STREAM INVENTORY REPORT

TOMKI CREEK, 1997

INTRODUCTION

A stream inventory was conducted during the summer of 1997 on Tomki Creek. The 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 Tomki 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 chinook salmon, 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

Tomki Creek is tributary to the Mainstem Eel River, located in Mendocino County, California. Tomki Creek's legal description at the confluence with the Mainstem Eel River is T8N R12W S12. Its location is 39°23′28″ north latitude and 123°25′31″ west longitude. Tomki Creek is a third order stream and has approximately 20.6 miles of blue line stream and 157.1 miles of intermittent stream according to the USGS Foster Mountain, Willits, Willis, and Longvale 7.5 minute quadrangles. Tomki Creek drains a watershed of approximately 64.4 square miles. Elevations range from about 1400 feet at the mouth of the creek to 2600 feet in the headwater areas. Douglas fir and mixed hardwood forest dominates the watershed. The watershed is primarily privately owned and is managed for timber production and rangeland. Vehicle access exists via Potter Valley Road to Eel River Road to Van Arsdale Road to Ridgeway Highway. Access beyond Ridgeway Highway is controlled by private landowners.

METHODS

The habitat inventory conducted in Tomki 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 AmeriCorps/Watershed Stewards Project (WSP) 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 (Hopelain, 1994). 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, dominant substrate composing the pool tail crest, and embeddedness. Habitat unit types encountered for the first time are further 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 Tomki 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 standard flow measuring equipment, if available. In some cases flows are estimated.

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.

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". Tomki 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. Channel dimensions were measured using hip chains, range finders, tape measures, and stadia rods. All units were measured for mean length; additionally, the first occurrence of each unit type and a randomly selected 10% subset of all units were sampled for all features on the sampling form (Hopelain, 1995). Pool tail crest depth at each pool unit was measured in the thalweg. All measurements were in feet to the nearest tenth.

5. Embeddedness:

The depth of embeddedness of the cobbles in pool tail-out reaches is measured by the percent of the cobble that is surrounded or buried by fine sediment. In Tomki 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, having a bedrock tail-out, 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 Tomki 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 Tomki 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 Tomki 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 was estimated and recorded.

BIOLOGICAL INVENTORY

Biological sampling during stream inventory is used to determine fish species and their distribution in the stream. In Tomki Creek fish presence was observed from the stream banks, and **five** sites were electrofished using a Smith-Root Model 12 electrofisher. These sampling techniques are discussed in the *California Salmonid Stream Habitat Restoration Manual*.

SUBSTRATE SAMPLING

Gravel sampling is conducted using a 9 inch diameter standard McNeil gravel sampler. Sample sites are identified numerically beginning at the most upstream site in the stream. Gravel samples are separated and measured to determine respective percent volume using five sieve sizes (25.4, 12.5, 4.7, 2.37, and 0.85 mm)(Valentine, 1995).

DATA ANALYSIS

Data from the habitat inventory form are entered into Habitat, a dBASE 4.2 data entry program first 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 pool depths by habitat types
- Dominant substrates by habitat types
- Mean percent shelter by habitat types

Graphics are produced from the tables using Quattro Pro. Graphics developed for Tomki Creek include:

- Riffle, flatwater, pool habitats by percent occurrence
- Riffle, flatwater, pool habitats by total length
- Total habitat types by percent occurrence
- Pool types by percent occurrence

- Total pools by maximum depths
- Embeddedness
- Pool cover by cover type
- Dominant substrate in the pool tail outs
- Percent canopy
- Bank composition by composition type
- Bank vegetation by vegetation type

HABITAT INVENTORY RESULTS

* ALL TABLES AND GRAPHS ARE LOCATED AT THE END OF THE REPORT *

The habitat inventory of July 3-29, 1997, was conducted by Todd Scaible and Donna Miller (WSP). The total length of the stream surveyed was 68,306 feet with an additional 753 feet of side channel.

Flow was measured at the bottom of the survey reach with a Marsh-McBirney Model 2000 flowmeter at 0.315 cfs on June 26, 1997.

