10.98	100	89.02	
Right Bank, Wetted Perimeter	63.9	1	11	100	89	
Right Bank, Ordinary High Water	69	1	10.25	100	89.75	
Right Bank, Terrace	73.4	1	8.85	100	91.15	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road		1	3.52	100	96.48	
Downstream station, water elev 3 (100 ft)	183	1	13.9	100	86.14	
Downstream station, OHW line 3 (100 ft)	183	1	12.7	100	87.28	
Downstream station, thalweg 2 (50 ft)	111	1	13.5	100	86.46	
Downstream station, water elev 2 (50 ft)	111	1	12.6	100	87.38	
Downstream station, OHW line 2 (50)	111	1	11.5	100	88.51	
Outlet, pool maximum depth 2	8	1	13.9	100	86.13	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	13.3	100	86.68	B=13.48 c=13.18
Downstream station, thalweg 3 (100 ft)	183	1	14.8	100	85.24	Q
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.1	100	89.87	
Downstream station, thalweg 1 (tailcrest)		1	12	100	88.01	
Inlet, edge-road		1	3.41	100	96.59	
Upstream station, thalweg 4 (50 ft)	136	1	9.25	100	90.75	
Upstream station, water elev 2 (50 ft)	136	1	8.25	100	91.75	
Upstream station, OHW line 1 (50 ft)	136	1	7.62	100	92.38	
Upstream station, thalweg 5 (100 ft)	203	1	8.3	100	91.7	
Upstream station, water elev 1 (100 ft)	203	1	7.63	100	92.37	
Upstream station, OHW line 1 (100 ft)	203	1	6.67	100	93.33	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 015 **VISIT** 1

Outlet, pool water elev	5	1	10.9	100	89.09	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, culvert invert	B	0	1	11.7	100	88.35	
Inlet, culvert top	C	0	1	5.95	100	94.05	
Inlet, culvert top	B	0	1	6.07	100	93.93	
Outlet, culvert top	C	0	1	7.38	100	92.62	
Outlet, rustline	C	0	1	10.5	100	89.48	
Outlet, culvert invert	C	0	1	11.9	100	88.07	
Outlet, thalweg	C	0	1	12.3	100	87.72	
Outlet, thalweg	A	0	1	12.8	100	87.24	
Outlet, rustline	B	0	1	9.85	100	90.15	
Inlet, culvert rustline	C	0	1	9.72	100	90.28	
Outlet, thalweg	B	0	1	12.3	100	87.75	
Inlet, culvert invert	A	0	1	11.3	100	88.73	
Inlet, culvert top	A	0	1	6.78	100	93.22	
Outlet, culvert top	A	0	1	7.29	100	92.71	
Outlet, rustline	A	0	1	10.1	100	89.87	
Outlet, culvert invert	A	0	1	11.7	100	88.31	
Outlet, culvert top	B	0	1	6.74	100	93.26	
Inlet, culvert rustline	B	0	1	9.83	100	90.17	
Upstream station, OHW line 1 (1 ft)	A	1	1	9.53	100	90.47	
Upstream station, thalweg 3 (2 CMP widths)	A	10	1	10.5	100	89.46	
Upstream station, thalweg 2 (5 ft)	A	5	1	10.6	100	89.4	
Upstream station, thalweg 1 (1 ft)	A	1	1	11.4	100	88.6	
Inlet, culvert rustline	A	0	1	10.0	100	89.97	
Inlet, culvert thalweg	A	0	1	11.4	100	88.65	
Inlet, culvert invert	C	0	1	11.1	100	88.87	
Upstream station, thalweg 2 (5 ft)	B	5	1	10.9	100	89.11	
Inlet, culvert thalweg	C	0	1	11.2	100	88.82	
Upstream station, thalweg 1 (1 ft)	B	1	1	11.7	100	88.32	
Inlet, culvert thalweg	B	0	1	11.9	100	88.15	
Inlet, culvert invert	B	0	1	11.2	100	88.85	
Upstream station, thalweg 3 (2 CMP widths)	C	9.5	1	11.3	100	88.72	
Upstream station, thalweg 2 (5 ft)	C	5	1	11.6	100	88.39	
Upstream station, thalweg 1 (1 ft)	C	1	1	11.5	100	88.53	
Upstream station, water elev 1 (5 ft)	A	5	1	10.2	100	89.77	
Upstream station, thalweg 3 (2 CMP widths)	B	9.8	1	10.6	100	89.37	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.75	87	40.1	Standard_Price AA	4.80
At Culvert Inlet Invert	A	0	1	24	41.4	Standard_Price AA	1.30
At Culvert Outlet Invert	B	0	0.8	50	40.3	Standard_Price AA	2.57
At Culvert Inlet Invert	B	0	0.8	27	40.4	Standard_Price AA	1.49
At Culvert Outlet Invert	C	0	1.1	41	40.8	Standard_Price AA	2.23
At Culvert Inlet Invert	C	0	0.6	20	41.4	Standard_Price AA	1.08

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	39.8	8.23	8.51	8.77	8.55		4.55 ft/sec.
B	39.7	9.23	9.55	10.25	11.05		3.97 ft/sec.
C	10.43	10.43	10.9	9.73	10.22		1.02 ft/sec.

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 015 **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	136	0.75	39	40.1	Standard_Price AA	1.61
Upstream from Inlet of Culvert, Location 2	203	0.9	30	40.8	Standard_Price AA	1.64
Downstream from Outlet of Culvert, Location 1	111	0.7	57	40.6	Standard_Price AA	3.11
Downstream from Outlet of Culvert, Location 2	183	0.75	41	40.2	Standard_Price AA	2.27

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 015 **VISIT** 1

01501.jpg

01502.jpg

01503.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 015 **VISIT** 1

01504.jpg

01505.jpg

01509.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 015 **VISIT** 1

01510.jpg

01511.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 016 **VISIT** 1

DATE 6/12/2002 **Time** 3:30:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.07324 **Long. (dec. deg)** -151.2533

Road Name: Tyonek-Beluga Road **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Tyonek Creek

Field Notes: Datum = WGS84. 24.5-foot gps accuracy. Culvert B (right) bearing is 145 degrees.

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity upstream of drainage structure

Culvert Measurements:

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

Length: 70.44 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): **Baffles Present:** No **Culvert Gradient:** 0.025

Corrugation Width (in.): **Perch Ht. (Flow - Ind):** 0.79

Perch Ht. (Flow -Dep): 0.05

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

	Inlet	Outlet
Width (ft):	4.90	4.70
Height (ft):	5.06	5.18
Manuf. Diameter:		
Water Depth (ft):	0.55	0.32
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Culvert ID: B **Category:** 8 **Classification:** GRAY

Length: 71.11 **Cross. Structure Type:**

Entrance Type: N/A **Tidal Influence:** No

Corrugation Depth (in.): **Baffles Present:** No **Culvert Gradient:** 0.023

Corrugation Width (in.): **Perch Ht. (Flow - Ind):** 0.61

Perch Ht. (Flow -Dep): -0.13

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

	Inlet	Outlet
Width (ft):	4.60	4.90
Height (ft):	5.22	5.16
Manuf. Diameter:		
Water Depth (ft):	0.85	0.50
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Silt/Sand	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:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):	30	5
Tailcrest Width at OHW:	15.14	35.5
Outlet Pool OHW Line (Max Width.):	40.5	15.5
Downstream OHW Width (100 ft.):	16	187
Downstrream OHW Width (50 ft.):	31	73

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Anadromous

Stat. ID: 016U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 0.5

Susp.Spawn? No **Fork Len. (mm)** 112 77 140 131 113 122 85 90 92 74

Comments: additional fish: 87, 73, 75, 97, 74, 81

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 20 **Life History:** Anadromous

Stat. ID: 016U2 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 2 **Trap Dur. (h):** 1.8

Susp.Spawn? No **Fork Len. (mm)** 128 111 77 90 112 115 122 76

Comments:

Species: slimy sculpin **Life Stage:** Not Recorded **Species/Life Stage Count:** 1 **Life History:** Unknown

Stat. ID: 016U2 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 1.8

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

Comments:

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 016 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Anadromous
Stat. ID: 016D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 0.33
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Species: coho salmon **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 8 **Life History:** Anadromous
Stat. ID: 016D2 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2
Susp.Spawn? No **Fork Len. (mm)** 99 131 140 88 94 79 110 82
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	14.5	1	14.89	100	85.11	
Left Bank, Ordinary High Water	15.5	1	15.15	100	84.85	
Left Bank/Bed Slope Break	16.8	1	16	100	84	
Left Bank, Wetted Perimeter	16.8	1	15.52	100	84.48	
Station 1	21.6	1	16.29	100	83.71	thalweg
Station 2	24.2	1	16.15	100	83.85	
Station 3	28	1	16.1	100	83.9	
Right Bank, Wetted Perimeter	45	1	15.52	100	84.48	
Right Bank/Bed Slope Break	46.1	1	15.46	100	84.54	
Right Bank, Ordinary High Water	49.2	1	15.12	100	84.88	
Right Bank, Terrace	54.5	1	15	100	85	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)		1	16.3	100	83.71	
Inlet, edge-road		1	4.08	100	95.92	
Outlet, edge-road		1	4.04	100	95.96	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	15	100	85	
Outlet, pool water elev	5	1	15.6	100	84.45	
Outlet, pool maximum depth 1 (within 5 ft)	5	1	18	100	82.03	culvert b = 17.59
Outlet, pool maximum depth 2	10	1	18.9	100	81.14	
Downstream station, OHW line 2 (50)	73	1	15.7	100	84.32	
Downstream station, water elev 2 (50 ft)	73	1	16.1	100	83.9	
Downstream station, thalweg 2 (50 ft)	73	1	16.6	100	83.44	
Downstream station, OHW line 3 (100 ft)	187	1	16.9	100	83.07	
Downstream station, water elev 3 (100 ft)	187	1	17.3	100	82.71	
Downstream station, thalweg 3 (100 ft)	187	1	17.9	100	82.11	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, culvert thalweg	A	0	1	14.0	100	85.98	
Outlet, culvert invert	A	0	1	15.5	100	84.5	
Outlet, rustline	A	0	1	14.7	100	85.35	
Outlet, culvert top	A	0	1	10.3	100	89.68	
Outlet, thalweg	B	0	1	16.7	100	83.3	
Outlet, culvert invert	B	0	1	15.7	100	84.32	lower than a, due to plugging
Outlet, rustline	B	0	1	14.9	100	85.09	
Outlet, culvert top	B	0	1	10.5	100	89.48	
Inlet, culvert top	A	0	1	8.71	100	91.29	
Inlet, culvert top	B	0	1	8.82	100	91.18	
Outlet, thalweg	A	0	1	17.0	100	82.97	
Inlet, culvert invert	A	0	1	13.8	100	86.23	
Upstream station, OHW line 1 (1 ft)	B	1	1	12.3	100	87.75	unplugging culvert
Upstream station, thalweg 1 (1 ft)	A	1	1	14	100	86	
Upstream station, thalweg 2 (5 ft)	A	5	1	14.4	100	85.6	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 016 **VISIT** 1

Upstream station, thalweg 3 (2 CMP widths)	A	11.2	1	14.5	100	85.5	
Inlet, culvert invert	B	0	1	14.0	100	85.96	
Inlet, culvert thalweg	B	0	1	14.1	100	85.89	
Inlet, culvert rustline	B	0	1	12.1	100	87.94	
Upstream station, thalweg 1 (1 ft)	B	1	1	14.2	100	85.83	
Upstream station, thalweg 2 (5 ft)	B	5	1	14.3	100	85.69	
Upstream station, thalweg 3 (2 CMP widths)	B	9.2	1	14.9	100	85.14	
Upstream station, water elev 1 (5 ft)	B	5	1	13.2	100	86.85	we lowered the surface 0.37 by
Inlet, culvert rustline	A	0	1	12.1	100	87.9	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.3	115	40	Pygmy	6.36
At Culvert Inlet Invert	A	0	0.55	80	40.4	Pygmy	1.93
At Culvert Outlet Invert	B	0	0.6	112	40.2	Pygmy	6.16
At Culvert Inlet Invert	B	0	0.85	102	40.1	Pygmy	2.47

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	70.44	15.47	15.47				4.70 ft/sec.
B	71.11	13.05	12.96				5.47 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	73	0.5	46	40.3	Pygmy	1.12
Downstream from Outlet of Culvert, Location 2	187	0.65	46	40.5	Pygmy	1.99
Outlet Pool Tailcrest	35.5	1	35	40.2	Pygmy	0.87

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 016 **VISIT** 1

01601.jpg

01603.jpg

01604.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 016 **VISIT** 1

01605.jpg

01609.jpg

01610.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 016 **VISIT** 1

01611.jpg

01612.jpg

01613.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 016 **VISIT** 1

01614.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 017 **VISIT** 1

DATE 6/12/2002 **Time** 4:20:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.05783 **Long. (dec. deg)** -151.40364

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Bird Lake outlet

Field Notes: Datum = WGS84. gps accuracy = 25.2 feet. Bird Lake upstream of crossing.

