REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION below hwy 3 Bridge	
REACH ID # SG01	RIVER BASIN Scott River	
UTM (us end) N E	TOPOS	
UTM (ds end) N E	STREAM ORDER ELEVATION	
INVESTIGATORS Jeff, Jessica		
FORM COMPLETED BY	DATE _____ TIME _____ PM	ASSOCIATED SITE ID #s

WEATHER CONDITIONS

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
85 % ☑	% cloud cover	☐ ____%
☐	clear/sunny	☑

Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 22 ^{0} C

Other_____

STREAM MORPHOLOGY

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Origin: ☐ Glacial ☐ Spring-fed ☑ Non-glacial montane ☐ Mixture of origins ☐ Swamp and bog ☐ Other_____

Reach Type: ☐ Riffle-Pool ☐ Cascade ☐ Plane-Bed ☑ Riffle- Run ☐ Step-Pool ☐ Bedrock

Rosgen Type C4- riffle run

WATERSHED FEATURES

Predominant Surrounding Landuse: ☑ Forest/Natural ☐ Residential ☐ Field/Pasture ☐ Commercial/Industrial ☐ Agricultural ☐ Other_____

Local Hydrologic Alterations: ☐ No Evidence ☐ Augmentation ☑ Dam/Retention ☐ Channelization ☐ Diversion ☑ Other beavers+ponds

SEDIMENT SOURCES

MANAGEMENT ACTIVITIES (include short description)

Timber Harvesting: ☐ Yes ☑ No _____

Mining (Hardrock / Placer): ☑ Yes ☐ No large scale placer deposits

Grazing and/or Agriculture: ☐ Yes ☑ No _____

Evidence of Fire: ☐ Yes ☑ No _____

EROSIONAL FEATURES

Local Hillslopes: ☑ No Evidence ☐ Minor gullying/rilling ☐ Moderate gullying/rilling ☐ Major gullying/rilling ☐ Mass wasting (slides,debris) ☐ Other_____

Does sediment reach channel directly? ☐ Yes ☑ No

Roads and related features: ☐ No Evidence ☑ Culvert/Bridge ☐ Unpaved ☐ Ditch/Roadcut ☑ Paved ☐ Other hwy 3

Does sediment reach channel directly? ☐ Yes ☑ No

Channel Stability: ☐ Stable ☑ Moderately stable ☐ Unstable ☑ Aggrading ☐ Downcutting ☐ Widening

Is the channel armored? ☐ Yes ☑ No Evidence of bank undercutting? ☑ Yes ☐ No

Percent of streambank with deep binding root mass: ☐ >85% ☐ 85-65% ☑ 65-35% ☐ <35%

DEPOSITIONAL FEATURES

☑ Pool In-filling ☑ Lee (DS) deposits ☑ Channel bars ☑ Floodplain ☑ Terraces ☐ Other human impa

Degree of instream sedimentation: ☐ None ☐ Low ☑ Medium ☐ High

CHANNEL FEATURES

Estimated Reach Length 200 m

Average Stream Width 8 m

Average Stream Depth .5 m

Sampling Reach Area 1600 m^2

Estimated Manning's n _____

Canopy Cover: ☐ Open ☑ Partly shaded ☐ Shaded

Proportion of Reach Represented by Stream Morphology Types

Riffle 35 % Run 65 %

Pool _____ %

Form # D - _____

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION below hwy 3 Bridge

RIPARIAN VEGETATION

Indicate the dominant type and record the dominant species present

☑ Trees ☑ Shrubs ☑ Grasses ☐ Herbaceous

dominant species present willow and alder

Extent of Riparian Buffer Zone	Width of Riparian Buffer Zone	Riparian Vegetation Age
☐ None	☐ < 1 Channel width	☐ Immature (< 5yrs)
☑ Fragmentary	☑ 1-5 Channel widths	☑ Established (5-30 yrs)
☐ Continuous	☐ > 5 Channel widths	☐ Mature/Old Growth (>30 yrs)

Extent of vegetation encroachment into stream channel

☐ None ☐ Minimal ☑ Moderate ☐ Heavy ☐ Extreme

LARGE WOODY DEBRIS

☐ Not Present ☑ Present in Cutbank ☐ Present in Channel

Density of LWD _____ m^2/km^2 (area of LWD/ reach area)

AQUATIC VEGETATION

Indicate the dominant type

☑ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating

☐ Floating Algae ☑ Attached Algae

Portion of the reach with aquatic vegetation _____%

WATER QUALITY

Temperature 11.8 ^{0}C

Specific Conductance 36

Dissolved Oxygen N/A

pH 7.33

Turbidity 18ppm

Water Odors

☑ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other_____

Water Surface Oils

☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other_____

Turbidity (visual)

☑ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other_____

DISCHARGE

Velocity-Area Method

Distance from water's edge (m)	Depth (m)	Velocity (m/s)	Discharge (cms)	Notes
1.2	.205	.1	.0125	
1.7	.230	.2	.023	
2.2	.255	.3	.03825	
2.7	.310	.3	.0465	
3.2	.330	.4	.066	
3.7	.385	.7	.13475	
4.2	.440	.9	.198	
4.7	.470	.7	.1645	
5.2	.490	.8	.196	
5.7	.495	.4	.099	
6.2	.390	.3	.0585	
6.7	.315	.1	.0157	
7.2	.210	.1	.0105	

Total Discharge (cms) 1.061

Float Method

	Width (m)	Avg Depth (m)	Float Distance (m)	Time (s)	Discharge (cms)
XS 1	7.5	.4	7.5	8.8	2.35
XS 2				9.85	

Estimated Discharge (cms) _____

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS

STREAM NAME Sugar Creek	LOCATION below hwy 3 bridge	
STATION # _ REACH ID# SG01	STREAM CLASS	
UTM N _ UTM E _	RIVER BASIN Scott River	
STORET #	AGENCY	
INVESTIGATORS EK Anderson, M Clifford, J Dyke, J Sanchez		
FORM COMPLETED BY EKA, MC	DATE 6/19/03 TIME 10:15 AM	REASON FOR SURVEY

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 18	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 18	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS

Parameters to be evaluated broader than sampling reach

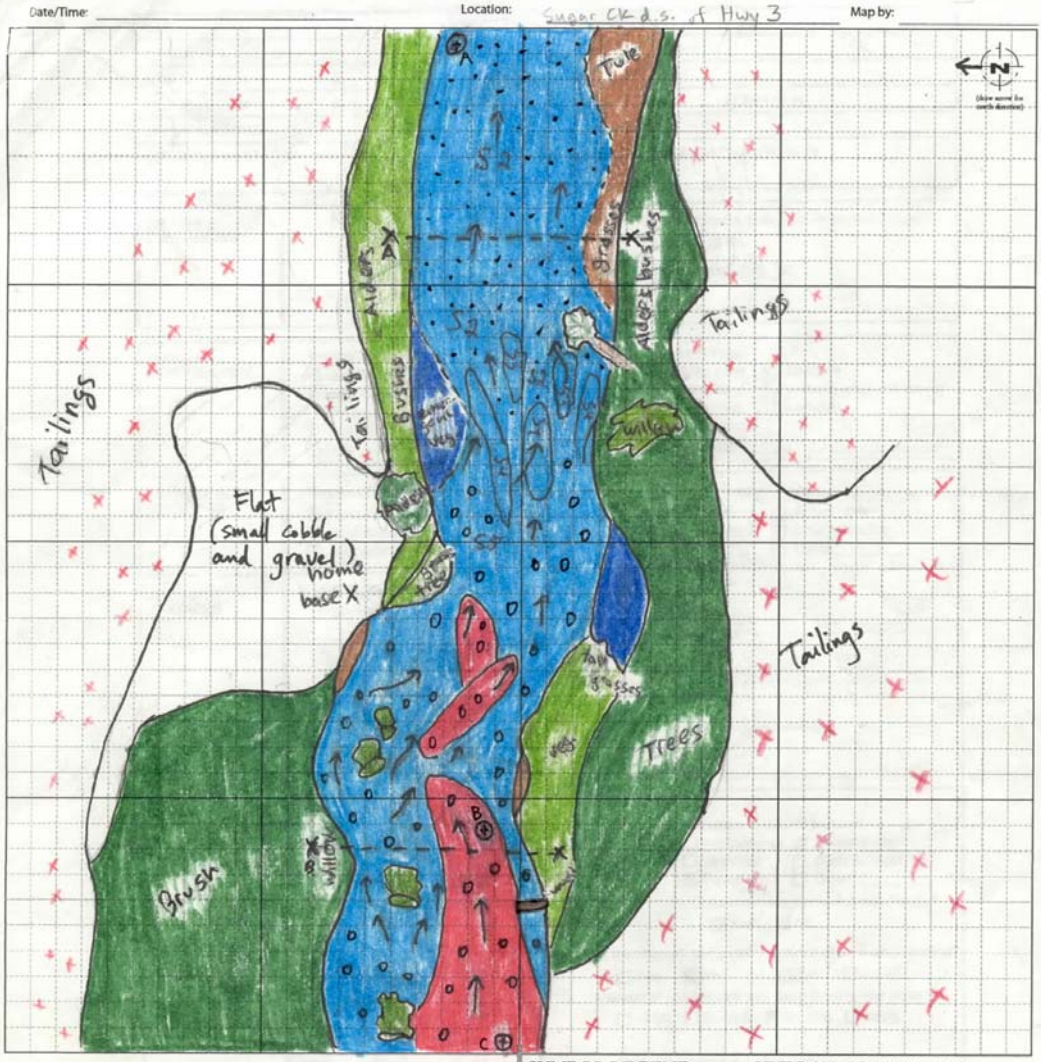
Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 13	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 9	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 9 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 8 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 6 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 4 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 6 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 124

Stream Assessment Field Sketch Form

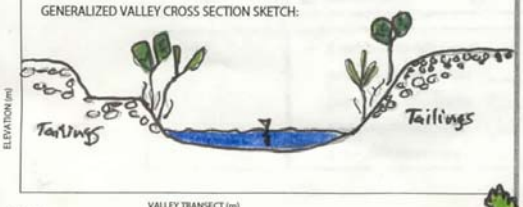
River/Stream: Sugar Creek Reach ID: SG01

Date/Time: Location: Sugar Ck d.s. of Hwy 3 Map by:



Map Scale (if applicable): 1 [ ] = NTS

GENERALIZED VALLEY CROSS SECTION SKETCH:



XA

SYMBOL LEGEND:

- Geomorphic Unit Boundary
- Flow Direction
- UTM Coordinate Location: RS-1
- Fish Sampling Location & ID: F1
- Invertebrate Sampling Location & ID: I1
- Cross-section Location: x—x

HYDRAULIC UNIT KEY:

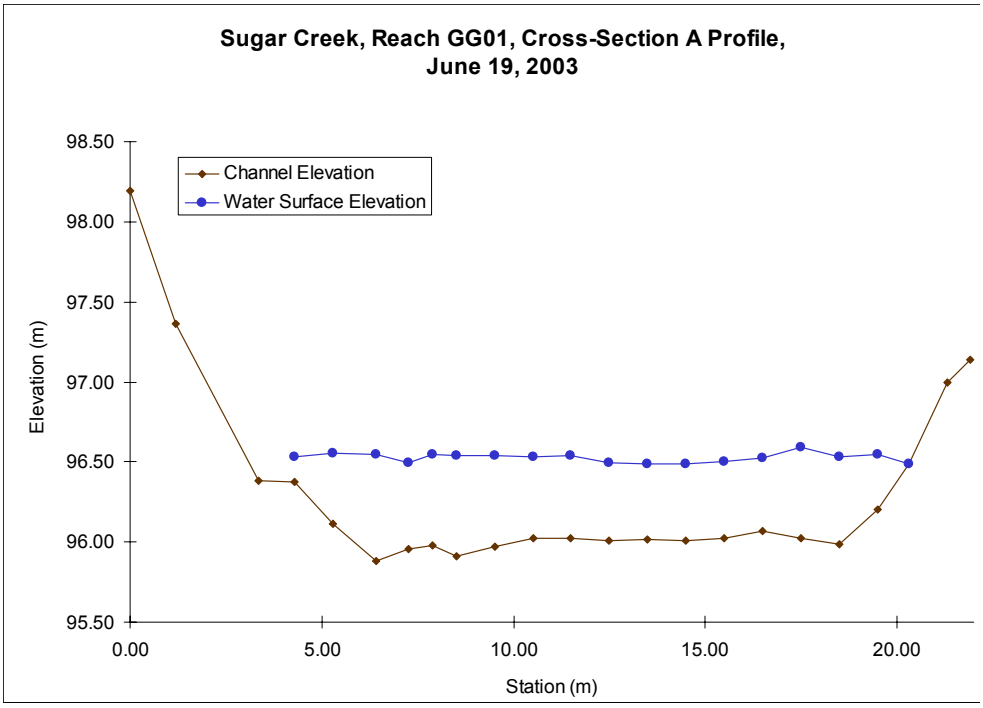
Flow Types:

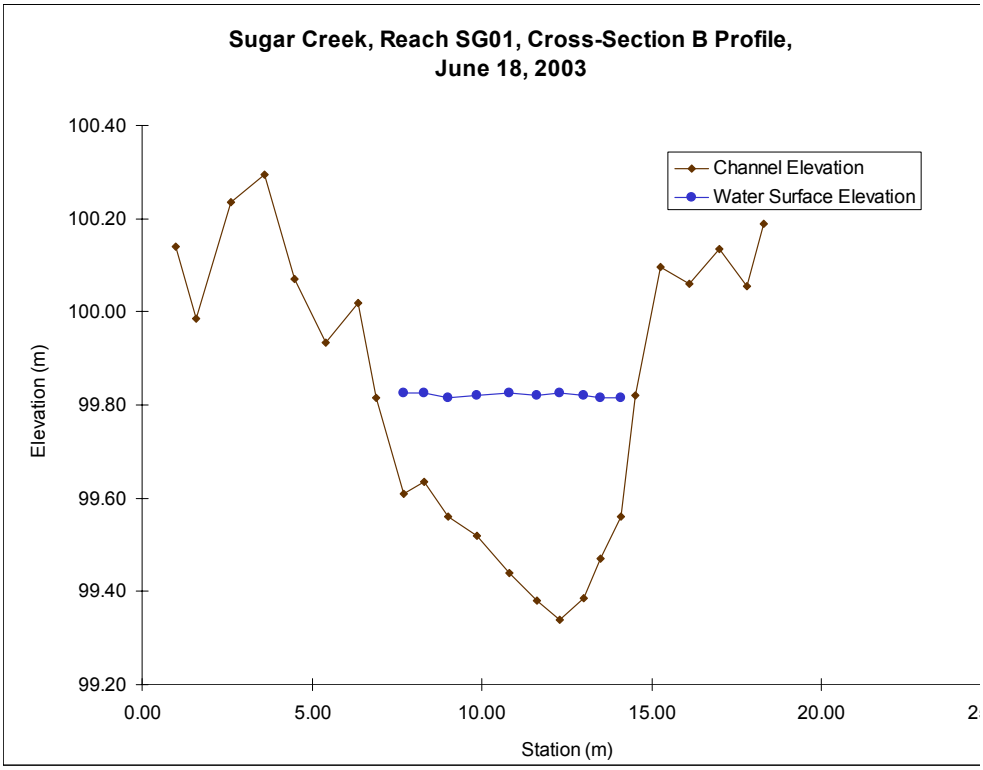
- [ ] H9 Free Fall
- [ ] H8 Chute
- [ ] H7 Broken standing waves
- [ ] H6 Unbroken standing waves
- [ ] H5 Rippled
- [ ] H4 Upwelling
- [ ] H3 Smooth surface flow
- [ ] H2 Scarcely perceptible flow
- [ ] H1 Standing water

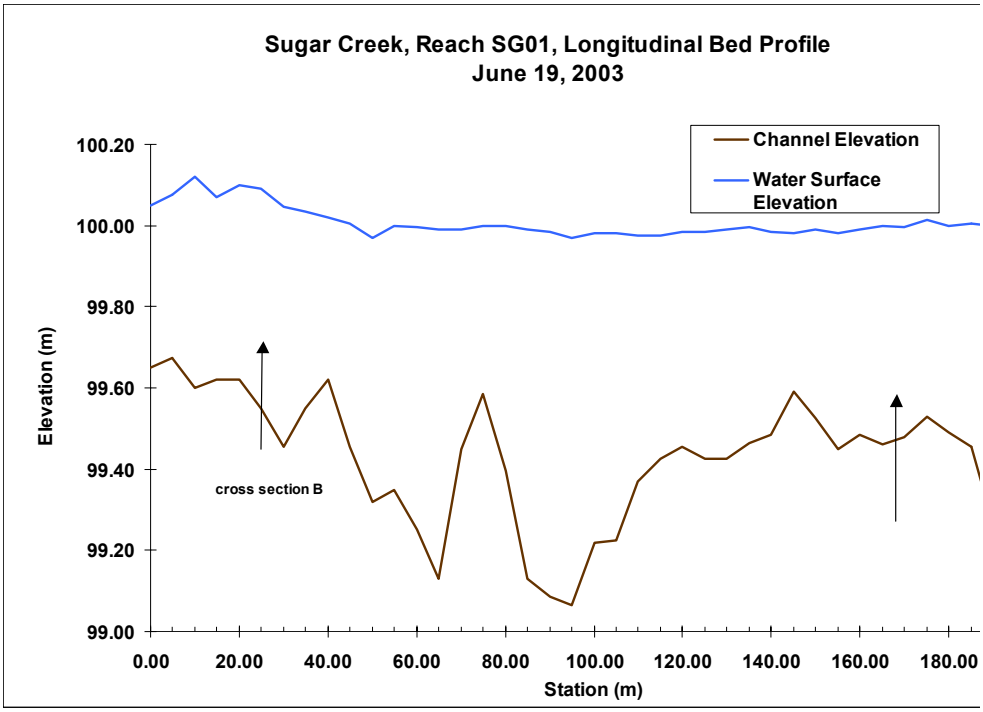
Substrate Categories:

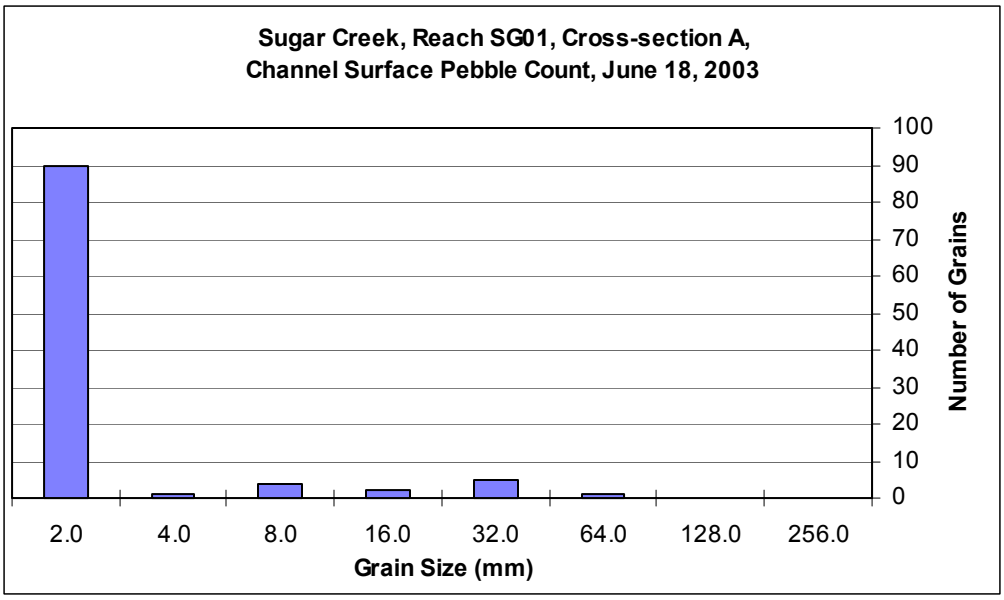
- [ ] S1 Silt
- [ ] S2 Sand
- [ ] S3 Gravel
- [ ] S4 Cobble Sm.
- [ ] S5 Cobble Lg.
- [ ] S6 Boulder Sm.
- [ ] S7 Boulder Lg.
- [ ] S8 Bimodal

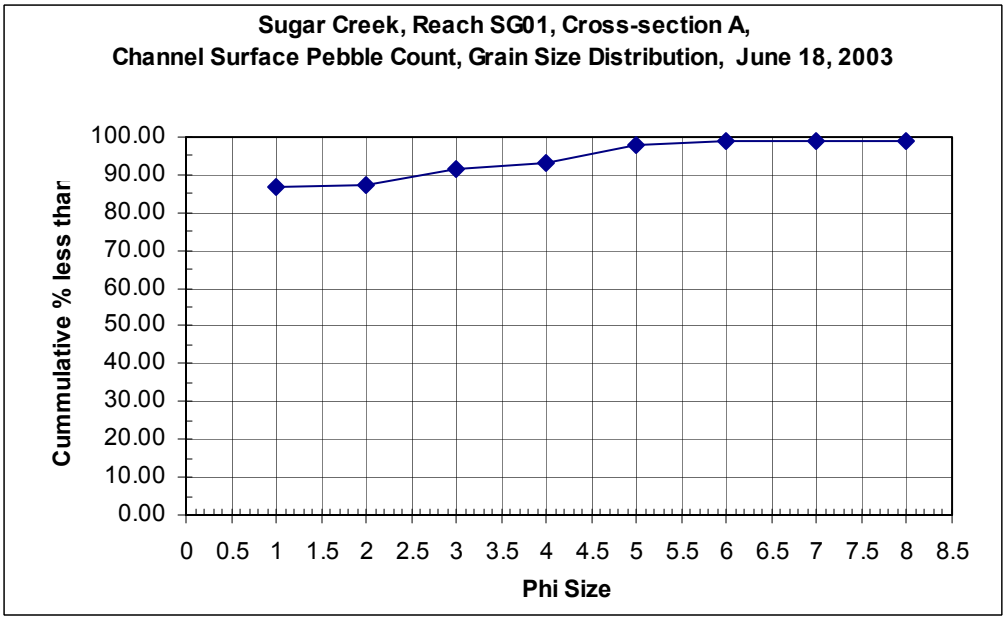
Form # C - _____

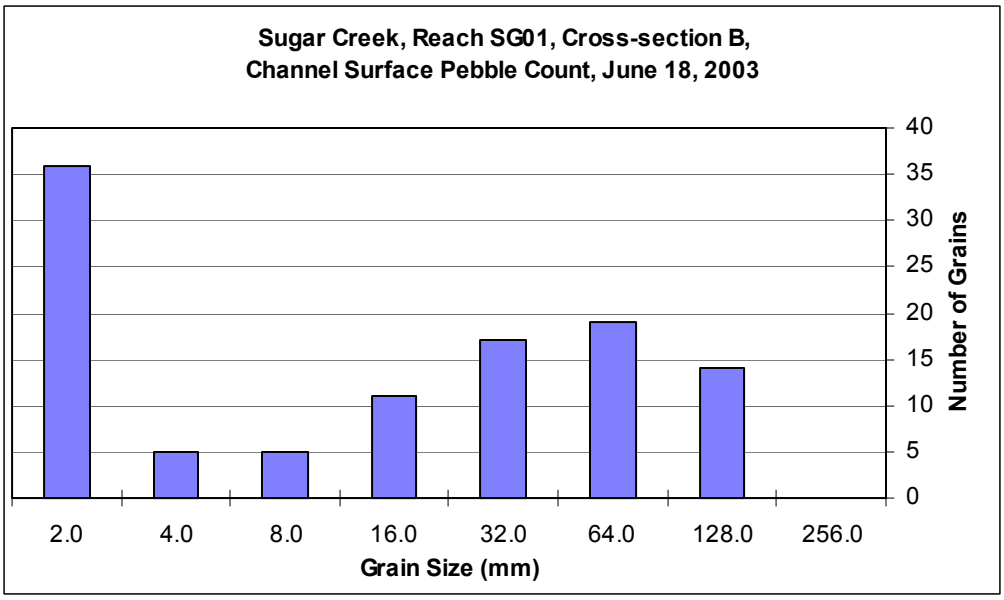

Sugar Creek, Reach GG01, Cross-Section A Profile,
June 19, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
98.50
98.00
97.50
97.00
96.50
96.00
95.50
0.00
5.00
10.00
15.00
20.00
Station (m)

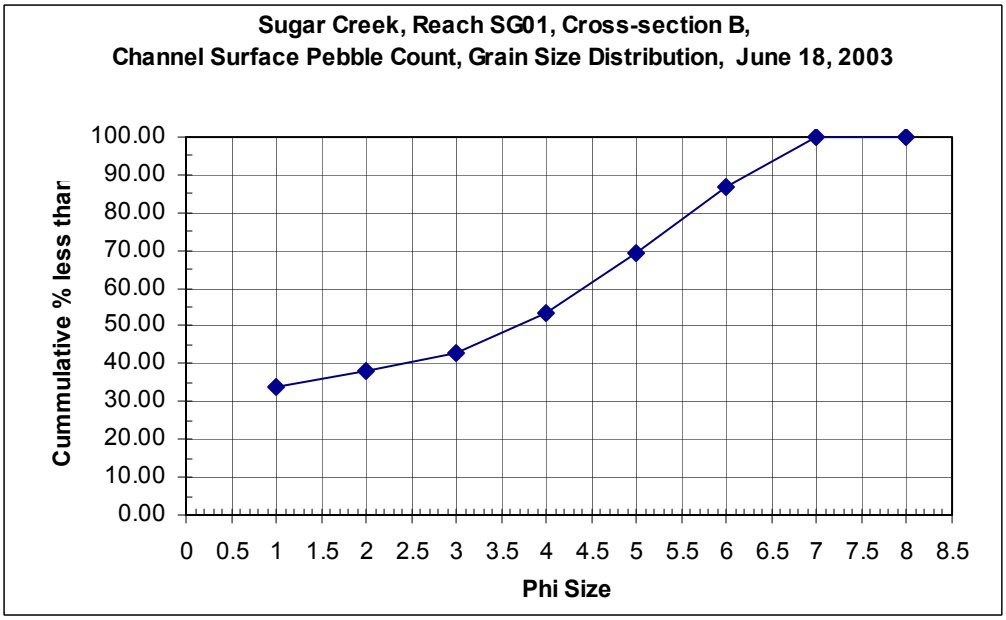

Sugar Creek, Reach SG01, Cross-Section B Profile,
June 18, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
100.40
100.20
100.00
99.80
99.60
99.40
99.20
0.00
5.00
10.00
15.00
20.00
Station (m)


Sugar Creek, Reach SG01, Longitudinal Bed Profile
June 19, 2003
Channel Elevation
Water Surface Elevation
100.20
100.00
99.80
99.60
99.40
99.20
99.00
Elevation (m)
cross section B
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
Station (m)


Sugar Creek, Reach SG01, Cross-section A,
Channel Surface Pebble Count, June 18, 2003
100
90
80
70
60
50
40
30
20
10
0
Number of Grains
2.0
4.0
8.0
16.0
32.0
64.0
128.0
256.0
Grain Size (mm)


