STREAM INVENTORY REPORT

Daugherty Creek

INTRODUCTION

A stream inventory was conducted during the summer of 2002 on Daugherty Creek. The survey began at the confluence with the South Fork Big River and extended upstream 8.1 miles.

The Daugherty Creek inventory was conducted in two parts: habitat inventory and biological inventory. The objective of the habitat inventory was to document the habitat available to anadromous salmonids in Daugherty Creek. The objective of the biological inventory was to document the presence and distribution of juvenile salmonid species.

The objective of this report is to document the current habitat conditions and recommend options for the potential enhancement of habitat for coho salmon, and steelhead trout. Recommendations for habitat improvement activities are based upon target habitat values suitable for salmonids in California's north coast streams.

WATERSHED OVERVIEW

Daugherty Creek is a tributary to the South Fork Big River, tributary to the Big River, tributary to the Pacific Ocean, located in Mendocino County, California (Map 1). Daugherty Creek's legal description at the confluence with South Fork Big River is T16N R14W S19. Its location is 39E13N45.73O north latitude and 123E27N46.73O west longitude. Daugherty Creek is a third order stream and has approximately 6.8 miles of solid blue line stream according to the USGS Bailey Ridge 7.5 minute quadrangle. Daugherty Creek drains a watershed of approximately 16 square miles. Elevations range from about 597 feet at the mouth of the creek to 2,000 feet in the headwater areas. Mixed hardwood and mixed conifer forest dominates the watershed. The watershed is primarily privately owned and is managed for timber production and rangeland. Vehicle access exists via Highway 101 to Masonite Road.

METHODS

The habitat inventory conducted in Daugherty Creek follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi et al, 1998). The California Conservation Corps (CCC) Technical Advisors and Watershed Stewards Project/AmeriCorps (WSP/AmeriCorps) Members that conducted the inventory were trained in standardized habitat inventory methods by the California Department of Fish and Game (DFG). This inventory was conducted by a two-person team.

SAMPLING STRATEGY

The inventory uses a method that samples approximately 10% of the habitat units within the survey reach. All habitat units included in the survey are classified according to habitat type and their lengths are measured. All pool units are measured for maximum depth, depth of pool tail crest (measured in the thalweg), dominant substrate composing the pool tail crest, and embeddedness. Habitat unit types encountered for the first time are measured for all the parameters and characteristics on the field form. Additionally, from the ten habitat units on each field form page, one is randomly selected for complete measurement.

HABITAT INVENTORY COMPONENTS

A standardized habitat inventory form has been developed for use in California stream surveys and can be found in the *California Salmonid Stream Habitat Restoration Manual*. This form was used in Daugherty Creek to record measurements and observations. There are nine components to the inventory form.

1. Flow:

Flow is measured in cubic feet per second (cfs) at the bottom of the stream survey reach using a Marsh-McBirney Model 2000 flow meter.

2. Channel Type:

Channel typing is conducted according to the classification system developed and revised by David Rosgen (1985 rev. 1994). This methodology is described in the *California Salmonid Stream Habitat Restoration Manual*. Channel typing is conducted simultaneously with habitat typing and follows a standard form to record measurements and observations. There are five measured parameters used to determine channel type: 1) water slope gradient, 2) entrenchment, 3) width/depth ratio, 4) substrate composition, and 5) sinuosity. Channel characteristics are measured using a clinometer, hand level, hip chain, tape measure, and a stadia rod.

3. Temperatures:

Both water and air temperatures are measured and recorded at every tenth habitat unit. The time of the measurement is also recorded. Both temperatures are taken in degrees Fahrenheit at the middle of the habitat unit and within one foot of the water surface.

4. Habitat Type:

Habitat typing uses the 24 habitat classification types defined by McCain and others (1988). Habitat units are numbered sequentially and assigned a type identification number selected from a standard list of 24 habitat types. Dewatered units are labeled "dry". Daugherty Creek habitat typing used standard basin level measurement criteria. These parameters require that the minimum length of a described habitat unit must be equal to or greater than the stream's mean

wetted width. All measurements are in feet to the nearest tenth. Habitat characteristics are measured using a clinometer, hip chain, and stadia rod.

