SECTION F
FISH HABITAT CONDITION

INTRODUCTION

The anadromous fish species inhabiting the Big River WAU are steelhead trout (*Oncorhynchus mykiss*), coho salmon (O. kisutch), chinook salmon (*O. tshawytscha*) and pacific lamprey (*Lampetra tridentata)*. Other fish species include sculpin (*Cottus* spp.), threespine stickleback (*Gasterosteus aculeatus)*, California Roach (*Lavina symmeticus),* and Sacramento Sucker (*Castomus occidentalis)*. A fish habitat assessment was conducted in the Big River WAU to identify the current habitat conditions and areas of special concern regarding the three life stages of salmonids: spawning, summer rearing, and overwintering.

Field surveys were conducted to evaluate the quality and quantity of salmonid habitat in the Big River WAU. Surveys included salmonid habitat typing and assessment, stream gravel permeability measurements and bulk gravel samples. The fish habitat assessment evaluated spawning, rearing and overwintering habitats based on targets derived from scientific literature (Bilby and Ward, 1989; Bisson et al., 1987; CDFG, 1998; Montgomery et al., 1995; Washington Forest Practices Board, 1995) and professional judgment. The habitat data are combined into indices of habitat quality for the different life history stages.

Aquatic species distribution surveys were conducted by the previous landowners (Louisiana-Pacific Corp.) from 1994-1996, and were repeated by MRC from 2000-2002 (MRC 2002). The study consisted of single pass electro-fishing or snorkeling surveys in the summer months to assess aquatic species distribution and composition in the Big River WAU. All organisms observed were identified to the lowest possible taxonomic level.

Permeability and bulk gravel samples were taken in select fish bearing reaches of the Big River WAU to determine an index of spawning gravel quality. Permeability and gravel particle size distributions are stream substrate parameters, which affect survival of incubating salmonid embryos. Salmonid eggs buried under up to a foot of gravel depend on sufficient intragravel water flow for their survival and development. Fine sediment within spawning gravel can impede intragravel water flow, reducing the delivery of dissolved oxygen to eggs, which can increase mortality in the egg to emergence stage. Forest management practices may increase the delivery of fine sediment to the stream channel, potentially impacting spawning gravel. The assessment of substrate permeability and composition are useful in monitoring the effects of increased sediment delivery on salmonid spawning and incubation conditions.

Historic Perspective

At least 27 splash dams were built in the Big River watershed and it's tributaries to move logs downstream to the mill in Mendocino. There were more splash dams on Big River than any other river in the redwood region (Jackson, 1991). Although the specific effect of these dams is not entirely clear, this log moving method undoubtedly affected fish habitat in the watershed.

During the 1980's and 1990's, California Department of Fish and Game hired contractors to conduct large woody debris/LWD jam removal projects. Large woody debris was removed from Russell Brook, Ramon

Creek, Daugherty Creek, Halfway House Gulch, Mettick Creek, Tramway Gulch and East Branch North Fork Big River. The purpose of the project was to improve fish passage through streams that were choked with large woody debris. This large woody debris removal probably has adversely altered fish habitat.

METHODS

Fish Habitat Assessment

The habitat inventory method used to evaluate the habitat condition of the Big River WAU was conducted during low flow conditions using methods modified from the California Salmonid Stream Restoration Manual (Flosi et al., 1998), and described 100% of the wetted width. Stream segments were created based on stream gradient and channel confinement. Other factors included the presence of fish, accessibility, stream channel type (response, transport or source reach), and representative segments that were likely to respond similar to other stream channel types within the watershed. Since high gradient streams were likely to be non-fish bearing, survey efforts were concentrated on low gradient reaches of the stream network.

A distance of 20-30 bankfull widths determined the survey length, representing approximately two meander bends of the stream channel. Data collected during the fish habitat and stream channel surveys provided information on pool, riffle and flatwater frequency; pool spacing; spawning gravel quantity and quality; overwintering substrate; shelter complexity and large woody debris (LWD) frequency, condition and future recruitment.

The fish habitat observations were evaluated for quality of each salmonid life stage: spawning, summer rearing and overwintering. Table F-1 displays the targets used for rating measured habitat parameters. These indices are based on scientific literature (Bilby and Ward, 1989; Bisson et al., 1987; Bjornn and Reiser, 1994; CDFG 1998; Montgomery et al., 1995; Washington Forest Practices Board, 1995) and professional judgment. Spawning habitat conditions are evaluated on the basis of gravel availability and quality (gravel sizes, subsurface fines, embeddedness), and are evaluated for preferred salmonid spawning areas located at the tail-outs of pools. Summer rearing habitat conditions for salmonids are evaluated on the size, depth and availability of pools and the complexity and quantity of cover (particularly large woody debris). Overwintering habitat is evaluated on the size, depth and availability of pools, the proportion of habitat units with cobble or boulder-dominated substrate and the quantity of cover.

