# STREAM INVENTORY REPORT

## Franchini Creek

### INTRODUCTION

A stream inventory was conducted beginning July 29 and ending July 30, 2003 on Franchini Creek. The survey began at the confluence with Buckeye Creek and extended upstream 5,658 feet.

The objective of the habitat inventory was to document the habitat available to anadromous salmonids in Franchini Creek.

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

Franchini Creek is a tributary to Buckeye Creek, a tributary to South Fork Gualala River, a tributary to the Gualala River, which drains to the Pacific Ocean. It is located in Sonoma County, California (Map 1). Franchini Creek's legal description at the confluence with Buckeye Creek is T10N R14W S1. Its location is 38°44′31″ north latitude and 123°22′04″ west longitude. Franchini Creek is an intermittent stream according to the USGS Annapolis 7.5 minute quadrangle. Franchini Creek drains a watershed of approximately 1.82 square miles. Elevations range from about 274 feet at the mouth of the creek to 1,521 feet in the headwater areas. Mixed conifer forest dominates the watershed. The watershed is entirely privately owned and is managed for timber production. Vehicle access exists approximately 7.2 miles south of Gualala at Annapolis Road. The stream is accessed by following Annapolis Road from Sea Ranch, east to Soda Springs Road. Follow Soda Springs Road for approximately 1 mile to a gravel road. Follow signs to Soda Springs Reserve for approximately 1.9 miles to Kelly Road. Follow Kelly Road west 1.2 miles to Franchini Creek culvert crossing.

### METHODS

The habitat inventory conducted in Franchini Creek follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi et al., 1998). The 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 Franchini 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". Franchini 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 Franchini 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 not suitable 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 Franchini 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 Franchini 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 evergreen 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 Franchini 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.

## DATA ANALYSIS

Data from the habitat inventory form are entered into Stream Habitat 1.0.37, a Visual Basic data entry program developed by Karen Wilson, Pacific States Marine Fisheries Commission in conjunction with the California Department of Fish and Game. This program processes and summarizes the data, and produces the following ten tables:

- Summary of riffle, flatwater, and pool habitat types
- Summary of habitat types and measured parameters
- Summary of pool types
- Summary of maximum pool depths by pool habitat types
- Summary of shelter by habitat types
- Summary of dominant substrates by habitat types
- Summary of fish habitat elements by stream reach

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

- Level II habitat types by % occurrence
- Level II habitat types by % total length
- Level IV habitat types by % occurrence
- Level I pool habitat types by % occurrence
- Maximum depth in pools
- Percent embeddedness estimated in pool tail-outs
- Mean percent cover types in pools
- Substrate composition in pool tail-outs
- Mean percent canopy
- Dominant bank composition in survey reach
- Dominant bank vegetation in survey reach

## HABITAT INVENTORY RESULTS

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

The habitat inventory of month July 29 to July 30, 2003, was conducted by K. Lucey and E. Pope (WSP/Americorp). The total length of the stream surveyed was 5,658 feet.

Stream flow was not measured on Franchini Creek

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Franchini Creek is a G4 channel type for 3,491 feet of the stream surveyed and an F4 channel type for 2,167 feet of the stream surveyed. G4 channels have entrenched gully step-pools, low width/depth ratio on moderate gradient and gravel-dominant substrates. F4 channels are entrenched meandering riffle/pool channels on low gradients with high width/depth ratio and gravel dominant substrates.

Water temperatures taken during the survey period ranged from 54° to 66° Fahrenheit. Air temperatures ranged from 61° to 76° Fahrenheit.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of occurrence there were 39% riffle units, 36% flatwater units, and 23% pool units (Graph 1). Based on total length of Level II habitat types there were 47% riffle units, 33% flatwater units, and 13% pool units (Graph 2).

Eleven Level IV habitat types were identified (Table 2). The most frequent habitat types by percent occurrence were low grade riffles, 37%; runs, 36%; and mid-channel pool, 20% (Graph 3). Based on percent total length, low grade riffle made up 44%, run 32%, and mid-channel pool 12%.

A total of 36 pools were identified (Table 3). Main channel pools were the most frequently encountered, at 89%, and comprised 92% 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. Sixteen of the 35 measured pools (46%) had a depth of two feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the 35 pool tail-outs measured, one had a value of 1 (3%); 12 had a value of 2 (34%); seven had a value of 3 (20%); 14 had a value of 4 (40%); and one had a value of 5 (3%) (Graph 6). On this scale, a value of 1 indicates the highest quality of spawning substrate.

Riffle habitat types had a mean shelter rating of 5, flatwater habitat types had a mean shelter rating of 6, and pool habitats had a mean shelter rating of 12 (Table 1). Of the pool types, the backwater pools had the highest mean shelter rating at 20. Main channel pools had a mean shelter rating of 12 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Large woody debris is the dominant cover type in Franchini Creek. Graph 7 describes the pool cover in Franchini Creek. Large woody debris is the dominant pool cover type followed by small woody debris.

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 60% of pool tail-outs while small cobble were the next most frequently observed substrate type, at 29%.

The mean percent canopy density for the surveyed length of Franchini Creek was 74%. The mean percentages of evergreen and deciduous trees were 24% and 50%, respectively with 26% of

the canopy open. Graph 9 describes the mean percent canopy in Franchini Creek.

For the stream reach surveyed, the mean percent right bank vegetated was 55%. The mean percent left bank vegetated was 54%. The dominant elements composing the structure of the stream banks consisted of 85% sand/silt/clay, 11% bedrock, and 4% cobble/gravel (Graph 10). Deciduous trees were the dominant vegetation type observed in 77% of the units surveyed. Additionally, 15% of the units surveyed had brush as the dominant vegetation type, and 1% had grass as the dominant vegetation (Graph 11).

## DISCUSSION

Franchini Creek is a G4 channel type for 3,491 feet of the stream surveyed and an F4 channel type for 2,167 feet of the stream surveyed. The suitability of G4 and F4 channel types for fish habitat improvement structures are as follows: G4 channel types are good for bank-placed boulders and fair for plunge weirs, opposing wing-deflectors and log cover. F4 channel types are good for bank-placed boulders and fair for plunge weirs, single and opposing wing-deflectors, channel constrictors and log cover.

The water temperatures recorded during the survey ranged from 54° to 66° Fahrenheit. Recorded water temperatures below 60° Fahrenheit were within the suitable range 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.

Riffle habitat types comprised 47% of the total length of this survey, flatwater 33%, and pools 13%. The pools are relatively shallow, with 16 of the 35 (46%) measured pools having a maximum depth greater than 2 feet. In general, pool enhancement projects are considered when primary pools comprise less than 40% of the length of total stream habitat. In first and second order streams, a primary pool is defined to have a maximum depth of at least two 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 modification of the numerous log debris accumulations (LDA's) in the stream.