5. Embeddedness:

The depth of embeddedness of the cobbles in pool tail-out areas is measured by the percent of the cobble that is surrounded or buried by fine sediment. In Daugherty Creek, embeddedness was ocularly estimated. The values were recorded using the following ranges: 0 - 25% (value 1), 26 - 50% (value 2), 51 - 75% (value 3) and 76 - 100% (value 4). Additionally, a value of 5 was assigned to tail-outs deemed unsuited for spawning due to inappropriate substrate particle size, bedrock, or other considerations.

6. Shelter Rating:

Instream shelter is composed of those elements within a stream channel that provide salmonids protection from predation, reduce water velocities so fish can rest and conserve energy, and allow separation of territorial units to reduce density related competition. The shelter rating is calculated for each fully-described habitat unit by multiplying shelter value and percent cover. Using an overhead view, a quantitative estimate of the percentage of the habitat unit covered is made. All cover is then classified according to a list of nine cover types. In Daugherty Creek, a standard qualitative shelter value of 0 (none), 1 (low), 2 (medium), or 3 (high) was assigned according to the complexity of the cover. Thus, shelter ratings can range from 0-300 and are expressed as mean values by habitat types within a stream.

7. Substrate Composition:

Substrate composition ranges from silt/clay sized particles to boulders and bedrock elements. In all fully-described habitat units, dominant and sub-dominant substrate elements were ocularly estimated using a list of seven size classes and recorded as a one and two, respectively. In addition, the dominant substrate composing the pool tail-outs is recorded for each pool.

8. Canopy:

Stream canopy density was estimated using modified handheld spherical densiometers as described in the *California Salmonid Stream Habitat Restoration Manual*. Canopy density relates to the amount of stream shaded from the sun. In Daugherty Creek, an estimate of the percentage of the habitat unit covered by canopy was made from the center of approximately every third unit in addition to every fully-described unit, giving an approximate 30% sub-sample. In addition, the area of canopy was estimated ocularly into percentages of coniferous or deciduous trees.

9. Bank Composition and Vegetation:

Bank composition elements range from bedrock to bare soil. However, the stream banks are usually covered with grass, brush, or trees. These factors influence the ability of stream banks to withstand winter flows. In Daugherty Creek, the dominant composition type and the dominant

vegetation type of both the right and left banks for each fully-described unit were selected from the habitat inventory form. Additionally, the percent of each bank covered by vegetation (including downed trees, logs, and rootwads) was estimated and recorded.

BIOLOGICAL INVENTORY

Biological sampling during the stream inventory is used to determine fish species and their distribution in the stream. Fish presence was observed from the stream banks in Daugherty Creek. In addition, 14 sites were surveyed using snorkeling techniques.

DATA ANALYSIS

Data from the habitat inventory form are entered into Habitat, a dBASE 4.2 data entry program developed by Tim Curtis, Inland Fisheries Division, California Department of Fish and Game. This program processes and summarizes the data, and produces the following six tables:

- Riffle, Flatwater, and Pool Habitat Types
- Habitat Types and Measured Parameters
- Pool Types
- Maximum Residual Pool Depths by Habitat Types
- Mean Percent Cover by Habitat Type
- Dominant Substrates by Habitat Type
- Mean Percent Vegetative Cover for Entire Stream
- Fish Habitat Inventory Data Summary by Stream Reach (Table 8)
- Mean Percent Dominant Substrate / Dominant Vegetation Type for Entire Stream
- Mean Percent Shelter Cover Types for Entire Stream

Graphics are produced from the tables using Microsoft Excel. Graphics developed for Sample Creek include:

- Riffle, Flatwater, Pool Habitat Types by Percent Occurrence
- Riffle, Flatwater, Pool Habitat Types by Total Length
- Total Habitat Types by Percent Occurrence
- Pool Types by Percent Occurrence
- Maximum Residual Depth in Pools
- Percent Embeddedness
- Mean Percent Cover Types in Pools
- Substrate Composition in Pool Tail-outs
- Mean Percent Canopy
- Dominant Bank Composition by Composition Type
- Dominant Bank Vegetation by Vegetation Type

Daugherty Creek

HABITAT INVENTORY RESULTS

The habitat inventory from June 1 to August 12, 2002, was conducted by Morguine Flynn-Sousa and Sarah Thompson (WSP/AmeriCorps). The total length of the stream surveyed was 42,552 feet with an additional 113 feet of side channel.

Stream flow was measured at the bottom of the survey reach with a Marsh-McBirney Model 2000 flowmeter at 0.95 cfs on June 6, 2002.