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

Culvert Measurements:

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

Length: 30 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.018

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** -0.51

Perch Ht. (Flow -Dep): -0.81

Encrochment Ratio:

	Inlet	Outlet
Substrate Type:	Coarse Gravel	Coarse Gravel
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

	Inlet	Outlet
Width (ft):	3.05	3.30
Height (ft):	3.55	3.14
Manuf. Diameter:		
Water Depth (ft):	0.46	0.58
Substr. Dep (ft):	0.16	0.25
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):		
Upstrream OHW Width (5 ft.):		
Tailcrest Width at OHW:	6	0.7
Outlet Pool OHW Line (Max Width.):	14.5	5
Downstream OHW Width (100 ft.):	3	110
Downstrream OHW Width (50 ft.):	8.3	58

Fish Surveys

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

Stat. ID: 017D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

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

Comments:

Species: sculpin, undifferentiated **Life Stage:** Not Recorded **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 017U1 **Gear:** Visual Observation, Ground **# of Traps set:** 3 **Trap Dur. (h):**

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

Comments:

Species: general fish observation, no spec **Life Stage:** Not Recorded **Species/Life Stage Count:** 4 **Life History:** Unknown

Stat. ID: 017U1 **Gear:** Visual Observation, Ground **# of Traps set:** 3 **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	5	1	6.79	100	93.21	road fill slumps into channel
Station 1	6.2	1	7.27	100	92.73	
Left Bank/Bed Slope Break	7.8	1	8	100	92	
Left Bank, Wetted Perimeter	7.8	1	8	100	92	
Station 2	9.3	1	8.25	100	91.75	thalweg
Right Bank, Wetted Perimeter	11	1	7.93	100	92.07	= rb slope break
Right Bank, Ordinary High Water	13.3	1	7.47	100	92.53	
Right Bank, Terrace	14.9	1	6.96	100	93.04	roadfill slope
Left Bank, Ordinary High Water	7.3	1	7.6	100	92.4	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 017 **VISIT** 1

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)		1	8.25	100	91.75	
Inlet, edge-road		1	3.68	100	96.32	
Outlet, edge-road		1	3.44	100	96.56	
Outlet, pool maximum depth 2	0	1	8.51	100	91.49	=OPM1
Outlet, pool water elev	0.7	1	7.95	100	92.05	
Outlet, pool OHWS lijne 1 (within 5 ft.)	0.7	1	7.67	100	92.33	
Downstream station, OHW line 3 (100 ft)	110	1	10.6	100	89.42	
Downstream station, water elev 3 (100 ft)	110	1	10.9	100	89.07	
Downstream station, thalweg 3 (100 ft)	110	1	11.2	100	88.8	
Downstream station, OHW line 2 (50)	58	1	8.55	100	91.45	
Downstream station, water elev 2 (50 ft)	58	1	8.78	100	91.22	
Downstream station, thalweg 2 (50 ft)	58	1	9.05	100	90.95	

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	6.1	1	9.05	100	90.95	wetland pond upstream-no chan.
Upstream station, OHW line 1 (1 ft)	A	1	1	7.7	100	92.3	
Upstream station, water elev 1 (5 ft)	A	5	1	7.7	100	92.3	
Upstream station, thalweg 2 (5 ft)	A	5	1	8.93	100	91.07	
Upstream station, thalweg 1 (1 ft)	A	1	1	8.01	100	91.99	
Inlet, culvert invert	A	0	1	8.23	100	91.77	
Inlet, culvert thalweg	A	0	1	8.07	100	91.93	
Inlet, culvert rustline	A	0	1		100		rusted throughout
Inlet, culvert top	A	0	1	4.68	100	95.32	
Outlet, rustline	A	0	1	7.82	100	92.18	
Outlet, culvert top	A	0	1	5.62	100	94.38	
Outlet, culvert invert	A	0	1	8.76	100	91.24	
Outlet, thalweg	A	0	1	8.51	100	91.49	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.4	65	40.1	Pygmy	1.58
At Culvert Inlet Invert	A	0	0.4	18	41.3	Pygmy	0.45

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	30	88.2	72.5	75.2			.38 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	58	1.5	41	40.6	Pygmy	1.00
Downstream from Outlet of Culvert, Location 2	110	1	73	40	Pygmy	1.78
Outlet Pool Tailcrest	0.7	0.2	12	42.5	Pygmy	0.30

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 017 **VISIT** 1

01701.jpg

01702.jpg

01703.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 017 **VISIT** 1

01704.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 018 **VISIT** 1

DATE 6/13/2002 **Time** 10:45:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.05305 **Long. (dec. deg)** -151.32199

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. GPS accuracy 17.2

Road Prism Type: Through Fill **Spec. Site Cond.:** Road prism material entering stream

Culvert Measurements:

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

Length: 20.92 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.015

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** -0.17

Perch Ht. (Flow -Dep): -0.74

Encrochment Ratio: 0.29

	Inlet	Outlet
Substrate Type:	None	None
Erosion:	Fill Slope Erosion Protection Needed	Fill Slope Protection Needed

	Inlet	Outlet
Width (ft):	2.90	3.20
Height (ft):	2.05	1.95
Manuf. Diameter:		
Water Depth (ft):	0.48	0.68
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	3	0
Culv. Blockage (%):	3	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Fine Gravel	Coarse Gravel
Sub Dominant Substrate Type:	Silt/Sand	Small 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:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	10.3	68
Upstrream OHW Width (50 ft.):	9.7	34
Upstrream OHW Width (5 ft.):	6.4	5
Tailcrest Width at OHW:	17.4	14
Outlet Pool OHW Line (Max Width.):	12.7	6
Downstream OHW Width (100 ft.):	12	102
Downstrream OHW Width (50 ft.):	8.5	63

Fish Surveys

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

Stat. ID: 018D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 83

Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Resident

Stat. ID: 018U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 1.5

Susp.Spawn? No **Fork Len. (mm)** 69 113 119 42 48

Comments:

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

Stat. ID: 018U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 1.5

Susp.Spawn? No **Fork Len. (mm)** 123

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	7.6	1	7.27	100	92.73	
Station 1	9.2	1	7.48	100	92.52	
Station 2	12.7	1	7.27	100	92.73	
Left Bank, Ordinary High Water	14.6	1	7.37	100	92.63	
Left Bank/Bed Slope Break	16.4	1	7.42	100	92.58	
Left Bank, Wetted Perimeter	16.8	1	7.45	100	92.55	
Station 3	19	1	7.57	100	92.43	
Station 4	20.5	1	7.73	100	92.27	
Station 8	25.2	1	7.46	100	92.54	edge of island

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 018 **VISIT** 1

Station 5	26.5	1	7.42	100	92.58
Station 6	27.1	1	7.52	100	92.48
Station 7	28	1	8	100	92
Right Bank, Wetted Perimeter	29	1	7.47	100	92.53
Right Bank/Bed Slope Break	28	1	8	100	92
Right Bank, Ordinary High Water	32	1	7.16	100	92.84
Right Bank, Terrace	33.4	1	6.85	100	93.15

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road		1	4.14	100	95.86	
Downstream station, OHW line 3 (100 ft)	102	1	9.51	100	90.49	
Downstream station, water elev 3 (100 ft)	102	1	10.1	100	89.92	
Downstream station, thalweg 2 (50 ft)	63	1	9.35	100	90.65	
Downstream station, water elev 2 (50 ft)	63	1	8.96	100	91.04	
Downstream station, OHW line 2 (50)	63	1	8.71	100	91.29	
Outlet, pool maximum depth 2	2.7	1	8.6	100	91.4	
Outlet, pool maximum depth 1 (within 5 ft)	2.7	1	8.6	100	91.4	
Downstream station, thalweg 3 (100 ft)	102	1	10.4	100	89.6	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	7.2	100	92.8	
Downstream station, thalweg 1 (tailcrest)		1	8	100	92	
Inlet, edge-road		1	3.92	100	96.08	
Upstream station, thalweg 4 (50 ft)	34	1	7.28	100	92.72	
Upstream station, water elev 2 (50 ft)	34	1	7.03	100	92.97	
Upstream station, OHW line 1 (50 ft)	34	1	6.79	100	93.21	
Upstream station, thalweg 5 (100 ft)	68	1	6.96	100	93.04	
Upstream station, water elev 1 (100 ft)	68	1	6.61	100	93.39	
Upstream station, OHW line 1 (100 ft)	68	1	5.94	100	94.06	
Outlet, pool water elev	5	1	7.43	100	92.57	

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	1	1	6.88	100	93.12	
Upstream station, water elev 1 (5 ft)	A	4	1	7.37	100	92.63	
Upstream station, thalweg 3 (2 CMP widths)	A	5.8	1	8.13	100	91.87	
Upstream station, thalweg 2 (5 ft)	A	5	1	8.03	100	91.97	
Upstream station, thalweg 1 (1 ft)	A	1	1	7.87	100	92.13	
Inlet, culvert thalweg	A	0	1	7.9	100	92.1	
Inlet, culvert invert	A	0	1	7.85	100	92.15	
Inlet, culvert rustline	A	0	1	7.08	100	92.92	
Inlet, culvert top	A	0	1	5.8	100	94.2	
Outlet, culvert top	A	0	1	6.22	100	93.78	
Outlet, rustline	A	0	1	7.26	100	92.74	
Outlet, culvert invert	A	0	1	8.17	100	91.83	
Outlet, thalweg	A	0	1	8.27	100	91.73	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.4	37	40.4	Pygmy	2.03
At Culvert Inlet Invert	A	0	0.3	42	40	Pygmy	1.23

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	20.92	15.2	13.3	13.85	14.4		1.49 ft/sec.

Project Code TYCS1 **Watershed Code** TYW1 **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	34	0.3	42	40.4	Pygmy	1.03
Upstream from Inlet of Culvert, Location 2	68	0.4	37	41	Pygmy	0.89
Downstream from Outlet of Culvert, Location 1	63	0.25	59	40	Pygmy	3.27
Downstream from Outlet of Culvert, Location 2	102	0.25	20	40.2	Pygmy	1.11
Outlet Pool Tailcrest	14	0.3	27	40.7	Pygmy	1.48

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 018 **VISIT** 1

01801.jpg

01802.jpg

01803.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 018 **VISIT** 1

01804.jpg

01805.jpg

01806.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 019 **VISIT** 1

DATE 6/13/2002 **Time** 1:15:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.03978 **Long. (dec. deg)** -151.31822

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Old Tyonek Creek

Field Notes: Datum = WGS84. gps accuracy = 20 feet.