Thirteen of the 35 pool tail-outs measured had embeddedness ratings of 1 or 2. Twenty one of the pool tail-outs had embeddedness ratings of 3 or 4. One of the pool tail-outs had a rating of 5, which is considered not suitable 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. Sediment sources in Franchini Creek should be mapped and rated according to their potential sediment yields, and control measures should be taken.

Thirty one of the 35 pool tail-outs measured had gravel or small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

The mean shelter for flatwater was 6. The mean shelter rating for pools was 12. 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 all habitat types. Additionally, small woody debris and undercut banks contribute a small amount.

The mean percent canopy density for the stream was 74%. Reaches 1 and 2 both had canopy densities of 74%. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was moderate at 55% and 54%, respectively. In areas of stream bank erosion or where bank vegetation is not at acceptable levels, planting endemic trees species, in conjunction with bank stabilization, is recommended.

## RECOMMENDATIONS

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

2) There are several log debris accumulations present on Franchini Creek that are retaining large quantities of fine sediment. The modification of these debris accumulations is desirable, but must be done carefully, over time, to avoid excessive sediment loading in downstream reaches.

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

5) Increase the canopy on Franchini Creek by planting willow, alder, redwood, 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 affected from upstream. In many cases, planting will need to be coordinated to follow bank stabilization or upslope erosion control projects.

6) 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.

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COMMENTS AND LANDMARKS

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

| Position (ft.) | Habitat Unit # | Comments: |
|---|---|---|
| 0 | 0001.00 | Start of survey at the confluence with Buckeye Creek. The channel is a G4. |
| 25 | 0003.00 | Double culvert under Kelley Road. Both culverts are metal and measure 5' diameter x 43' long. There is a 1' plunge at the outlet. The culvert on right is in worse condition than the culvert on the left. |
| 454 | 0013.00 | Right bank holding two pieces of large woody debris (LWD). |
| 551 | 0015.00 | Right bank failure measures 20' high x 15' long x 2' deep. Large debris accumulation (LDA) contains six pieces of LWD and measures 12' high x 19' wide. Water flows through the LDA and there are visible gaps in it. The LDA is retaining a volume of gravel and sand measuring 10' wide x 15' long x 2' deep. Fish were observed above the LDA. |
| 704 | 0021.00 | 8" salmonid observed. |
| 810 | 0023.00 | Left bank erosion site measures 10' high x 50' long x 2' deep. Mud and boulders on bank and in creek. |
| 926 | 0026.00 | LDA right bank accumulating LWD and small woody debris (SWD). The LDA measures 10' high x 8' wide x 25’ long. |
| 976 | 0027.00 | 4" salmonids observed. |
| 1198 | 0036.00 | Thick green algae. |
| 1420 | 0044.00 | 5' cascade |
| 1448 | 0046.00 | Thick algae cover. |
| 1466 | 0047.00 | Bridge measures 11' wide x 9' high x 40' long. |
| 1538 | 0049.00 | LDA on the right bank accumulating LWD and SWD. |
| 1597 | 0051.00 | LDA contains four pieces of LWD and measures 8' high x 10' wide x 10' long. Water flows through LDA and there are visible gaps in it. |

| | | |
|---|---|---|
| | | The LDA is not retaining sediment. |
| 1638 | 0053.00 | Right bank failure measures 15' high x 10' long x 1' deep. |
| 1675 | 0055.00 | LDA contains 15 pieces of LWD and measures 8' high x 23' wide x 17' long. Water flows through the LDA, but is severely constricted. There are no visible gaps in LDA. It is retaining a volume of gravel and small cobble measuring 8' wide x 10' long x 1' deep. Fish were observed above the LDA. |
| 1772 | 0057.00 | Left bank failure measures 15' high x 13' long x 2' deep. |
| 1783 | 0058.00 | Subterranean flow. |
| 1853 | 0059.00 | Salmonids observed. |
| 1867 | 0060.00 | Subterranean flow. |
| 2182 | 0061.00 | Young-of-the-year (YOY) salmonids observed. LDA contains 60 pieces of LWD and measures 12' high x 15' wide x 100' long. Water does not flow through LDA. There are visible gaps in LDA. It is retaining small to large cobble size sediment. |
| 2384 | 0067.00 | Fish observed. LDA contains 15 pieces of LWD and measures 18' high x 15' wide x 40' long. Water does not flow through the LDA and there are no visible gaps in it. The LDA is retaining a volume of silt to gravel size sediment measuring 10' wide x 10' long x 9' deep. Fish were observed above the LDA. |
| 2649 | 0077.00 | Unidentified fish observed. |
| 2846 | 0084.00 | Channel overgrown with willow. |
| 2926 | 0086.00 | LDA on right bank contains eight pieces of LWD and measures 4' high x 8' wide x 15' long. Water flows through the LDA, and there are visible gaps in it. The LDA is not retaining sediment. Fish were observed above the LDA. |
| 2974 | 0088.00 | LDA contains 20 pieces of LWD and measures 10' high x 16' wide x 20' long. Water flows through the LDA and there are visible gaps in it. The LDA is retaining sediment. Fish were observed above the LDA. |
| 3201 | 0094.00 | New Zealand mud snail found on cobble. |

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| | | |
|---|---|---|
| 3268 | 0097.00 | LDA contains six pieces of LWD, including 10' diameter old growth log. The LDA measures 12' high x 15' wide x 12' long. Water flows through LDA and there are visible gaps in it. The LDA is not retaining sediment. Fish were observed above the LDA. |
| 3375 | 0099.00 | Left bank failure measures 18' high x 20' long x 2' deep. LDA contains 20 pieces of LWD and measures 10' high x 20' wide x 30' long. Water flows through the LDA. There are no visible gaps in it. The LDA is retaining a volume of cobble sized sediment measuring 17' wide x 30' long x 4' deep. The erosion site is contributing debris to the LDA. |
| 3405 | 0100.00 | Red algae covering rocks in stream. |
| 3491 | 0101.00 | The channel changes from a G4 to an F4. Red/orange algae. |
| 3516 | 0102.00 | Unidentified fish observed. |
| 3558 | 0103.00 | Unidentified fish observed. |
| 3649 | 0106.00 | Salmonid observed. |
| 3777 | 0111.00 | Unidentified fish observed. |
| 3948 | 0115.00 | Red algae persists. |
| 4131 | 0121.00 | Unit covered with red algae. |
| 4376 | 0126.00 | Algae persists. |
| 4445 | 0129.00 | Unidentified fish observed. Channel type measured. |
| 4677 | 0134.00 | LDA measures 3' high x 6' wide x 18' long. Water flows through the LDA and there are visible gaps in it. The LDA is not retaining sediment. Fish were observed above the LDA. |
| 4798 | 0139.00 | LDA contains seven pieces of LWD and measures 6' high x 10' wide x 10' long. Water flows through the LDA and there are visible gaps in it. The LDA is not retaining sediment. No fish were observed above the LDA. |
| 5273 | 0149.00 | LDA contains 22 pieces of LWD and measures 8' high x 25' wide x 10' long. Water flows through the LDA and there are visible gaps in it. The LDA is retaining a volume of gravel sized sediment measuring 4' wide x 6' long x 3' deep. |

