

STREAM INVENTORY REPORT

North Fork of South Fork Noyo River

INTRODUCTION

A stream inventory was conducted from June 21, 2010 to July 14, 2010 on the North Fork of the South Fork Noyo River. The survey began at the confluence with the South Fork Noyo River and extended upstream 6.3 miles.

The North Fork of the South Fork Noyo River 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 the North Fork of the South Fork Noyo River. 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

The North Fork of the South Fork Noyo River is a tributary to the South Fork Noyo River, a tributary to the Noyo River, which drains to the Pacific Ocean. It is located in Mendocino County, California (Map 1). The North Fork of the South Fork Noyo River's legal description at the confluence with the South Fork Noyo River is T18N R16W S30. Its location is 39.39082 degrees north latitude and 123.68569 degrees west longitude, LLID number 1236844393908. The North Fork of the South Fork Noyo River is a second order stream and has approximately 6.6 miles of blue line stream according to the USGS Noyo Hill 7.5 minute quadrangle. The North Fork of the South Fork Noyo River drains a watershed of approximately 10 square miles. Elevations range from about 330 feet at the mouth of the creek to 1,200 feet in the headwater areas. Mixed conifer forest dominates the watershed. The watershed is in the Jackson Demonstration State Forest and is managed by the California Department of Forestry and Fire Protection for timber production. Vehicle access exists via California Division of Forestry and Fire Protection Road 300.

METHODS

The habitat inventory conducted in the North Fork of the South Fork Noyo River follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi et al, 1998). The Watershed Stewards Project/AmeriCorps (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.

North Fork of South Fork Noyo River

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 the North Fork of the South Fork Noyo River to record measurements and observations. There are eleven components to the inventory form.

1. Flow:

Flow is measured in cubic feet per second (cfs) near 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 (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 (1990). 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". The North Fork of the South Fork Noyo River 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

North Fork of South Fork Noyo River

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 the North Fork of the South Fork Noyo River, 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 like bedrock, log sills, boulders or other considerations.

6. Shelter Rating:

Instream shelter is composed of those elements within a stream channel that provide juvenile 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 for prey. 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 the North Fork of the South Fork Noyo River, 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 densimeters as described in the *California Salmonid Stream Habitat Restoration Manual*. Canopy density relates to the amount of stream shaded from the sun. In the North Fork of the South Fork Noyo River, 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 hardwood 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

North Fork of South Fork Noyo River

withstand winter flows. In the North Fork of the South Fork Noyo River, 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.

10. Large Woody Debris Count:

Large woody debris (LWD) is an important component of fish habitat and an element in channel forming processes. In each habitat unit all pieces of LWD partially or entirely below the elevation of bankfull discharge are counted and recorded. The minimum size to be considered is twelve inches in diameter and six feet in length. The LWD count is presented by reach and is expressed as an average per 100 feet.

11. Average Bankfull Width:

Bankfull width can vary greatly in the course of a channel type stream reach. This is especially true in very long reaches. Bankfull width can be a factor in habitat components like canopy density, water temperature, and pool depths. Frequent measurements taken at riffle crests (velocity crossovers) are needed to accurately describe reach widths. At the first appropriate velocity crossover that occurs after the beginning of a new stream survey page (ten habitat units), bankfull width is measured and recorded in the appropriate header block of the page. These widths are presented as an average for the channel type reach.

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 the North Fork of the South Fork Noyo River. In addition, underwater observations were made at 14 sites using techniques discussed in the *California Salmonid Stream Habitat Restoration Manual*.

DATA ANALYSIS

Data from the habitat inventory form are entered into Stream Habitat 2.0.19, 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:

- 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

North Fork of South Fork Noyo River

- 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 the North Fork of the South Fork Noyo River 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

HABITAT INVENTORY RESULTS

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

The habitat inventory of June 21, 2010 to July 14, 2010, was conducted by M. Groff and J. Coombes (WSP), and S. McSmith and I. Mikus (DFG). The total length of the stream surveyed was 33,069 feet with an additional 228 feet of side channel.

Stream flow was measured near the bottom of the survey reach with a Marsh-McBirney Model 2000 flowmeter at 2.75 cfs on June 21, 2010

The North Fork of the South Fork Noyo River is an F4 channel type for the entire 33,069 feet of the stream surveyed. F4 channel types are entrenched meandering riffle/pool channels on low gradients with high width/depth ratios and gravel-dominant substrates.

Water temperatures taken during the survey period ranged from 52 to 58 degrees Fahrenheit. Air temperatures ranged from 49 to 69 degrees Fahrenheit.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of occurrence there were 48% pool units, 26% flatwater units, and 24% riffle units (Graph 1). Based on total length of Level II habitat types there were 56% pool units, 27% flatwater units, and 16% riffle units (Graph 2).

Fourteen Level IV habitat types were identified (Table 2). The most frequent habitat types by percent occurrence were mid-channel pool units, 31%; low gradient riffle units, 22%; run units,

North Fork of South Fork Noyo River

13%; and step run units, 13% (Graph 3). Based on percent total length, mid-channel pool units made up 40%, step run units 16%, and run units 11%.

A total of 299 pools were identified (Table 3). Main channel pools were the most frequently encountered at 66% (Graph 4), and comprised 72% of the total length of all pools (Table 3).

Table 4 is a summary of maximum residual pool depths by pool habitat types. Pool quality for salmonids increases with depth. One hundred fifty-eight of the 299 pools (53%) had a residual depth of two feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the 299 pool tail-outs measured, 220 had a value of 1 (73.6%); 62 had a value of 2 (20.7%); 12 had a value of 3 (4%); 5 had a value of 5 (1.7%) (Graph 6). On this scale, a value of 1 indicates the best spawning conditions and a value of 4 the worst. Additionally, a value of 5 was assigned to tail-outs deemed not suitable for spawning due to inappropriate substrate such as bedrock, log sills, boulders, or other considerations.

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 4, flatwater habitat types had a mean shelter rating of 4, and pool habitats had a mean shelter rating of 23 (Table 1). Of the pool types, the scour pools had the highest mean shelter rating at 24. Main channel pools had a mean shelter rating of 22. Backwater pools had a mean shelter rating of 10 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Large woody debris is the dominant cover type in the North Fork of the South Fork Noyo River. Graph 7 describes the pool cover in the North Fork of the South Fork Noyo River. 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 72% of the pool tail-outs. Small cobble was the next most frequently observed dominant substrate type and occurred in 21% of pool the tail-outs.

The mean percent canopy density for the surveyed length of the North Fork of the South Fork Noyo River was 94%. Six percent of the canopy was open. Of the canopy present, the mean percentages of hardwood and coniferous trees were 39% and 61%, respectively. Graph 9 describes the mean percent canopy in the North Fork of the South Fork Noyo River.

For the stream reach surveyed, the mean percent right bank vegetated was 97%. The mean percent left bank vegetated was 97%. The dominant elements composing the structure of the stream banks consisted of 60% cobble/gravel, 24% sand/silt/clay, 13% bedrock, and 2% boulder (Graph 10). Coniferous trees were the dominant vegetation type observed in 50% of the units surveyed. Additionally, 28% of the units surveyed had hardwood trees as the dominant vegetation type, and 22% had brush as the dominant vegetation type (Graph 11).

North Fork of South Fork Noyo River

BIOLOGICAL INVENTORY RESULTS

Survey teams conducted snorkel surveys at 14 sites for species composition and distribution in the North Fork of the South Fork Noyo River on July 20, 2010. Water temperatures taken during the survey period of 1330 hours to 1600 hours ranged from 57 to 58 degrees Fahrenheit. Air temperatures ranged from 64 to 70 degrees Fahrenheit. The sites were sampled by I. Mikus (DFG).

Fourteen sites were sampled. The reach sites yielded 98 young-of-the-year steelhead/rainbow trout (SH/RT), 9 age 1+ SH/RT, 3 age 2+ SH/RT, and 43 coho salmon.

The following chart displays the information yielded from these sites:

2010 North Fork of the South Fork Noyo River underwater observations.

Date	Survey Site #	Habitat Unit #	Habitat Type	Approx. Dist. from mouth (ft.)	SH/RT			Coho	
					YOY	1+	2+	YOY	1+
F4 Channel Type									
07/20/10	1	075	Pool	6,493	7	1	0	5	0
	2	156	Pool	11,504	7	1	0	14	0
	3	162	Pool	11,934	14	0	0	24	0
	4	181	Pool	12,973	7	0	1	0	0
	5	185	Pool	13,151	5	0	0	0	0
	6	217	Pool	15,386	5	0	0	0	0
	7	221	Pool	15,670	4	0	0	0	0
	8	222	Pool	15,775	7	1	0	0	0
	9	249	Pool	17,248	5	2	1	0	0
	10	268	Pool	18,259	7	1	0	0	0
	11	323	Pool	20,988	5	1	1	0	0
	12	326	Pool	21,132	14	0	0	0	0
	13	331	Pool	21,341	3	1	0	0	0
	14	344	Pool	22,146	8	1	0	0	0

DISCUSSION

The North Fork of the South Fork Noyo River is an F4 channel type for the entire 33,069 feet of the stream surveyed. The suitability of F4 channel types for fish habitat improvement structures

North Fork of South Fork Noyo River

is as follows: 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 on the survey days June 31, 2010 to July 14, 2010, ranged from 52 to 58 degrees Fahrenheit. Air temperatures ranged from 49 to 69 degrees Fahrenheit. To make any conclusions, temperatures need to be monitored throughout the warm summer months, and more extensive biological needs to be conducted.