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

Culvert Measurements:

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

Length: 47 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.068

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** -0.77

Perch Ht. (Flow -Dep): -1.06

Encrochment Ratio: 0.32

	Inlet	Outlet
Width (ft):	2.30	3.10
Height (ft):	1.84	2.04
Manuf. Diameter:		
Water Depth (ft):	1.40	1.05
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	40	0

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

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	Spawning and Rearing
Downstream:	Suitable for anadromous and	Spawning and Rearing

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	7.5	76
Upstrream OHW Width (50 ft.):	6.7	40
Upstrream OHW Width (5 ft.):	10	4
Tailcrest Width at OHW:	11.4	12
Outlet Pool OHW Line (Max Width.):	12.5	5
Downstream OHW Width (100 ft.):	12	83
Downstrream OHW Width (50 ft.):	11	46

Fish Surveys

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 019U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.33

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

Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Anadromous

Stat. ID: 019D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 1.83

Susp.Spawn? No **Fork Len. (mm)** 73 78 67 65 62 76 60 111 61 69

Comments: additional fish: 69, 61, 60, 52

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 5 **Life History:** Unknown

Stat. ID: 019D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 1.83

Susp.Spawn? No **Fork Len. (mm)** 69 80 89 119 100

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Station 1	1.8	2	10.38	99.94	89.5600	top of slope
Station 2	2.4	2	11.59	99.94	88.3500	toe of slope
Left Bank/Bed Slope Break	2.7	2	11.96	99.94	87.98	
Left Bank, Wetted Perimeter	2.7	2	11.78	99.94	88.16	
Left Bank, Ordinary High Water	2.3	2	11.08	99.94	88.86	
Station 3	4.3	2	12.12	99.94	87.82	thalweg
Right Bank, Wetted Perimeter	6.2	2	11.81	99.94	88.13	
Right Bank/Bed Slope Break	13.1	2	11.02	99.94	88.92	toe of bank
Right Bank, Ordinary High Water	13.7	2	10.65	99.94	89.29	
Right Bank, Terrace	16.5	2	8.91	99.94	91.03	top of slope

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 019 **VISIT** 1

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	13.4	100	86.6	
Downstream station, OHW line 3 (100 ft)	83	1	12.8	100	87.24	
Downstream station, thalweg 2 (50 ft)	46	1	12.8	100	87.2	
Downstream station, water elev 2 (50 ft)	46	1	12.5	100	87.48	
Downstream station, OHW line 2 (50)	46	1	11.9	100	88.15	
Downstream station, thalweg 1 (tailcrest)		1	12.1	100	87.88	
Downstream station, thalweg 3 (100 ft)	83	1	13.5	100	86.47	
Outlet, edge-road		2	3.2	99.94	96.7400	
Outlet, pool maximum depth 2	1.7	2	13.4	99.94	86.58	
Outlet, pool maximum depth 1 (within 5 ft)	1.7	2	13.4	99.94	86.54	
Outlet, pool OHWS lijne 1 (within 5 ft.)	0	2	11.2	99.94	88.77	
Inlet, edge-road		2	3.28	99.94	96.66	
Outlet, pool water elev	0	2	11.8	99.94	88.17	
Upstream station, water elev 2 (50 ft)	40	3	9.08	101.31	92.23	
Upstream station, thalweg 4 (50 ft)	40	3	9.34	101.31	91.97	
Upstream station, OHW line 1 (50 ft)	40	3	8.87	101.31	92.44	
Upstream station, thalweg 5 (100 ft)	76	3	7.66	101.31	93.65	
Upstream station, water elev 1 (100 ft)	76	3	7.42	101.31	93.89	
Upstream station, OHW line 1 (100 ft)	76	3	7.07	101.31	94.24	

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	1	2	8.05	99.94	91.89	
Upstream station, water elev 1 (5 ft)	A	1	2	8.19	99.94	91.75	
Upstream station, thalweg 3 (2 CMP widths)	A	6	2	9.18	99.94	90.76	thalweg follows edge of pool
Upstream station, thalweg 2 (5 ft)	A	5	2	9.4	99.94	90.54	thalweg follows edge of pool
Upstream station, thalweg 1 (1 ft)	A	1	2	9.75	99.94	90.19	
Inlet, culvert thalweg	A	0	2	9.88	99.94	90.0600	
Inlet, culvert invert	A	0	2	9.64	99.94	90.3	innac culvert pointed down
Inlet, culvert top	A	0	2	7.8	99.94	92.14	at apex of 1st corr
Outlet, culvert top	A	0	2	10.8	99.94	89.15	
Outlet, culvert invert	A	0	2	12.8	99.94	87.11	inacc culvert pointing down
Outlet, thalweg	A	0	2	13.3	99.94	86.63	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	1	15	43.6	Pygmy	0.77
At Culvert Inlet Invert	A	0	1.4	0	40	Pygmy	0.00

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	47	70.8	89.01	41.73	28.96		.81 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	0.25	24	40.3	Pygmy	1.33
Upstream from Inlet of Culvert, Location 2	76	0.5	25	40.3	Pygmy	1.38
Downstream from Outlet of Culvert, Location 1	46	0.2	44	41.2	Pygmy	2.37
Downstream from Outlet of Culvert, Location 2	83	0.2	48	40.4	Pygmy	2.63
Outlet Pool Tailcrest	12	0.35	23	41.1	Pygmy	1.25

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 019 **VISIT** 1

01901.jpg

01902.jpg

01903.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 019 **VISIT** 1

01904.jpg

01905.jpg

01907.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 020 **VISIT** 1

DATE 6/17/2002 **Time** 1:15:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.10689 **Long. (dec. deg)** -151.72356

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-5 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Chuitkilnachna Creek

Field Notes: Datum = WGS84. GPS accuracy = 24.4 feet. Left culvert was completely plugged and right culvert partially plugged (by beavers). Both culverts were cleared approximately 2 hours prior to survey. Right culvert bearing = 164 degrees.

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

Length: 40 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** -0.009

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** -1.21

Perch Ht. (Flow -Dep): -0.66 **Encrochment Ratio:**

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

	Inlet	Outlet
Width (ft):	3.95	4.00
Height (ft):	4.15	4.13
Manuf. Diameter:		
Water Depth (ft):	1.30	0.82
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Culvert ID: B **Category:** 8 **Classification:** GRAY

Length: 40 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.003

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** -1.13

Perch Ht. (Flow -Dep): -0.58 **Encrochment Ratio:**

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

	Inlet	Outlet
Width (ft):	3.94	4.00
Height (ft):	4.10	4.04
Manuf. Diameter:		
Water Depth (ft):	0.75	0.68
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	32.5	394
Upstrream OHW Width (50 ft.):	51	252
Upstrream OHW Width (5 ft.):	42.5	5
Tailcrest Width at OHW:	47.4	125
Outlet Pool OHW Line (Max Width.):	58	15
Downstream OHW Width (100 ft.):	30	308
Downstrream OHW Width (50 ft.):	48	224

Fish Surveys

Species: sculpin, undifferentiated **Life Stage:** Not Recorded **Species/Life Stage Count:** 2 **Life History:** Resident

Stat. ID: 020D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 72 70

Comments:

Species: threespine stickleback **Life Stage:** Not Recorded **Species/Life Stage Count:** 3 **Life History:** Resident

Stat. ID: 020D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 59 57 50

Comments:

Species: ninespine stickleback **Life Stage:** Not Recorded **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 020D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 61

Comments:

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 020 **VISIT** 1

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 020U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 108 115 119 110
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 020D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.75
Susp.Spawn? No **Fork Len. (mm)** 110 108 115 119
Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.5	1	10.03	100	89.97	
Station 1	3	1	10.73	100	89.27	
Left Bank, Ordinary High Water	6.3	1	11.14	100	88.86	
Station 2	9.7	1	11.22	100	88.78	beaver dam
Station 3	21	1	11.26	100	88.74	beaver dam
Station 4	25.5	1	10.82	100	89.18	beaver dam
Station 5	28.7	1	10.84	100	89.16	beaver dam
Station 6	32.8	1	11.12	100	88.88	beaver dam
Left Bank, Wetted Perimeter	37.9	1	11.82	100	88.18	beaver dam
Left Bank/Bed Slope Break	38.7	1	11.12	100	88.88	stream bottom under beaver dam
Right Bank/Bed Slope Break	40.9	1	12	100	88	stream bottom under beaver dam
Right Bank, Wetted Perimeter	40.9	1	11.68	100	88.32	beaver dam
Station 7	41.4	1	11.35	100	88.65	beaver dam
Station 8	42.2	1	10.95	100	89.05	beaver dam
Station 9	54	1	10.8	100	89.2	beaver dam
Station 10	58	1	11.44	100	88.56	beaver dam
Right Bank, Ordinary High Water	53.7	1	10.75	100	89.25	
Right Bank, Terrace	59.6	1	8.12	100	91.88	near bankfull elev

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)		1	11.1	100	88.88	
Upstream station, OHW line 1 (50 ft)	252	1	10.9	100	89.06	
Upstream station, water elev 2 (50 ft)	252	1	11.2	100	88.84	
Upstream station, thalweg 4 (50 ft)	252	1	13.6	100	86.39	
Inlet, edge-road		1	4.97	100	95.03	
Outlet, edge-road		1	5.02	100	94.98	
Outlet, pool water elev	0	1	11.7	100	88.33	
Outlet, pool OHWS lijne 1 (within 5 ft.)	0	1	11.3	100	88.68	
Outlet, pool maximum depth 2	12	1	16.1	100	83.89	
Downstream station, OHW line 2 (50)	224	1	11.7	100	88.3	
Downstream station, water elev 2 (50 ft)	224	1	12.1	100	87.9	
Downstream station, thalweg 2 (50 ft)	224	1	12.6	100	87.4	
Downstream station, OHW line 3 (100 ft)	308	1	12.1	100	87.9	
Downstream station, water elev 3 (100 ft)	308	1	12.4	100	87.63	
Downstream station, thalweg 3 (100 ft)	308	1	12.9	100	87.08	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 1 (1 ft)	A	1	1	12.6	100	87.4	
Outlet, culvert invert	B	0	1	12.3	100	87.75	
Outlet, thalweg	B	0	1	12.7	100	87.29	
Outlet, rustline	B	0	1	11.0	100	88.97	lowest of 3
Outlet, culvert top	B	0	1	8.21	100	91.79	
Outlet, pool maximum depth 1 (within 5 ft)	A	5	1	14.6	100	85.41	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 020 **VISIT** 1

Outlet, culvert invert	A	0	1	12.3	100	87.67	
Outlet, thalweg	A	0	1	12.8	100	87.2	
Outlet, rustline	A	0	1	10.6	100	89.37	lowest of 3 rustlines
Outlet, culvert top	A	0	1	8.2	100	91.8	
Inlet, culvert top	B	0	1	8.04	100	91.96	
Inlet, culvert top	A	0	1	8.54	100	91.46	
Outlet, pool maximum depth 1 (within 5 ft)	B	5	1	14.3	100	85.75	
Inlet, culvert thalweg	A	0	1	12.6	100	87.36	
Upstream station, water elev 1 (5 ft)	B	0	1	11.3	100	88.67	
Upstream station, thalweg 2 (5 ft)	A	5	1	12.9	100	87.13	
Upstream station, thalweg 3 (2 CMP widths)	A	7.9	1	13.6	100	86.38	
Upstream station, water elev 1 (5 ft)	A	0	1	11.3	100	88.68	
Upstream station, OHW line 1 (1 ft)	A	1	1	11	100	89.02	
Inlet, culvert invert	B	0	1	12.1	100	87.86	
Inlet, culvert thalweg	B	0	1	12.2	100	87.78	
Upstream station, thalweg 1 (1 ft)	B	1	1	12.3	100	87.72	
Upstream station, thalweg 2 (5 ft)	B	5	1	13.1	100	86.88	
Upstream station, thalweg 3 (2 CMP widths)	B	8	1	13.5	100	86.46	
Inlet, culvert rustline	B	0	1	10.8	100	89.23	
Upstream station, OHW line 1 (1 ft)	B	0	1	11.1	100	88.93	
Inlet, culvert invert	A	0	1	12.7	100	87.31	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.9	62	40.6	Standard_Price AA	3.38
At Culvert Inlet Invert	A	0	1.3	31	40.7	Standard_Price AA	1.69
At Culvert Outlet Invert	B	0	0.7	53	40.6	Standard_Price AA	2.89
At Culvert Inlet Invert	B	0	0.8	21	42	Standard_Price AA	1.12

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	40	17.3	19.2	19.12	19.37		2.16 ft/sec.
B	40	17.76	14.01	13.04	14.59		2.67 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	252	2	10	41.7	Standard_Price AA	0.27
Upstream from Inlet of Culvert, Location 2	394	2.2	10	41.3	Standard_Price AA	0.28
Downstream from Outlet of Culvert, Location 1	224	0.6	33	40.3	Standard_Price AA	1.82
Downstream from Outlet of Culvert, Location 2	308	0.55	37	40.9	Standard_Price AA	2.01
Outlet Pool Tailcrest	125	0.8	14	40.1	Pygmy	0.78

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 020 **VISIT** 1

02001.jpg

02002.jpg

02004.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 020 **VISIT** 1

02005.jpg

02006.jpg

02007.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 020 **VISIT** 1

02008.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 021 **VISIT** 1

DATE 6/18/2002 **Time** 8:00:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.08042 **Long. (dec. deg)** -151.57848

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-5 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. GPS accuracy 17.5 ft.