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| | | |
|---|---|---|
| 5309 | 0150.00 | LDA contains 80 pieces of LWD and measures 10' high x 35' wide x 60' long. There are visible gaps in the LDA. It is retaining a volume of gravel to cobble sized sediment measuring 25' wide x 10' deep. |
| 5409 | 0152.00 | LDA contains three pieces of LWD and measures 4' high x 10' wide x 6' long. Water flows through the LDA and there are visible gaps in it. The LDA is retaining a volume of gravel to cobble sized sediment. |
| 5611 | 0159.00 | Small left bank tributary with 60° grade. It is not accessible to fish. |
| 5658 | 0160.00 | End of survey. No fish observed above LDA at HU# 150. |

**Franchini 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] | |

## Franchini Creek

TABLES AND GRAPHS

**Table 1 - Summary of Riffle, Flatwater, and Pool Habitat Types**

Stream Name: Franchini Creek Drainage: Gualala River

Survey Dates: 7/29/2003 to 7/30/2003

Confluence Location: Quad: MCGUIRE RIDGE Legal Description: T10NR14WS01 Latitude: 38:44:31.0N Longitude: 123:22:04.0W

| Habitat Units | Units Fully Measured | Habitat Type | Habitat Occurrence (%) | Mean Length (ft.) | Total Length (ft.) | Percent Total Length | Mean Width (ft.) | Mean Depth (ft.) | Mean Max Depth (ft.) | Mean Area (sq.ft.) | Estimated Total Area (sq.ft.) | Mean Volume (cu.ft.) | Estimated Total Volume (cu.ft.) | Mean Residual Pool Vol (cu.ft.) | Mean Shelter Rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | CULVERT | 0.6 | 43 | 43 | 0.8 | 5.0 | 0.2 | | 215 | 215 | 43 | 43 | | |
| 3 | 0 | DRY | 1.9 | 142 | 425 | 7.5 | | | | | | | | | |
| 58 | 10 | FLATWATER | 36.3 | 32 | 1842 | 32.6 | 7.0 | 0.5 | 0.8 | 195 | 11287 | 100 | 5809 | | 6 |
| 36 | 36 | POOL | 22.5 | 20 | 719 | 12.7 | 9.4 | 0.8 | 1.8 | 197 | 7087 | 237 | 8279 | 189 | 12 |
| 62 | 4 | RIFFLE | 38.8 | 42 | 2629 | 46.5 | 11.0 | 0.4 | 1.0 | 503 | 31194 | 170 | 10516 | | 5 |

| Total Units | Total Units Fully Measured | Total Length (ft.) | Total Area (sq.ft.) | Total Volume (cu.ft.) |
|---|---|---|---|---|
| 160 | 51 | 5658 | 49782.55 | 24647.2 |

**Table 2 - Summary of Habitat Types and Measured Parameters**

Stream Name: Franchini Creek Drainage: Gualala River

Survey Dates: 7/29/2003 to 7/30/2003

Confluence Location: Quad: MCGUIRE RIDGE Legal Description: T10NR14WS01 Latitude: 38:44:31.0N Longitude: 123:22:04.0W

| Habitat Units | Units Fully Measured | Habitat Type | Habitat Occurrence (%) | Mean Length (ft.) | Total Length (ft.) | Total Length (%) | Mean Width (ft.) | Mean Depth (ft.) | Max Depth (ft.) | Mean Area (sq.ft.) | Estimated Total Area (sq.ft.) | Mean Volume (cu.ft.) | Estimated Total Volume (cu.ft.) | Mean Residual Pool Vol (cu.ft.) | Mean Shelter Rating | Mean Canopy (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59 | 2 | LGR | 36.9 | 42 | 2498 | 44.1 | 10 | 0.4 | 0.8 | 373 | 22034 | 149 | 8813 | | 0 | 71 |
| 2 | 1 | HGR | 1.3 | 30 | 60 | 1.1 | 6 | 0.3 | 0.7 | 300 | 600 | 90 | 180 | | 0 | 52 |
| 1 | 1 | CAS | 0.6 | 71 | 71 | 1.3 | 17 | 0.3 | 1.8 | 966 | 966 | 290 | 290 | | 20 | 82 |
| 57 | 9 | RUN | 35.6 | 31 | 1787 | 31.6 | 7 | 0.5 | 1.1 | 183 | 10444 | 95 | 5403 | | 6 | 77 |
| 1 | 1 | SRN | 0.6 | 55 | 55 | 1.0 | 6 | 0.5 | 0.8 | 297 | 297 | 149 | 149 | | 5 | 52 |
| 32 | 32 | MCP | 20.0 | 21 | 663 | 11.7 | 10 | 0.9 | 2.7 | 208 | 6641 | 253 | 7832 | 203 | 12 | 75 |
| 1 | 1 | LSBk | 0.6 | 24 | 24 | 0.4 | 6 | 0.4 | 1.2 | 144 | 144 | 115 | 115 | 58 | 5 | 92 |
| 2 | 2 | PLP | 1.3 | 9 | 18 | 0.3 | 4 | 0.3 | 1.3 | 39 | 78 | 20 | 41 | 10 | 10 | 47 |
| 1 | 1 | DPL | 0.6 | 14 | 14 | 0.2 | 16 | 1.1 | 1.9 | 224 | 224 | 291 | 291 | 246 | 20 | |
| 3 | 0 | DRY | 1.9 | 142 | 425 | 7.5 | | | | | | | | | | 88 |
| 1 | 1 | CUL | 0.6 | 43 | 43 | 0.8 | 5 | 0.2 | | 215 | 215 | 43 | 43 | | | |

| Total Units | Total Units Fully Measured | Total Length (ft.) | Total Area (sq.ft.) | Total Volume (cu.ft.) |
|---|---|---|---|---|
| 160 | 51 | 5658 | 41641.82 | 23156.67 |