Tomki Creek is an F4 channel type for the first 11,906 feet of stream reach surveyed. F4 channels are entrenched, meandering, riffle/pool channels on low gradients with high width/depth ratios and gravel-dominant substrates. It is also a F4 channel type for the last 38,498 feet of the stream reach surveyed.

The second stream reach of Tomki Creek is a F1 channel type and is 7,529 feet long. F1 channels are entrenched, meandering, riffle/pool channels on low gradients with high width/depth ratios and bedrock-dominant substrates.

Tomki Creek is a B1 channel type for the third 10,373 stream reach surveyed. B1 channels are moderately entrenched, moderate gradient, riffle dominated channels with infrequently spaced pools; very stable plan and profile; stable banks; and bedrock-dominated substrates.

Water temperatures taken during the survey period ranged from 63 to 91 degrees Fahrenheit. Air temperatures ranged from 73 to 96 degrees Fahrenheit.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of **occurrence** there were 17% riffle units, 47% flatwater units, 22% pool units, and 14% dry units (Graph 1). Based on total **length** of Level II habitat types there were 7% riffle units, 53% flatwater units, 22% pool units, and 17% dry units (Graph 2).

Fifteen Level IV habitat types were identified (Table 2). The most frequent habitat types by percent **occurrence** were runs, 22%; main channel pools, 20%; and low gradient riffles, 16% (Graph 3). Based on percent total **length**, step runs made up 24%, main channel pools 20%, and runs 19%.

A total of three pools types were identified (Table 3). Main channel pools were most frequently encountered at 93% and comprised 95% 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. 90 of the 135 pools (66.6%) had a depth of three feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the 133 pool tail-outs measured, 28 had a value of 1 (21.0%), the best rating,; 44 had a value of 2 (33.0%); 11 had a value of 3 (8.0%); 5 had a value of 4 (4.0%) and 45 had a value of 5 (34.0%) (Graph 6). On this scale, a value of 1 indicates the highest quality of spawning substrate and a value of 5 indicates the tail-out is not suitable for spawning. In Tomki Creek, nine of the forty-five pool tail-outs which were valued at 5 had silt, clay, or sand too small to be suitable for spawning as the substrate. The other tail-outs were unsuitable for spawning due to the tail-outs being comprised of boulder or bedrock.

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 16, flatwater habitat types had a mean shelter rating of 10, and pool habitats had a mean shelter rating of 22 (Table 1). Of the pool types, the main channel pools had the highest mean shelter rating at 23. Backwater pools had a mean shelter rating of 20 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Boulders are the dominant cover type in Tomki Creek and are extensive. Large and small woody debris are lacking in nearly all habitat types. Graph 7 describes the pool cover in Tomki Creek.

Table 6 summarizes the dominant substrate by habitat type. Gravel was the dominant substrate observed in 65 of the 131 pool tail outs measured (49.6%). Bedrock was the next most frequently observed substrate type and occurred in 18.3% of the pool tail outs (Graph 8).

The mean percent canopy density for the stream reach surveyed was 17%. The mean percentages of deciduous and coniferous trees were 91% and 9%, respectively. The mean percent of open units was 83%. Graph 9 describes the canopy composition in Tomki Creek.

For the stream reach surveyed, the mean percent right bank vegetated was 69.7%. The mean percent left bank vegetated was 60.5%. The dominant elements composing the structure of the stream banks consisted of 15.5% bedrock, 11.5% boulder, 53.5% cobble/gravel, and 19.5% sand/silt/clay (Graph 10). Deciduous trees were the dominant vegetation type observed in 62.5% of the units surveyed. Additionally, 25.0% of the units surveyed had brush as the dominant vegetation type, and 5.5% had coniferous trees as the dominant vegetation, including down trees, logs, and root wads (Graph 11).

BIOLOGICAL INVENTORY RESULTS

Five sites were electrofished on July 9, 1997, in Tomki Creek. The sites were sampled by Ruth Goodfield, Donna Miller and Todd Schaible (DFG/WSP).