Daugherty Creek is a B4 channel type for the first 14,466 feet of the stream surveyed, an F4 for the next 13,163 feet, an F3 for the next 10,566, an F2 for the next 4,199 feet surveyed and an A3 for the remaining 158 feet surveyed. B4 channels are moderately entrenched, moderate gradient, riffle-dominated channels with infrequently-spaced pools, and have gravel-dominant substrates. F4, F3, and F2 channels are entrenched, meandering, riffle/pool channels on low gradients with high width/depth ratios and gravel-dominant, cobble-dominant, and boulder-dominant substrates, respectively. A3 channels are steep, narrow, cascading, step-pool streams with high energy/debris transport associated with depositional soils and have cobble dominated substrate.

Water temperatures taken during the survey period ranged from 52° to 70° Fahrenheit. Air temperatures ranged from 53° to 97° Fahrenheit.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of occurrence there were 37% riffle units, 37% flatwater units, and 26% pool units (Graph 1). Based on total length of Level II habitat types there were 25% riffle units, 43% flatwater units, and 33% pool units (Graph 2).

Thirteen Level IV habitat types were identified (Table 2). The most frequent habitat types by percent occurrence were low gradient riffles, 32%; runs, 31%; and mid-channel pools, 25% (Graph 3). Based on percent total length, runs made up 35%, mid-channel pools 32%, and low gradient riffles 21%.

A total of 282 pools were identified (Table 3). Main channel pools were the most frequently encountered, at 96%, and comprised 98% of the total length of all pools (Graph 4).
Table 4 is a summary of maximum pool depths by pool habitat types. Pool quality for salmonids increases with depth. Seventy-eight of the 282 pools (27.7%) had a depth of three feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the 278 pool tail-outs measured, 104 had a value of 1 (37.4%); 109 had a value of 2 (39.2%); 44 had a value of 3 (15.8%); 2 had a value of 4 (0.8%); and 19 had a value of 5 (6.8%) (Graph 6). On this scale, a value of 1 indicates the highest quality of spawning substrate.

A shelter rating was calculated for each habitat unit and expressed as a mean value for each habitat type within the survey using a scale of 0-300. Riffle habitat types had a mean shelter rating of 42, flatwater habitat types had a mean shelter rating of 31, and pool habitats had a mean shelter rating of 69 (Table 1). Of the pool types, the backwater pools had the highest mean

shelter rating at 255. Main channel pools had a mean shelter rating of 69 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Boulder is the dominant cover type in all habitat types of Daugherty Creek. Graph 7 describes the pool cover in Daugherty Creek. Large woody debris is the dominant pool cover type followed by undercut banks.

Table 6 summarizes the dominant substrate by habitat type. Graph 8 depicts the dominant substrate observed in pool tail-outs. Gravel was the dominant substrate observed in 61.5% of pool tail-outs while small cobble was the next most frequently observed substrate type, at 26.3%.

The mean percent canopy density for the surveyed length of Daugherty Creek was 84%. The mean percentages of deciduous and coniferous trees were 53% and 31%, respectively. Graph 9 describes the mean percent canopy in Daugherty Creek.

For the stream reach surveyed, the mean percent right bank vegetated was 84%. The mean percent left bank vegetated was 86%. The dominant elements composing the structure of the stream banks consisted of 11% bedrock, 1% boulder, 5% cobble/gravel, and 83% sand/silt/clay (Graph 10). Coniferous trees were the dominant vegetation type observed in 62% of the units surveyed. Additionally, 35% of the units surveyed had deciduous trees as the dominant vegetation type (Graph 11).

BIOLOGICAL INVENTORY RESULTS

Seventeen sites were snorkel surveyed for species composition and distribution in Daugherty Creek on July 23, 2002 and on October 1, 2002. Water temperatures taken during the survey periods ranged from 48° to 66° Fahrenheit. Air temperatures ranged from 68° to 71° Fahrenheit. The sites were sampled by Allan Renger, Trevor Tollefson, and Chris Ramsey (DFG), and Hillary Kleeb (WSP).

The first site sampled included habitat unit 0276, a corner pool approximately 14,158 feet from the confluence with South Fork Big River. The site yielded 12 young-of-the-year steelhead, two age one-plus steelhead, and 15 young-of-the-year coho.

The second site included habitat unit 0287, a mid-channel pool located approximately 14,685 feet above the creek mouth. The site yielded six, young-of-the-year steelhead.

The third site sampled included habitat unit 0295, a mid-channel pool located approximately 14,868 feet above the creek mouth. The site yielded five, young-of-the-year steelhead and 25 young-of-the-year coho.