# Franchini Creek

**Table 3 - Summary of Pool Types**

Stream Name: Franchini Creek  Drainage: Gualala River

Survey Dates: 7/29/2003 to 7/30/2003

Confluence Location: Quad: MCGUIRE RIDGE  Legal Description: T10NR14WS01  Latitude: 38:44:31.0N  Longitude: 123:22:04.0W

| Habitat Units | Units Fully Measured | Habitat Type | Habitat Occurrence (%) | Mean Length (ft.) | Total Length (ft.) | Total Length (%) | Mean Width (ft.) | Mean Residual Depth (ft.) | Mean Area (sq.ft.) | Estimated Total Area (sq.ft.) | Mean Residual Pool Vol (cu.ft.) | Estimated Total Resid.Vol. (cu.ft.) | Mean Shelter Rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32 | MAIN | 89 | 21 | 663 | 92 | 9.6 | 0.9 | 208 | 6641 | 203 | 6286 | 12 |
| 3 | 3 | SCOUR | 8 | 14 | 42 | 6 | 4.7 | 0.3 | 74 | 222 | 26 | 77 | 8 |
| 1 | 1 | BACKWATER | 3 | 14 | 14 | 2 | 16.0 | 1.1 | 224 | 224 | 246 | 246 | 20 |

| Total Units | Total Units Fully Measured | Total Length (ft.) | Total Area (sq.ft.) | Total Volume (cu.ft.) |
|---|---|---|---|---|
| 36 | 36 | 719 | 7087 | 6608.799 |

# Franchini Creek

**Table 4 - Summary of Maximum Residual Pool Depths By Pool Habitat Types**

Stream Name: Franchini Creek  Drainage: Gualala River

Survey Dates: 7/29/2003 to 7/30/2003

Confluence Location: Quad: MCGUIRE RIDGE  Legal Description: T10NR14WS01  Latitude: 38:44:31.0N  Longitude: 123:22:04.0W

| Habitat Units | Habitat Type | Habitat Occurrence (%) | < 1 Foot Maximum Residual Depth | < 1 Foot Percent Occurrence | 1 < 2 Feet Maximum Residual Depth | 1 < 2 Feet Percent Occurrence | 2 < 3 Feet Maximum Residual Depth | 2 < 3 Feet Percent Occurrence | 3 < 4 Feet Maximum Residual Depth | 3 < 4 Feet Percent Occurrence | >= 4 Feet Maximum Residual Depth | >= 4 Feet Percent Occurrence |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | MCP | 89 | 1 | 3 | 14 | 45 | 16 | 52 | 0 | 0 | 0 | 0 |
| 1 | LSBk | 3 | 0 | 0 | 1 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | PLP | 6 | 0 | 0 | 2 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | DPL | 3 | 0 | 0 | 1 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |

| Total Units | Total 1 Foot Max Resid. Depth | <Total 1 Foot % Occurrence | < Total 1< 2 Foot Max Resid. Depth | Total 1< 2 Foot % Occurrence | Total 2< 3 Foot Max Resid. Depth | Total 2< 3 Foot % Occurrence | Total 3< 4 Foot Max Resid. Depth | Total 3< 4 Foot % Occurrence | Total >= 4 Foot Max Resid. Depth | Total >= 4 Foot % Occurrence |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 3 | 18 | 51 | 16 | 46 | 0 | 0 | 0 | 0 |

Mean Maximum Residual Pool Depth (ft.): 1.8

## Franchini Creek

**Table 5 - Summary of Mean Percent Cover By Habitat Type**

Stream Name: Franchini Creek Drainage: Gualala River
Survey Dates: 7/29/2003 to 7/30/2003 Dry Units: 3
Confluence Location: Quad: MCGUIRE RIDGE Legal Description: T10NR14WS01 Latitude: 38:44:31.0N Longitude: 123:22:04.0W

| Habitat Units | Units Fully Measured | Habitat Type | Mean % Undercut Banks | Mean % SWD | Mean % LWD | Mean % Root Mass | Mean % Terr. Vegetation | Mean % Aquatic Vegetation | Mean % White Water | Mean % Boulders | Mean % Bedrock Ledges |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 59 | 2 | LGR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 1 | HGR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | CAS | 0 | 0 | 50 | 0 | 0 | 0 | 50 | 0 | 0 |
| 62 | 4 | TOTAL RIFFLE | 0 | 0 | 13 | 0 | 0 | 0 | 13 | 0 | 0 |
| 57 | 9 | RUN | 12 | 5 | 28 | 0 | 11 | 0 | 0 | 0 | 0 |
| 1 | 1 | SRN | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 |
| 58 | 10 | TOTAL FLAT | 11 | 5 | 26 | 0 | 10 | 0 | 10 | 0 | 0 |
| 32 | 31 | MCP | 14 | 19 | 44 | 1 | 4 | 1 | 1 | 7 | 7 |
| 1 | 1 | LSBk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| 2 | 2 | PLP | 40 | 0 | 48 | 0 | 0 | 0 | 13 | 0 | 0 |
| 1 | 1 | DPL | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 | 35 | TOTAL POOL | 15 | 16 | 45 | 1 | 3 | 1 | 2 | 6 | 9 |
| 1 | 0 | CUL | | | | | | | | | |
| 160 | 49 | TOTAL | 13 | 13 | 38 | 1 | 4 | 1 | 4 | 4 | 6 |

**Table 6 - Summary of Dominant Substrates By Habitat Type**

Stream Name: Franchini Creek Drainage: Gualala River
Survey Dates: 7/29/2003 to 7/30/2003 Dry Units: 3
Confluence Location: Quad: MCGUIRE RIDGE Legal Description: T10NR14WS01 Latitude: 38:44:31.0N Longitude: 123:22:04.0W

| Habitat Units | Units Fully Measured | Habitat Type | % Total Silt/Clay Dominant | % Total Sand Dominant | % Total Gravel Dominant | % Total Small Cobble Dominant | % Total Large Cobble Dominant | % Total Boulder Dominant | % Total Bedrock Dominant |
|---|---|---|---|---|---|---|---|---|---|
| 59 | 2 | LGR | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2 | 1 | HGR | 0 | 0 | 0 | 0 | 100 | 0 | 0 |
| 1 | 1 | CAS | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| 57 | 9 | RUN | 67 | 22 | 11 | 0 | 0 | 0 | 0 |
| 1 | 1 | SRN | 0 | 0 | 100 | 0 | 0 | 0 | 0 |
| 32 | 32 | MCP | 50 | 16 | 22 | 3 | 9 | 0 | 0 |
| 1 | 1 | LSBk | 0 | 0 | 0 | 0 | 100 | 0 | 0 |
| 2 | 2 | PLP | 0 | 0 | 50 | 0 | 50 | 0 | 0 |
| 1 | 1 | DPL | 0 | 100 | 0 | 0 | 0 | 0 | 0 |

## Franchini Creek

**Table 8 - Fish Habitat Inventory Data Summary**

Stream Name: Franchini Creek | Drainage: Gualala River

Survey Dates: 7/29/2003 to 7/30/2003 | Survey Length (ft.): 5658 | Main Channel (ft.): 5658 | Side Channel (ft.): 0

Confluence Location: Quad: MCGUIRE RIDGE | Legal Description: T10NR14WS01 | Latitude: 38:44:31.0N | Longitude: 123:22:04.0W