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

Culvert Measurements:

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

Length: 40.3 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Flush in Headwall **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.013

Corrugation Width (in.): 2.6

Perch Ht. (Flow - Ind):

Perch Ht. (Flow -Dep):

Encrochment Ratio: 0.86

	Inlet	Outlet
Width (ft):	4.15	3.90
Height (ft):		2.16
Manuf. Diameter:		
Water Depth (ft):	0.18	0.30
Substr. Dep (ft):		
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

	Inlet	Outlet
Substrate Type:		Silt/Sand
Erosion:	N/A	No Outlet Erosion

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	4.3	63
Upstrream OHW Width (50 ft.):	5.3	24
Upstrream OHW Width (5 ft.):	4.2	5
Tailcrest Width at OHW:		7.5
Outlet Pool OHW Line (Max Width.):	6.4	5
Downstream OHW Width (100 ft.):	4	68
Downstrream OHW Width (50 ft.):	4	21

Fish Surveys

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 18 **Life History:** Anadromous
Stat. ID: 021D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 54 51 66 51 54 52 55 68 62 50
Comments: additional fish: 53,53,59,55,55,56,45,65

Species: sculpin, undifferentiated **Life Stage:** Not Recorded **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 021D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 55 45
Comments:

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 12 **Life History:** Anadromous
Stat. ID: 021U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 61 55 60 58 52 59 50 61 62 70
Comments: plus 2 additional - 51, 49

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 021U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):** 2.25
Susp.Spawn? No **Fork Len. (mm)** 115 118
Comments:

Species: sculpin, undifferentiated **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 1 **Life History:** Resident
Stat. ID: 021U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments:

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 021 **VISIT** 1

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.5	1	3.7	100	96.3	
Left Bank, Ordinary High Water	6	1	4.33	100	95.67	
Left Bank/Bed Slope Break	6.6	1	4.62	100	95.38	
Left Bank, Wetted Perimeter	6.6	1	4.59	100	95.41	
Station 1	7	1	4.08	100	95.92	
Station 2	7.3	1	4.62	100	95.38	
Station 3	7.6	1	4.42	100	95.58	
Station 4	8.1	1	4.4	100	95.6	
Station 5	8.3	1	4.6	100	95.4	
Station 6	8.4	1	4.73	100	95.27	
Right Bank/Bed Slope Break	11.5	1	4.62	100	95.38	
Right Bank, Wetted Perimeter	11.5	1	4.55	100	95.45	
Right Bank, Ordinary High Water	11.5	1	4.3	100	95.7	
Right Bank, Terrace	11.9	1	3.98	100	96.02	

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	4.3	100	95.7	
Downstream station, water elev 3 (100 ft)	68	1	7.6	100	92.4	
Downstream station, OHW line 3 (100 ft)	68	1	7.15	100	92.85	
Downstream station, thalweg 2 (50 ft)	21	1	5.35	100	94.65	
Downstream station, water elev 2 (50 ft)	21	1	5.22	100	94.78	
Downstream station, OHW line 2 (50)	21	1	4.94	100	95.06	
Outlet, pool maximum depth 2	3	1	5.04	100	94.96	
Downstream station, thalweg 3 (100 ft)	68	1	7.71	100	92.29	
Outlet, pool water elev	5	1	4.56	100	95.44	
Downstream station, thalweg 1 (tailcrest)		1	4.73	100	95.27	
Outlet, edge-road		2	4.28	110.1	105.82	
Inlet, edge-road		2	4.18	110.1	105.92	
Upstream station, thalweg 4 (50 ft)	24	3	5.98	103.34	97.36	
Upstream station, water elev 2 (50 ft)	24	3	5.8	103.34	97.54	
Upstream station, OHW line 1 (50 ft)	24	3	5.5	103.34	97.84	
Upstream station, thalweg 5 (100 ft)	63	3	3.2	103.34	100.14	
Upstream station, water elev 1 (100 ft)	63	3	3.04	103.34	100.3	
Upstream station, OHW line 1 (100 ft)	63	3	2.69	103.34	100.65	

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	8.3	3	7.11	103.3	96.23	
Upstream station, water elev 1 (5 ft)	A	5	3	7.27	103.3	96.07	
Upstream station, thalweg 2 (5 ft)	A	5	3	7.51	103.3	95.83	
Upstream station, OHW line 1 (1 ft)	A	1	3	7.03	103.3	96.31	
Upstream station, thalweg 1 (1 ft)	A	1	3	7.86	103.3	95.48	
Inlet, culvert rustline	A	0	3	7.23	103.3	96.11	
Inlet, culvert thalweg	A	0	3	7.67	103.3	95.67	
Inlet, culvert top	A	0	3	4.72	103.3	98.62	
Outlet, rustline	A	0	1	4.32	100	95.68	
Outlet, culvert top	A	0	1	2.68	100	97.32	
Outlet, thalweg	A	0	1	4.84	100	95.16	
Outlet, pool maximum depth 1 (within 5 ft)	A	3	1	5.04	100	94.96	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 021 **VISIT** 1

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.25	0	40	Pygmy	0.00
At Culvert Inlet Invert	A	0	0.25	9	40.1	Pygmy	0.24

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	24	0.15	30	40.8	Pygmy	0.73
Upstream from Inlet of Culvert, Location 2	63	0.15	42	40.5	Pygmy	1.02
Downstream from Outlet of Culvert, Location 1	21	0.15	48	40.6	Pygmy	2.62
Downstream from Outlet of Culvert, Location 2	68	0.2	15	40.7	Pygmy	0.83
Outlet Pool Tailcrest	7.5	0.15	13	41	Pygmy	0.71

02102.jpg

02105.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 022 **VISIT** 1

DATE 6/18/2002 **Time** 11:00:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.0786 **Long. (dec. deg)** -151.57288

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-5 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. 20.2 feet = gps accuracy

Road Prism Type: Through Fill **Spec. Site Cond.:** Beaver activity downstream of drainage structure

Culvert Measurements:

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

Length: 41 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.049

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** 0.67

Perch Ht. (Flow -Dep): 0.41

Encrochment Ratio: 0.31

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

	Inlet	Outlet
Width (ft):	3.66	3.75
Height (ft):	3.46	4.17
Manuf. Diameter:		
Water Depth (ft):	0.33	0.28
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	10.5	104
Upstrream OHW Width (50 ft.):	13	42
Upstrream OHW Width (5 ft.):	9.3	5
Tailcrest Width at OHW:	19.9	17
Outlet Pool OHW Line (Max Width.):	28	10
Downstream OHW Width (100 ft.):	18	167
Downstrream OHW Width (50 ft.):	16	80

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 3 **Life History:** Unknown

Stat. ID: 022D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 85 86 82

Comments:

Species: Dolly Varden **Life Stage:** Juvenile/Adult **Species/Life Stage Count:** 5 **Life History:** Unknown

Stat. ID: 022U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 117 112

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Bankful	1.7	1	8.24	100	91.76	
Left Bank, Terrace	3.9	1	9.69	100	90.31	
Station 1	4.9	1	9.69	100	90.31	bank
Left Bank/Bed Slope Break	5.1	1	11.55	100	88.45	
Left Bank, Ordinary High Water	4.8	1	10.6	100	89.4	
Left Bank, Wetted Perimeter	5.7	1	11.23	100	88.77	
Station 2	11.1	1	11.23	100	88.77	
Station 3	11.4	1	11.06	100	88.94	
Station 4	12.2	1	10.95	100	89.05	
Station 5	12.5	1	11.24	100	88.76	
Station 6	15.3	1	11.23	100	88.77	
Right Bank, Wetted Perimeter	18.1	1	11.15	100	88.85	
Station 7	20.1	1	11.13	100	88.87	
Station 8	21.5	1	10.92	100	89.08	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 022 **VISIT** 1

Station 9	23.2	1	11.06	100	88.94	
Station 10	23.6	1	11.23	100	88.77	
Right Bank/Bed Slope Break	24.8	1	11.32	100	88.68	
Right Bank, Ordinary High Water	24.7	1	10.66	100	89.34	
Right Bank, Terrace	25.4	1	10.22	100	89.78	
Station 11	26.2	1	10.43	100	89.57	bank
Right Bank, Bankfull	28.5	1	7.4	100	92.6	

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road		1	4.85	100	95.15	
Downstream station, water elev 3 (100 ft)	167	1	16.3	100	83.75	
Downstream station, OHW line 3 (100 ft)	167	1	15.7	100	84.34	
Downstream station, thalweg 2 (50 ft)	80	1	13.1	100	86.95	
Downstream station, water elev 2 (50 ft)	80	1	12.6	100	87.45	
Downstream station, OHW line 2 (50)	80	1	11.6	100	88.36	
Outlet, pool maximum depth 2	5	1	14.2	100	85.85	
Downstream station, thalweg 3 (100 ft)	167	1	16.5	100	83.47	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	10.8	100	89.18	
Downstream station, thalweg 1 (tailcrest)		1	11.3	100	88.66	
Inlet, edge-road		1	4.4	100	95.6	
Outlet, pool water elev	5	1	11.1	100	88.92	
Upstream station, thalweg 4 (50 ft)	42	2	5.09	98.43	93.34	
Upstream station, water elev 2 (50 ft)	42	2	4.97	98.43	93.46	
Upstream station, OHW line 1 (50 ft)	42	2	4.72	98.43	93.71	
Upstream station, thalweg 5 (100 ft)	104	2	4.12	98.43	94.31	
Upstream station, water elev 1 (100 ft)	104	2	3.7	98.43	94.73	
Upstream station, OHW line 1 (100 ft)	104	2	3.35	98.43	95.08	

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	7.32	2	6.36	98.43	92.07	
Upstream station, OHW line 1 (1 ft)	A	1	2	5.59	98.43	92.84	
Upstream station, water elev 1 (5 ft)	A	5	2	6.4	98.43	92.03	
Upstream station, thalweg 2 (5 ft)	A	5	2	6.63	98.43	91.8	
Upstream station, thalweg 1 (1 ft)	A	1	2	7.09	98.43	91.34	
Inlet, culvert rustline	A	0	2	6.75	98.43	91.68	
Inlet, culvert thalweg	A	0	1	8.67	100	91.33	
Inlet, culvert invert	A	0	1	8.68	100	91.32	
Inlet, culvert top	A	0	1	5.22	100	94.78	
Outlet, culvert top	A	0	1	6.5	100	93.5	
Outlet, rustline	A	0	1	9.64	100	90.36	
Outlet, culvert invert	A	0	1	10.7	100	89.33	
Outlet, thalweg	A	0	1	12.2	100	87.82	
Outlet, pool maximum depth 1 (within 5 ft)	A	5	1	14.2	100	85.85	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.35	203	40.1	Pygmy	4.89
At Culvert Inlet Invert	A	0	0.5	81	40.2	Pygmy	1.96

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	41	8.56	9.43	8.86	8.64		4.56 ft/sec.