The fourth site sampled included habitat unit 0767, a mid-channel pool located approximately 33,272 feet above the creek mouth. The site yielded 14 young-of-the-year steelhead and seven young-of-the-year coho.

Daugherty Creek

The fifth site sampled included habitat unit 0882, a mid-channel pool located approximately 37,314 feet above the creek mouth. The site yielded no fish.

The sixth site sampled included habitat unit 0943, a run located approximately 38,894 feet above the creek mouth. The site yielded no fish.

The seventh site sampled included habitat unit 0947, a mid-channel pool located approximately 39,026 feet above the creek mouth. The site yielded no fish.

The eighth site sampled included habitat unit 0951, a run located approximately 39,152 feet above the creek mouth. The site yielded no fish.

The ninth site sampled included habitat unit 1035, a plunge pool located approximately 41,402 feet above the creek mouth. The site yielded no fish.

The tenth site sampled included habitat unit 1037, a mid-channel pool located approximately 41,411 feet above the creek mouth. The site yielded no fish.

The eleventh site sampled included habitat unit 1041, a mid-channel pool located approximately 41,516 feet above the creek mouth. The site yielded no fish.

The twelfth site sampled included habitat unit 1046, a mid-channel pool located approximately 41,656 feet above the creek mouth. The site yielded no fish.

The thirteenth site sampled included habitat unit 1057, a mid-channel pool located approximately 41,880 feet above the creek mouth. The site yielded no fish.

The fourteenth site sampled included habitat unit 1064, a mid-channel pool located approximately 42,015 feet above the creek mouth. The site yielded one-young-of-the year steelhead.

Daugherty Creek

The following chart displays the information yielded from these sites:

Date	Approx. Dist. from mouth (ft.)	Hab. Unit #	Hab. Type	Reach #	Channel type	Steelhead		Coho
						0+	1+	0+
07/23/02	14,158	0276	4.3	1	B4	12	2	15
07/23/02	14,685	0287	4.2	2	F4	6	0	17
07/23/02	14,868	0295	4.2	2	F4	5	0	25
10/01/02	33,272	0767	4.2	3	F3	14	0	7
10/01/02	37,314	0882	4.2	3	F3	0	0	0
10/01/02	38,894	0943	3.3	4	F2	0	0	0
10/01/02	39,026	0947	4.2	4	F2	0	0	0
10/01/02	39,152	0951	3.3	4	F2	0	0	0
10/01/02	41,402	1035	5.6	4	F2	0	0	0
10/01/02	41,411	1037	4.2	4	F2	0	0	0
10/01/02	41,516	1041	4.2	4	F2	0	0	0
10/01/02	41,656	1046	4.2	4	F2	0	0	0
10/01/02	41,880	1057	4.2	4	F2	0	0	0
10/01/02	42,015	1064	4.2	4	F2	1	0	0

DISCUSSION

Daugherty Creek is a B4 channel type for the first 14,466 feet of stream surveyed, an F4 for 13,163 feet, an F3 for 10,566 feet, an F2 for 4,132 feet and an A3 for 158 feet. The suitability of

B4 channel types for fish habitat improvement structures is as follows: excellent for low-stage plunge weirs, boulder clusters and bank-placed boulders, single and opposing wing-deflectors, and log cover. The suitability of F4 channel types for fish habitat improvement structures is as follows: good for bank-placed boulders; fair for plunge weirs, single and opposing wing-deflectors, channel constrictors, and log cover; poor for boulder clusters. The suitability of F3 channel types for fish habitat improvement structures is as follows: good for bank-placed boulders, single and opposing wing-deflectors; fair for plunge weirs, boulder clusters, channel constrictors, and log cover. The suitability of F2 channel types for fish habitat improvement structures is as follows: fair for plunge weirs, single and opposing wing-deflectors, and log cover. The suitability of A3 channels types for fish habitat improvement structures is as follows:

good for bank-placed boulders; fair for plunge weirs, opposing wing deflectors and log cover; poor for boulder clusters and single wing-deflectors.

The water temperatures recorded on the survey days June 1 through August 12, 2002, ranged from 52° to 70° Fahrenheit. Air temperatures ranged from 53° to 97° Fahrenheit. This is a moderate water temperature for salmonids. To make any further conclusions, temperatures would need to be monitored throughout the warm summer months, and more extensive biological sampling would need to be conducted.