Sugar Creek, Reach SG01, Cross-section A,
Channel Surface Pebble Count, Grain Size Distribution, June 18, 2003
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Cummulative % less thar
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
Phi Size


Sugar Creek, Reach SG01, Cross-section B,
Channel Surface Pebble Count, June 18, 2003
40
35
30
25
20
15
10
5
0
Number of Grains
2.0
4.0
8.0
16.0
32.0
64.0
128.0
256.0
Grain Size (mm)


Sugar Creek, Reach SG01, Cross-section B,
Channel Surface Pebble Count, Grain Size Distribution, June 18, 2003
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Cummulative % less thar
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
Phi Size

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION ds of Marx bridge	
REACH ID # SG02	RIVER BASIN Scott River	
UTM (us end) N E	TOPOS	
UTM (ds end) N E	STREAM ORDER ELEVATION	
INVESTIGATORS Anderson, Clifford, Dyke, Sanchez		
FORM COMPLETED BY Clifford, Anderson	DATE 6/19/03 TIME 2:15 PM	ASSOCIATED SITE ID #s

WEATHER CONDITIONS

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
85 % ☐	% cloud cover	☑ 30 %
☑	clear/sunny	☐

Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 28 °C

Other _____

STREAM MORPHOLOGY

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Origin: ☐ Glacial ☐ Spring-fed ☑ Non-glacial montane ☐ Mixture of origins ☐ Swamp and bog ☐ Other _____

Reach Type: ☐ Riffle-Pool ☐ Cascade ☐ Plane-Bed ☑ Riffle- Run ☐ Step-Pool ☐ Bedrock

Rosgen Type _____

WATERSHED FEATURES

Predominant Surrounding Landuse: ☑ Forest/Natural ☐ Residential ☑ Field/Pasture ☐ Commercial/Industrial ☐ Agricultural ☐ Other _____

Local Hydrologic Alterations: ☑ No Evidence ☐ Augmentation ☐ Dam/Retention ☐ Channelization ☐ Diversion ☐ Other beavers+ponds

SEDIMENT SOURCES

MANAGEMENT ACTIVITIES (include short description)

Timber Harvesting: ☐ Yes ☑ No _____

Mining (Hardrock / Placer): ☐ Yes ☑ No large scale placer deposits

Grazing and/or Agriculture: ☑ Yes ☐ No pastures

Evidence of Fire: ☐ Yes ☑ No _____

EROSIONAL FEATURES

Local Hillslopes: ☑ No Evidence ☐ Minor gullying/rilling ☐ Moderate gullying/rilling ☐ Major gullying/rilling ☐ Mass wasting (slides,debris) ☐ Other _____

Does sediment reach channel directly? ☐ Yes ☑ No

Roads and related features: ☐ No Evidence ☑ Unpaved ☐ Paved ☑ Culvert/Bridge ☐ Ditch/Roadcut ☐ Other hwy 3

Does sediment reach channel directly? ☑ Yes ☐ No

Channel Stability: ☑ Stable ☐ Moderately stable ☐ Unstable ☐ Aggrading ☐ Downcutting ☐ Widening

Is the channel armored? ☐ Yes ☑ No Evidence of bank undercutting? ☑ Yes ☐ No

Percent of streambank with deep binding root mass: ☐ >85% ☑ 85-65% ☐ 65-35% ☐ <35%

DEPOSITIONAL FEATURES

☐ Pool In-filling ☐ Lee (DS) deposits ☐ Channel bars ☑ Floodplain ☑ Terraces ☐ Other human impa

Degree of instream sedimentation: ☐ None ☐ Low ☐ Medium ☑ High

CHANNEL FEATURES

Estimated Reach Length 120 m

Average Stream Width 6.0 m

Average Stream Depth .25 m

Sampling Reach Area 720 m^2

Estimated Manning's n _____

Canopy Cover: ☐ Open ☐ Partly shaded ☑ Shaded

Proportion of Reach Represented by Stream Morphology Types

Riffle 35 % Run 50 %

Pool <5 %

Form # D - _____

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION ds of Marx bridge

RIPARIAN VEGETATION

Indicate the dominant type and record the dominant species present

☑ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous

dominant species present alder, cottonwoon, willow

Extent of Riparian Buffer Zone	Width of Riparian Buffer Zone	Riparian Vegetation Age
☐ None	☐ < 1 Channel width	☐ Immature (< 5yrs)
☐ Fragmentary	☐ 1-5 Channel widths	☑ Established (5-30 yrs)
☑ Continuous	☑ > 5 Channel widths	☐ Mature/Old Growth (>30 yrs)

Extent of vegetation encroachment into stream channel

☐ None ☐ Minimal ☑ Moderate ☐ Heavy ☐ Extreme

LARGE WOODY DEBRIS

☐ Not Present ☑ Present in Cutbank ☐ Present in Channel

Density of LWD <5% m^2/km^2 (area of LWD/ reach area)

AQUATIC VEGETATION

Indicate the dominant type

☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating

☐ Floating Algae ☑ Attached Algae

Portion of the reach with aquatic vegetation 20 %

WATER QUALITY

Temperature 12.2 ^{0}C

Specific Conductance 39us

Dissolved Oxygen N/A

pH 7.33

Turbidity 20ppm

Water Odors

☑ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils

☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Turbidity (visual)

☑ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other

DISCHARGE

Velocity-Area Method

Distance from water's edge (m)	Depth (m)	Velocity (m/s)	Discharge (cms)	Notes
1	.155	.3	.023	
1.5	.205	.4	.041	
2	.24	.8	.096	
2.5	.35	.6	.105	
3	.36	.4	.072	
3.5	.39	.7	.137	
4	.405	.6	.122	
4.5	.355	.6	.107	
5	.355	.6	.107	
5.5	.29	.3	.044	
6.2	.390	.3	.0585	
6.7	.315	.1	.0157	
7.2	.210	.1	.0105	

Total Discharge (cms) .845

Float Method

	Width (m)	Avg Depth (m)	Float Distance (m)	Time (s)	Discharge (cms)
XS 1	5.5	.25	7.5	7.6,7.08	2.35
XS 2				6.79	

Estimated Discharge (cms) _____

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS

STREAM NAME Sugar Creek	LOCATION below private bridge	
STATION # _ REACH ID# SG02	STREAM CLASS	
UTM N_ UTM E_	RIVER BASIN Scott River	
STORET #	AGENCY	
INVESTIGATORS EK Anderson, M Clifford, J Dyke, J Sanchez		
FORM COMPLETED BY EKA, MC	DATE 6/19/03 TIME 2:15 PM	REASON FOR SURVEY

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 12	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 13	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 18	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 10 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 7 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 155

Stream Assessment Field Sketch Form

River/Stream: Sugar Creek Reach ID: SG02

Date/Time: 16:00 June 19 '03 Location: Siskiyou County, CA Map by: EA

Map Scale (if applicable): 1 [ ] = _____

GENERALIZED VALLEY CROSS SECTION SKETCH:

ELEVATION (m)

VALLEY TRANSECT (m)

SYMBOL LEGEND:

- Geomorphic Unit Boundary
- Flow Direction
- UTM Coordinate Location: RS-1
- Fish Sampling Location & ID: F1
- Invertebrate Sampling Location & ID: I1
- Cross-section Location: X
- Undercut bank

HYDRAULIC UNIT KEY:

Flow Types:

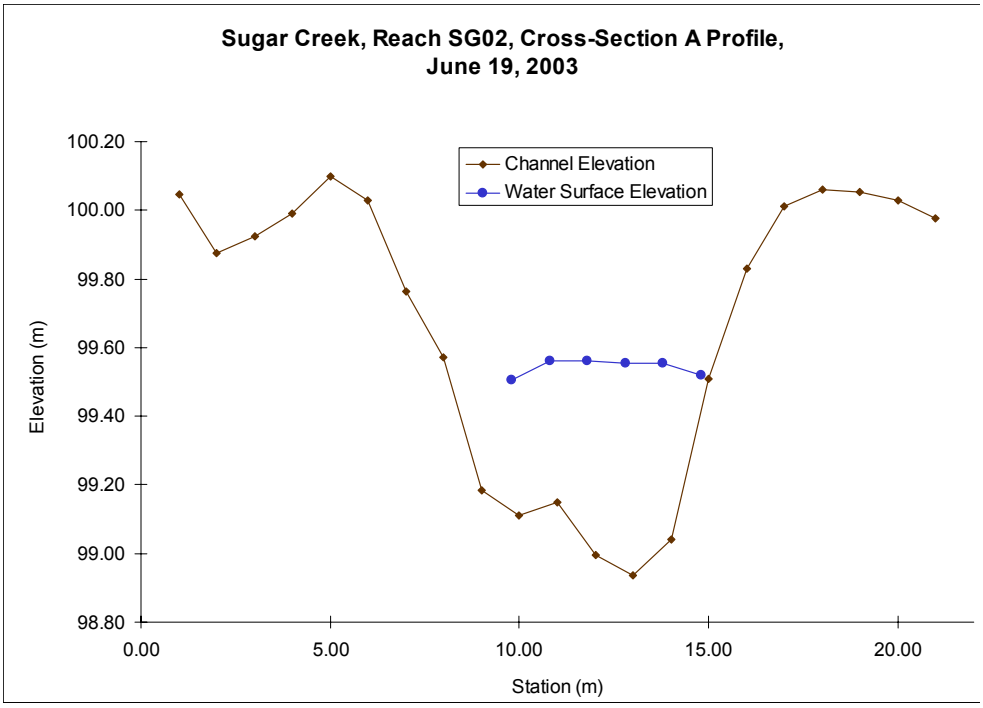
- H9 Free Fall
- H8 Chute
- H7 Broken standing waves
- H6 Unbroken standing waves
- H5 Rippled
- H4 Upwelling
- H3 Smooth surface flow
- H2 Scarcely perceptible flow
- H1 Standing water

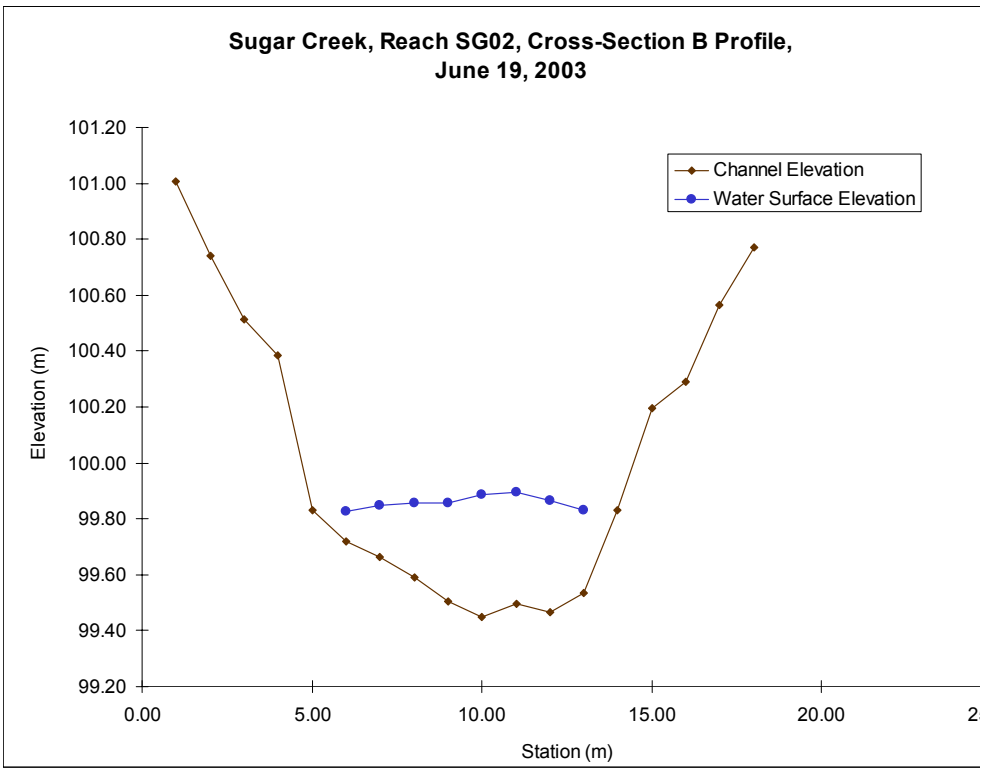
Substrate Categories:

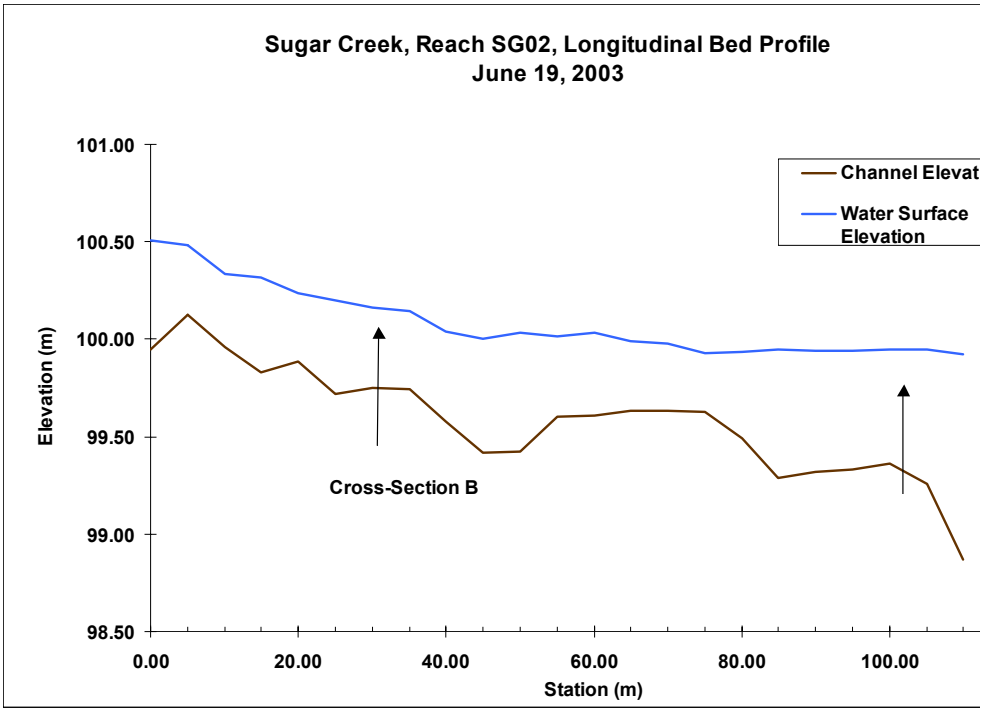
- S1 Silt
- S2 Sand
- S3 Gravel
- S4 Cobble Sm
- S5 Cobble
- S6 Bou
- S7
- S8
- S9