Flatwater habitat types comprised 27% of the total length of this survey, riffles 16%, and pools 56%. One hundred fifty-eight of the 299 (53%) pools had a maximum residual 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 residual 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.

Two hundred eighty-two of the 299 pool tail-outs measured had embeddedness ratings of 1 or 2. Twelve of the pool tail-outs had embeddedness ratings of 3 or 4. Five 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.

Two hundred seventy-seven of the 299 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 is 23. The shelter rating in the flatwater habitats is 4. 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 the North Fork of the South Fork Noyo River. Large woody debris is the dominant cover type in pools followed by small woody debris. 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 94%. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was 97% and 97%, respectively. In areas of stream bank erosion or where bank vegetation is sparse, planting endemic species of coniferous and hardwood trees, in conjunction with bank stabilization, is recommended.

RECOMMENDATIONS

- 1) The North Fork of the South Fork Noyo River should be managed as an anadromous, natural production stream.

North Fork of South Fork Noyo River

- 2) The limited water temperature data available suggest that maximum temperatures are within 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.
- 3) Increase woody cover in the pools and flatwater habitat units. Most of the existing cover in the pools is from large woody debris. Adding high quality complexity with woody cover in the pools is desirable.

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):	Habitat Unit #:	Comment:
0	0001.00	Start of survey at the confluence with the South Fork Noyo River. The channel is an F4 for the entire length of the survey, 33,069 feet.
279	0005.00	A logging road crosses the channel. The crossing is an 18' wide x 34' long x 5.8' high wooden bridge with concrete abutments.
1084	0015.00	Out of the influence of the South Fork Noyo River.
2195	0024.00	Tributary #01 enters on the left bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream of the tributary is 55 degrees Fahrenheit, the water temperature of the tributary is 53 degrees Fahrenheit, and the water temperature upstream of the confluence is 57 degrees Fahrenheit. The slope of the tributary is approximately 2%. The tributary is accessible to fish, but a culvert approximately 75' upstream from the mouth may be a potential barrier to juvenile salmonids due to a 0.5' jump to the culvert. Fish were not observed in the tributary.
4321	0049.00	Log debris accumulation (LDA) #01 contains 15 pieces of large woody debris (LWD) and measures 12' high x 54' wide x 28' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 28' wide x 50' long x 6' deep. It is a possible barrier to juvenile and adult salmonids. Fish are present above the LDA. There is an inactive landslide on the right bank measuring 20' long x 50' high.
4785	0055.00	Woody debris is accumulating in the channel.

North Fork of South Fork Noyo River

5293	0059.00	Tributary #02, "Gonzo Gulch" enters on the right bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 52 degrees Fahrenheit; the water temperature of the tributary is 51 degrees Fahrenheit. For more information, see the 2010 "Gonzo Gulch" Stream Habitat Inventory Report.
5346	0060.00	There is an old bridge abutment on the right bank.
5856	0067.00	Old wooden bridge abutments on both banks.
6405	0075.00	Brandon Gulch (Tributary #03) enters on the right bank. It contributes approximately 20% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream of the tributary is 52 degrees Fahrenheit, the water temperature of the tributary is 52 degrees Fahrenheit, and the water temperature upstream of the confluence is 54 degrees Fahrenheit. For more information, see the 2010 Brandon Gulch Stream Habitat Inventory Report. There are old wooden bridge abutments on both banks.
6775	0080.00	A logging road crosses the channel. The crossing is a 26' wide x 41' long x 14.4' high wooden bridge with concrete abutments.
8182	0101.00	Old wooden bridge abutment on the right bank.
8295	0103.00	An old wooden bridge abutment on the left bank has partially collapsed, contributing three pieces of LWD and gravel to the channel.
9082	0115.00	Tributary #04 enters on the right bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream of the tributary is 54 degrees Fahrenheit, the water temperature of the tributary is 55 degrees Fahrenheit, and the water temperature upstream of the confluence is 55 degrees Fahrenheit. The tributary flows into the North Fork of the South Fork Noyo River through a 1' diameter corrugated metal pipe culvert 15' up the right bank, making it inaccessible to fish.
10470	0139.00	Right bank seep.
11371	0156.00	Small woody debris is accumulating in the channel.
11613	0159.00	Tributary #05 enters on the left bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream of the tributary is 52 degrees Fahrenheit, the water temperature of the tributary is 55 degrees Fahrenheit, and the water temperature upstream of the confluence is 56 degrees Fahrenheit.

North Fork of South Fork Noyo River

The slope of the tributary is 15%. The tributary goes dry 15' upstream from the mouth, making it inaccessible to fish.

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| 11986 | 0165.00 | Tributary #06 enters on the left bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 54 degrees Fahrenheit; the water temperature of the tributary is 52 degrees Fahrenheit. The tributary flows into the mainstem over a 12' high bedrock sheet with a 100% slope, making it inaccessible to fish. |
| 12066 | 0166.00 | LDA #02 contains 14 pieces of LWD and measures 9' high x 47' wide x 50' long. Water flows through the LDA and there are visible gaps in it. The LDA is not retaining sediment. Fish are present above the LDA. |
| 13719 | 0194.00 | LDA #03 contains 18 pieces of LWD and measures 7' high x 52' wide x 43' long. Water flows through the LDA and there are visible gaps in it. The LDA is retaining fine sediment measuring 15' wide x 30' long x 2' deep. Fish are present above the LDA. |
| 13758 | 0195.00 | Tributary #07 enters on the right bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The tributary flows into the North Fork of the South Fork Noyo River through a 1.5' diameter corrugated metal pipe 10.5' up the right bank, making it inaccessible to fish. |
| 14550 | 0208.00 | Tributary #08 enters on the right bank. It contributes less than 5% of the North Fork of the South Fork Noyo River's flow. For more information see the 2010 "Unnamed Tributary" (LLID# 1236615394063) Stream Habitat Inventory Report. |
| 14606 | 0209.00 | Woody debris is accumulating in the channel. |
| 15835 | 0224.00 | Tributary #09 enters on the left bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 56 degrees Fahrenheit; the water temperature of the tributary is 53 degrees Fahrenheit. The slope of the tributary is 22%. The high gradient makes it inaccessible to fish. |
| 17688 | 0261.00 | There is a 1' high plunge. |
| 18582 | 0278.00 | LDA #04 contains eight pieces of LWD and measures 7' high x 40' wide x 12' long. Water flows through the LDA and there are no visible gaps in it. Retained sediment ranges from silt to gravel and measures 20' wide x 25' long x 2' deep. Fish are present above the LDA. |

North Fork of South Fork Noyo River

19506	0299.00	Tributary #10, "Shooter Gulch", enters on the left bank. It contributes approximately 10% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 55 degrees Fahrenheit; the water temperature of the tributary is 54 degrees Fahrenheit. For more information, see the 2010 "Shooter Gulch" Stream Habitat Inventory Report.
20291	0313.00	Small woody debris is accumulating in the channel.
21132	0327.00	50% of the unit's substrate is covered with filamentous green algae.
21159	0328.00	90% of the unit's substrate is covered with filamentous green algae.
21198	0329.00	75% of the unit's substrate is covered with filamentous green algae.
21224	0330.00	10% of the unit's substrate is covered with filamentous green algae.
22146	0345.00	Remnants of rail road trestle on left bank.
22199	0348.00	LDA #05 contains 12 pieces of LWD and measures 6' high x 45' wide x 13' long. Water flows through the LDA and there are visible gaps in it. The LDA is not retaining sediment. Fish are present above the LDA.
22212	0349.00	There is a 1.5' high plunge.
23031	0366.00	Tributary #11, "Grover Gulch", enters on the right bank. It contributes approximately 10% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 58 degrees Fahrenheit; the water temperature of the tributary is 55 degrees Fahrenheit. For more information, see the 2010 "Grover Gulch" Stream Habitat Inventory Report.
23564	0377.00	There is a 1' high plunge.
23776	0384.00	An erosion site on the right bank measures 40' high x 15' wide; it is contributing fine sediment and gravel to the channel.
23826	0386.00	Tributary #12 enters on the left bank. It contributes approximately 1% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 54 degrees Fahrenheit; the water temperature of the tributary is 54 degrees Fahrenheit. The high gradient makes it inaccessible to fish.
23886	0387.00	LDA #06 contains 24 pieces of LWD and measures 11' high x 68' wide x 33' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 40' wide x 40'

North Fork of South Fork Noyo River

long x 6' deep. The LDA consists of two steps. The first step is five feet high with a two foot deep jump pool below it; the second step is eight feet high with a two foot deep jump pool below it. Vertical logs from an old railroad structure on the left bank are part of the LDA. Fish are present above the LDA.