Flatwater habitat types comprised 43% of the total length of this survey, riffles 25%, and pools 33%. The pools are relatively shallow, with 78 of the 282 (27.7%) pools having a maximum depth greater than 3 feet. In general, pool enhancement projects are considered when primary pools comprise less than 40% of the length of total stream habitat. In third and fourth order streams, a primary pool is defined to have a maximum depth of at least three feet, occupy at least half the width of the low flow channel, and be as long as the low flow channel width. Installing structures that will increase or deepen pool habitat is recommended.

Two-hundred-thirteen of the 278 pool tail-outs measured had embeddedness ratings of 1 or 2. Forty-six of the pool tail-outs had embeddedness ratings of 3 or 4. Nineteen of the pool tail-outs had a rating of 5, which is considered unsuitable for spawning. Cobble embeddedness measured to be 25% or less, a rating of 1, is considered to indicate good quality spawning substrate for salmon and steelhead.

One-hundred-seventy-one of the 278 pool tail-outs measured had gravel or small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

The mean shelter rating for pools was 69. The shelter rating in the flatwater habitats was 31. A pool shelter rating of approximately 100 is desirable. The amount of cover that now exists is being provided primarily by large woody debris in pool habitat types. Additionally, boulders contribute a small amount. Log and root wad cover structures in the pool and flatwater habitats would enhance both summer and winter salmonid habitat. Log cover structure provides rearing fry with protection from predation, rest from water velocity, and also divides territorial units to reduce density related competition.

The mean percent canopy density for the stream was 84%. Reach 1 had a canopy density of 81% while Reaches 2, 3, 4 and 5 had canopy densities of 82%, 89%, 92% and 81%, respectively. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was high at 84.5% and 86.5%, respectively. In areas of stream bank erosion or where bank vegetation is not at acceptable levels, planting endemic species of coniferous and deciduous trees, in conjunction with bank stabilization, is recommended.

Daugherty Creek

RECOMMENDATIONS

1) Daugherty Creek should be managed as an anadromous, natural production stream.

2) The limited water temperature data available suggest that maximum temperatures if sustained are within the threshold of stress for juvenile coho salmon. To establish more complete and meaningful temperature regime information, 24-hour monitoring during the July and August temperature extreme period should be performed for 3 to 5 years.

3) Where feasible, design and engineer pool enhancement structures to increase the number of pools. This must be done where the banks are stable or in conjunction with stream bank armor to prevent erosion.

4) Increase woody cover in the pools and flatwater habitat units. Although most of the existing cover in pools is from large woody debris, the shelter rating in below the target. Adding high quality complexity with woody cover is desirable.

5) Increase the coniferous tree component in the riparian zone by planting redwood and Douglas fir trees.

6) No salmonids were sampled above the log debris accumulations at 34,148' and 34,415'. It may be desirable to modify these barriers to provide passage.

COMMENTS AND LANDMARKS

The following landmarks and possible problem sites were noted. All distances are approximate and taken from the beginning of the survey reach.

Position (ft):	Comments:
100'	Begin survey 100 feet upstream from the confluence with South Fork Big River. Channel type is B4.
772'	Juvenile salmonids observed.
9,629'	Soda Creek enters on right bank. Water temperature of 62°F at the time of survey.
12,843'	Daugherty Creek Road bridge, 15' wide X 24' high X 24' long.
13,260'	Tributary enters on left bank and does not appear accessible to fish. Water temperature was 56°F at the time of survey.
14,158'	Electrofishing site #1.

Daugherty Creek

14,563’	Gates Creek enters on right bank and had a water temperature of 63°F at the time of survey.
14,647’	Channel type change, B4 to F4
14,685’	Electrofishing site #2.
14,868’	Electrofishing site #3.
16,189’	Log debris accumulation (LDA) of 13 pieces: 6’ high X 15’ wide X 20’ long, with stored sediment 10’ wide X 5’ long X 2’ deep. There are visible gaps and water flows through.
21,068’	Tributary enters on right bank and does not appear accessible to fish. Water temperature was 63°F at the time of survey.
23,106’	Horsethief Creek enters on right bank and had a water temperature of 62°F at the time of survey.
25,430’	LDA of 10 pieces: 9’ high X 22’ wide X 40’ long. There are visible gaps, water flowing through, and no stored sediment.
27,663’	Channel type change, F4 to F3.
28,019’	Tributary enters on right bank and does not appear accessible to fish. Water temperature was 64°F at the time of survey.
33,272’	Electrofishing site #4.
33,724’	Snuffins Creek enters on right bank and had a water temperature of 64°F at the time of survey.
34,148’	LDA of 20 pieces: 9’ high X 40’ wide X 22’ long, with stored sediment 30’ wide X 6’ deep, possible barrier to salmonids.
34,415’	LDA of 9 pieces: 6.5 feet high X 20’ wide X 15’ long. Stored sediment creates a 4’ high shelf to an upper level, possible barrier to salmonids.
37,314’	Electrofishing site #5.
38,210’	Channel type change, F3 to F2.
38,894’	Electrofishing site #6.
39,026’	Electrofishing site #7.