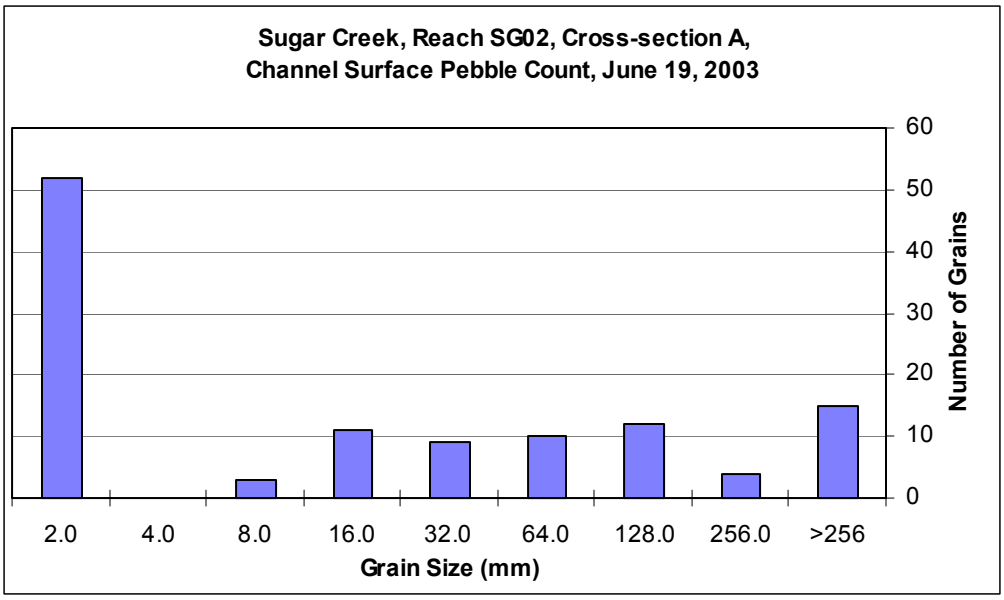
P = Pine W = Willow
C = Cottonwood A = Alder

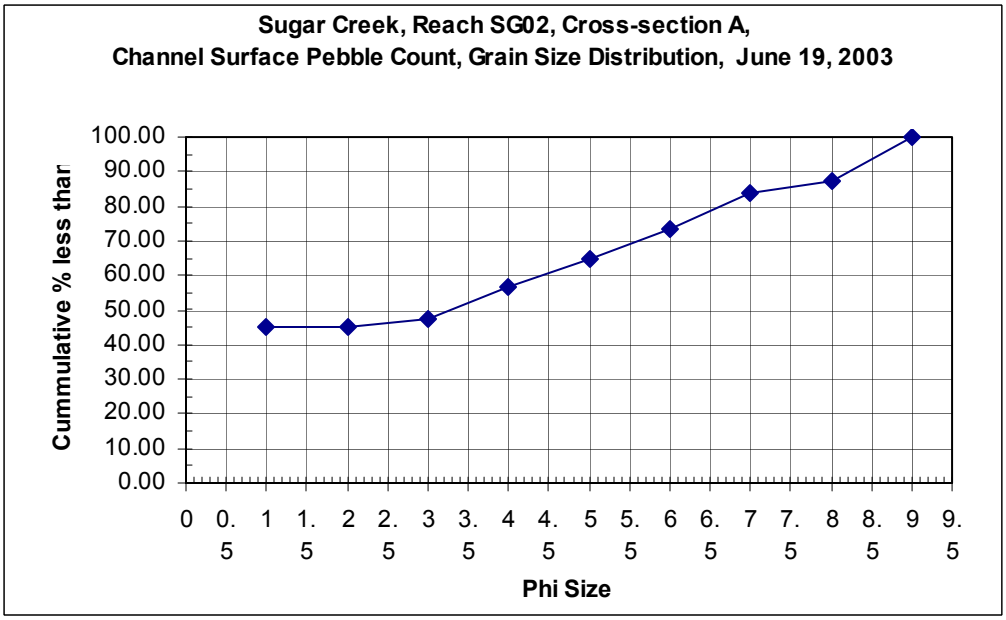
Form #

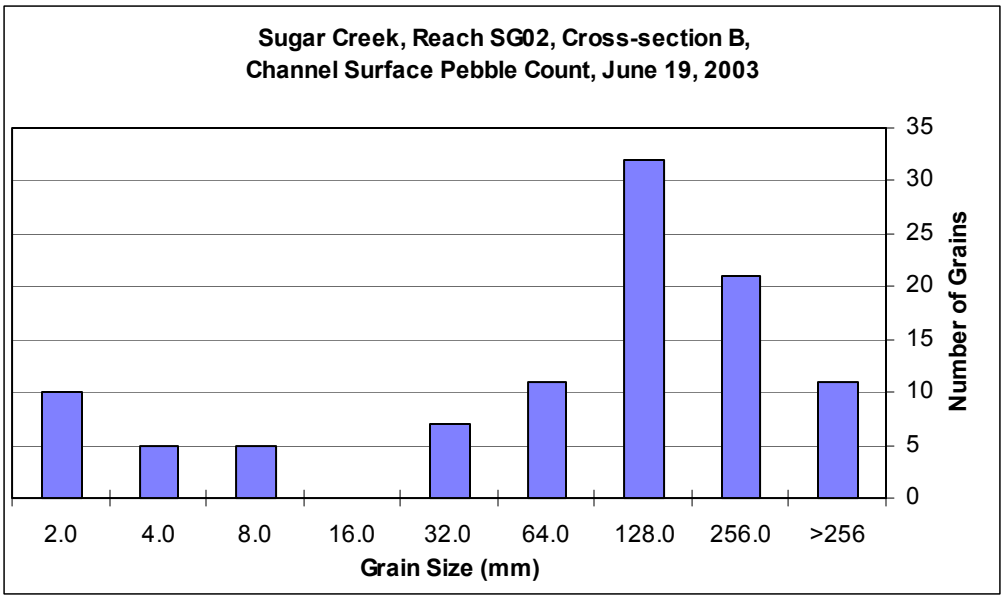

Sugar Creek, Reach SG02, Cross-Section A Profile,
June 19, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
100.20
100.00
99.80
99.60
99.40
99.20
99.00
98.80
0.00
5.00
10.00
15.00
20.00
Station (m)

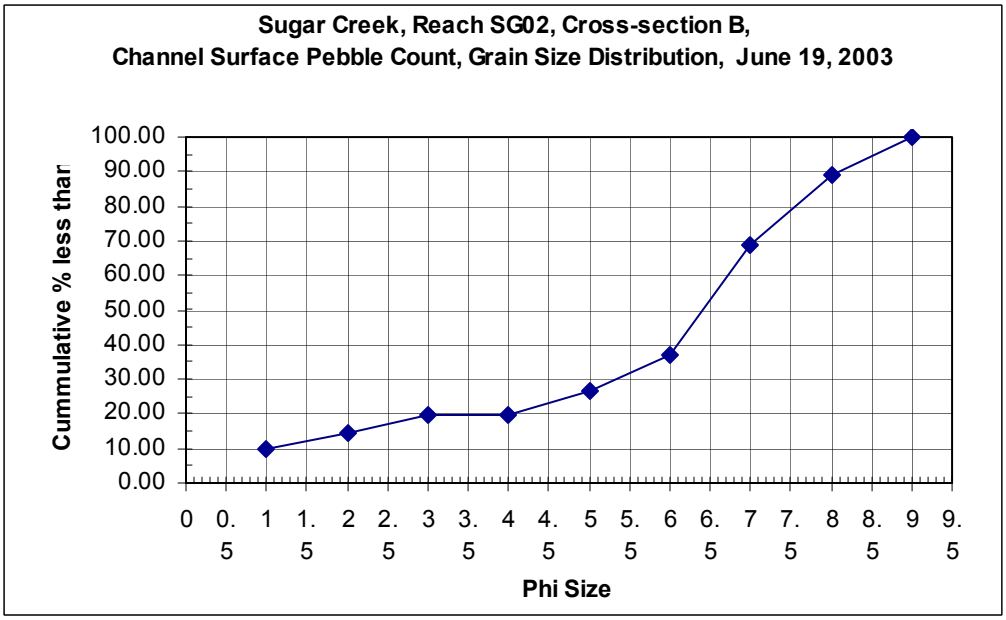

Sugar Creek, Reach SG02, Cross-Section B Profile,
June 19, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
101.20
101.00
100.80
100.60
100.40
100.20
100.00
99.80
99.60
99.40
99.20
0.00
5.00
10.00
15.00
20.00
Station (m)


Sugar Creek, Reach SG02, Longitudinal Bed Profile
June 19, 2003
101.00
100.50
100.00
99.50
99.00
98.50
Elevation (m)
0.00
20.00
40.00
60.00
80.00
100.00
Station (m)
Channel Elevat
Water Surface Elevation
Cross-Section B


Sugar Creek, Reach SG02, Cross-section A,
Channel Surface Pebble Count, June 19, 2003
60
50
40
30
20
10
0
Number of Grains
2.0
4.0
8.0
16.0
32.0
64.0
128.0
256.0
>256
Grain Size (mm)


Sugar Creek, Reach SG02, Cross-section A,
Channel Surface Pebble Count, Grain Size Distribution, June 19, 2003
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Cummulative % less thar
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Phi Size


Sugar Creek, Reach SG02, Cross-section B,
Channel Surface Pebble Count, June 19, 2003
35
30
25
20
15
10
5
0
Number of Grains
2.0
4.0
8.0
16.0
32.0
64.0
128.0
256.0
>256
Grain Size (mm)


Sugar Creek, Reach SG02, Cross-section B,
Channel Surface Pebble Count, Grain Size Distribution, June 19, 2003
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Cummulative % less thar
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Phi Size

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION just below timber co. land	
REACH ID # SG03	RIVER BASIN Scott River	
UTM (us end) N E	TOPOS	
UTM (ds end) N E	STREAM ORDER ELEVATION	
INVESTIGATORS Team Juicy		
FORM COMPLETED BY E. K. Anderson	DATE 6/22/03 TIME 9:00 AM	ASSOCIATED SITE ID #s

WEATHER CONDITIONS

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
70 % ☑	% cloud cover	☑ 70 %
☐	clear/sunny	☐

Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 23 ^{0}C

Other _____

STREAM MORPHOLOGY

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Origin: ☐ Glacial ☐ Spring-fed ☑ Non-glacial montane ☐ Mixture of origins ☐ Swamp and bog ☐ Other _____

Reach Type: ☐ Riffle-Pool ☐ Cascade ☐ Plane-Bed ☑ Riffle- Run ☐ Step-Pool ☐ Bedrock

Rosgen Type _____

WATERSHED FEATURES

Predominant Surrounding Landuse: ☑ Forest/Natural ☐ Residential ☐ Field/Pasture ☐ Commercial/Industrial ☐ Agricultural ☑ Other timber harvestin

Local Hydrologic Alterations: ☑ No Evidence ☐ Augmentation ☐ Dam/Retention ☐ Channelization ☐ Diversion ☐ Other beavers+ponds

SEDIMENT SOURCES

MANAGEMENT ACTIVITIES (include short description)

Timber Harvesting: ☑ Yes ☐ No upper part of reach butts up to private timber company land

Mining (Hardrock / Placer): ☑ Yes ☐ No Dredge tailings on terrace on river left

Grazing and/or Agriculture: ☐ Yes ☑ No _____

Evidence of Fire: ☐ Yes ☑ No _____

EROSIONAL FEATURES

Local Hillslopes: ☐ No Evidence ☑ Minor gullying/rilling ☐ Moderate gullying/rilling ☐ Major gullying/rilling ☐ Mass wasting (slides,debris) ☐ Other _____

Does sediment reach channel directly? ☑ Yes ☐ No

Roads and related features: ☐ No Evidence ☐ Unpaved ☑ Paved ☐ Culvert/Bridge ☐ Ditch/Roadcut ☐ Other hwy 3

Does sediment reach channel directly? ☐ Yes ☑ No

Channel Stability: ☑ Stable ☐ Moderately stable ☐ Unstable ☐ Aggrading ☐ Downcutting ☐ Widening

Is the channel armored? ☐ Yes ☑ No Evidence of bank undercutting? ☐ Yes ☑ No

Percent of streambank with deep binding root mass: ☐ >85% ☐ 85-65% ☑ 65-35% ☐ <35%

DEPOSITIONAL FEATURES

☑ Pool In-filling ☐ Lee (DS) deposits ☐ Channel bars ☑ Floodplain ☑ Terraces ☐ Other human impa