**Summary of Fish Habitat Elements By Stream Reach**

**STREAM REACH: 1**

Channel Type: G4
Reach Length (ft.): 3491
Riffle/Flatwater Mean Width (ft.): 8.7
BFW:
Range (ft.): 14 to 21
Mean (ft.): 17
Std. Dev.: 2
Base Flow (cfs.): 0.0
Water (F): 54 - 66 Air (F): 61 - 76
Dry Channel (ft): 425

Canopy Density (%): 74
Coniferous Component (%): 39
Deciduous Component (%): 61
Dominant Bank Vegetation: Deciduous Trees
Vegetative Cover (%): 89
Dominant Shelter: Large Woody Debris
Dominant Bank Substrate Type: Sand/Silt/Clay
Occurrence of LWD (%): 35
LWD per 100 ft.:
Riffles: 0
Pools: 10
Flat: 1

Pools by Stream Length (%): 13
Pool Frequency (%): 24
Residual Pool Depth (%):
< 2 Feet Deep: 67
2 to 2.9 Feet Deep: 33
3 to 3.9 Feet Deep: 0
>= 4 Feet Deep: 0
Mean Max Residual Pool Depth (ft.): 1.7
Mean Pool Shelter Rating: 13

Pool Tail Substrate (%): Silt/Clay: 4 Sand: 0 Gravel: 65 Sm Cobble: 17 Lg Cobble: 13 Boulder: 0 Bedrock: 0
Embeddedness Values (%): 1. 4 2. 46 3. 29 4. 17 5. 4

**STREAM REACH: 2**

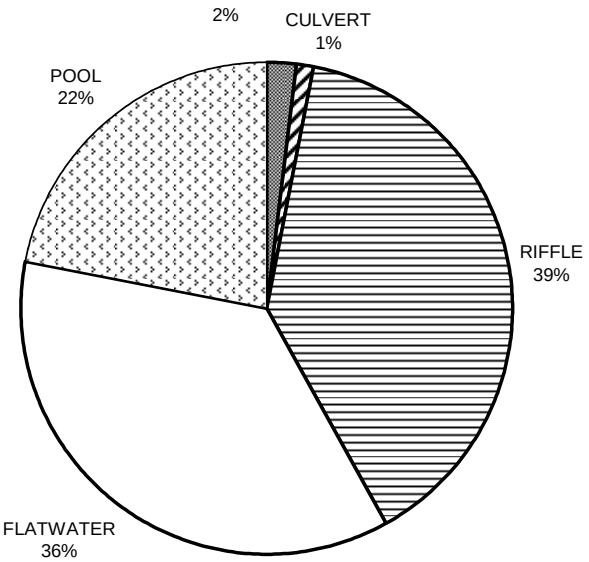
Channel Type: F4
Reach Length (ft.): 2167
Riffle/Flatwater Mean Width (ft.): 7.2
BFW:
Range (ft.): 11 to 17
Mean (ft.): 14
Std. Dev.: 2
Base Flow (cfs.): 0.0
Water (F): 62 - 62 Air (F): 65 - 70
Dry Channel (ft): 0

Canopy Density (%): 74
Coniferous Component (%): 25
Deciduous Component (%): 75
Dominant Bank Vegetation: Deciduous Trees
Vegetative Cover (%): 94
Dominant Shelter: Large Woody Debris
Dominant Bank Substrate Type: Sand/Silt/Clay
Occurrence of LWD (%): 41
LWD per 100 ft.:
Riffles: 1
Pools: 9
Flat: 5

Pools by Stream Length (%): 13
Pool Frequency (%): 20
Residual Pool Depth (%):
< 2 Feet Deep: 27
2 to 2.9 Feet Deep: 73
3 to 3.9 Feet Deep: 0
>= 4 Feet Deep: 0
Mean Max Residual Pool Depth (ft.): 2.0
Mean Pool Shelter Rating: 9

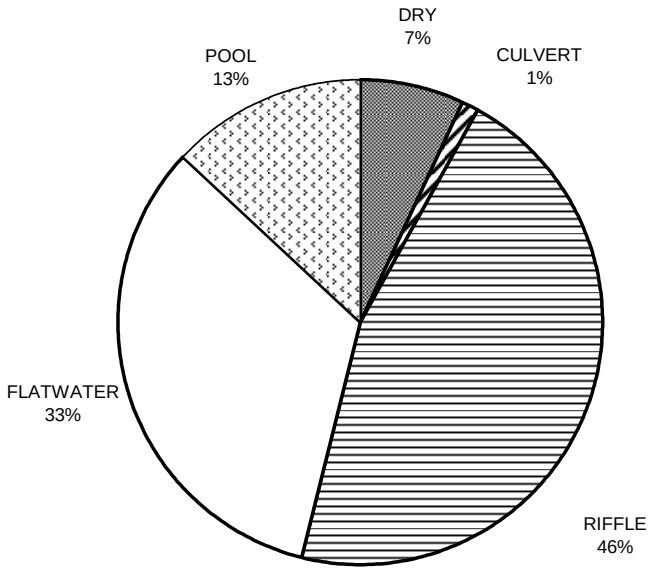
Pool Tail Substrate (%): Silt/Clay: 0 Sand: 0 Gravel: 64 Sm Cobble: 36 Lg Cobble: 0 Boulder: 0 Bedrock: 0
Embeddedness Values (%): 1. 0 2. 9 3. 0 4. 91 5. 0