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 022 **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	42	0.3	64	40.5	Pygmy	1.54
Upstream from Inlet of Culvert, Location 2	104	0.5	70	40.4	Pygmy	1.69
Downstream from Outlet of Culvert, Location 1	80	0.6	70	40.5	Pygmy	1.57
Downstream from Outlet of Culvert, Location 2	167	0.4	62	40.2	Pygmy	1.51
Outlet Pool Tailcrest	17	0.5	37	40.4	Pygmy	0.91

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 022 **VISIT** 1

02201.jpg

02202.jpg

02203.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 022 **VISIT** 1

02204.jpg

02205.jpg

02206.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 022 **VISIT** 1

02207.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 023 **VISIT** 1

DATE 6/18/2002 **Time** 1:45:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.07772 **Long. (dec. deg)** -151.54408

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-5 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. gps accuracy = 21.9 feet

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

Culvert Measurements:

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

Length: 90.9 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.036

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** 1.38

Perch Ht. (Flow -Dep): 1.01

Encrochment Ratio: 0.29

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

	Inlet	Outlet
Width (ft):	4.05	3.94
Height (ft):		4.11
Manuf. Diameter:		
Water Depth (ft):	0.27	0.20
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	16.3	122
Upstrream OHW Width (50 ft.):	11.7	46
Upstrream OHW Width (5 ft.):	11.7	5
Tailcrest Width at OHW:	12.2	27
Outlet Pool OHW Line (Max Width.):	24.5	14
Downstream OHW Width (100 ft.):	10	100
Downstrream OHW Width (50 ft.):	12.3	53

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 14 **Life History:** Unknown

Stat. ID: 023D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 85 90 124 170 148 86 120 123 80 76

Comments: additional fish: 99,92,89,75

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Unknown

Stat. ID: 023U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 135 150

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Bankful	1.2	1	3.52	100	96.48	
Station 1	3.2	1	5.85	100	94.15	
Left Bank, Terrace	7	1	5.38	100	94.62	
Left Bank, Ordinary High Water	8.8	1	5.54	100	94.46	
Station 2	11	1	5.54	100	94.46	
Left Bank/Bed Slope Break	12.2	1	6.18	100	93.82	
Left Bank, Wetted Perimeter	13.1	1	6.31	100	93.69	
Station 3	13.9	1	6.28	100	93.72	
Station 4	14.4	1	6.48	100	93.52	
Station 5	15	1	6.24	100	93.76	
Station 6	15.4	1	6.49	100	93.51	
Station 7	16.2	1	6.49	100	93.51	
Station 8	16.7	1	6.54	100	93.46	
Station 9	17.3	1	6.65	100	93.35	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 023 **VISIT** 1

Station 10	17.4	1	6.24	100	93.76
Station 11	18.8	1	6.2	100	93.8
Right Bank/Bed Slope Break	19.8	1	6.43	100	93.57
Right Bank, Wetted Perimeter	19.8	1	6.35	100	93.65
Station 12	20.4	1	5.7	100	94.3
Right Bank, Ordinary High Water	21	1	5.5	100	94.5
Station 13	22.6	1	5.42	100	94.58
Right Bank, Bankfull	23.3	1	3.88	100	96.12

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, pool water elev	3	1	6.28	100	93.72	
Downstream station, water elev 3 (100 ft)	100	1	10.3	100	89.72	
Downstream station, OHW line 3 (100 ft)	100	1	9.32	100	90.68	
Downstream station, thalweg 2 (50 ft)	53	1	7.81	100	92.19	
Downstream station, water elev 2 (50 ft)	53	1	7.65	100	92.35	
Downstream station, OHW line 2 (50)	53	1	7.2	100	92.8	
Outlet, pool maximum depth 2	7.5	1	9.65	100	90.35	
Downstream station, thalweg 3 (100 ft)	100	1	10.6	100	89.43	
Outlet, pool OHWS lijne 1 (within 5 ft.)	3	1	5.62	100	94.38	
Downstream station, thalweg 1 (tailcrest)		1	6.65	100	93.35	
Inlet, edge-road		2	4.19	117.37	113.18	
Outlet, edge-road		2	4.2	117.37	113.17	
Upstream station, thalweg 4 (50 ft)	46	3	5.72	105.93	100.21	
Upstream station, water elev 2 (50 ft)	46	3	5.55	105.93	100.38	
Upstream station, OHW line 1 (50 ft)	46	3	4.92	105.93	101.01	
Upstream station, thalweg 5 (100 ft)	122	3	3.71	105.93	102.22	
Upstream station, water elev 1 (100 ft)	122	3	3.34	105.93	102.59	
Upstream station, OHW line 1 (100 ft)	122	3	2.71	105.93	103.22	

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	8.1	3	7.84	105.9	98.09	
Upstream station, OHW line 1 (1 ft)	A	1	3	6.42	105.9	99.51	
Upstream station, water elev 1 (5 ft)	A	5	3	7.59	105.9	98.34	
Upstream station, thalweg 2 (5 ft)	A	5	3	7.9	105.9	98.03	
Upstream station, thalweg 1 (1 ft)	A	1	3	8.24	105.9	97.69	
Inlet, culvert rustline	A	0	3	6.41	105.9	99.52	
Inlet, culvert thalweg	A	0	3	8.16	105.9	97.77	
Inlet, culvert invert	A	0	3	7.96	105.9	97.97	
Inlet, culvert top	A	0	2	15.4	117.4	101.98	
Outlet, culvert top	A	0	1	1.16	100	98.84	
Outlet, rustline	A	0	1	3.58	100	96.42	
Outlet, culvert invert	A	0	1	5.27	100	94.73	
Outlet, thalweg	A	0	1	6.59	100	93.41	
Outlet, pool maximum depth 1 (within 5 ft)	A	3.5	1	8.15	100	91.85	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.2	109	40.2	Pygmy	2.63
At Culvert Inlet Invert	A	0	0.2	29	41.3	Pygmy	0.70

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	90.9	28.02	27.09	27.92			3.29 ft/sec.

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 023 **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	46	0.15	56	40	Pygmy	1.37
Upstream from Inlet of Culvert, Location 2	122	0.3	84	40.4	Pygmy	2.05
Downstream from Outlet of Culvert, Location 1	53	0.15	50	40.4	Pygmy	1.22
Downstream from Outlet of Culvert, Location 2	100	0.2	49	40.3	Pygmy	1.19
Outlet Pool Tailcrest	27	0.4	91	40	Pygmy	2.21

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 023 **VISIT** 1

02301.jpg

02302.jpg

02304.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 023 **VISIT** 1

02305.jpg

02306.jpg

02307.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 024 **VISIT** 1

DATE 6/18/2002 **Time** 4:30:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.06848 **Long. (dec. deg)** -151.51326

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-5 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** Stedatna Creek

Field Notes: Datum = WGS84. gps accuracy = 26.8 feet.

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

Culvert Measurements:

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

Length: 58.9 **Cross. Structure Type:** Non corrugated metal pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): **Baffles Present:** No **Culvert Gradient:** 0.026

Corrugation Width (in.): **Perch Ht. (Flow - Ind):** 0.72

Perch Ht. (Flow -Dep): -0.54

Encrochment Ratio: 0.26

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

	Inlet	Outlet
Width (ft):	4.22	4.10
Height (ft):		4.10
Manuf. Diameter:		
Water Depth (ft):	0.45	0.58
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

	Upstream	Downstream
Dominant Substrate Type:	Small Cobble	Coarse Gravel
Sub Dominant Substrate Type:	Coarse Gravel	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:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	16.8	100
Upstrream OHW Width (50 ft.):	16	50
Upstrream OHW Width (5 ft.):	9.4	5
Tailcrest Width at OHW:	24.5	13
Outlet Pool OHW Line (Max Width.):	19.4	8
Downstream OHW Width (100 ft.):	16	115
Downstrream OHW Width (50 ft.):	26	45

Fish Surveys

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident

Stat. ID: 024D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 123 105 115 110 115 83

Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 6 **Life History:** Resident

Stat. ID: 024D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 125 91 105 120 113 92

Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 024U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **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	2	1	15.61	100	84.39	
Station 1	3.8	1	16.62	100	83.38	bank
Left Bank/Bed Slope Break	4.6	1	17.45	100	82.55	
Left Bank, Ordinary High Water	3.7	1	16.82	100	83.18	
Station 2	6.9	1	17.5	100	82.5	
Left Bank, Wetted Perimeter	7.4	1	17.68	100	82.32	
Station 3	8.5	1	17.89	100	82.11	
Station 4	15	1	17.83	100	82.17	
Station 5	15.8	1	17.92	100	82.08	
Station 6	20.3	1	18.12	100	81.88	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 024 **VISIT** 1

Station 7	23	1	18.75	100	81.25	
Station 8	24.5	1	18.63	100	81.37	
Station 9	25.3	1	18.52	100	81.48	
Right Bank, Wetted Perimeter	26.2	1	17.97	100	82.03	
Right Bank/Bed Slope Break	27.1	1	17.65	100	82.35	
Right Bank, Ordinary High Water	28.2	1	16.12	100	83.88	
Station 10	31.7	1	13.6	100	86.4	bank slope

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Outlet, edge-road		1	4.5	100	95.5	
Downstream station, water elev 3 (100 ft)	115	1	21.4	100	78.65	
Downstream station, OHW line 3 (100 ft)	115	1	20.3	100	79.68	
Downstream station, thalweg 2 (50 ft)	45	1	19.2	100	80.85	
Downstream station, water elev 2 (50 ft)	45	1	18.8	100	81.21	
Downstream station, OHW line 2 (50)	45	1	18.3	100	81.68	
Outlet, pool maximum depth 2	8.5	1	19.8	100	80.16	
Downstream station, thalweg 3 (100 ft)	115	1	21.6	100	78.36	
Outlet, pool water elev	5	1	17.5	100	82.51	
Downstream station, thalweg 1 (tailcrest)		1	18.8	100	81.25	
Inlet, edge-road		1	4.29	100	95.71	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	1	17.3	100	82.75	
Upstream station, thalweg 4 (50 ft)	50	2	14.8	99.81	85.03	
Upstream station, water elev 2 (50 ft)	50	2	14.5	99.81	85.36	
Upstream station, OHW line 1 (50 ft)	50	2	13.7	99.81	86.1	
Upstream station, thalweg 5 (100 ft)	119	2	12.9	99.81	86.94	
Upstream station, water elev 1 (100 ft)	119	2	12.7	99.81	87.1	
Upstream station, OHW line 1 (100 ft)	119	2	11.8	99.81	88.01	

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	8.4	2	15.9	99.81	83.91	
Upstream station, water elev 1 (5 ft)	A	5	2	15.6	99.81	84.17	
Upstream station, thalweg 2 (5 ft)	A	5	2	16.2	99.81	83.63	
Upstream station, OHW line 1 (1 ft)	A	1	2	14.8	99.81	84.97	
Upstream station, thalweg 1 (1 ft)	A	1	2	16.7	99.81	83.09	
Inlet, culvert thalweg	A	0	2	16.5	99.81	83.33	entire culvert rusted
Inlet, culvert invert	A	0	2	16.3	99.81	83.48	
Inlet, culvert top	A	0	1	12.3	100	87.66	
Outlet, culvert top	A	0	1	13.9	100	86.07	
Outlet, thalweg	A	0	1	18.3	100	81.72	
Outlet, culvert invert	A	0	1	18.0	100	81.97	entire pipe rusted
Outlet, pool maximum depth 1 (within 5 ft)	A	5	1	18.9	100	81.06	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.55	60	40.4	Pygmy	1.45
At Culvert Inlet Invert	A	0	0.45	89	40.3	Pygmy	2.15