Degree of instream sedimentation: ☐ None ☐ Low ☑ Medium ☐ High

CHANNEL FEATURES

Estimated Reach Length 160 m

Average Stream Width 8 m

Average Stream Depth .75 m

Sampling Reach Area 1280 m^2

Estimated Manning's n _____

Canopy Cover: ☐ Open ☐ Partly shaded ☑ Shaded

Proportion of Reach Represented by Stream Morphology Types

Riffle 70 % Run 25 %

Pool >5 %

Form # D - _____

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION just below timber co. land

RIPARIAN VEGETATION

Indicate the dominant type and record the dominant species present

☑ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous

dominant species present cottonwood and red alder

Extent of Riparian Buffer Zone	Width of Riparian Buffer Zone	Riparian Vegetation Age
☐ None	☐ < 1 Channel width	☐ Immature (< 5yrs)
☐ Fragmentary	☑ 1-5 Channel widths	☑ Established (5-30 yrs)
☑ Continuous	☐ > 5 Channel widths	☐ Mature/Old Growth (>30 yrs)

Extent of vegetation encroachment into stream channel

☐ None ☑ Minimal ☐ Moderate ☐ Heavy ☐ Extreme

LARGE WOODY DEBRIS

☐ Not Present ☑ Present in Cutbank ☐ Present in Channel

Density of LWD <5 m^2/km^2 (area of LWD/ reach area)

AQUATIC VEGETATION

Indicate the dominant type

☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating

☐ Floating Algae ☐ Attached Algae

Portion of the reach with aquatic vegetation 30 %

WATER QUALITY

Temperature 12.1 ^{0}C

Specific Conductance 52 us

Dissolved Oxygen N/A

pH 7.32

Turbidity 26 ppr

Water Odors

☑ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils

☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Turbidity (visual)

☑ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other

DISCHARGE

Velocity-Area Method

Distance from water's edge (m)	Depth (m)	Velocity (m/s)	Discharge (cms)	Notes
2.8	.018	0	0	
3.3	.012	.1	.0006	
3.8	.23	.4	.046	
4.3	.23	.4	.056	
4.8	.37	.3	.0555	
5.3	.42	.4	.084	
5.8	.49	.4	.098	
6.8	.47	.2	.047	
7.3	.33	.3	.0495	
7.8	.37	.3	.0555	
8.3	.37	.3	.0555	
8.8	.42	.3	.063	
9.3	.33	.1	.0165	
9.8	.27	.0	0	
10.3	.025	0	0	

Total Discharge (cms) .6271

Float Method

	Width (m)	Avg Depth (m)	Float Distance (m)	Time (s)	Discharge (cms)
XS 1				8.8	2.35
XS 2				9.85	

Estimated Discharge (cms) _____

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS

STREAM NAME Sugar Creek	LOCATION below fruit growers property	
STATION # _ REACH ID# SG03	STREAM CLASS	
UTM N_ UTM E_	RIVER BASIN Scott River	
STORET #	AGENCY	
INVESTIGATORS EK Anderson, M Clifford, J Dyke, J Sanchez		
FORM COMPLETED BY EKA, JD	DATE 6/20/03 TIME 3:40 PM	REASON FOR SURVEY

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 13	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 14	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 19	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 10 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 4 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 5 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 156

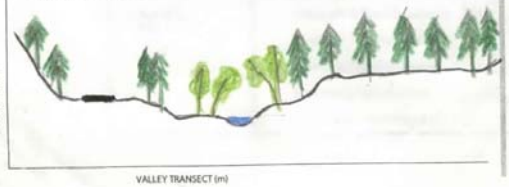
Stream Assessment Field Sketch Form

River/Stream: Sugar Creek Reach ID: SG 03

Date/Time: 6/22/03 Location: 03 - just below Timber Co. land Map by: EK Anderson

Map Scale (if applicable): 1 = _____

GENERALIZED VALLEY CROSS SECTION SKETCH:



SYMBOL LEGEND:

- Geomorphic Unit Boundary
- Flow Direction
- UTM Coordinate Location: RS-1
- Fish Sampling Location & ID: F1
- Invertebrate Sampling Location & ID: I1
- Cross-section Location: undercut bank
- LWD

HYDRAULIC UNIT KEY:

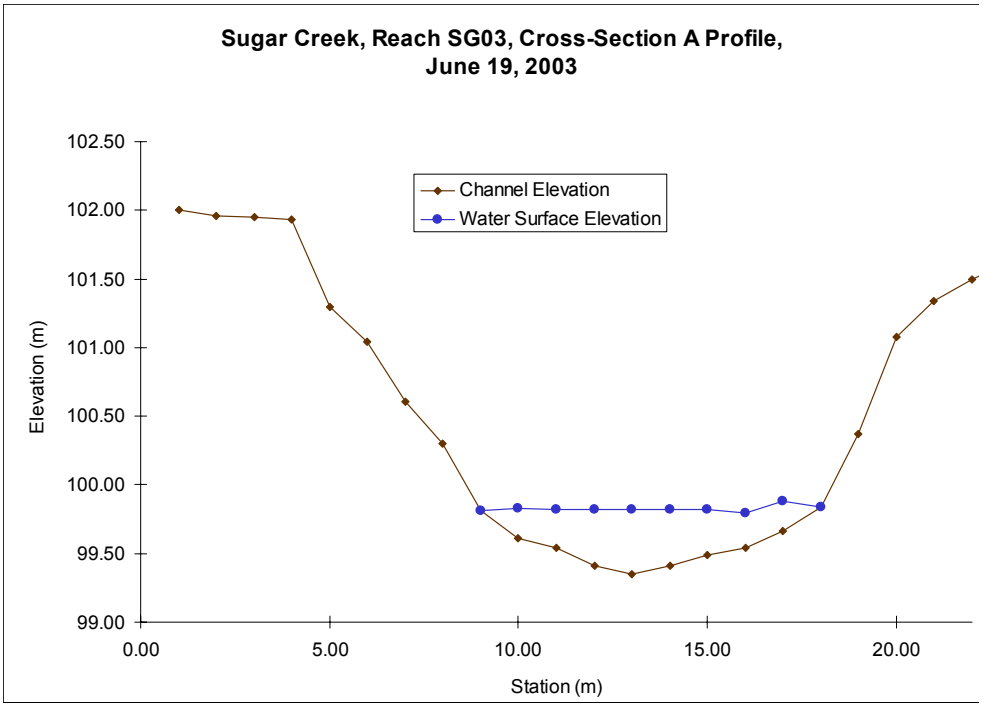
Flow Types:

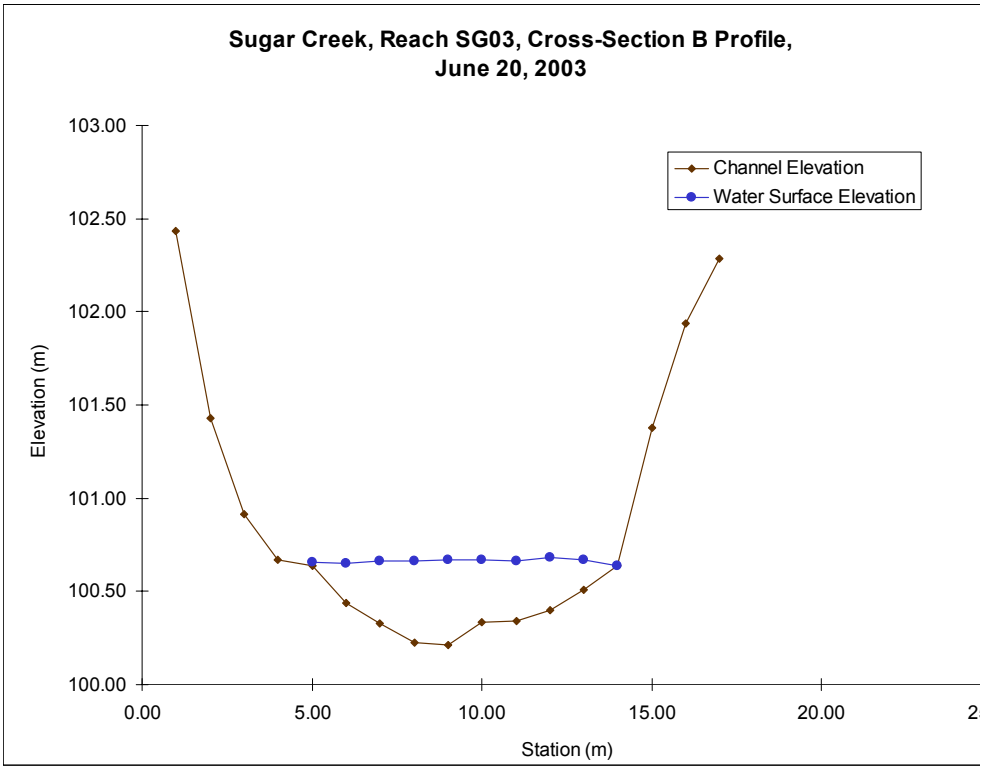
- H9 Free Fall
- H8 Chute
- H7 Broken standing waves
- H6 Unbroken standing waves
- H5 Rippled
- H4 Upwelling
- H3 Smooth surface flow
- H2 Scarcely perceptible flow
- H1 Standing water

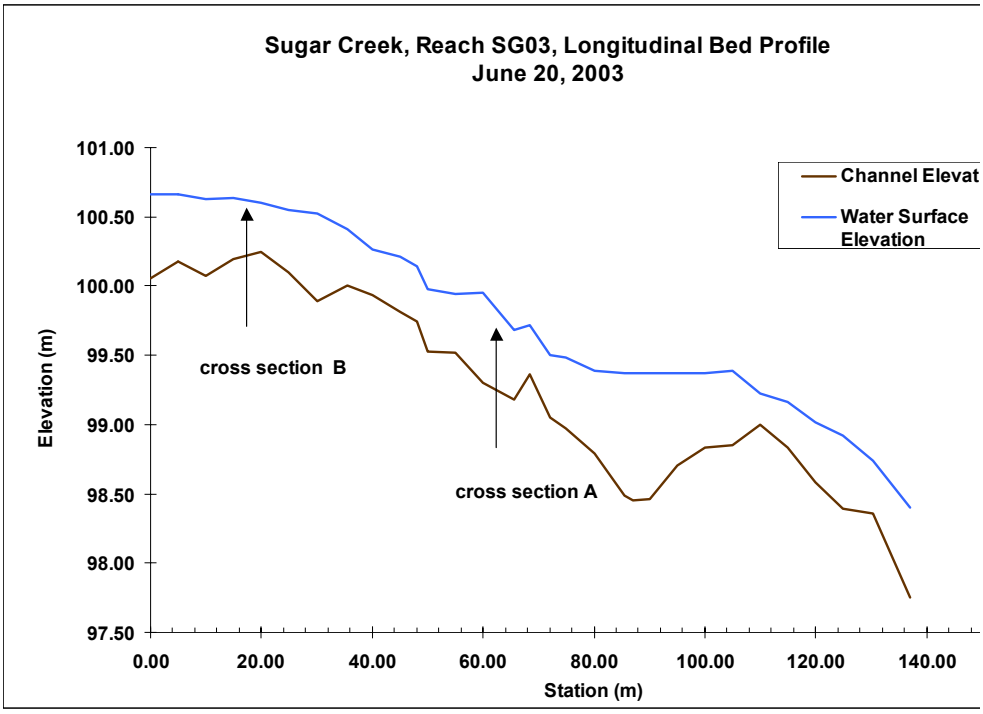
Substrate Categories:

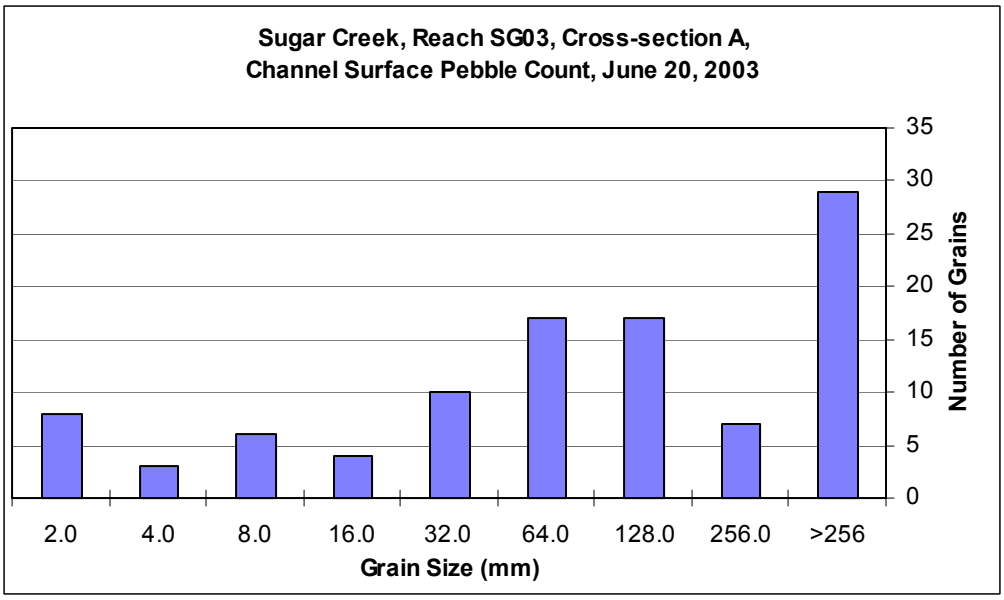
- S1 Silt
- S2 Sand
- S3 Gravel
- S4 Cobble Sm.
- S5 Cobble Lg.
- S6 Boulder Sm.
- S7 Boulder Lg.
- S8 Bimodal