24089	0391.00	Remnants of railroad trestle on left bank.
24447	0397.00	LDA #07 contains 14 pieces of LWD and measures 8' high x 32' wide x 28' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 20' wide x 30' long x 3' deep. An old railroad structure on the left bank is part of the LDA. Fish are present above the LDA.
24640	0402.00	LDA #08 contains six pieces of LWD and measures 6.5' high x 28' wide x 2' long. Water flows through the LDA and there are no visible gaps in it. Retained sediment ranges from silt to cobble and measures 15' wide x 25' long x 1' deep. Fish are present above the LDA.
25227	0419.00	There is a 1' high plunge.
25320	0421.00	Remnants of railroad trestle along left bank.
25555	0426.00	LDA #09 contains 20 pieces of LWD and measures 8' high x 32' wide x 22' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 15' wide x 20' long x 3' deep. Fish are present above the LDA. There are remnants of a railroad trestle on right bank.
25946	0438.00	35% of the unit's substrate is covered by filamentous green algae.
25958	0439.00	70% of the unit's substrate is covered by filamentous green algae.
26070	0441.00	Right bank seep.
26487	0448.00	Tributary #13 enters on the right bank. It contributes to less than 1% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream of the tributary is 56 degrees Fahrenheit, the water temperature of the tributary is 55 degrees Fahrenheit, and the water temperature upstream of the confluence is 57 degrees Fahrenheit. The high gradient makes it inaccessible to fish.
26791	0457.02	LDA #10 contains 16 pieces of LWD and measures 6' high x 39' wide x 22' long. Water flows through the LDA and there are no visible gaps in it. Retained sediment ranges from silt to gravel and measures 25' wide x

North Fork of South Fork Noyo River

40' long x 3' deep. Fish are present above the LDA. A railroad trestle on the left bank is associated with the LDA.

26833	0459.04	LDA #11 contains 20 pieces of LWD and measures 7' high x 28' wide x 24' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 20' wide x 15' long x 4' deep. Fish are present above the LDA.
27561	0473.00	Remnants of railroad trestle on right bank.
27704	0478.00	Left bank seep with a water temperature of 53 degrees Fahrenheit.
28023	0488.00	LDA #12 contains 30 pieces of LWD and measures 8' high x 50' wide x 19' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 30' wide x 50' long x 4' deep. Fish are present above the LDA.
28355	0497.00	Tributary #14 enters on the left bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 57 degrees Fahrenheit; the water temperature of the tributary is 54 degrees Fahrenheit. The high gradient makes it inaccessible to fish.
28669	0506.00	Tributary #15 enters on the right bank. It contributes to approximately 10% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 54 degrees Fahrenheit; the water temperature of the tributary is 54 degrees Fahrenheit. The slope of the tributary is approximately 5%. Only the first 200 feet of the tributary are accessible to fish due to a 4' high plunge with no jump pool below it upstream. No fish were observed in the tributary.
28985	0513.00	LDA #13 contains 25 pieces of LWD and measures 8' high x 37' wide x 20' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 20' wide x 50' long x 4' deep. Fish are present above the LDA.
29858	0531.00	LDA #14 contains 20 pieces of LWD and measures 9' high x 24' wide x 14' long. Water flows through the LDA and there are no visible gaps in it. Retained sediment ranges from silt to gravel and measures 15' wide x 100' long x 6' deep. Large woody debris has accumulated on top of large boulders and bedrock, forming a seven foot high plunge into a two foot deep pool. Fish are present above the LDA.
30250	0541.00	LDA #15 contains 15 pieces of LWD and measures 5' high x 38' wide x 14' long. Water flows through the LDA and there are visible gaps in it.

North Fork of South Fork Noyo River

		Retained sediment ranges from silt to gravel and measures 15' wide x 40' long x 2' deep. Fish are present above the LDA.
30554	0549.00	Tributary #16 enters on the left bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 55 degrees Fahrenheit; the water temperature of the tributary is 53 degrees Fahrenheit. The slope of the tributary is approximately 25%. The high gradient makes it inaccessible to fish.
30865	0556.00	Remnant of railroad trestle on left bank.
30938	0559.00	LWD is accumulating in the channel.
31196	0565.00	LWD is accumulating in the channel.
31291	0568.00	Right bank seep.
31397	0570.00	LDA #16 contains 30 pieces of LWD and measures 6' high x 32' wide x 16' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to gravel and measures 10' wide x 40' long x 3' deep. Fish are present above the LDA.
31461	0571.00	LDA #17 contains 15 pieces of LWD and measures 4.5' high x 32' wide x 4' long. Water flows through the LDA and there are visible gaps in it. Retained sediment ranges from silt to small cobble and measures 20' wide x 40' long x 2' deep. Fish are present above the LDA.
31796	0581.00	Remnants of railroad trestle on right bank.
32029	0585.00	Remnants of railroad trestle on left bank.
32312	0593.00	Remnants of railroad trestle on left bank.
32416	0596.00	Remnants of railroad trestle crosses from left bank to right bank.
32478	0598.00	Tributary #17 enters on the left bank. It contributes approximately 5% of the North Fork of the South Fork Noyo River's flow. The water temperature downstream and upstream of the tributary is 56 degrees Fahrenheit; the water temperature of the tributary is 54 degrees Fahrenheit. The slope of the tributary is approximately 10%. The high gradient and a 6' high waterfall upstream from the mouth make the tributary inaccessible to fish.
		LDA #18 contains 14 pieces of LWD and measures 5' high x 28' wide x 10' long. Water flows through the LDA and there are visible gaps in it.

North Fork of South Fork Noyo River

- Retained sediment ranges from silt to gravel and measures 15' wide x 20' long x 2' deep. Fish are present above the LDA.
- 32671 0604.00 LDA #19 contains over 30 pieces of LWD and measures 9' high x 32' wide x 42' long. The remnants of a railroad trestle that crossed the channel collapsed and have accumulated small woody debris and LWD. Water flows through the LDA and there are no visible gaps in it. Retained sediment ranges from silt to gravel and measures 15' wide x 60' long x 4' deep. Fish are present above the LDA.
- 32972 0611.00 LWD is accumulating in the channel creating a potential LDA.
- 33023 0613.00 End of survey due to LDA #20. LDA #20 contains over 50 pieces of LWD and measures 13' high x 51' wide x 46' long. Water flows through the LDA and there are no visible gaps in it. Retained sediment ranges from silt to gravel and measures 30' wide x 250' long x 8' deep. The LDA is a probable end of anadromy; the minimum plunge height over the LDA is eight feet and there is not jump pool below it. Five trees are growing out of the LDA, two redwoods and three alders. Fish are present above the LDA, most likely resident salmonids.

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.

North Fork of South Fork Noyo River

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]	

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

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908 Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Confluence Location: Quad: NOYO HILL Legal Description: T18NR16WS30 Latitude: 39:23:27.0N Longitude: 123:41:04.0

Habitat Units	Units Fully Measured	Habitat Type	Habitat Occurrence (%)	Mean Length (ft.)	Total Length (ft.)	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
165	19	FLATWATER	26.4	55	9030	27.1	12.8	0.5	1.0	815	134429	379	62478		4
12	0	NOSURVEY	1.9	28	330	1.0									
299	299	POOL	47.9	63	18719	56.2	15.4	0.9	2.1	977	292187	1178	352183	883	23
148	27	RIFFLE	23.7	35	5218	15.7	14.0	0.3	0.7	496	73386	168	24835		4
Total Units	Total Units Fully Measured				Total Length (ft.)					Total Area (sq.ft.)			Total Volume (cu.ft.)		
624	345				33297					500002			439496		

Table 2 - Summary of Habitat Types and Measured Parameters

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Confluence Location: Quad: NOYO HILL