Barrel Velocity(Float Ball)

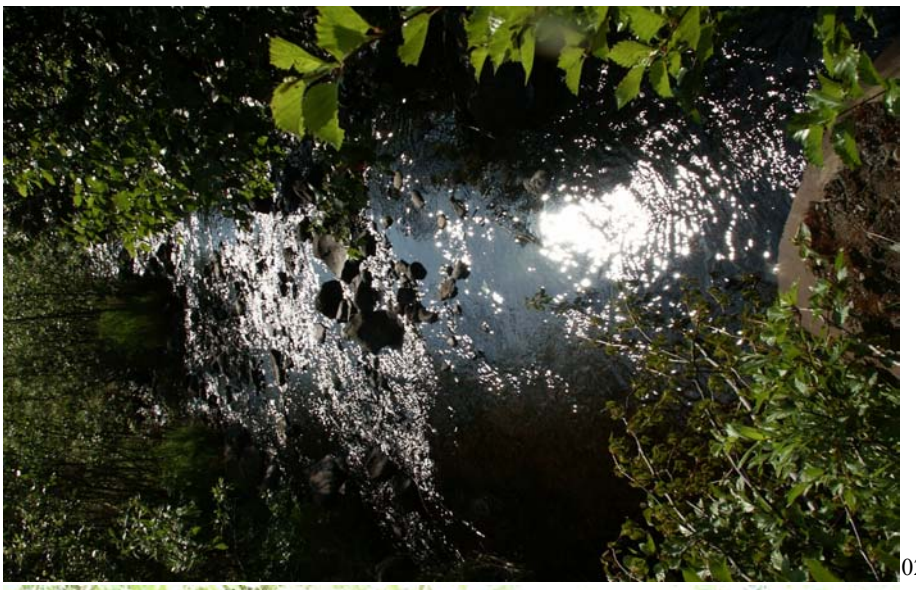
Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	58.9	14.11	16.51	14.15			3.93 ft/sec.

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 024 **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	45	0.2	65	40.3	Pygmy	1.58
Upstream from Inlet of Culvert, Location 2	115	0.35	62	40.1	Pygmy	1.51
Outlet Pool Tailcrest	13	0.2	49	40.2	Pygmy	1.20
Downstream from Outlet of Culvert, Location 1	50	0.2	66	40	Pygmy	1.61
Downstream from Outlet of Culvert, Location 2	100	0.15	58	40.1	Pygmy	1.42

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 024 **VISIT** 1



02402.jpg

02403.jpg

02405.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 024 **VISIT** 1

02406.jpg

02407.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 025 **VISIT** 1

DATE 6/19/2002 **Time** 8:30:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.05433 **Long. (dec. deg)** -151.51012

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-5 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. gps accuracy = 18.1 feet. Culvert collapsed in middle (due to shallow road fill on top). Joints parting at ends of 5-foot middle section. Balls got stuck - no barrel velocity collected.

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

Culvert Measurements:

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

Length: 40.4 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.133

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** 1.28

Perch Ht. (Flow -Dep): 1.11

Encrochment Ratio: 0.65

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

	Inlet	Outlet
Width (ft):	4.02	3.84
Height (ft):		4.27
Manuf. Diameter:		
Water Depth (ft):	0.13	0.08
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	25	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	6.3	86
Upstrream OHW Width (50 ft.):	6	55
Upstrream OHW Width (5 ft.):	11.6	5
Tailcrest Width at OHW:	18.5	12
Outlet Pool OHW Line (Max Width.):	14	7
Downstream OHW Width (100 ft.):	6	130
Downstrream OHW Width (50 ft.):	7.8	64

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 16 **Life History:** Resident

Stat. ID: 025D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 112 105 95 120 95 135 100 125 125 115

Comments: additional fish: 115,82,95,90,90,94

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident

Stat. ID: 025U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 161 113

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.7	2	3.18	102.28	99.1	
Left Bank, Ordinary High Water	4.7	2	4.72	102.28	97.56	
Left Bank/Bed Slope Break	5.9	2	5.62	102.28	96.66	
Station 1	7.3	2	5.34	102.28	96.94	
Station 2	9.1	2	5.31	102.28	96.97	
Station 3	9.7	2	5.71	102.28	96.57	
Station 4	10.4	2	5.41	102.28	96.87	
Station 5	13.8	2	5.52	102.28	96.76	
Station 6	14.7	2	5.31	102.28	96.97	
Station 7	17.2	2	5.56	102.28	96.72	
Left Bank, Wetted Perimeter	17.4	2	5.73	102.28	96.55	
Station 8	17.7	2	5.86	102.28	96.42	
Station 9	18.9	2	5.86	102.28	96.42	
Station 10	19.7	2	5.86	102.28	96.42	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 025 **VISIT** 1

Station 11	21.2	2	5.87	102.28	96.41	
Station 12	21.5	2	5.42	102.28	96.86	top of boulder at stream edge
Right Bank, Ordinary High Water	23.2	2	5.28	102.28	97	
Right Bank/Bed Slope Break	22.8	2	5.64	102.28	96.64	
Station 13	25.2	2	4.32	102.28	97.96	mid bank slope
Right Bank, Bankfull	25.9	2	1.62	102.28	100.66	top of bank

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, water elev 3 (100 ft)	130	1	8.07	100	91.93	
Downstream station, OHW line 3 (100 ft)	130	1	7.41	100	92.59	
Downstream station, thalweg 2 (50 ft)	64	1	5.1	100	94.9	
Downstream station, water elev 2 (50 ft)	64	1	4.94	100	95.06	
Downstream station, OHW line 2 (50)	64	1	4.46	100	95.54	
Downstream station, thalweg 3 (100 ft)	130	1	8.12	100	91.88	
Outlet, pool water elev	5	2	5.7	102.28	96.58	
Outlet, pool maximum depth 2	5.8	2	7.34	102.28	94.94	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	5.28	102.28	97	
Downstream station, thalweg 1 (tailcrest)		2	5.87	102.28	96.41	
Inlet, edge-road		3	4.92	112.06	107.14	
Outlet, edge-road		3	5.2	112.06	106.86	
Upstream station, thalweg 4 (50 ft)	55	4	5.01	110.34	105.33	
Upstream station, water elev 2 (50 ft)	55	4	4.96	110.34	105.38	
Upstream station, OHW line 1 (50 ft)	55	4	4.42	110.34	105.92	
Upstream station, thalweg 5 (100 ft)	86	4	3.24	110.34	107.1	
Upstream station, water elev 1 (100 ft)	86	4	3.21	110.34	107.13	
Upstream station, OHW line 1 (100 ft)	86	4	2.82	110.34	107.52	

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	8.04	4	8.36	110.3	101.98	
Upstream station, water elev 1 (5 ft)	A	5	4	7.14	110.3	103.2	
Upstream station, thalweg 2 (5 ft)	A	5	4	8.14	110.3	102.2	
Upstream station, OHW line 1 (1 ft)	A	1	4	6.41	110.3	103.93	
Inlet, culvert rustline	A	0	4	6.13	110.3	104.21	
Upstream station, thalweg 1 (1 ft)	A	1	4	8.24	110.3	102.1	
Inlet, culvert thalweg	A	0	4	8.04	110.3	102.3	
Inlet, culvert invert	A	0	3	8.99	112.1	103.07	
Outlet, culvert top	A	0	2	0.32	102.3	101.96	
Outlet, rustline	A	0	2	3.24	102.3	99.04	
Outlet, thalweg	A	0	2	5.65	102.3	96.63	
Outlet, culvert invert	A	0	2	4.59	102.3	97.69	
Outlet, pool maximum depth 1 (within 5 ft)	A	5	2	7.18	102.3	95.1	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A		0.1	127	40	Pygmy	3.08
At Culvert Inlet Invert	A		0.1	25	41.3	Pygmy	0.61

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	40.4						N/A

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 025 **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	55	0.1	63	40.5	Pygmy	1.52
Upstream from Inlet of Culvert, Location 2	86	0.1	30	40.6	Pygmy	0.74
Downstream from Outlet of Culvert, Location 1	64	0.15	26	41.1	Pygmy	0.63
Downstream from Outlet of Culvert, Location 2	130	0.35	24	40.3	Pygmy	0.60
Outlet Pool Tailcrest	12	0.15	14	41.5	Pygmy	0.35

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 025 **VISIT** 1

02501.jpg

02502.jpg

02504.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 025 **VISIT** 1

02505.jpg

02506.jpg

02507.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 026 **VISIT** 1

DATE 6/19/2002 **Time** 11:20:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.03972 **Long. (dec. deg)** -151.47273

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. GPS acccuracy 19.8. Site is 23.1 feet US of 027 inlet. Began with inst. 3 from site 027.

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

Culvert Measurements:

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

Length: 61 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.055

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):** 2.22

Perch Ht. (Flow -Dep): 1.64

Encrochment Ratio: 0.18

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

	Inlet	Outlet
Width (ft):	1.68	2.00
Height (ft):		2.00
Manuf. Diameter:		
Water Depth (ft):	0.33	0.20
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	40	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	12.4	166.5
Upstrream OHW Width (50 ft.):	6.7	141.5
Upstrream OHW Width (5 ft.):	4.2	5
Tailcrest Width at OHW:		7.2
Outlet Pool OHW Line (Max Width.):	4.6	4.4
Downstream OHW Width (100 ft.):		
Downstrream OHW Width (50 ft.):	7.8	10

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Resident

Stat. ID: 026U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 171 148 121 87

Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident

Stat. ID: 026D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 1 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 135 100 156 111 122 112 91 115

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	6.8	3	4.59	104.4	99.81	
Station 1	8.4	3	4.89	104.4	99.51	bank slope
Left Bank, Ordinary High Water	9.3	3	5.39	104.4	99.01	
Left Bank/Bed Slope Break	9.8	3	5.65	104.4	98.75	
Left Bank, Wetted Perimeter	11.8	3	5.96	104.4	98.44	
Station 2	11.9	3	5.74	104.4	98.66	
Station 3	12.3	3	5.8	104.4	98.6	
Station 4	12.5	3	6.04	104.4	98.36	
Station 5	12.8	3	6.16	104.4	98.2400	
Station 6	13	3	5.72	104.4	98.68	
Station 7	14	3	5.64	104.4	98.76	
Station 8	14.5	3	5.96	104.4	98.44	
Station 9	15.2	3	5.72	104.4	98.68	
Station 10	15.4	3	6.29	104.4	98.11	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 026 **VISIT** 1

Station 11	15.8	3	6.52	104.4	97.88	
Station 12	16.1	3	6.2	104.4	98.2	
Right Bank/Bed Slope Break	16.6	3	6.22	104.4	98.18	
Right Bank, Wetted Perimeter	16.6	3	5.97	104.4	98.43	
Right Bank, Ordinary High Water	16.6	3	5.56	104.4	98.84	
Right Bank, Terrace	17	3	5	104.4	99.4	
Station 13	21	3	4.52	104.4	99.88	bank

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, thalweg 1 (tailcrest)		3	6.52	104.4	97.88	
Outlet, pool OHWS lijne 1 (within 5 ft.)	3.3	3	5.52	104.4	98.88	
Outlet, pool water elev	3.3	3	5.94	104.4	98.46	
Outlet, pool maximum depth 2	3	3	7.62	104.4	96.78	
Downstream station, OHW line 2 (50)	10.2	3	5.37	104.4	99.03	
Downstream station, water elev 2 (50 ft)	10.2	3	6.03	104.4	98.37	
Downstream station, thalweg 2 (50 ft)	10.2	3	6.36	104.4	98.04	
Inlet, edge-road		4	3.14	112.6	109.46	
Outlet, edge-road		4	3.58	112.6	109.02	
Upstream station, OHW line 1 (100 ft)	166.5	5	2.66	108.76	106.1	
Upstream station, water elev 1 (100 ft)	166.5	5	3.04	108.76	105.72	
Upstream station, thalweg 5 (100 ft)	166.5	5	3.36	108.76	105.4	
Upstream station, water elev 2 (50 ft)	141.5	5	4.33	108.76	104.43	
Upstream station, OHW line 1 (50 ft)	141.5	5	4.01	108.76	104.75	
Upstream station, thalweg 4 (50 ft)	141.5	5	4.62	108.76	104.14	

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	3.36	5	6.3	108.8	102.46	
Upstream station, thalweg 2 (5 ft)	A	5	5	6.2	108.8	102.56	
Upstream station, water elev 1 (5 ft)	A	5	5	4.98	108.8	103.78	
Upstream station, OHW line 1 (1 ft)	A	1	5	4.49	108.8	104.27	
Upstream station, thalweg 1 (1 ft)	A	1	5	6.55	108.8	102.21	
Inlet, culvert rustline	A	0	5	4.77	108.8	103.99	moss line
Inlet, culvert thalweg	A	0	5	6.51	108.8	102.25	
Inlet, culvert invert	A	0	5	5.33	108.8	103.43	
Inlet, culvert top	A	0	4	7.11	112.6	105.49	
Outlet, culvert top	A	0	3	2.3	104.4	102.1	
Outlet, rustline	A	0	3	3.81	104.4	100.59	
Outlet, culvert invert	A	0	3	4.3	104.4	100.1	
Outlet, thalweg	A	0	3	6.89	104.4	97.51	
Outlet, pool maximum depth 1 (within 5 ft)	A	3	3	7.62	104.4	96.78	

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.25	71	40.2	Pygmy	1.72
At Culvert Inlet Invert	A	0	0.3	18	41.9	Pygmy	0.44

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	61	31.21	31.45	27.43			2.06 ft/sec.