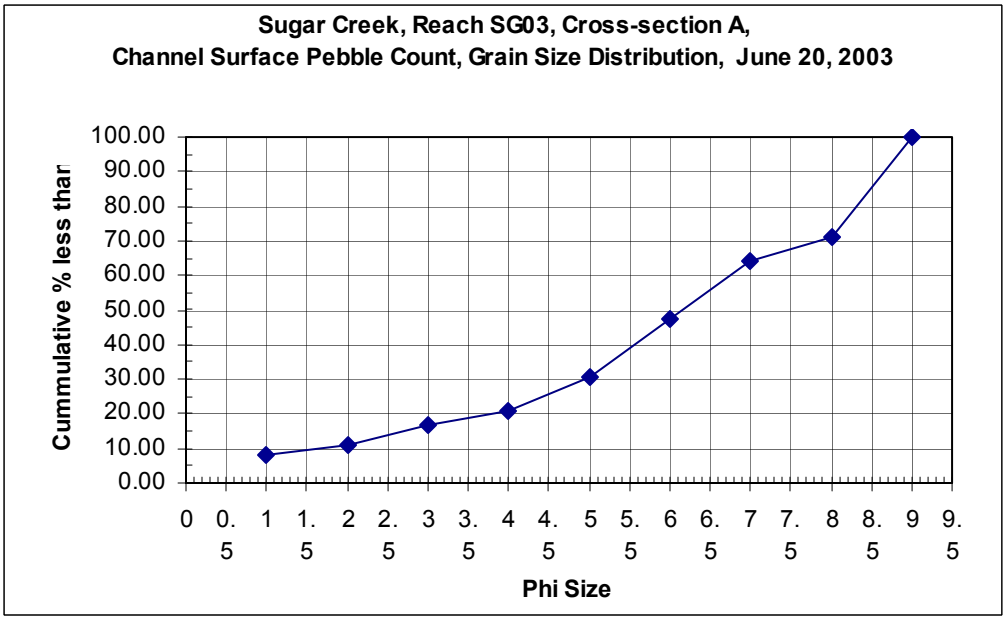
Form # C - _____

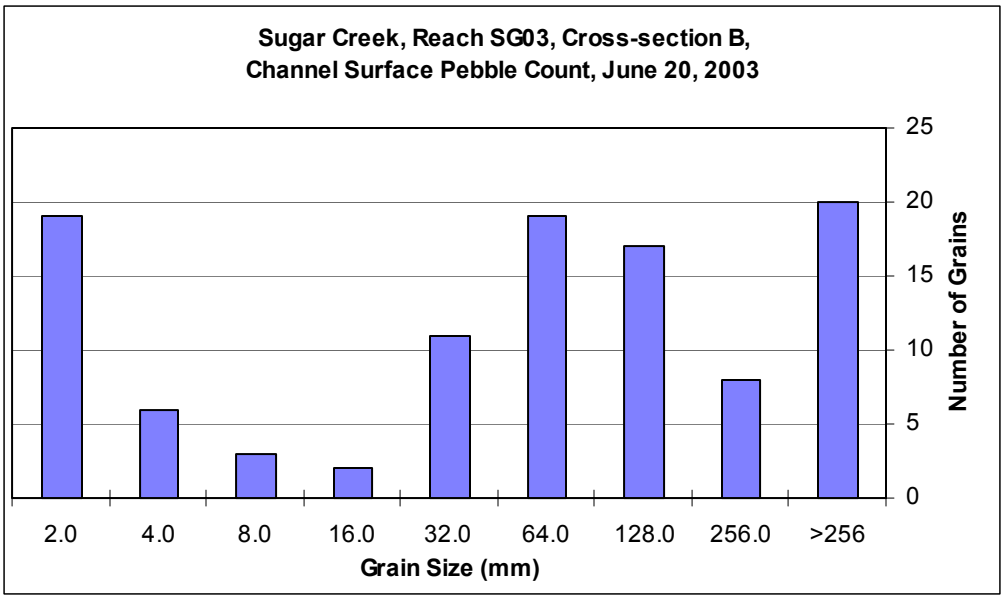

Sugar Creek, Reach SG03, Cross-Section A Profile,
June 19, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
102.50
102.00
101.50
101.00
100.50
100.00
99.50
99.00
0.00
5.00
10.00
15.00
20.00
Station (m)

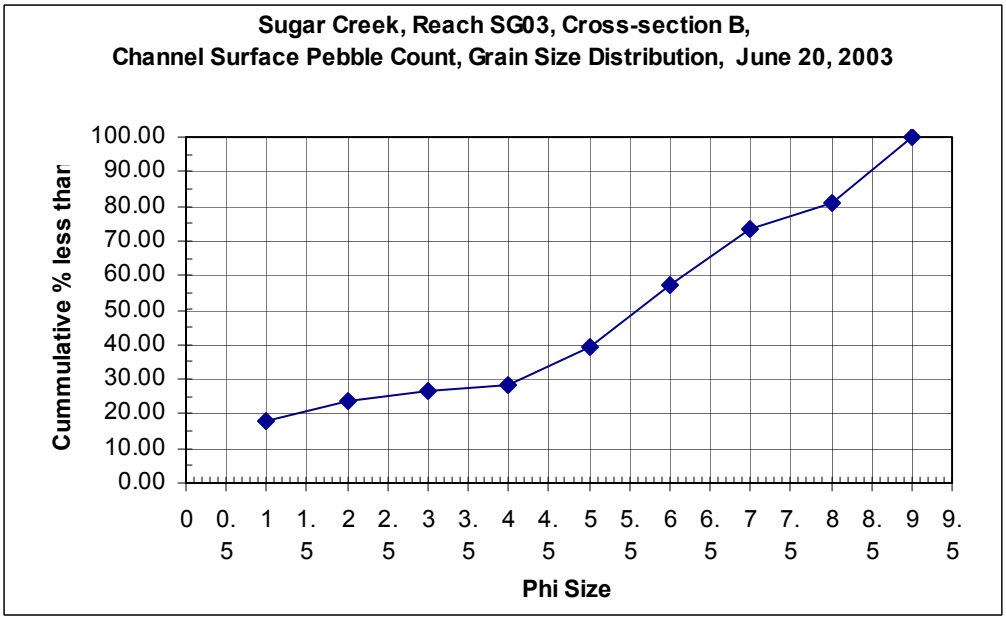

Sugar Creek, Reach SG03, Cross-Section B Profile,
June 20, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
103.00
102.50
102.00
101.50
101.00
100.50
100.00
0.00
5.00
10.00
15.00
20.00
Station (m)


Sugar Creek, Reach SG03, Longitudinal Bed Profile
June 20, 2003
Channel Elevat
Water Surface Elevation
cross section B
cross section A
Elevation (m)
Station (m)
101.00
100.50
100.00
99.50
99.00
98.50
98.00
97.50
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00


Sugar Creek, Reach SG03, Cross-section A,
Channel Surface Pebble Count, June 20, 2003
35
30
25
20
15
10
5
0
Number of Grains
2.0
4.0
8.0
16.0
32.0
64.0
128.0
256.0
>256
Grain Size (mm)


Sugar Creek, Reach SG03, Cross-section A,
Channel Surface Pebble Count, Grain Size Distribution, June 20, 2003
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Cummulative % less thar
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Phi Size


Sugar Creek, Reach SG03, Cross-section B,
Channel Surface Pebble Count, June 20, 2003
25
20
15
10
5
0
Number of Grains
2.0
4.0
8.0
16.0
32.0
64.0
128.0
256.0
>256
Grain Size (mm)


Sugar Creek, Reach SG03, Cross-section B,
Channel Surface Pebble Count, Grain Size Distribution, June 20, 2003
Cummulative % less thar
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Phi Size

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION below Sugar Lake	
REACH ID # SGU1	RIVER BASIN Scott River	
UTM (us end) N E	TOPOS	
UTM (ds end) N E	STREAM ORDER ELEVATION 2000m	
INVESTIGATORS Mark, Emily, Jessica, Jeff		
FORM COMPLETED BY Jess, Mark	DATE 6/23/03 TIME 130 PM	ASSOCIATED SITE ID #s

WEATHER CONDITIONS

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
50 % ☑	% cloud cover	☑ 50 %
☐	clear/sunny	☐

Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 15 °C

Other _____

STREAM MORPHOLOGY

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Origin: ☐ Glacial ☐ Spring-fed ☑ Non-glacial montane ☐ Mixture of origins ☐ Swamp and bog ☐ Other _____

Reach Type: ☐ Riffle-Pool ☐ Cascade ☐ Plane-Bed ☐ Riffle-Run ☑ Step-Pool ☐ Bedrock

Rosgen Type C4- riffle run

WATERSHED FEATURES

Predominant Surrounding Landuse: ☑ Forest/Natural ☐ Residential ☐ Field/Pasture ☐ Commercial/Industrial ☐ Agricultural ☐ Other _____

Local Hydrologic Alterations: ☐ No Evidence ☐ Augmentation ☑ Dam/Retention ☐ Channelization ☐ Diversion ☐ Other dam at lake

SEDIMENT SOURCES

MANAGEMENT ACTIVITIES (include short description)

Timber Harvesting: ☐ Yes ☑ No _____

Mining (Hardrock / Placer): ☐ Yes ☑ No large scale placer deposits

Grazing and/or Agriculture: ☐ Yes ☑ No _____

Evidence of Fire: ☐ Yes ☑ No _____

EROSIONAL FEATURES

Local Hillslopes: ☐ No Evidence ☐ Minor gullying/rilling ☐ Moderate gullying/rilling ☐ Major gullying/rilling ☑ Mass wasting (slides,debris) ☐ Other _____

Does sediment reach channel directly? ☐ Yes ☑ No

Roads and related features: ☑ No Evidence ☐ Unpaved ☐ Paved ☐ Culvert/Bridge ☐ Ditch/Roadcut ☐ Other hwy 3

Does sediment reach channel directly? ☐ Yes ☑ No

Channel Stability: ☑ Stable ☐ Moderately stable ☐ Unstable ☐ Aggrading ☐ Downcutting ☐ Widening

Is the channel armored? ☐ Yes ☑ No Evidence of bank undercutting? ☐ Yes ☑ No

Percent of streambank with deep binding root mass: ☐ >85% ☑ 85-65% ☐ 65-35% ☐ <35%

DEPOSITIONAL FEATURES

☐ Pool In-filling ☐ Lee (DS) deposits ☐ Channel bars ☐ Floodplain ☐ Terraces ☐ Other human impa

Degree of instream sedimentation: ☑ None ☐ Low ☐ Medium ☐ High

CHANNEL FEATURES

Estimated Reach Length 21 m

Average Stream Width 3 m

Average Stream Depth .5 m

Sampling Reach Area 63 m²

Estimated Manning's n _____

Canopy Cover: ☐ Open ☑ Partly shaded ☐ Shaded

Proportion of Reach Represented by Stream Morphology Types

Riffle 35 % Run 65 %

Pool _____ %

Form # D - _____

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION below Sugar Lake

RIPARIAN VEGETATION

Indicate the dominant type and record the dominant species present

☐ Trees ☑ Shrubs ☐ Grasses ☐ Herbaceous

dominant species present shrubs/ mixed coniferous forest

Extent of Riparian Buffer Zone	Width of Riparian Buffer Zone	Riparian Vegetation Age
☐ None	☐ < 1 Channel width	☐ Immature (< 5yrs)
☐ Fragmentary	☐ 1-5 Channel widths	☐ Established (5-30 yrs)
☑ Continuous	☑ > 5 Channel widths	☑ Mature/Old Growth (>30 yrs)

Extent of vegetation encroachment into stream channel

☐ None ☐ Minimal ☑ Moderate ☐ Heavy ☐ Extreme

LARGE WOODY DEBRIS

☐ Not Present ☐ Present in Cutbank ☑ Present in Channel

Density of LWD <5% m^2/km^2 (area of LWD/ reach area)

AQUATIC VEGETATION

Indicate the dominant type

☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating

☐ Floating Algae ☑ Attached Algae

Portion of the reach with aquatic vegetation _____%

WATER QUALITY

Temperature 11.4 ^{0}C

Specific Conductance 7us

Dissolved Oxygen N/A

pH 7.33

Turbidity 3 ppm

Water Odors

☑ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other_____

Water Surface Oils

☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other_____

Turbidity (visual)

☑ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other_____

DISCHARGE

Velocity-Area Method

Distance from water's edge (m)	Depth (m)	Velocity (m/s)	Discharge (cms)	Notes
	.205	.1	.0125	
	.230	.2	.023	
2.2	.255	.3	.03825	
2.7	.310	.3	.0465	
3.2	.330	.4	.066	
	.385	.7	.13475	
4.2	.440	.9	.198	
4.7	.470	.7	.1645	
5.2	.490	.8	.196	
5.7	.495	.4	.099	
6.2	.390	.3	.0585	
6.7	.315	.1	.0157	
7.2	.210	.1	.0105	

Total Discharge (cms) 1.061

Float Method

	Width (m)	Avg Depth (m)	Float Distance (m)	Time (s)	Discharge (cms)
XS 1	7.5	.4	7.5	8.8	2.35
XS 2				9.85	

Estimated Discharge (cms) _____

HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS

STREAM NAME Sugar Creek	LOCATION below Sugar Lake	
SITE ID # _ REACH ID SGU1	STREAM CLASS	
UTM N UTM E _	RIVER BASIN Scott River	
STORET #	AGENCY	
INVESTIGATORS J Sanchez, Anderson, Dyke, Clifford		
FORM COMPLETED BY Dyke, Clifford	DATE 6/23/03 TIME 2:15 PM	REASON FOR SURVEY