Legal Description: T18NR16WS30

Latitude: 39:23:27.0N

Longitude: 123:41:04.0W

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 (%)
137	21	LGR	22.0	36	4905	14.7	13	0.3	1.2	539	73864	174	23809		2	94
11	6	HGR	1.8	28	313	0.9	16	0.4	1.5	344	3787	147	1616		11	97
1	1	GLD	0.2	79	79	0.2	10	0.4	0.5	790	790	316	316		10	86
84	8	RUN	13.5	43	3585	10.8	12	0.5	1.3	703	59086	309	25967		4	95
80	10	SRN	12.8	67	5366	16.1	14	0.5	1.5	906	72500	441	35243		4	95
194	194	MCP	31.1	69	13444	40.4	16	0.9	6.7	1105	214463	1375	266719	1039	22	94
2	2	STP	0.3	30	61	0.2	20	1.0	2	568	1136	795	1589	624	40	98
13	13	CRP	2.1	53	686	2.1	15	1.3	4.6	801	10410	1433	18634	1205	25	95
24	24	LSL	3.8	46	1110	3.3	17	0.6	3	714	17146	562	13490	373	32	93
12	12	LSR	1.9	45	541	1.6	13	0.7	3.2	612	7340	701	8408	486	21	96
34	34	LSBk	5.4	68	2316	7.0	13	0.6	3.8	966	32855	834	28346	546	14	94
6	6	LSBo	1.0	31	185	0.6	15	0.6	2.4	416	2493	391	2344	267	3	93
13	13	PLP	2.1	28	362	1.1	18	1.2	4.9	479	6226	965	12546	810	48	95
1	1	DPL	0.2	14	14	0.0	14	0.4	1.5	118	118	106	106	47	10	91
12	0	NS	1.9	28	330	1.0										

Total Units
624

Total Units Fully Measured
345

Total Length (ft.)
33297

Total Area (sq.ft.)
502213

Total Volume (cu.ft.)
439133

Table 3 - Summary of Pool Types

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Confluence Location: Quad: NOYO HILL

Legal Description: T18NR16WS30

Latitude: 39:23:27.0N

Longitude: 123:41:04.0W

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
196	196	MAIN	66	69	13505	72	15.6	0.9	1100	215599	1035	201785	22
102	102	SCOUR	34	51	5200	28	14.8	0.8	750	76470	600	61154	24
1	1	BACKWATER	0	14	14	0	14.0	0.4	118	118	47	47	10

Total Units	Total Units Fully Measured	Total Length (ft.)	Total Area (sq.ft.)	Total Volume (cu.ft.)
299	299	18719	292186	262986

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

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Confluence Location: Quad: NOYO HILL

Legal Description: T18NR16WS30

Latitude: 39:23:27.0N

Longitude: 123:41:04.0W

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
194	MCP	65	12	6	69	36	79	41	25	13	9	5
2	STP	1	0	0	1	50	1	50	0	0	0	0
13	CRP	4	0	0	2	15	7	54	0	0	4	31
24	LSL	8	0	0	16	67	7	29	1	4	0	0
12	LSR	4	3	25	3	25	5	42	1	8	0	0
34	LSBk	11	1	3	21	62	10	29	2	6	0	0
6	LSBo	2	0	0	4	67	2	33	0	0	0	0
13	PLP	4	2	15	6	46	2	15	2	15	1	8
1	DPL	0	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
299			18	6	123	41	113	38	31	10	14	5

Mean Maximum Residual Pool Depth (ft.): 2.1

Table 5 - Summary of Mean Percent Cover By Habitat Type

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Dry Units: 0

Confluence Location: Quad: NOYO HILL

Legal Description: T18NR16WS30 Latitude: 39:23:27.0N

Longitude: 123:41:04.0W

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
137	21	LGR	7	0	0	0	0	3	80	0	10
11	6	HGR	0	0	0	0	0	0	60	40	0
148	27	TOTAL RIFFLE	2	0	0	0	0	1	68	25	4
1	1	GLD	0	0	0	0	100	0	0	0	0
84	8	RUN	43	23	10	0	0	0	25	0	0
80	10	SRN	20	26	24	0	8	0	22	0	0
165	19	TOTAL FLAT	27	22	16	0	14	0	21	0	0
194	194	MCP	20	25	29	4	1	1	2	11	6
2	2	STP	0	30	53	0	0	0	18	0	0
13	13	CRP	16	37	25	13	0	0	2	2	5
24	24	LSL	10	32	53	1	0	3	0	0	0
12	12	LSR	30	32	15	23	0	0	0	0	0
34	34	LSBk	46	24	11	11	0	0	3	3	2
6	6	LSBo	0	15	0	5	0	0	0	80	0
13	13	PLP	7	7	38	2	0	0	40	5	1
1	1	DPL	0	0	0	0	0	0	0	100	0
299	299	TOTAL POOL	20	25	29	6	1	1	4	10	4
12	0	NS									
624	345	TOTAL	20	25	28	5	1	1	7	10	4

Table 6 - Summary of Dominant Substrates By Habitat Type

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Dry Units: 0

Confluence Location: Quad: NOYO HILL

Legal Description: T18NR16WS30 Latitude: 39:23:27.0N

Longitude: 123:41:04.0W

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
137	21	LGR	0	0	71	19	5	0	5
11	6	HGR	0	0	67	0	17	17	0
1	1	GLD	0	0	100	0	0	0	0
84	8	RUN	0	0	100	0	0	0	0
80	10	SRN	0	0	100	0	0	0	0
194	194	MCP	0	0	93	5	0	0	2
2	2	STP	0	0	100	0	0	0	0
13	13	CRP	0	0	100	0	0	0	0
24	24	LSL	0	0	100	0	0	0	0
12	12	LSR	0	0	100	0	0	0	0
34	34	LSBk	0	0	97	3	0	0	0
6	6	LSBo	0	0	100	0	0	0	0
13	13	PLP	0	0	69	0	15	15	0
1	1	DPL	0	0	0	0	0	100	0

Table 7 - Summary of Mean Percent Canopy for Entire Stream

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Confluence Location: Quad: NOYO HILL

Legal Description: T18NR16WS30

Latitude: 39:23:27.0N

Longitude: 123:41:04.0W

Mean Percent Canopy	Mean Percent Conifer	Mean Percent Hardwood	Mean Percent Open Units	Mean Right Bank % Cover	Mean Left Bank % Cover
94	61	39	0	97	97

Note: Mean percent conifer and hardwood for the entire reach are means of canopy components from units with canopy values greater than zero.

Open units represent habitat units with zero canopy cover.

Table 8 - Fish Habitat Inventory Data Summary

Stream Name: North Fork South Fork Noyo River LLID: 1236844393908 Drainage: Noyo River
 Survey Dates: 6/21/2010 to 7/14/2010 Survey Length (ft.): 33297 Main Channel (ft.): 33069 Side Channel (ft.): 228
 Confluence Location: Quad: NOYO HILL Legal Description: T18NR16WS30 Latitude: 39:23:27.0N Longitude: 123:41:04.0W

Summary of Fish Habitat Elements By Stream Reach

STREAM REACH: 1

Channel Type: F4	Canopy Density (%): 94.3	Pools by Stream Length (%): 56.5
Reach Length (ft.): 33069	Coniferous Component (%): 61.0	Pool Frequency (%): 48.6
Riffle/Flatwater Mean Width (ft.): 13.5	Hardwood Component (%): 39.0	Residual Pool Depth (%):
BFW:	Dominant Bank Vegetation: Coniferous Trees	< 2 Feet Deep: 47
Range (ft.): 15 to 44	Vegetative Cover (%): 97.3	2 to 2.9 Feet Deep: 38
Mean (ft.): 27	Dominant Shelter: Large Woody Debris	3 to 3.9 Feet Deep: 10
Std. Dev.: 6	Dominant Bank Substrate Type: Cobble/Gravel	>= 4 Feet Deep: 5
Base Flow (cfs.): 2.8	Occurrence of LWD (%): 21	Mean Max Residual Pool Depth (ft.): 2.1
Water (F): 52 - 58 Air (F): 49 - 69	LWD per 100 ft.:	Mean Pool Shelter Rating: 23
Dry Channel (ft): 0	Riffles: 2	
	Pools: 4	
	Flat: 2	
Pool Tail Substrate (%): Silt/Clay: 0 Sand: 0 Gravel: 71 Sm Cobble: 21 Lg Cobble: 3 Boulder: 2 Bedrock: 2		
Embeddedness Values (%): 1. 73.8 2. 20.5 3. 4.0 4. 0.0 5. 1.7		

Table 9 - Mean Percentage of Dominant Substrate and Vegetation

Stream Name: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Confluence Location: Quad: NOYO HILL

Legal Description: T18NR16WS30

Latitude: 39:23:27.0N

Longitude: 123:41:04.0W

Mean Percentage of Dominant Stream Bank Substrate

Dominant Class of Substrate	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percent (%)
Bedrock	47	45	13.3
Boulder	9	8	2.5
Cobble / Gravel	208	209	60.4
Sand / Silt / Clay	81	83	23.8

Mean Percentage of Dominant Stream Bank Vegetation

Dominant Class of Vegetation	Number of Units Right Bank	Number of Units Left Bank	Total Mean Percent (%)
Grass	0	0	0.0
Brush	61	92	22.2
Hardwood Trees	93	98	27.7
Coniferous Trees	189	155	49.9
No Vegetation	2	0	0.3