The first site sampled included habitat units 002-003, a step run and main channel pool approximately 200 feet from the confluence with the Mainstem Eel River. This site had an area of 3,150 sq ft and a volume of 3,150 cu ft. The site yielded one 0 + steelhead, forty-six juvenile Sacramento squawfish and one Sacramento sucker.

The second site included habitat unit 111, a step run located approximately 13,575 feet above the creek mouth. This site had an area of 9,288 sq ft and a volume of 4,644 cu ft. The site yielded 60 juvenile Sacramento squawfish and three Sacramento suckers.

The third site sampled included habitat units 297, a main channel pool located approximately 33,972 feet above the creek mouth, near the confluence with Cave Creek. The site had an area of 432 sq ft and a volume of 734.4 cu ft. The site yielded fifteen juvenile Sacramento squawfish and 26 California roach.

The fourth site sampled included habitat units 298, a step run located approximately 34,023 feet above the creek mouth near the confluence with Cave Creek. The site had an area of 544 sq ft and a volume of 380.0 cu ft. The site yielded two 0 + steelhead, juvenile Sacramento squawfish and two California roach.

The fifth site sampled included habitat unit 447, a run located approximately 49,943 feet above the creek mouth. The site had an area of 1,148 sq ft. The site yielded seven juvenile Sacramento squawfish.

SUBSTRATE SAMPLING RESULTS

Substrate sampling was not conducted on Tomki Creek.

DISCUSSION

Tomki Creek is a F4 channel type for the first 11,906 feet of stream surveyed, a F1 channel type for the second 7,529 feet, a B1 channel type for 10,373 feet and a F4 channel type for the remaining 38,498 feet.

F4 channel types are suitable for some fish habitat improvement structures:

- Good for bank placed boulders.
- Fair for low-stage weirs; single and opposing wing-deflectors; channel constrictors; and log cover.
- Poor for medium-stage weirs; and boulder clusters.

F1 channel types are suitable for a few fish habitat improvement structures:

- Good for bank placed boulders.
- Fair for single wing-deflectors; and log cover.
- Poor for low and medium-stage weirs; boulder clusters; and opposing wing deflectors.

B1 channel types suitable for some fish habitat improvement structures:

- Excellent for bank placed boulders; and bank cover.
- Good for log cover.
- Poor for low-stage weir; single and opposing wing-deflectors; and boulder clusters.

The water temperatures recorded on the survey days July 3-29, 1997, ranged from 63 to 91 degrees Fahrenheit. Air temperatures ranged from 73 to 96 degrees Fahrenheit. This is a poor water temperature range for salmonids. Water temperatures greater than 68° F, if sustained, are near the threshold stress level for salmonids. This seems to be the case here, and Tomki Creek seems to have temperatures unfavorable to 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 53% of the total **length** of this survey, riffles 7%, pools 22% and dry 17%. The pools are relatively deep, with 90 of the 135 (66.6%) 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 for locations where their installation will not be threatened by high stream energy, or where their installation will not conflict with the any needed modification of log debris accumulations (LDA's). Many of these debris jams in the system are retaining needed spawning gravel. Any modifications to them should be done with the intent of metering the gravel out to downstream reaches that will trap the

gravel for future spawning use. Therefore, gravel retention features may need to be developed prior to any LDA modification.

Twenty-eight of the 133 pool tail-outs measured had an the best embeddedness rating of 1. Sixteen of the pool tail-outs had poor embeddedness ratings of 3 or 4. Forty-five of the pool tail-outs had a rating of 5 or were considered unsuitable for spawning. Nine of the forty-five were unsuitable for spawning due to the dominant substrate being silt, sand, or clay too small to be suitable. Cobble embeddedness measured to be 25% or less, a rating of 1, is considered to indicate good quality spawning substrate for salmon and steelhead. In Tomki Creek, sediment sources should be mapped and rated according to their potential sediment yields, and control measures should be taken.