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 19	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
SCORE 11	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Form # EH - _____

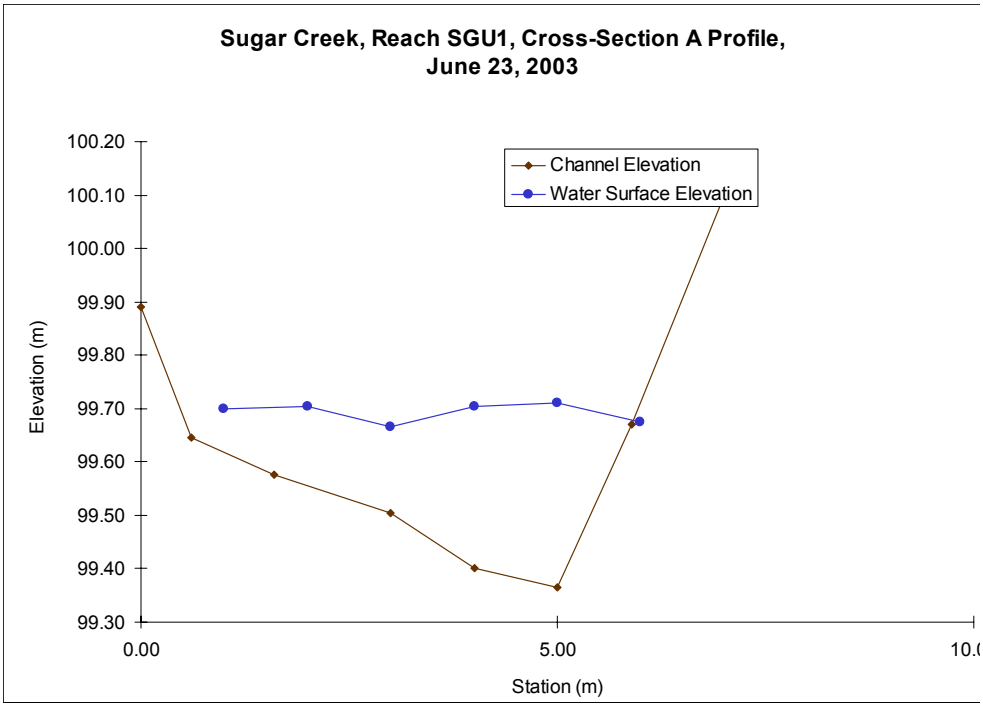
HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS

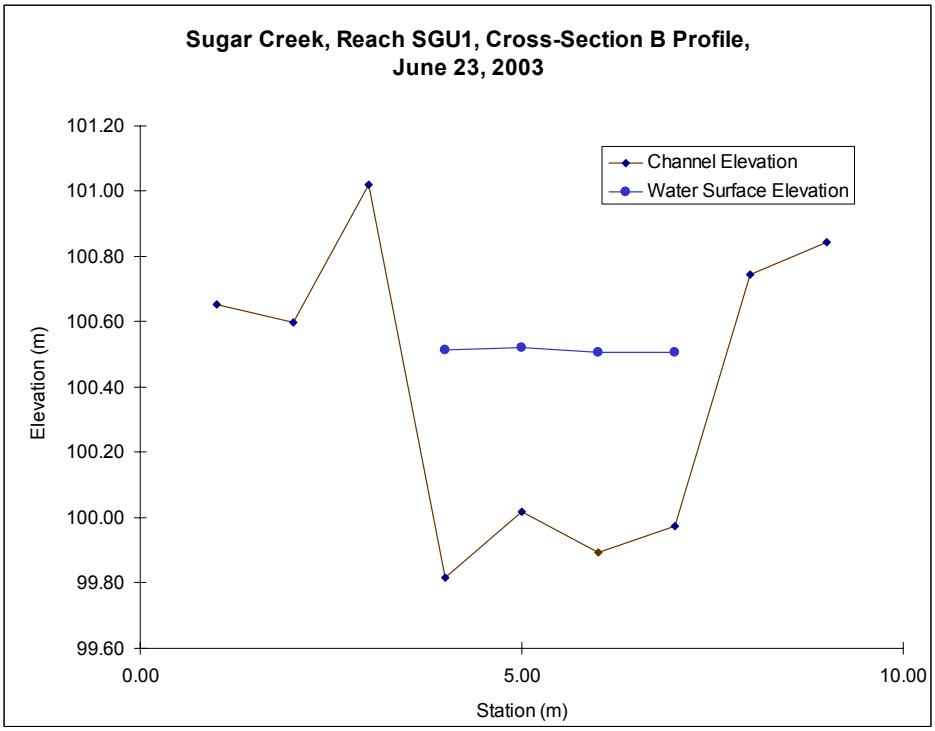
Parameters to be evaluated broader than sampling reach

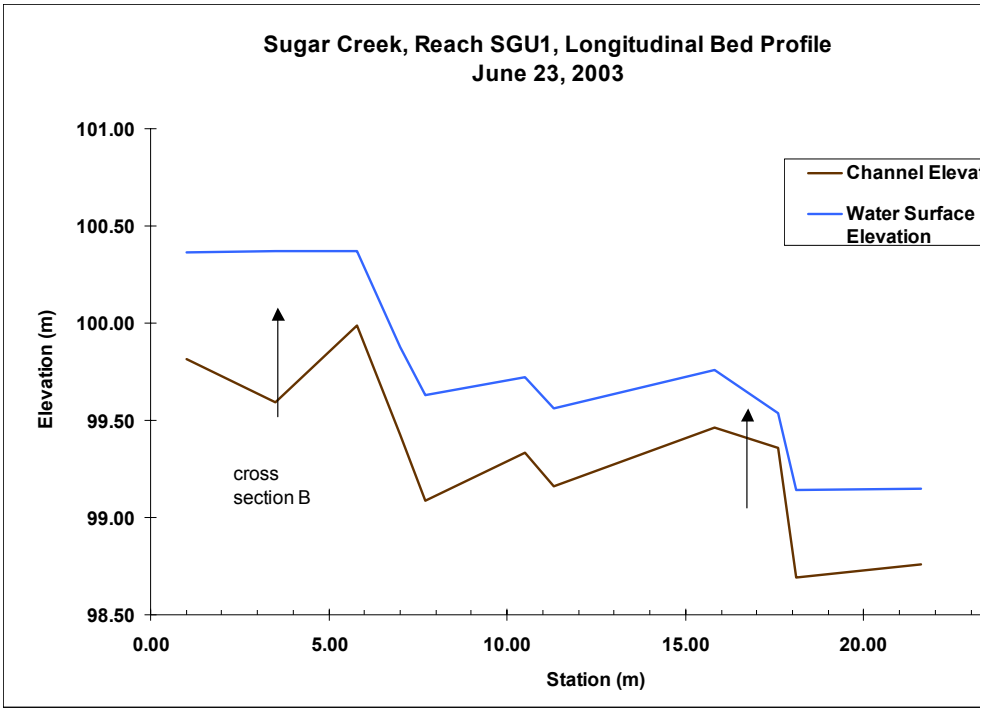
Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 18	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 19	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 10 LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 187

Form # EH2 -


Sugar Creek, Reach SGU1, Cross-Section A Profile,
June 23, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
100.20
100.10
100.00
99.90
99.80
99.70
99.60
99.50
99.40
99.30
0.00
5.00
Station (m)


Sugar Creek, Reach SGU1, Cross-Section B Profile,
June 23, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
101.20
101.00
100.80
100.60
100.40
100.20
100.00
99.80
99.60
0.00
5.00
10.00
Station (m)


Sugar Creek, Reach SGU1, Longitudinal Bed Profile
June 23, 2003
101.00
100.50
100.00
99.50
99.00
98.50
Elevation (m)
0.00
5.00
10.00
15.00
20.00
Station (m)
Channel Eleva
Water Surface Elevation
cross section B

]

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION Between Fruit Growers Land	
REACH ID # SGU2	RIVER BASIN Scott River	
UTM (us end) N E	TOPOS	
UTM (ds end) N E	STREAM ORDER ELEVATION	
INVESTIGATORS Team Juicy		
FORM COMPLETED BY EKA	DATE 6/24/03 TIME 11 AM	ASSOCIATED SITE ID #s

WEATHER CONDITIONS

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___% ☐	% cloud cover	☑ 50 %
☑	clear/sunny	☐

Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 21.5 C

Other_____

STREAM MORPHOLOGY

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Origin: ☐ Glacial ☐ Spring-fed ☑ Non-glacial montane ☐ Mixture of origins ☐ Swamp and bog ☐ Other_____

Reach Type: ☐ Riffle-Pool ☑ Cascade ☐ Plane-Bed ☐ Riffle- Run ☑ Step-Pool ☐ Bedrock

Rosgen Type A2

WATERSHED FEATURES

Predominant Surrounding Landuse: ☑ Forest/Natural ☐ Residential ☐ Field/Pasture ☐ Commercial/Industrial ☐ Agricultural ☑ Other Timber cutinq

Local Hydrologic Alterations: ☑ No Evidence ☐ Augmentation ☐ Dam/Retention ☐ Channelization ☐ Diversion ☐ Other_____

SEDIMENT SOURCES

MANAGEMENT ACTIVITIES (include short description)

Timber Harvesting: ☑ Yes ☐ No access roads (logging and fire?)

Mining (Hardrock / Placer): ☐ Yes ☑ No

Grazing and/or Agriculture: ☐ Yes ☑ No

Evidence of Fire: ☐ Yes ☑ No

EROSIONAL FEATURES

Local Hillslopes: ☐ No Evidence ☐ Major gullying/rilling ☐ Minor gullying/rilling ☐ Mass wasting (slides,debris) ☐ Moderate gullying/rilling ☑ Other all of above

Does sediment reach channel directly? ☑ Yes ☐ No

Roads and related features: ☐ No Evidence ☐ Culvert/Bridge ☑ Unpaved ☑ Ditch/Roadcut ☐ Paved ☐ Other_____

Does sediment reach channel directly? ☑ Yes ☐ No

Channel Stability: ☑ Stable ☐ Aggrading ☐ Moderately stable ☐ Downcutting ☐ Unstable ☐ Widening

Is the channel armored? ☐ Yes ☑ No Evidence of bank undercutting? ☐ Yes ☑ No

Percent of streambank with deep binding root mass: ☐ >85% ☐ 85-65% ☐ 65-35% ☑ <35%

DEPOSITIONAL FEATURES

☑ Pool In-filling ☑ Floodplain ☐ Lee (DS) deposits ☐ Terraces ☐ Channel bars ☐ Other human impa

Degree of instream sedimentation: ☐ None ☐ Low ☑ Medium ☐ High

CHANNEL FEATURES

Estimated Reach Length 35 m

Average Stream Width 7 m

Average Stream Depth .75 m

Sampling Reach Area 245 m²

Estimated Manning's n _____

Canopy Cover: ☐ Open ☑ Partly shaded ☐ Shaded

Proportion of Reach Represented by Stream Morphology Types

Riffle_____% Run _____%

Cascade/ Step Pool 100 %

Form # D - _____

REACH CHARACTERIZATION FIELD DATA SHEET

STREAM NAME Sugar Creek	LOCATION Between Fruit Growers Land

RIPARIAN VEGETATION

Indicate the dominant type and record the dominant species present

☑ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous

dominant species present alder

Extent of Riparian Buffer Zone	Width of Riparian Buffer Zone	Riparian Vegetation Age
☐ None	☐ < 1 Channel width	☐ Immature (< 5yrs)
☐ Fragmentary	☑ 1-5 Channel widths	☐ Established (5-30 yrs)
☑ Continuous	☐ > 5 Channel widths	☑ Mature/Old Growth (>30 yrs)

Extent of vegetation encroachment into stream channel

☐ None ☐ Minimal ☑ Moderate ☐ Heavy ☐ Extreme

LARGE WOODY DEBRIS

☐ Not Present ☑ Present in Cutbank ☐ Present in Channel

Density of LWD 10% m^2/km^2 (area of LWD/ reach area)

AQUATIC VEGETATION

Indicate the dominant type

☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating

☐ Floating Algae ☑ Attached Algae

Portion of the reach with aquatic vegetation 30 %

WATER QUALITY

Temperature 11.4 ^{0}C

Specific Conductance 5

Dissolved Oxygen N/A

pH 7.33

Turbidity 2ppm

Water Odors

☑ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other

Water Surface Oils

☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☑ None ☐ Other

Turbidity (visual)

☑ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other

DISCHARGE

Velocity-Area Method

Distance from water's edge (m)	Depth (m)	Velocity (m/s)	Discharge (cms)	Notes

Total Discharge (cms) _____

Float Method

	Width (m)	Avg Depth (m)	Float Distance (m)	Time (s)	Discharge (cms)
XS 1					
XS 2					

Estimated Discharge (cms) _____

HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS

STREAM NAME Sugar Creek	LOCATION between fruit growers land	
SITE ID # _ REACH ID SGU2	STREAM CLASS	
UTM N UTM E _	RIVER BASIN Scott River	
STORET #	AGENCY	
INVESTIGATORS J Sanchez		
FORM COMPLETED BY Sanchez	DATE 6/24/03 TIME _ 11:00 AM	REASON FOR SURVEY

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 17	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
SCORE 12	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 4	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Form # EH - _____

HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 18	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 19	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 6 LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 8 LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 7 RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 136