# FRANCHINI CREEK
## HABITAT TYPES BY PERCENT OCCURRENCE



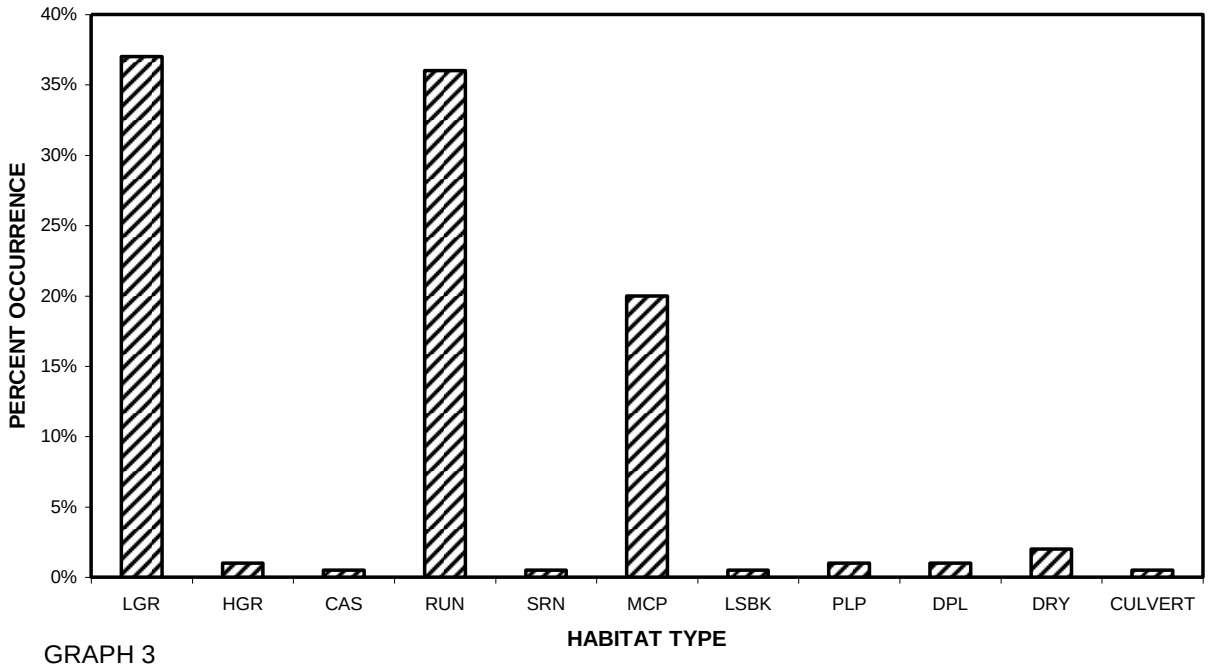

GRAPH 1

# FRANCHINI CREEK
## HABITAT TYPES BY PERCENT TOTAL LENGTH



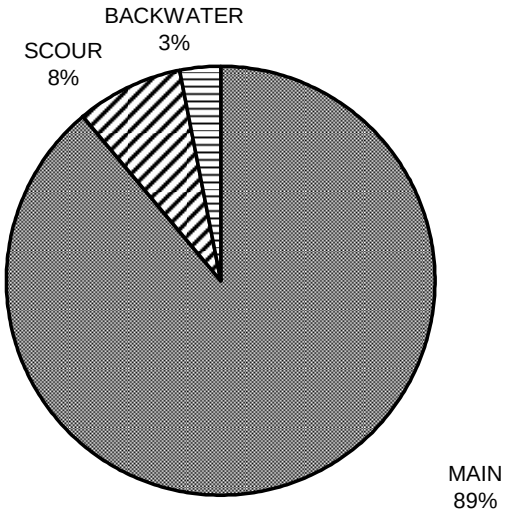

GRAPH 2

# FRANCHINI CREEK
## HABITAT UNIT TYPES BY PERCENT OCCURRENCE

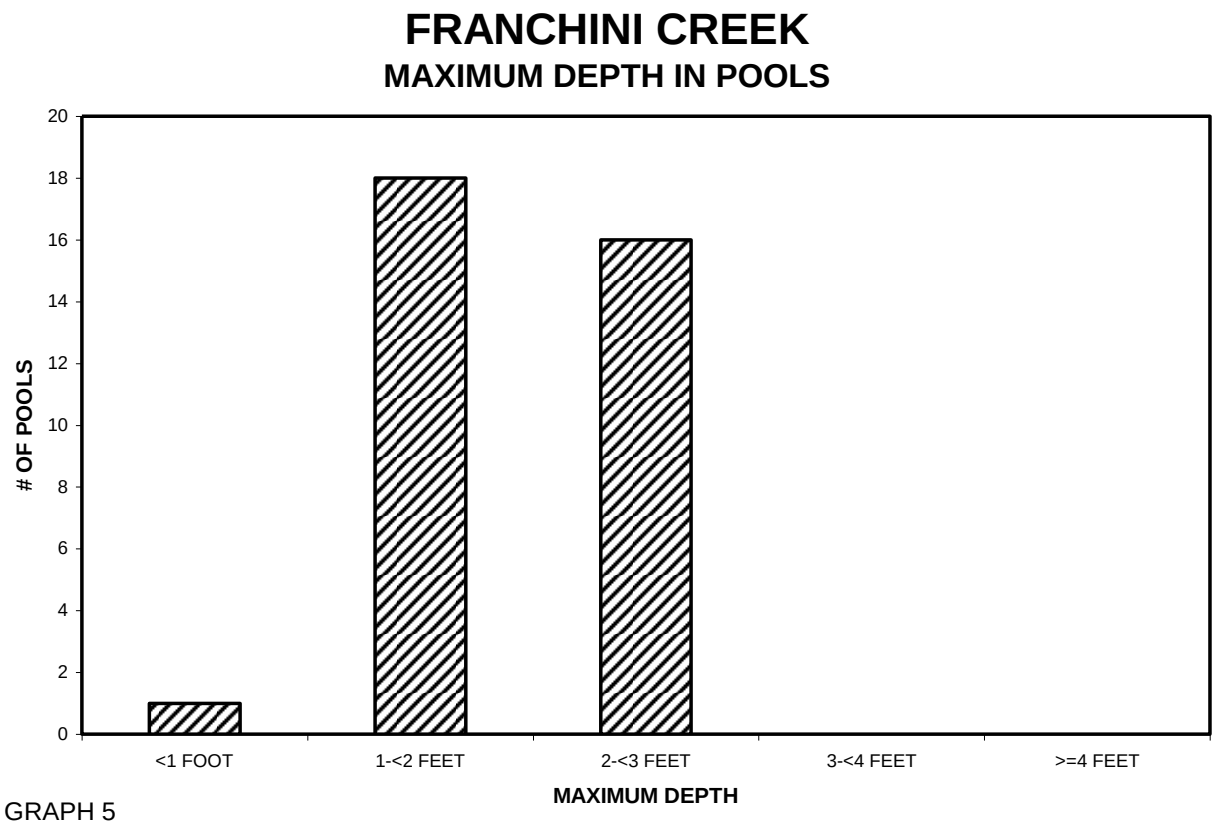



GRAPH 3

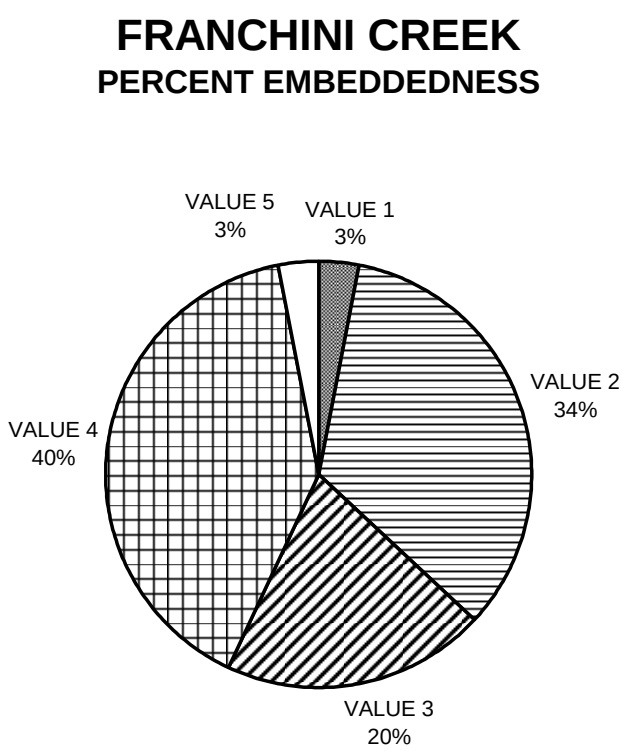
# FRANCHINI CREEK
## POOL HABITAT TYPES BY PERCENT OCCURRENCE




GRAPH 4