The mean shelter rating for pools was low with a rating of 22. The shelter rating in the flatwater

habitats was slightly lower at 10. A pool shelter rating of approximately 100 is desirable. The relatively small amount of cover that now exists is being provided primarily by boulders in all habitat types. Additionally, terrestrial vegetation contributes a small amount. Log and root wad cover structures in the pool and flatwater habitats are needed to improve 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.

Eighty eight of the 131 pool tail outs measured had gravel or small cobble as the dominant substrate. Gravel and small cobble are generally considered good spawning substrate for salmonids.

The mean percent canopy density for the stream was 17%. This is a relatively low percentage of canopy. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left banks covered with vegetation was moderate at 69.7% and 60.5%, 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.

RECOMMENDATIONS

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

2) The limited water temperature data available suggest that maximum temperatures are above the acceptable range for juvenile salmonids. 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 at various sites along the stream.

3) Increase the canopy on Tomki Creek by planting willow, alder, and Douglas fir along the stream where shade canopy is not at acceptable levels. The reaches above this survey section should be inventoried and treated as well, since the water flowing here is effected from upstream. In many cases, planting will need to be coordinated to follow bank stabilization or upslope erosion control projects.

4) Active and potential sediment sources related to the road system need to be identified, mapped, and treated according to their potential for sediment yield to the stream and its tributaries.

5) Increase woody cover in the pools and flatwater habitat units. Most of the existing cover is from boulders. Adding high quality complexity with woody cover is desirable.

6) 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.

7) Inventory and map sources of stream bank erosion and prioritize them according to present and potential sediment yield. Identified sites should then be treated to reduce the amount of fine sediments entering the stream.

8) There are sections where the stream is being impacted from cattle trampling the riparian zone. Alternatives should be explored with the graziers and developed if possible.

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.

0' Begin survey at confluence with Mainstem Eel River. Channel type is F4.

175' Flow measured at 3 cfs.

200' Bioinventory site 1.

1249' Tributary enters from the right bank (RB).

2026' Dry tributary enters from the left bank (LB).

4042' Ephemeral tributary enters on the RB.

4226' RB slide 100 feet long and 30 feet high.

6357' There is a RB slide 120 feet long and 30 feet high contributing three 2-3 feet diameter trees.

7116' Tributary enters the RB.

9396' LB slide 175 feet long and 100 feet high.

9991' Juvenile Sacramento squawfish, approximately 6" in length, observed.

10787' Bearskin Canyon Creek enters on the RB, temperature 68 degrees.

11906' Channel type changes to a F1.

13935' Salmon Creek enters on the LB.

14198' Bioinventory site number 2.

14478' Dirt road fords the stream.

14627' Unnamed tributary enters the RB.

15592' Dry tributary enters from the LB.

15764' Dirt road fords the stream.

16098' Juvenile Sacramento squawfish observed.

19516' Channel type changes to a B1.

22155' Long Branch Creek enters the creek. It is dry at the confluence.

22651' Cattle in the creek.

25239' Scott Creek enters from the LB.

25697' Cattle are in the creek.

27706' LB slide, (225'L x 20"H), contributing some small trees, cobble and fines.

27940' Steelhead 0 + observed .

28740' LB slide, (130'L x 40' H) with 70% revegetation.

28987' LB slide (175'L x 40'H).

29327' Dry RB tributary.

29889' Channel type changes from a B1 to F4.

30210' LB slide (90'L x 60'H) contributing large cobble and fines.

28987' LB slide, (175'L x 40'H).

29327' Dry RB tributary.

29889' Channel type changes from a B1 to F4.

30210' LB slide, (90'L x 60'H) contributing large cobble and fines.

30610' LB slide (50'L x 30'H).

31386' Dry unnamed tributary on RB.

34926' Bioinventiory site number 3.

34977' Bioinventory site number 4.

35073' Cave Creek enters the RB.

39956' Unnamed tributary enters dry on the RB.

41594' Willits - Hearst Road bridge crosses the creek 175 feet long, 45 feet wide and 25 feet high. It is armored rip-rap on the LB.