Total Stream Cobble Embeddedness Values: 1

Table 10 - Mean Percent of Shelter Cover Types For Entire Stream

StreamName: North Fork South Fork Noyo River

LLID: 1236844393908

Drainage: Noyo River

Survey Dates: 6/21/2010 to 7/14/2010

Confluence Location: Quad: NOYO HILL

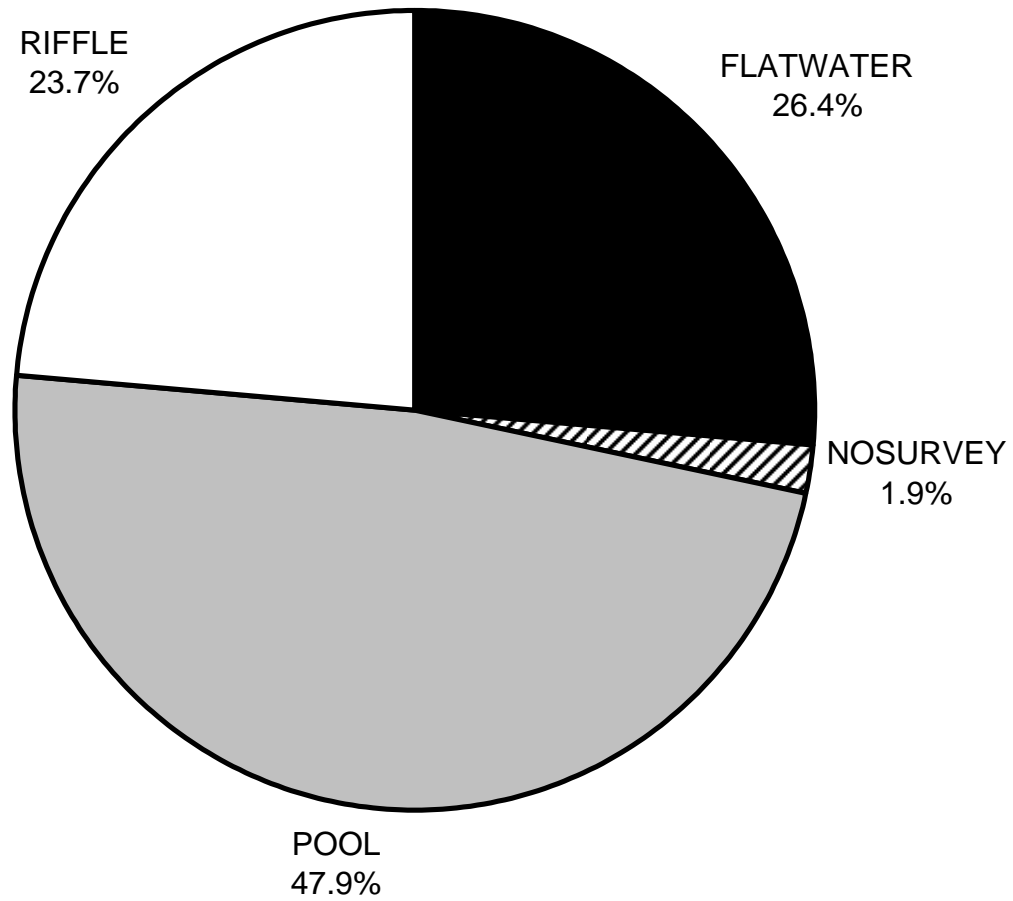
Legal Description: T18NR16WS30

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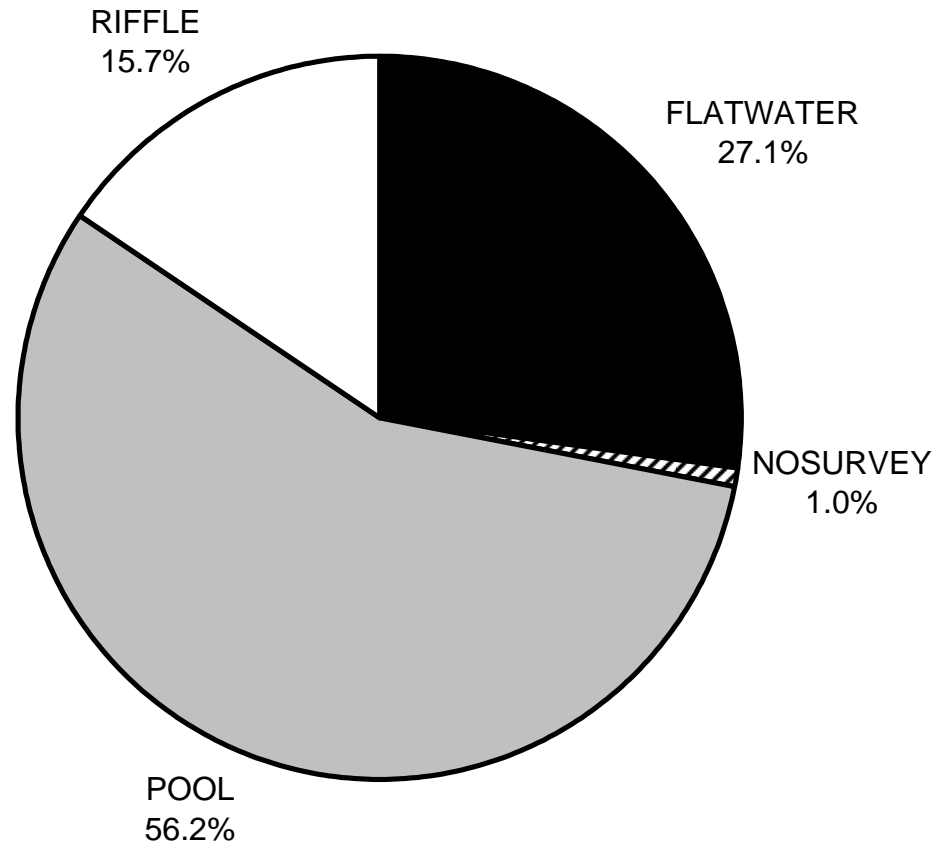
	Riffles	Flatwater	Pools
UNDERCUT BANKS (%)	2	27	20
SMALL WOODY DEBRIS (%)	0	22	25
LARGE WOODY DEBRIS (%)	0	16	29
ROOT MASS (%)	0	0	6
TERRESTRIAL VEGETATION (%)	0	14	1
AQUATIC VEGETATION (%)	1	0	1
WHITEWATER (%)	68	21	4
BOULDERS (%)	25	0	10
BEDROCK LEDGES (%)	4	0	4