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 026 **VISIT** 1

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	10	0.3	87	40.1	Pygmy	2.11
Upstream from Inlet of Culvert, Location 1	141.5	0.3	58	40.1	Pygmy	1.42
Upstream from Inlet of Culvert, Location 2	166.5	0.2	34	40.6	Pygmy	0.83
Outlet Pool Tailcrest	7.2	0.3	53	40	Pygmy	1.30

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 026 **VISIT** 1

02601.jpg

02602.jpg

02603.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 026 **VISIT** 1

02604.jpg

02605.jpg

02606.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 027 **VISIT** 1

DATE 6/19/2002 **Time** 12:00:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.03941 **Long. (dec. deg)** -151.47293

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: WGS84. 30.4 ft = gps accuracy. Site is ~50 ft DS of site 026 on abandoned roadway. Culvert B bearing = 162. Culvert A has no fill, = ~5% flow. DS distances (50,100-ft) measured from culvert A. Culvert B outlet is 10 ft US of A. B tailcrest = 5ft DS of B.

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

Culvert Measurements:

					Inlet	Outlet
Culvert ID: A	**Category:** 8		**Classification:** GRAY			
Length:	**Cross. Structure Type:** Non corrugated metal pipe			**Width (ft):**	1.60	1.55
	Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	1.61	1.69
Corrugation Depth (in.):	**Baffles Present:** No		**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.):			**Perch Ht. (Flow - Ind):** 0.37	**Water Depth (ft):**	0.14	0.04
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):** 0.13	**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:** 8		**Classification:** GRAY			
Length:	**Cross. Structure Type:** Corrugated Metal Pipe			**Width (ft):**	1.50	1.80
	Entrance Type: Projecting		**Tidal Influence:** No	**Height (ft):**	1.53	1.02
Corrugation Depth (in.): 0.5	**Baffles Present:** No		**Culvert Gradient:**	**Manuf. Diameter:**		
Corrugation Width (in.): 2			**Perch Ht. (Flow - Ind):**	**Water Depth (ft):**	0.30	0.90
	Inlet	**Outlet**	**Perch Ht. (Flow -Dep):**	**Substr. Dep (ft):**	0.00	0.00
Substrate Type:	None	None	**Encrochment Ratio:**	**Struc. Damage (%):**	0	
Erosion:	No Inlet Erosion	No Outlet Erosion		**Culv. Blockage (%):**	0	

Stream-related

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

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

Stream Discharge:	**Width (ft)**	**Distance (ft)**
Upstrream OHW Width (100 ft.):		
Upstrream OHW Width (50 ft.):	7.8	14.3
Upstrream OHW Width (5 ft.):	8	5
Tailcrest Width at OHW:		5
Outlet Pool OHW Line (Max Width.):	7	4
Downstream OHW Width (100 ft.):	4	75
Downstrream OHW Width (50 ft.):	3	38

Fish Surveys

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 8 **Life History:** Resident

Stat. ID: 027U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 1 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 135 100 156 111 122 112 91 115

Comments:

Species: Dolly Varden **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident

Stat. ID: 027D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 2 **Trap Dur. (h):**

Susp.Spawn? No **Fork Len. (mm)** 52 77

Comments:

Cross Section Elevation

Locator ID	Distance Along Cross Section	Inst. #	FS	HI	Elevation	Field Comments
Left Bank, Terrace	2.8	2	5.17	102.41	97.2400	culvert A tailcrest
Left Bank, Ordinary High Water	3.4	2	5.23	102.41	97.18	culvert A tailcrest
Left Bank/Bed Slope Break	4.4	2	6.3	102.41	96.11	culvert A tailcrest (thalweg)
Station 1	4.7	2	6.21	102.41	96.2	culvert A tailcrest

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 027 **VISIT** 1

Left Bank, Wetted Perimeter	4.7	2	6.1	102.41	96.3100	culvert A tailcrest
Station 2	4.3	2	6.1	102.41	96.3100	culvert A tailcrest
Station 3	5.6	2	5.58	102.41	96.83	culvert A RB OHW
Station 4	6.9	2	5.07	102.41	97.34	island between tailcrests
Station 5	10.5	2	4.72	102.41	97.69	top of island
Station 6	15.8	2	4.42	102.41	97.9900	Culvert B LB tailcrest OHW
Station 7	15.8	2	4.76	102.41	97.65	culvert b LWP
Station 8	15.9	2	4.88	102.41	97.5300	culvert b tailcrest
Station 9	16.8	2	4.9	102.41	97.51	culvert b tailcrest
Station 10	17.3	2	4.83	102.41	97.58	culvert b tailcrest
Right Bank, Wetted Perimeter	17.5	2	4.72	102.41	97.69	culvert b tailcrest
Station 11	17.7	2	4.62	102.41	97.79	bank
Right Bank, Ordinary High Water	18.7	2	4.33	102.41	98.08	culvert b
Right Bank, Terrace	21.6	2	4.18	102.41	98.23	culvert b

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Downstream station, OHW line 2 (50)	38	1	4.92	100	95.08	
Downstream station, water elev 2 (50 ft)	38	1	5.36	100	94.64	
Downstream station, thalweg 2 (50 ft)	38	1	5.71	100	94.29	
Downstream station, OHW line 3 (100 ft)	75	1	7.13	100	92.87	
Downstream station, water elev 3 (100 ft)	75	1	7.83	100	92.17	
Downstream station, thalweg 3 (100 ft)	75	1	8.16	100	91.84	
Downstream station, thalweg 1 (tailcrest)		2	6.3	102.41	96.11	
Outlet, pool OHWS lijne 1 (within 5 ft.)	5	2	5.46	102.41	96.95	Culvert B =3,2,4.46
Outlet, pool water elev	5	2	6.06	102.41	96.3500	Culvert B = 3,2,4.72
Outlet, pool maximum depth 2	3.8	2	6.91	102.41	95.5	Culvert B = 0,2,5.80 (x,I,fs)
Upstream station, OHW line 1 (50 ft)	14.3	3	5.37	104.4	99.03	
Upstream station, water elev 2 (50 ft)	14.3	3	6.03	104.4	98.37	
Upstream station, thalweg 4 (50 ft)	14.3	3	6.36	104.4	98.04	
Inlet, edge-road		3	3.16	104.4	101.24	
Outlet, edge-road		3	3.6	104.4	100.8	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 1 (1 ft)	A	1	3	6.98	104.4	97.42	
Outlet, pool maximum depth 1 (within 5 ft)	A	3.8	2	6.91	102.4	95.5	
Outlet, culvert invert	A	0	2	5.93	102.4	96.48	
Outlet, thalweg	A	0	2	6.42	102.4	95.9900	
Outlet, rustline	A	0	2	5.4	102.4	97.01	moss line
Outlet, pool maximum depth 1 (within 5 ft)	B	0	2	5.8	102.4	96.61	
Outlet, thalweg	B	0	2	5.8	102.4	96.61	max width OHW = 4.5 ft
Outlet, culvert top	B	0	2	4.78	102.4	97.63	outlet crushed, 0.05 ft bl WEL
Inlet, culvert top	B	0	3	5.33	104.4	99.07	
Inlet, culvert top	A	0	3	4.78	104.4	99.62	
Inlet, culvert invert	A	0	3	6.39	104.4	98.01	
Outlet, culvert top	A	0	2	4.24	102.4	98.1700	
Inlet, culvert rustline	A	0	3		104.4		entire pipe rusted
Upstream station, OHW line 1 (1 ft)	B	1	3	6	104.4	98.4	OHW width @ 5=4.95
Upstream station, OHW line 1 (1 ft)	A	1	3	5.93	104.4	98.47	
Upstream station, thalweg 2 (5 ft)	A	5	3	6.55	104.4	97.85	
Upstream station, water elev 1 (5 ft)	A	5	3	6.3	104.4	98.1	
Upstream station, thalweg 3 (2 CMP widths)	A	3.2	3	6.75	104.4	97.65	
Inlet, culvert invert	B	0	3	6.86	104.4	97.54	
Inlet, culvert thalweg	B	0	3	7.34	104.4	97.06	
Inlet, culvert rustline	B	0	3	6.28	104.4	98.12	moss line
Upstream station, thalweg 1 (1 ft)	B	1	3	6.58	104.4	97.82	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 027 **VISIT** 1

Upstream station, thalweg 2 (5 ft)	B	5	3	6.58	104.4	97.82
Upstream station, water elev 1 (5 ft)	B	5	3	6.34	104.4	98.06
Inlet, culvert thalweg	A	0	3	6.84	104.4	97.56

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A		0.1	167	40	Pygmy	4.04
At Culvert Inlet Invert	A		0.1	12	42.2	Pygmy	0.30
At Culvert Outlet Invert	B		0.5	0	0	Pygmy	0.00
At Culvert Inlet Invert	B		0.3	66	40.3	Pygmy	1.60

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	14.3	0.3	87	40.1	Pygmy	2.11
Outlet Pool Tailcrest	5	0.15	13	42.5	Pygmy	0.32
Downstream from Outlet of Culvert, Location 1	38	0.35	44	40.2	Pygmy	1.08
Downstream from Outlet of Culvert, Location 2	75	0.2	51	40.6	Pygmy	1.23

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 027 **VISIT** 1

02701.jpg

02702.jpg

02703.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 027 **VISIT** 1

02704.jpg

02705.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 028 **VISIT** 1

DATE 6/20/2002 **Time** 8:45:00 AM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.04767 **Long. (dec. deg)** -151.43745

Road Name: Shirleyville - Tyonek Rd **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** outlet of Congabuna Lake

Field Notes: Datum = WGS84. GPS accuracy 31.8

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

Culvert Measurements:

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

Length: 61.15 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 2.6 **Baffles Present:** No **Culvert Gradient:** 0.003

Corrugation Width (in.): 0.5 **Perch Ht. (Flow - Ind):** 0.49

Perch Ht. (Flow -Dep): -0.53

Encrochment Ratio: 0.34

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

	Inlet	Outlet
Width (ft):	4.00	4.00
Height (ft):		4.03
Manuf. Diameter:		
Water Depth (ft):	0.75	0.58
Substr. Dep (ft):	0.00	0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge:	Width (ft)	Distance (ft)
Upstrream OHW Width (100 ft.):	11.3	96.5
Upstrream OHW Width (50 ft.):	12	49
Upstrream OHW Width (5 ft.):	16	5
Tailcrest Width at OHW:	10.5	28.5
Outlet Pool OHW Line (Max Width.):	20.8	12.4
Downstream OHW Width (100 ft.):	14	122
Downstrream OHW Width (50 ft.):	12.5	65