41979' Flow measurement site number two; flow is .3 cfs.

42438' 2-3 diameter redwood lies in the middle of two pools.

43549' One dead steelhead YOY observed. Water temperature 82 degrees F.

44218' A dirt road fords the stream.

45788' LB failure 40 feet long and 30 feet high.

46397' A road enters on the LB.

47485' There is a RB failure 30 feet long and 30 feet high contributing cobble and fines.

48704' A dirt road fords the stream.

50163' Rocktree Creek enters on the RB.

50235' Hearst - Willits Road summer road ford.

50828' Bioinventory site number five.

50902' A dirt road fords the stream.

51222' Juvenile salmonids observed.

51678' A gravel bar road crosses the dry streambed.

52826' Gravel road crossing.

53655' A gravel road crossing goes into the streambed for 660 feet.

54248' A dry tributary enters the LB, dry side channel of this unit.

54796' A dry tributary from the LB enters the dry side channel of this unit.

54882' A 1 + steelhead juvenile observed.

54969' Gravel road crossing.

55683' There is a RB failure 70 feet long and 20 feet high.

55828' A dry tributary enters the RB.

56785' Gravel road crossing.

56882' Gravel road crossing.

57407' A gravel road crossing fords the stream.

57674' A dry tributary enters into a dry side channel from the LB.

58414' A dry tributary enters the LB.

60255' Dry tributary enters the RB.

60359' Gravel road crossing.

60912' LB dry tributary enters the creek.

62242' LB dry tributary enters the creek.

62720' LB dry tributary enters the creek.

62896' LB dry tributary enters the creek.

63091' Gravel road crossing.

64038' Dry RB tributary.

64662' Dry LB tributary.

65376' Dry RB tributary.

65700' Dry RB tributary.

66297' Dry RB tributary.

67810' Dry RB tributary.

68208' RB dry tributary.

68222' End of survey due to access denial by landowner.

REFERENCES

Flosi, G., Downie S., Hopelain J., Bird M., Coey R., and Collins B. 1998. California salmonid stream habitat restoration manual, 3d edition. California Department of Fish and Game, Sacramento, California.

Hopelain, J. 1995. Sampling levels for fish habitat inventory, unpublished manuscript. California Department of Fish and Game, Inland Fisheries Division, Sacramento, California.

Valentine, B. 1995. Stream substrate quality for salmonids: guidelines for sampling, processing, and analysis, unpublished manuscript. California Department of Forestry and Fire Protection, Santa Rosa, California.

LEVEL III and LEVEL IV HABITAT TYPE KEY

HABITAT TYPE	LETTER	NUMBER
RIFFLE		
Low Gradient Riffle	[LGR]	1.1
High Gradient Riffle	[HGR]	1.2
CASCADE		
Cascade	[CAS]	2.1
Bedrock Sheet	[BRS]	2.2
FLATWATER		
Pocket Water	[POW]	3.1
Glide	[GLD]	3.2
Run	[RUN]	3.3
Step Run	[SRN]	3.4
Edgewater	[EDW]	3.5
MAIN CHANNEL POOLS		
Trench Pool	[TRP]	4.1
Mid-Channel Pool	[MCP]	4.2
Channel Confluence Pool	[CCP]	4.3
Step Pool	[STP]	4.4
SCOUR POOLS		
Corner Pool	[CRP]	5.1
Lateral Scour Pool - Log Enhanced	[LSL]	5.2
Lateral Scour Pool - Root Wad Enhanced	[LSR]	5.3
Lateral Scour Pool - Bedrock Formed	[LSBk]	5.4
Lateral Scour Pool - Boulder Formed	[LSBo]	5.5
Plunge Pool	[PLP]	5.6
BACKWATER POOLS		
Secondary Channel Pool	[SCP]	6.1
Backwater Pool - Boulder Formed	[BPB]	6.2
Backwater Pool - Root Wad Formed	[BPR]	6.3
Backwater Pool - Log Formed	[BPL]	6.4
Dammed Pool	[DPL]	6.5