NORTH FORK SOUTH FORK NOYO RIVER 2010 HABITAT TYPES BY PERCENT OCCURRENCE



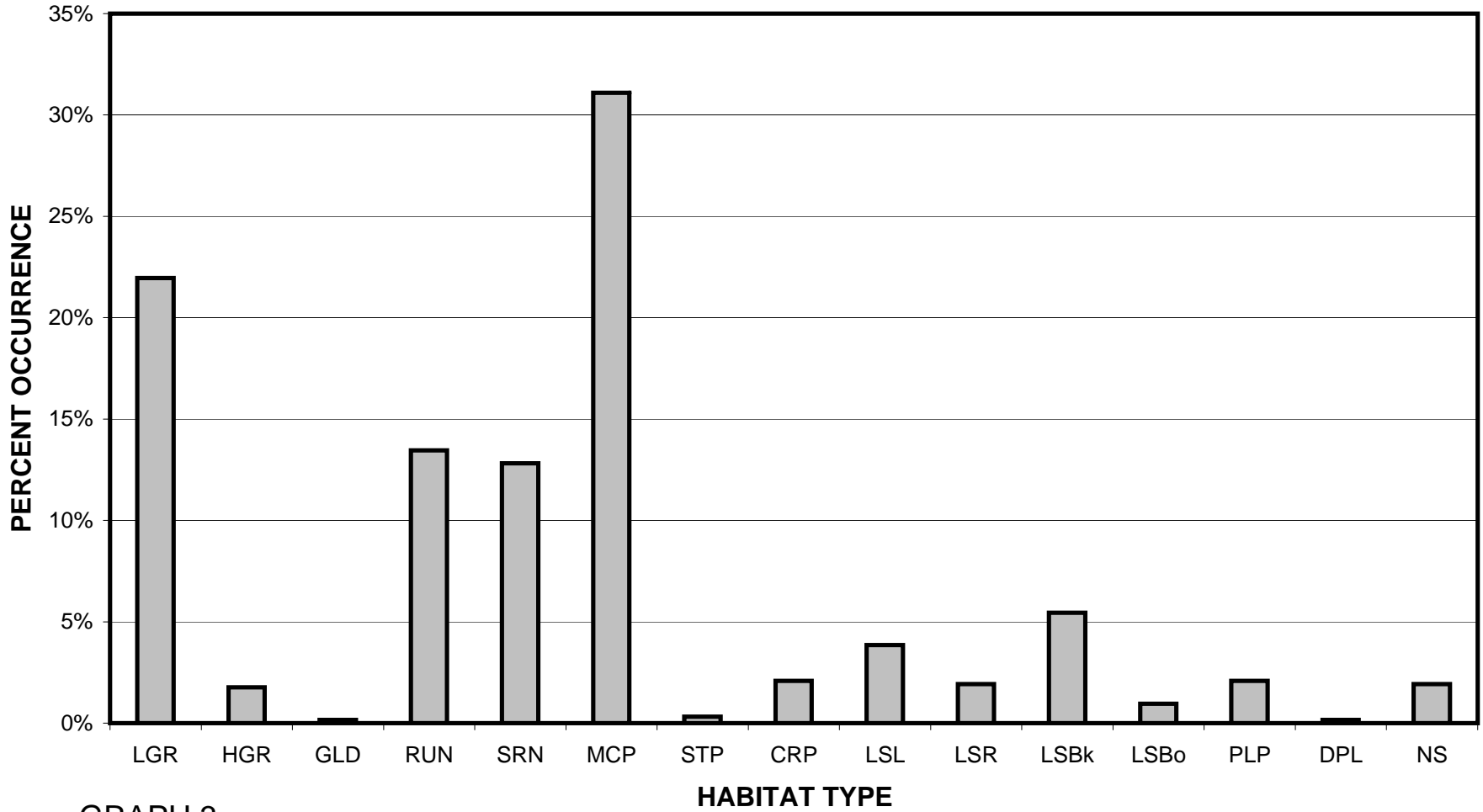
GRAPH 1

NORTH FORK SOUTH FORK NOYO RIVER 2010 HABITAT TYPES BY PERCENT TOTAL LENGTH



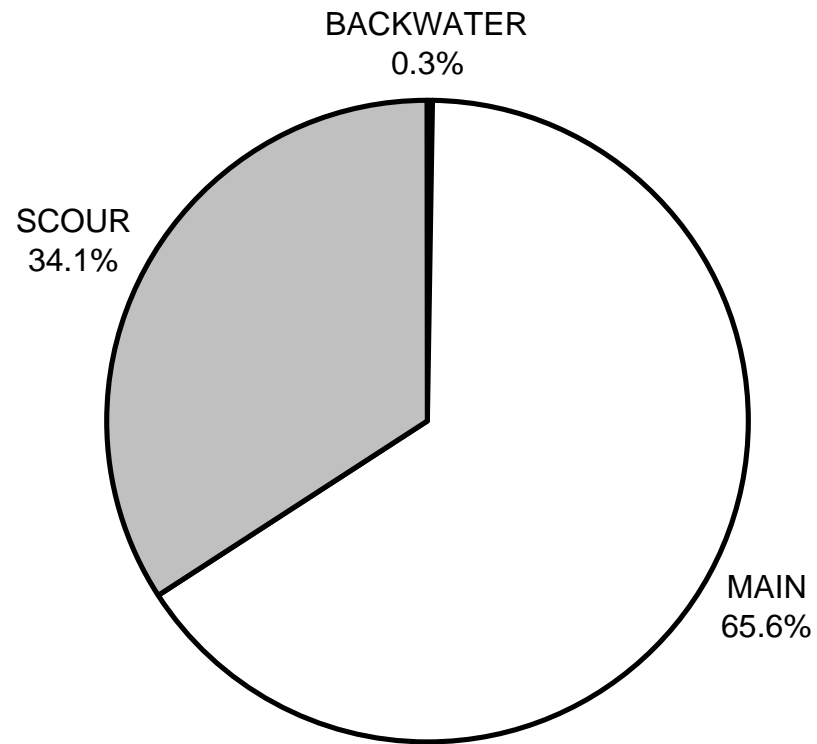
GRAPH 2

NORTH FORK SOUTH FORK NOYO RIVER 2010 HABITAT TYPES BY PERCENT OCCURRENCE



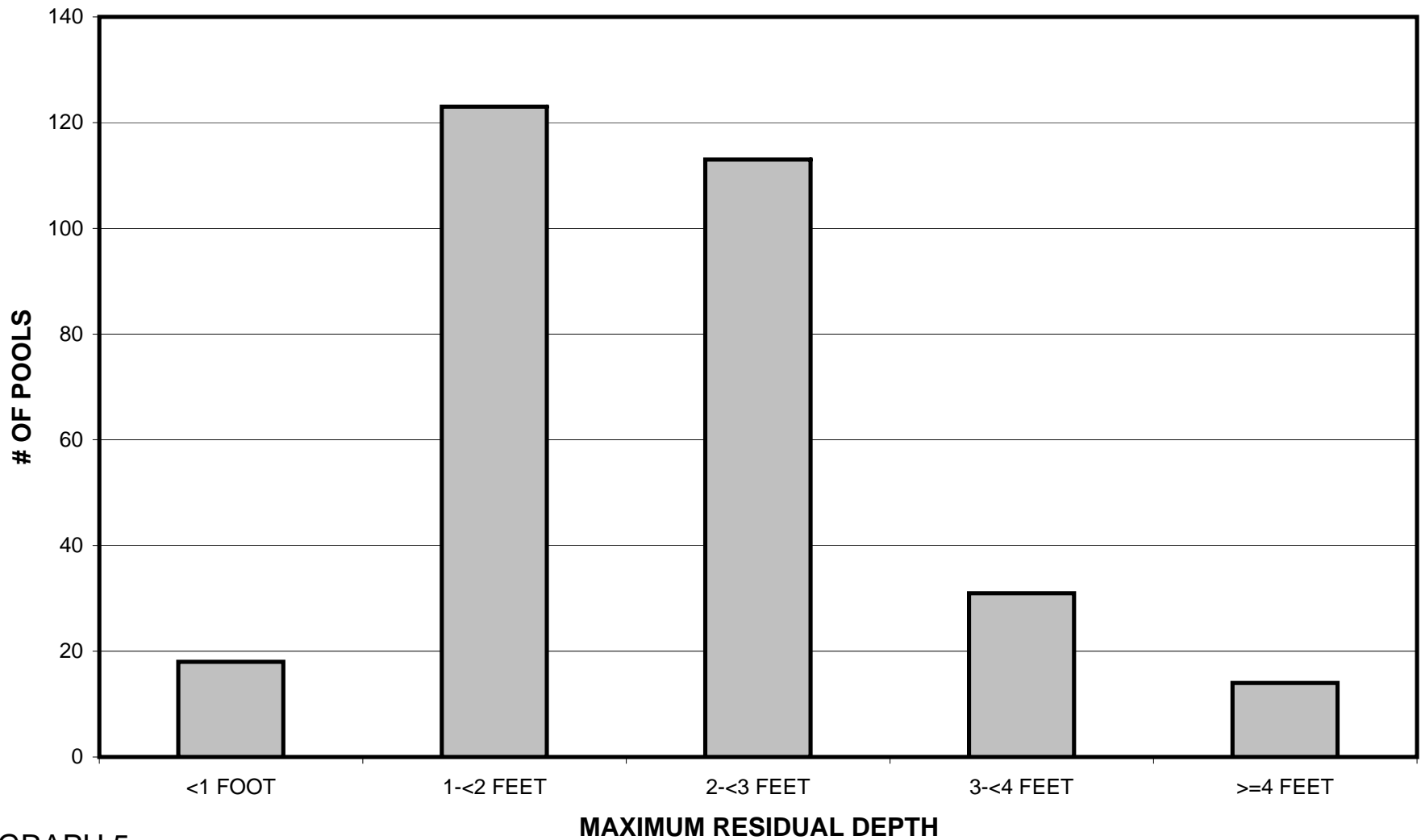
GRAPH 3

**NORTH FORK SOUTH FORK NOYO RIVER 2010
POOL TYPES BY PERCENT OCCURRENCE**