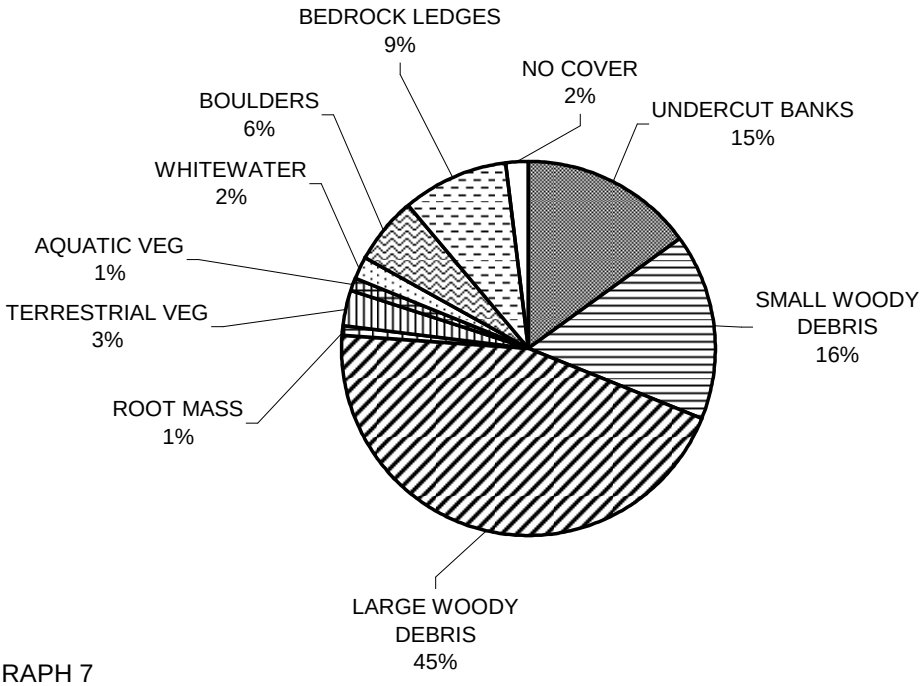



GRAPH 5



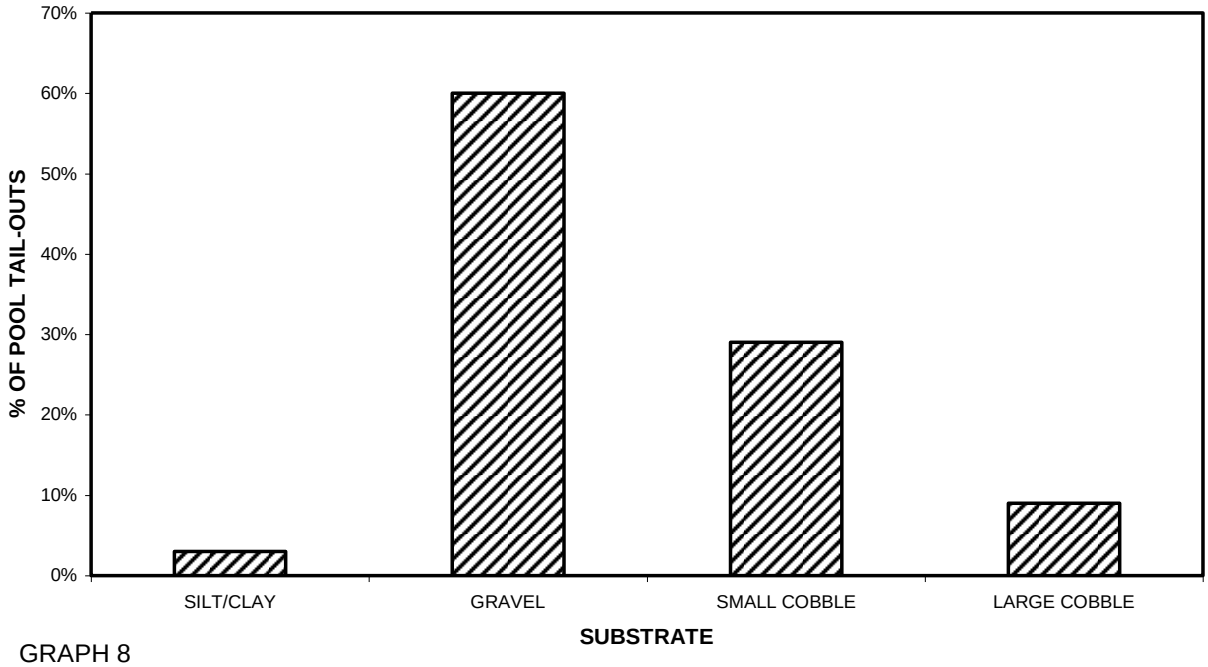

GRAPH 6

# FRANCHINI CREEK
## MEAN PERCENT COVER TYPES IN POOLS



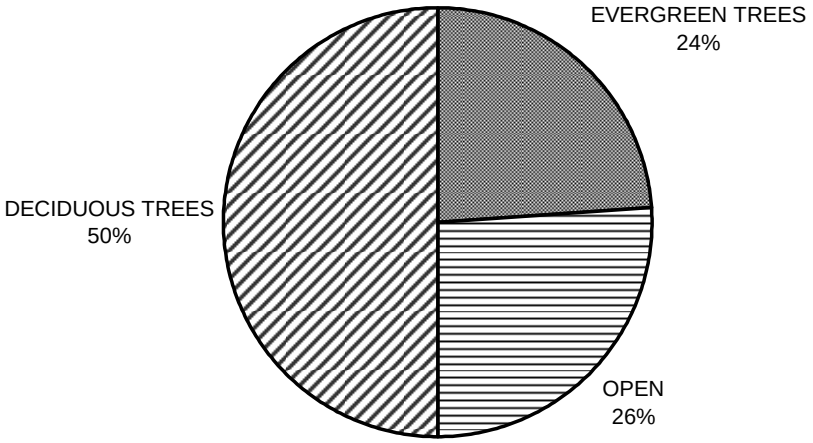

GRAPH 7

# FRANCHINI CREEK
## SUBSTRATE COMPOSITION IN POOL TAIL-OUTS



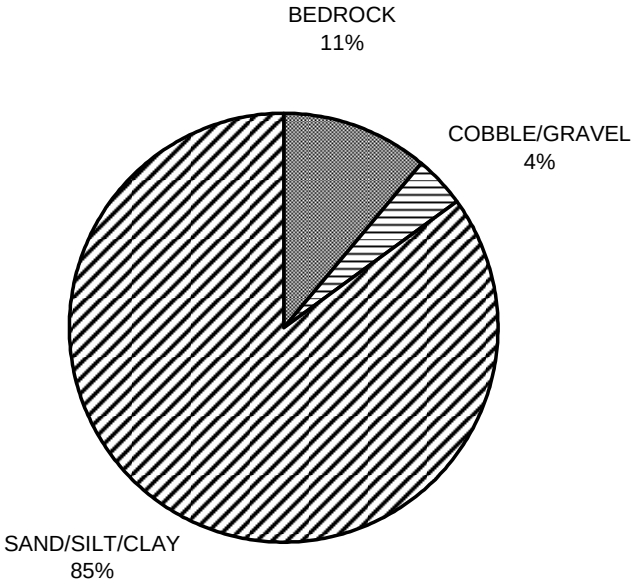

GRAPH 8

# FRANCHINI CREEK
## MEAN PERCENT CANOPY



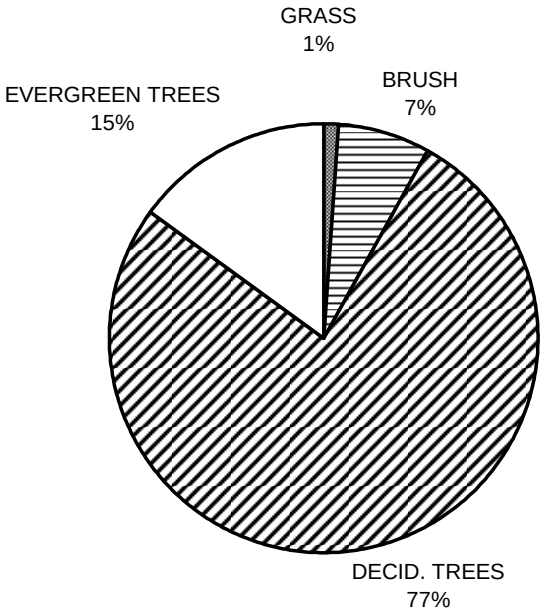

GRAPH 9