Form # EH2 -

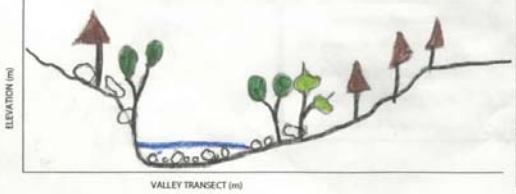
Stream Assessment Field Sketch Form

River/Stream: Sugar Crik Reach ID: SGU2

Date/Time: 6/24/03 Location: Downstream of private timber Map by: JS

Map Scale (if applicable): 1 [ ] = NA

GENERALIZED VALLEY CROSS SECTION SKETCH:



SYMBOL LEGEND:

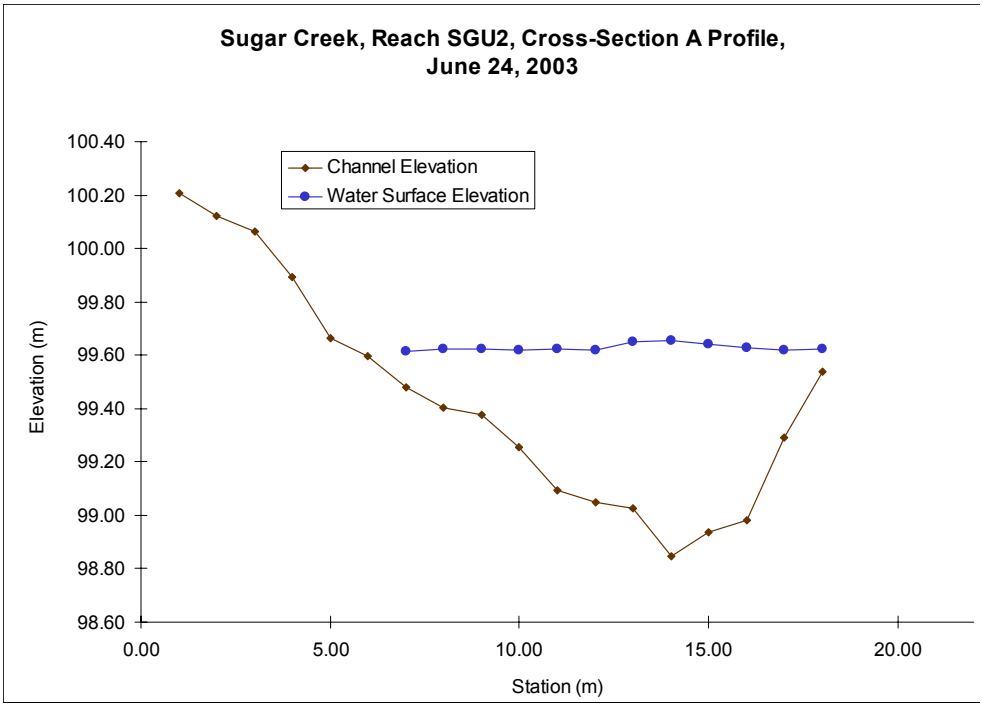
- Geomorphic Unit Boundary
- Flow Direction
- UTM Coordinate Location: RS-1
- Fish Sampling Location & ID: F1
- Invertebrate Sampling Location & ID: I1
- Cross-section Location: x—x

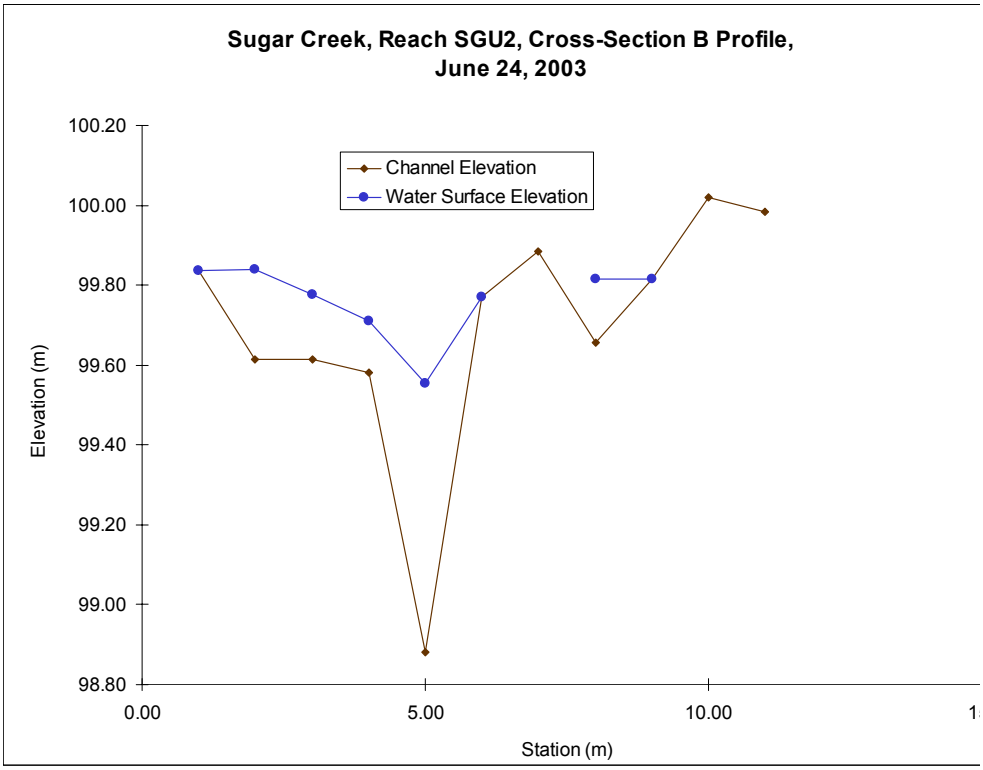
Alder Cottonwood Douglas fir

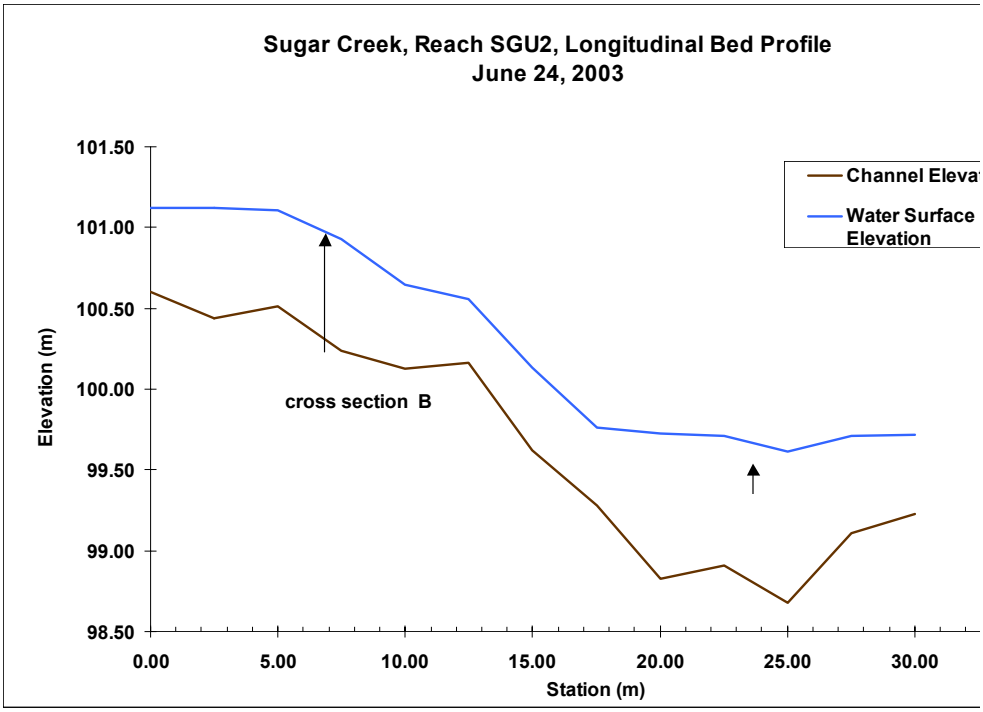
HYDRAULIC UNIT KEY:

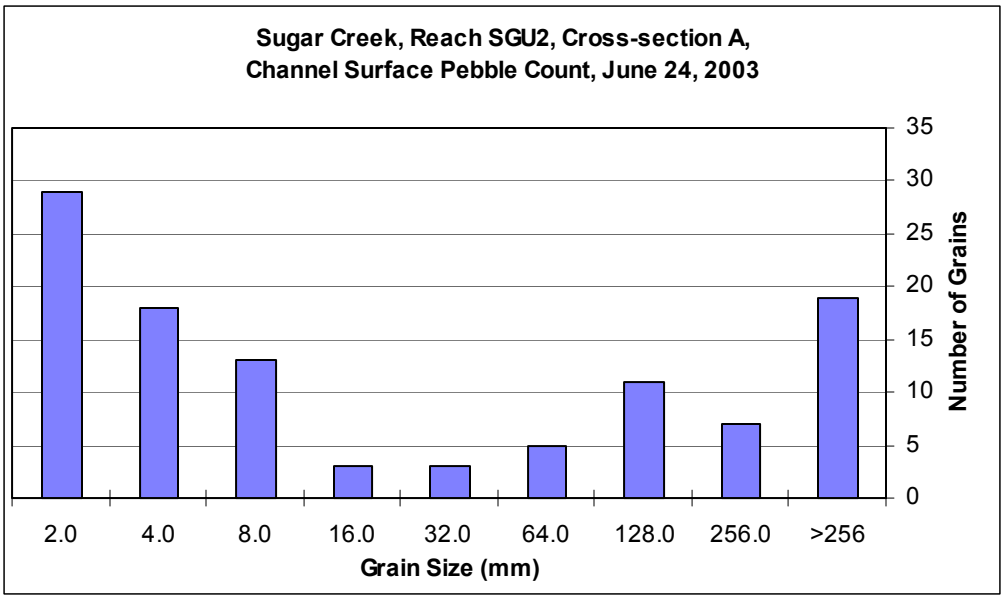
Flow Types:		Substrate Categories:	
[ ] H9	Free Fall	[ ] S1	Silt
[ ] H8	Chute	[ ] S2	Sand
[ ] H7	Broken standing waves	[ ] S3	Gravel
[ ] H6	Unbroken standing waves	[ ] S4	Cobble Sm.
[ ] H5	Rippled	[ ] S5	Cobble Lg.
[ ] H4	Upwelling	[ ] S6	Boulder Sm.
[ ] H3	Smooth surface flow	[ ] S7	Boulder Lg.
[ ] H2	Scarcely perceptible flow	[ ] S8	Bimodal
[ ] H1	Standing water		

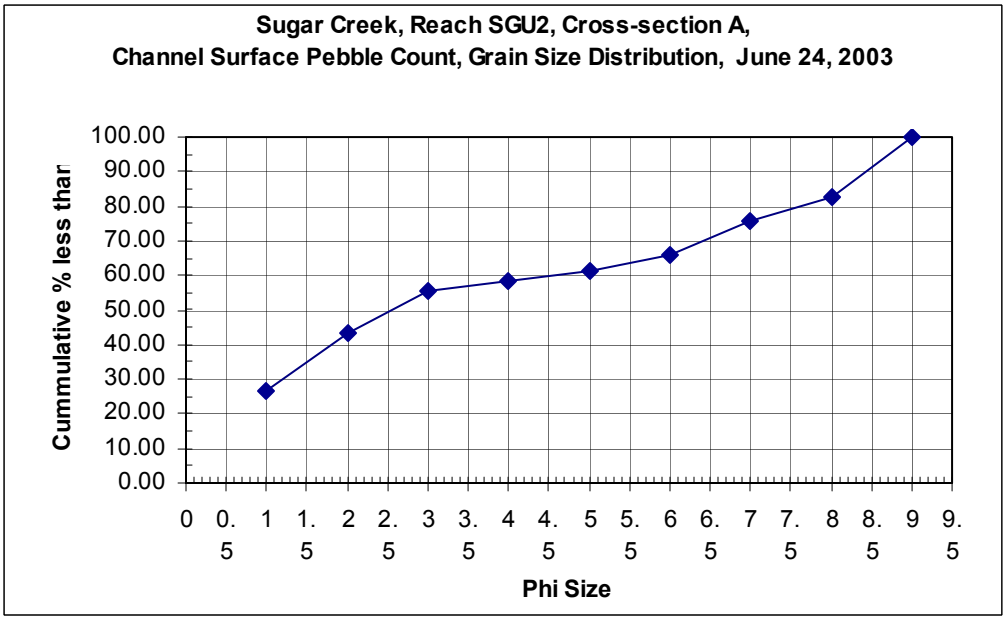
Form #C- _____


Sugar Creek, Reach SGU2, Cross-Section A Profile,
June 24, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
100.40
100.20
100.00
99.80
99.60
99.40
99.20
99.00
98.80
98.60
0.00
5.00
10.00
15.00
20.00
Station (m)


Sugar Creek, Reach SGU2, Cross-Section B Profile,
June 24, 2003
Channel Elevation
Water Surface Elevation
Elevation (m)
100.20
100.00
99.80
99.60
99.40
99.20
99.00
98.80
0.00
5.00
10.00
Station (m)


Sugar Creek, Reach SGU2, Longitudinal Bed Profile
June 24, 2003
101.50
101.00
100.50
100.00
99.50
99.00
98.50
Elevation (m)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
Station (m)
Channel Eleva
Water Surface Elevation
cross section B


Sugar Creek, Reach SGU2, Cross-section A,
Channel Surface Pebble Count, June 24, 2003
35
30
25
20
15
10
5
0
Number of Grains
2.0
4.0
8.0
16.0
32.0
64.0
128.0
256.0
>256
Grain Size (mm)


Sugar Creek, Reach SGU2, Cross-section A,
Channel Surface Pebble Count, Grain Size Distribution, June 24, 2003
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Cummulative % less thar
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Phi Size