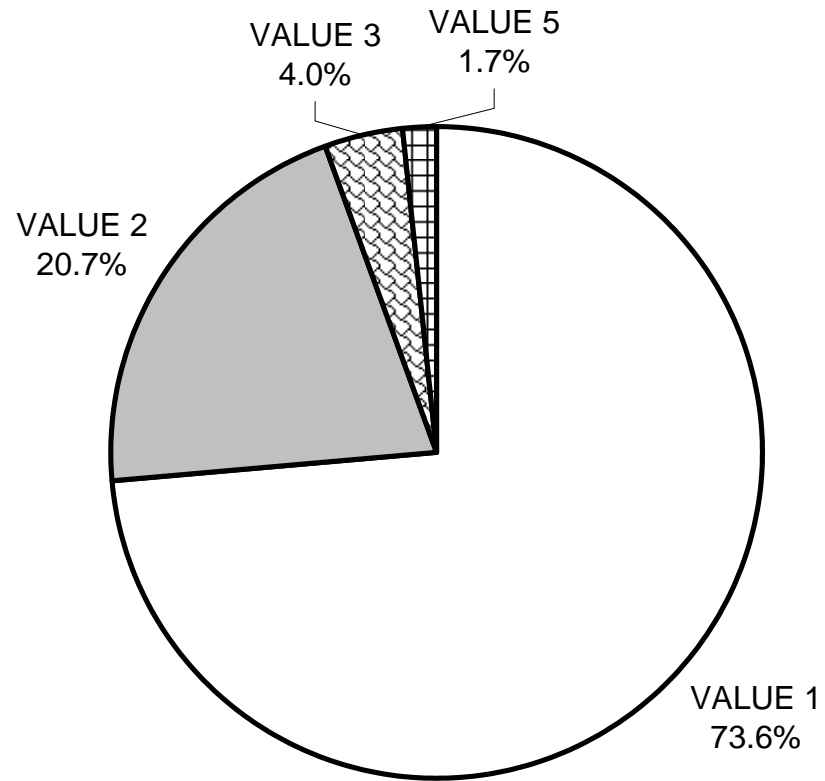
GRAPH 4

NORTH FORK SOUTH FORK NOYO RIVER 2010 MAXIMUM DEPTH IN POOLS



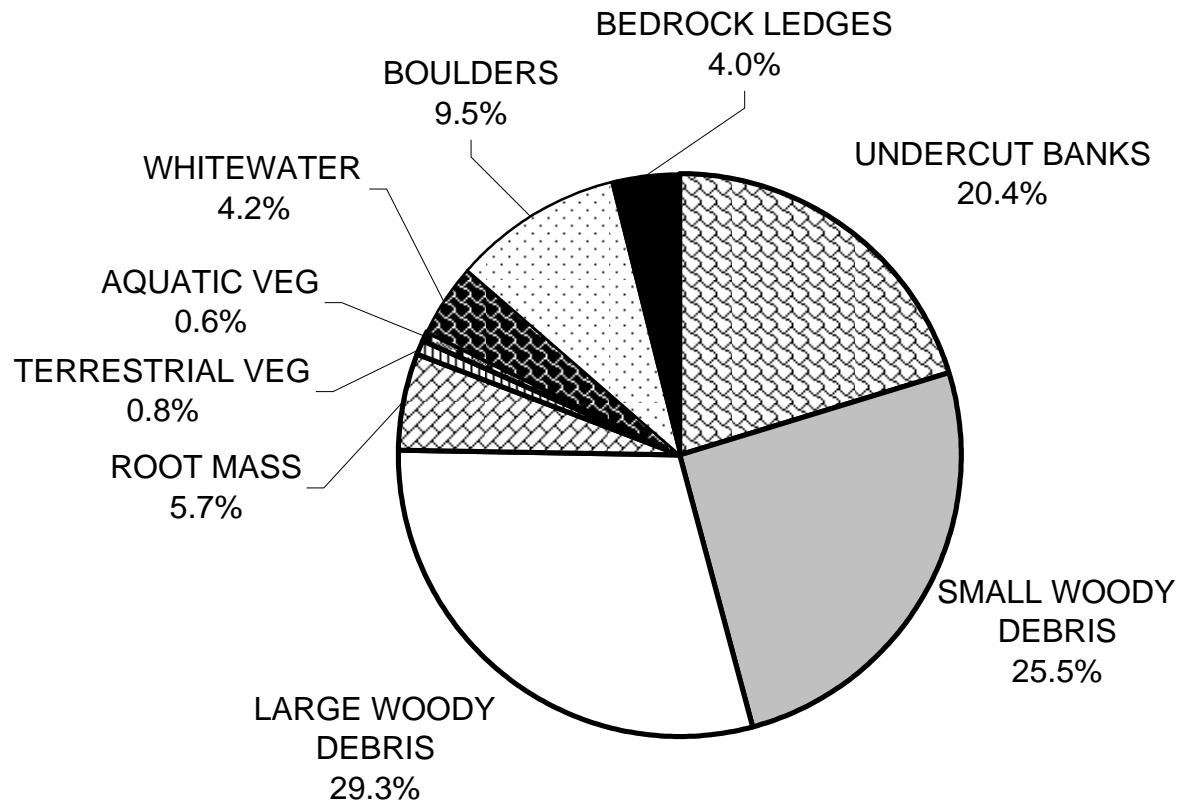
GRAPH 5

NORTH FORK SOUTH FORK NOYO RIVER 2010 PERCENT EMBEDDEDNESS



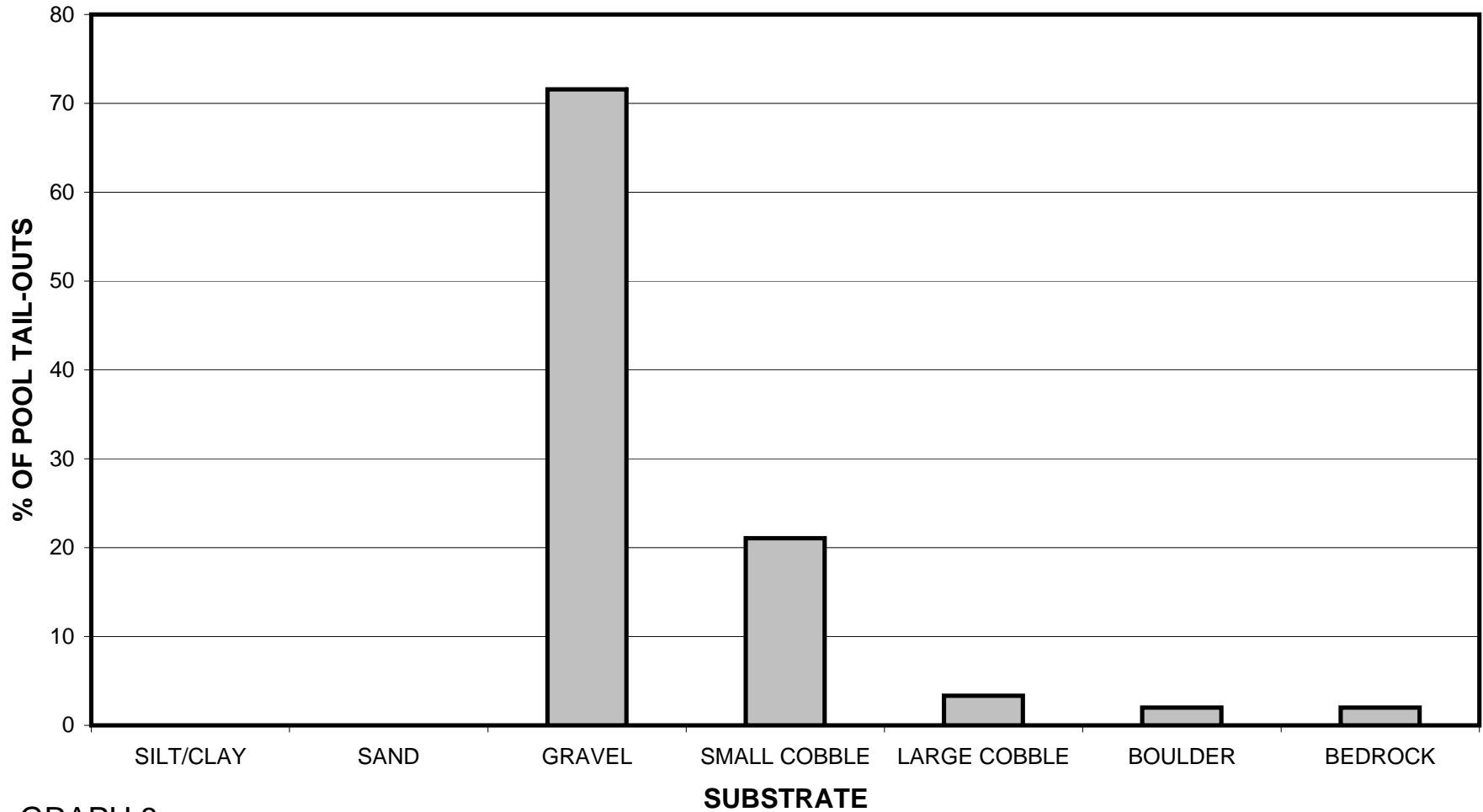
GRAPH 6

NORTH FORK SOUTH FORK NOYO RIVER 2010 MEAN PERCENT COVER TYPES IN POOLS



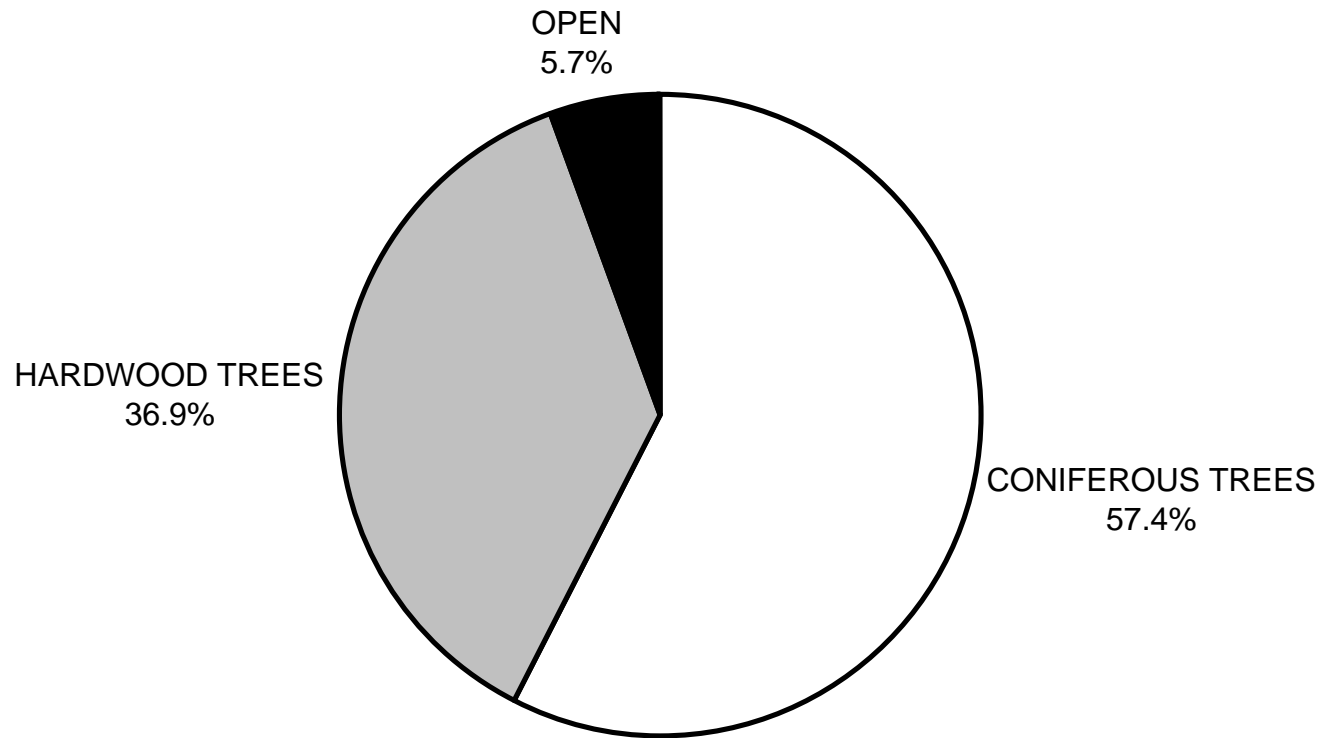
GRAPH 7