# FRANCHINI CREEK
## DOMINANT BANK COMPOSITION IN SURVEY REACH



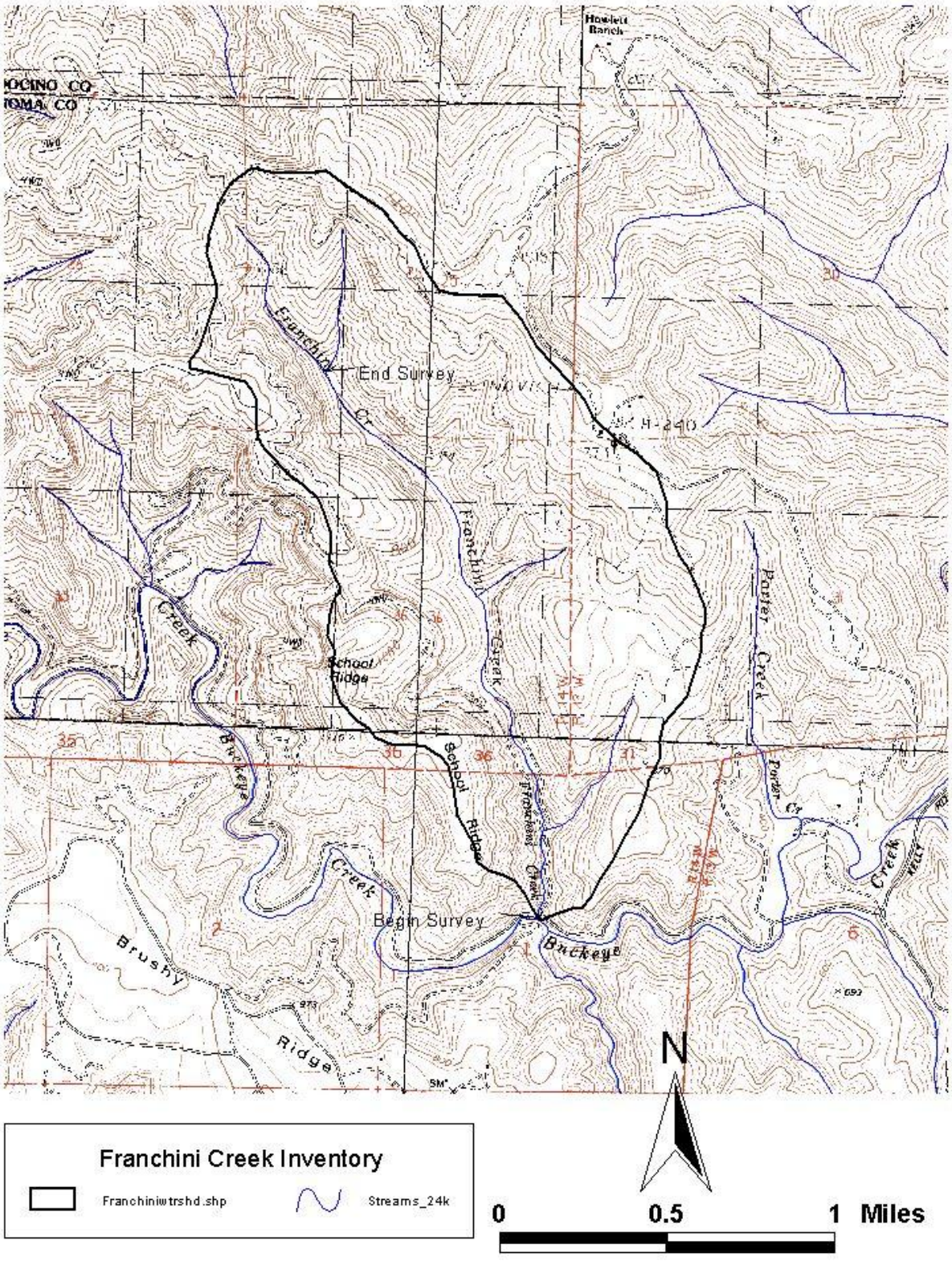

GRAPH 10

# FRANCHINI CREEK
## DOMINANT BANK VEGETATION IN SURVEY REACH




GRAPH 11

**Franchini Creek**




MAP 1. Map of Franchini Creek showing the stream habitat inventory reach and watershed b

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Rosgen, D.L., 1994. A Classification of Natural Rivers. Catena, Vol 22: 169-199, Elsevier Science, B. V. Amsterdam. oundary.