Fish Surveys

Species: eulachon **Life Stage:** Carcass **Species/Life Stage Count:** **Life History:** Anadromous
Stat. ID: 028D1 **Gear:** Visual Observation, Ground **# of Traps set:** **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)**
Comments: in outlet pool

Species: coho salmon **Life Stage:** Juvenile **Species/Life Stage Count:** 4 **Life History:** Anadromous
Stat. ID: 028D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 92 114 81 89
Comments:

Species: rainbow trout **Life Stage:** Juvenile **Species/Life Stage Count:** 2 **Life History:** Resident
Stat. ID: 028D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **Trap Dur. (h):**
Susp.Spawn? No **Fork Len. (mm)** 113 116
Comments:

Species: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown
Stat. ID: 028U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 3 **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	3.6	2	3.28	100.46	97.18	
Station 1	4	2	3.56	100.46	96.9	top of bank
Left Bank, Ordinary High Water	4.2	2	3.91	100.46	96.55	
Left Bank/Bed Slope Break	4.5	2	4.47	100.46	95.99	
Left Bank, Wetted Perimeter	4.5	2	4.38	100.46	96.08	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 028 **VISIT** 1

Station 2	5.1	2	4.83	100.46	95.63	
Station 3	6.1	2	4.71	100.46	95.75	
Station 4	6.9	2	4.52	100.46	95.94	
Station 5	8.8	2	4.6	100.46	95.86	
Station 6	9.3	2	4.94	100.46	95.52	
Station 7	9.8	2	4.44	100.46	96.02	
Station 8	10.3	2	4.78	100.46	95.68	
Station 9	12.2	2	4.78	100.46	95.68	
Right Bank/Bed Slope Break	13.2	2	4.68	100.46	95.78	
Right Bank, Wetted Perimeter	13.8	2	4.34	100.46	96.12	
Station 10	14.1	2	4.34	100.46	96.12	
Station 11	14.2	2	3.79	100.46	96.67	edge of boulder
Right Bank, Ordinary High Water	14.7	2	3.82	100.46	96.64	
Station 12	15.8	2	3.28	100.46	97.18	
Right Bank, Terrace	18	2	3.44	100.46	97.02	

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	5.43	100	94.57	
Downstream station, OHW line 3 (100 ft)	122	1	5.04	100	94.96	
Downstream station, thalweg 2 (50 ft)	65	1	4.88	100	95.12	
Downstream station, water elev 2 (50 ft)	65	1	4.42	100	95.58	
Downstream station, OHW line 2 (50)	65	1	4.1	100	95.9	
Downstream station, thalweg 3 (100 ft)	122	1	5.91	100	94.09	
Downstream station, thalweg 1 (tailcrest)		1	4.94	100	95.06	
Outlet, pool water elev	3	2	4.38	100.46	96.08	
Outlet, pool maximum depth 2	9.8	2	6.82	100.46	93.64	
Outlet, pool OHWS lijne 1 (within 5 ft.)	3	2	3.99	100.46	96.47	
Inlet, edge-road		3	3.59	108.78	105.19	
Outlet, edge-road		3	3.68	108.78	105.1	
Upstream station, thalweg 4 (50 ft)	49	4	6.2	103.31	97.11	
Upstream station, water elev 2 (50 ft)	49	4	5.48	103.31	97.83	
Upstream station, OHW line 1 (50 ft)	49	4	5.05	103.31	98.26	
Upstream station, thalweg 5 (100 ft)	96.5	4	5.38	103.31	97.93	
Upstream station, water elev 1 (100 ft)	96.5	4	5.02	103.31	98.29	
Upstream station, OHW line 1 (100 ft)	96.5	4	4.75	103.31	98.56	

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	8	4	7.08	103.3	96.23	
Upstream station, water elev 1 (5 ft)	A	5	4	6.43	103.3	96.88	
Upstream station, OHW line 1 (1 ft)	A	1	4	5.74	103.3	97.57	
Upstream station, thalweg 2 (5 ft)	A	5	4	7.6	103.3	95.71	
Upstream station, thalweg 1 (1 ft)	A	1	4	7.14	103.3	96.17	
Inlet, culvert rustline	A	0	4	6.48	103.3	96.83	
Inlet, culvert thalweg	A	0	4	7.57	103.3	95.74	
Inlet, culvert invert	A	0	4	7.55	103.3	95.76	
Inlet, culvert top	A	0	3	9.01	108.8	99.77	
Outlet, culvert top	A	0	2	0.88	100.5	99.58	
Outlet, rustline	A	0	2	3.66	100.5	96.8	
Outlet, thalweg	A	0	2	5.48	100.5	94.98	
Outlet, culvert invert	A	0	2	4.91	100.5	95.55	
Outlet, pool maximum depth 1 (within 5 ft)	A	5	2	6.47	100.5	93.99	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 028 **VISIT** 1

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A		0.7	138	40.1	Pygmy	3.33
At Culvert Inlet Invert	A		0.75	126	40.1	Pygmy	3.04

Barrel Velocity(Float Ball)

Culvert ID	Culvert Length	Time 1	Time 2	Time 3	Time 4	Time 5	Mean Velocity
A	61.15	23.44	20.94	21.35	22.45	18.53	2.88 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	49	0.75	53	40.5	Pygmy	1.28
Upstream from Inlet of Culvert, Location 2	96.5	0.5	58	40.5	Pygmy	1.40
Downstream from Outlet of Culvert, Location 1	65	0.5	77	40.1	Pygmy	1.87
Downstream from Outlet of Culvert, Location 2	122	0.6	41	40.2	Pygmy	1.01
Outlet Pool Tailcrest	28.5	0.6	43	40.2	Pygmy	1.05

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 028 **VISIT** 1

02801.jpg

02802.jpg

02803.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 028 **VISIT** 1

02804.jpg

02805.jpg

02806.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 028 **VISIT** 1

02807.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 029 **VISIT** 1

DATE 6/20/2002 **Time** 12:30:00 PM **Observers:** Cecil Rich, Michael Anderson, Joe Buckwalter

Site Information:

GPS Location: **Lat. (dec. deg)** 61.05167 **Long. (dec. deg)** -151.30196

Road Name: **Region:** SCN

Quad Name: Tyonek **ITM:** A-4 **Stream #:**

Legal Desc: S.M.12N11W16 **Data Office:** ANC **Stream Name:** unnamed

Field Notes: Datum = WGS84. 17.9 ft gps accuracy. Culvert separates wetland areas - no channel. Lake DS, pond US.

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

Culvert Measurements:

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

Length: 30 **Cross. Structure Type:** Corrugated Metal Pipe

Entrance Type: Projecting **Tidal Influence:** No

Corrugation Depth (in.): 0.5 **Baffles Present:** No **Culvert Gradient:** 0.017

Corrugation Width (in.): 2.6 **Perch Ht. (Flow - Ind):**

Perch Ht. (Flow -Dep): 0.03

Encrochment Ratio:

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

	Inlet	Outlet
Width (ft):	3.08	2.80
Height (ft):	2.42	3.04
Manuf. Diameter:		
Water Depth (ft):	0.14	0.06
Substr. Dep (ft):		0.00
Struc. Damage (%):	0	0
Culv. Blockage (%):	0	0

Stream-related

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

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

Stream Discharge: **Width (ft)** **Distance (ft)**

Upstrream OHW Width (100 ft.):

Upstrream OHW Width (50 ft.):

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: no fish collected or observed **Life Stage:** Not Applicable **Species/Life Stage Count:** 0 **Life History:** Unknown

Stat. ID: 029U1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 4 **Trap Dur. (h):**

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

Comments:

Species: ninespine stickleback **Life Stage:** Not Recorded **Species/Life Stage Count:** 1 **Life History:** Resident

Stat. ID: 029D1 **Gear:** Minnow Trap, 1/4 in. Mesh **# of Traps set:** 2 **Trap Dur. (h):**

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

Comments:

Longitudinal Section Elevation Common

Station ID	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Inlet, edge-road		1	3.95	100	96.05	
Outlet, edge-road		1	3.72	100	96.28	
Outlet, pool water elev	1	1	7.27	100	92.73	
Outlet, pool OHWS lijne 1 (within 5 ft.)	1	1	6.92	100	93.08	
Outlet, pool maximum depth 2	7.5	1	8.66	100	91.34	

Longitudinal Section Elevation Specific

Station ID	Seq	Dist. from Xing	Inst. No.	FS	HI	Elevation	Field Comments
Upstream station, thalweg 2 (5 ft)	A	5	1	9.14	100	90.86	
Upstream station, OHW line 1 (1 ft)	A	1	1	6.38	100	93.62	
Upstream station, water elev 1 (5 ft)	A	5	1	6.63	100	93.37	
Upstream station, thalweg 1 (1 ft)	A	1	1	6.92	100	93.08	
Inlet, culvert rustline	A	0	1	6.31	100	93.69	
Inlet, culvert thalweg	A	0	1	6.74	100	93.26	
Inlet, culvert top	A	0	1	4.32	100	95.68	
Outlet, culvert top	A	0	1	4.2	100	95.8	

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 029 **VISIT** 1

Outlet, rustline	A	0	1	6.9	100	93.1
Outlet, thalweg	A	0	1	7.36	100	92.64
Outlet, culvert invert	A	0	1	7.24	100	92.76
Outlet, pool maximum depth 1 (within 5 ft)	A	5	1	8.49	100	91.51

Stream Velocity

Stream Locator	Seq	Distance from Culv	Water Depth	Rev. Count	Rev. Time (sec)	Meter Type	Meter Velocity
At Culvert Outlet Invert	A	0	0.06	22	41.6	Pygmy	0.53
At Culvert Inlet Invert	A	0	0.14	0	40	Pygmy	0.00

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 029 **VISIT** 1

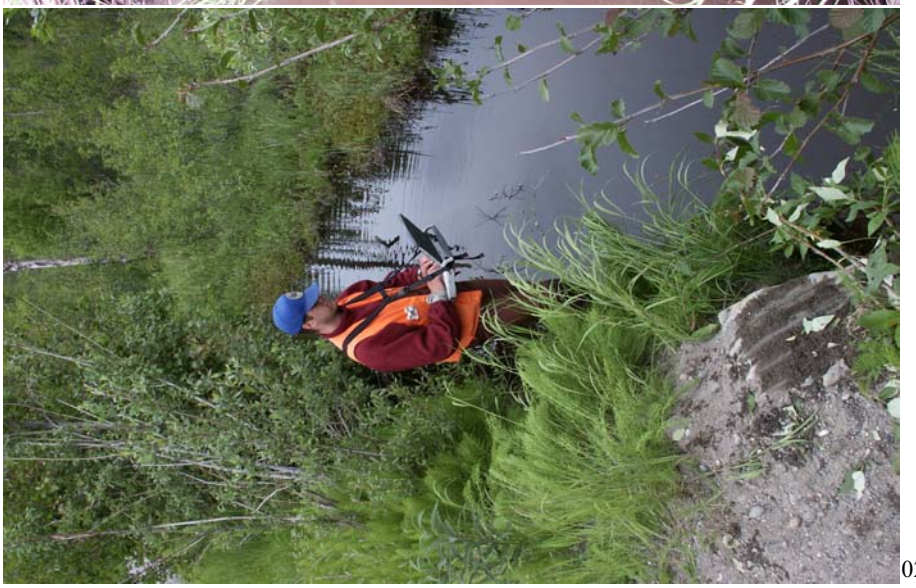
02901.jpg

02902.jpg

02904.jpg

Project Code TYCS1 **Watershed Code** TYW1 **Crossing ID** 029 **VISIT** 1

02905.jpg



02907.jpg