NORTH FORK SOUTH FORK NOYO RIVER 2010 SUBSTRATE COMPOSITION IN POOL TAIL-OUTS



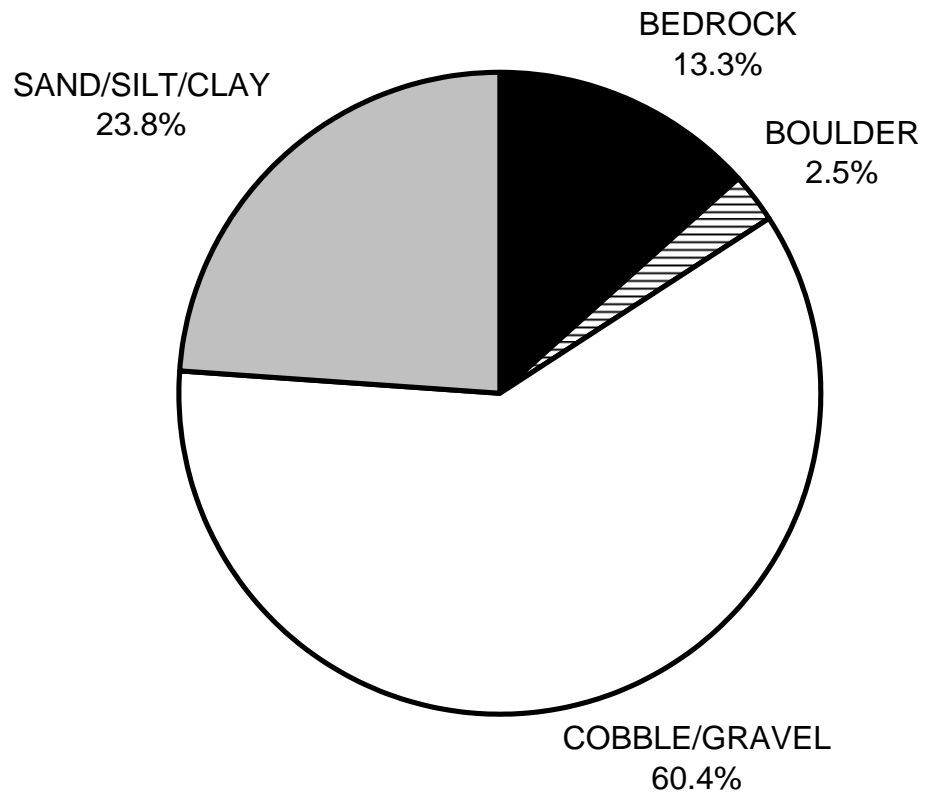
GRAPH 8

**NORTH FORK SOUTH FORK NOYO RIVER 2010
MEAN PERCENT CANOPY**



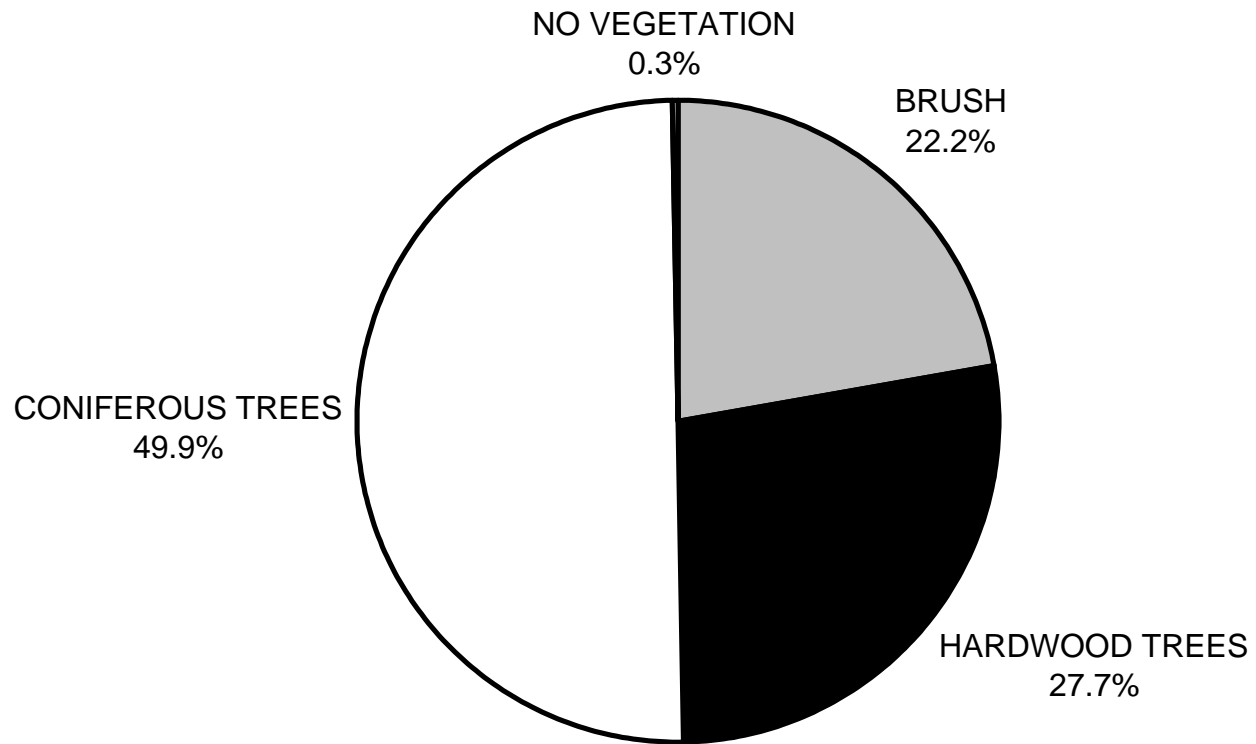
GRAPH 9

**NORTH FORK SOUTH FORK NOYO RIVER 2010
DOMINANT BANK COMPOSITION IN SURVEY REACH**



GRAPH 10

NORTH FORK SOUTH FORK NOYO RIVER 2010 DOMINANT BANK VEGETATION IN SURVEY REACH



GRAPH 11