Daugherty Creek

39,126” Electrofishing site #8.

40,757’ LDA of 10 pieces: 8.5’ high X 30’ wide X 16’ long. Stored sediment creates a 5’ high shelf to an upper level of streambed, possible barrier to salmonids.

41,352’ Culvert on Low Gap Road: 9’ diameter with a 1’ plunge height. Culvert is rusting.

41,402’ Electrofishing site #9.

41,411’ Electrofishing site #10.

41,516’ Electrofishing site #11.

41,606’ LDA of 25 pieces: 10’ high X 35’ wide X 25’ long. Stored sediment creates a 10’ high shelf to an upper level of streambed, possible barrier to salmonids.

41,656’ Electrofishing site #12.

41,845’ LDA of 10 pieces: 8’ high X 25’ wide X 10’ long. Stored sediment creates an 8’ high shelf to an upper level of streambed, possible barrier to salmonids.

41,880’ Electrofishing site #13.

42,015’ LDA of 15 pieces: 10’ high X 30’ wide X 14’ long. Stored sediment creates a 9’ high shelf to an upper level of streambed, possible barrier to salmonids. Electrofishing site #14.

42,404’ Channel type change, F2 to A3.

42,552’ End of survey due to lack of fish, LDA’s and marsh.

REFERENCES

Flosi, G., Downie, S., Hopelain, J., Bird, M., Coey, R., and Collins, B. 1998. *California Salmonid Stream Habitat Restoration Manual*, 3rd edition. California Department of Fish and Game, Sacramento, California.

Daugherty Creek

LEVEL III and LEVEL IV HABITAT TYPES

RIFFLE			
Low Gradient Riffle	(LGR)	[1.1]	{ 1}
High Gradient Riffle	(HGR)	[1.2]	{ 2}
CASCADE			
Cascade	(CAS)	[2.1]	{ 3}
Bedrock Sheet	(BRS)	[2.2]	{24}
FLATWATER			
Pocket Water	(POW)	[3.1]	{21}
Glide	(GLD)	[3.2]	{14}
Run	(RUN)	[3.3]	{15}
Step Run	(SRN)	[3.4]	{16}
Edgewater	(EDW)	[3.5]	{18}
MAIN CHANNEL POOLS			
Trench Pool	(TRP)	[4.1]	{ 8}
Mid-Channel Pool	(MCP)	[4.2]	{17}
Channel Confluence Pool	(CCP)	[4.3]	{19}
Step Pool	(STP)	[4.4]	{23}
SCOUR POOLS			
Corner Pool	(CRP)	[5.1]	{22}
Lateral Scour Pool - Log Enhanced	(LSL)	[5.2]	{10}
Lateral Scour Pool - Root Wad Enhanced	(LSR)	[5.3]	{11}
Lateral Scour Pool - Bedrock Formed	(LSBk)	[5.4]	{12}
Lateral Scour Pool - Boulder Formed	(LSBo)	[5.5]	{20}
Plunge Pool	(PLP)	[5.6]	{ 9}
BACKWATER POOLS			
Secondary Channel Pool	(SCP)	[6.1]	{ 4}
Backwater Pool - Boulder Formed	(BPB)	[6.2]	{ 5}
Backwater Pool - Root Wad Formed	(BPR)	[6.3]	{ 6}
Backwater Pool - Log Formed	(BPL)	[6.4]	{ 7}
Dammed Pool	(DPL)	[6.5]	{13}
ADDITIONAL UNIT DESIGNATIONS			
Dry	(DRY)	[7.0]	
Culvert	(CUL)	[8.0]	
Not Surveyed	(NS)	[9.0]	
Not Surveyed due to a marsh	(MAR)	[9.1]	