TableF-1. Fish Habitat Condition Indices for Measured Parameters

Fish Habitat Parameter	Feature	Fish Habitat Quality Poor	Fair	Good
Percent Pool/Riffle/Flatwater (By length) **(A)**	Anadromous Salmonid Streams	<25% pools	25-50% pools	>50%pools
Pool Spacing (Reach length/Bankfull/#pools) **(B)**	Anadromous Salmonid Streams	≥ 6.0	3.0 - 5.9	≤ 2.9
Shelter Rating (Shelter value x % Of habitat covered) **(C)**	Pools	<60	60-120	>120
% Of Pools that are ≥3 ft. residual depth **(D)**	Pools	<25%	25-50%	>50%
Spawning Gravel **(E)**	Pool Tail-outs Quantity	<1.5%	1.5-3%	>3%
Percent Embeddedness **(F)**	Pool Tail-outs	>50%	25-50%	<25%
Subsurface Fines (L-P watershed analysis manual) **(G)**	Pool Tail-outs	2.31-3.0	1.61-2.3	1.0-1.6
Gravel Quality Rating (L-P watershed analysis manual) **(H)**	Pool Tail-outs	2.31-3.0	1.61-2.3	1.0-1.6
Key LWD +Root wads / 328 ft. Of Stream **(I)**	Streams≤40 ft. BFW	<4.0	4.0-6.5	>6.6
	Streams ≥40 ft. BFW	<3.0	3.0-3.8	>3.9
Substrate for Over-wintering **(J)**	All Habitat Types	<20% of Units Cobble or Boulder Dominated	20-40% of Units Cobble or Boulder Dominated	>40% of Units Cobble or Boulder Dominated

The habitat data are combined into indices of habitat quality for the different salmonid life stages. Measured fish habitat parameters were weighted and given a numeric scale to develop a quality rating for individual life history stages. Parameters were divided into subsets that correspond with individual life history stages (spawning, summer rearing, and overwintering habitat). Parameters were scored as follows: 1 (poor), 2 (fair), and 3 (good). Parameter weights were applied to the total score calculated as shown below. The parameter numbers are in bold and the weights in parentheses.

Spawning Habitat
E (0.25) + **F** (0.25) + **G** (0.25) + **H** (0.25)

Summer Rearing Habitat
A (0.20) + **B** (0.15) + **C** (0.15) + **D** (0.15) + **F** (0.15) + **I** (0.20)

Overwintering Habitat
A (0.20) + **B** (0.15) + **C** (0.15) + **D** (0.10) + **I** (0.20) + **J** (0.20)

The overall score would be rated as follows:
1.00 - 1.66 = Poor
1.67 - 2.33 = Fair
2.34 - 3.00 = Good

Permeability and Stream Bulk Gravel Samples

Steam gravel permeability and bulk gravel samples were collected on five stream monitoring segments in the Big River WAU, the same stream segments established for the long term stream channel monitoring (see Section E). The stream gravel permeability was measured using a 1-inch diameter standpipe similar to the standpipe discussed in Terhune (1958) and Barnard and McBain (1994) with the exception that our standpipe is smaller in diameter. We used the smaller diameter standpipe because we hypothesize that it creates fewer disturbances to the stream gravel when inserted. Bulk stream gravel samples were taken with a 12-inch diameter sampler as described in Platts, Megahan and Minshall (1983).

An electric pump was used to create the water suction in the standpipe for the permeability measurements. The permeability measurements were taken at a depth of 25 centimeters, near the maximum depth of coho and steelhead spawning. A total of 26 permeability measurements were taken in each monitoring segment. The measurements were evenly distributed among all pool tail-outs in the segments, with any additional measurements taken in tail-outs behind the deepest pools. The measurement location in each tail-out was randomly selected from a 12-point grid (3 points wide and 4 points long) in the tail-out.

A bulk gravel sample was taken in each of 4 randomly selected pool tail-outs of the stream segment. The gravel sample was taken directly over the permeability site that is closest to the thalweg of the channel. After the bulk gravel samples were collected the gravel is dried and sieved through 7 different size-class screens (50.8, 25.4, 12.5, 6.3, 4.75, 2.36, 0.85 mm). The weight of each gravel size class was determined for each of the bulk gravel samples using a commercial quality scale.

The median permeability measurement for each permeability site in the monitoring segment was used as representative of the site. To characterize the entire monitoring segment the natural log of the geometric mean of the median permeability measurements was determined. The natural log of the permeability is used because of a relationship developed from data from Tagart (1976) and McCuddin (1977) (Stillwater Sciences, 2000) to estimate survival to emergence from permeability data. This relationship equates the

natural log of permeability to fry survival. This index needs further improvements, but is currently all we have for interpreting permeability information and biological implications. This relationship is:

Survival = -0.82530 + 0.14882 * ln permeability

It is important to understand that the use of this survival relationship is only an index of spawning gravel quality in the segment. The permeability measurements were taken in randomly selected pool tail-outs and are not indicative of where a salmon may select to spawn. Furthermore, spawning salmon have been shown to improve permeability in gravel where a redd was developed (MRC, 2000). Therefore the survival percentage developed is only indicative of the quality of potential spawning habitat and not as an absolute number.

From the sieved bulk gravel samples the percent fine particles less than 0.85 mm sieve size class was determined. The survival index for steelhead trout was calculated from the bulk gravel samples using the method described in Tappel and Bjorn (1983). The index for percent survival of steelhead was used because Tappel and Bjorn (1983) only present two survival indices for chinook salmon and steelhead trout. The steelhead index was used because it more closely approximates the fishery in the Big River WAU, coho salmon and steelhead trout. Chinook salmon are larger fish than coho or steelhead and can spawn in larger substrate making the index based on chinook salmon impractical for the Big River WAU.

Aquatic Species Distribution

Aquatic species distribution surveys were conducted from 1994-1996 (LP, 1997) and the effort was been repeated in 2000-2002 by MRC. The primary survey method for aquatic species distribution surveys was electrofishing using a Smith-Root Model 12 (Smith-Root Inc., Vancouver, WA) backpack electro-fisher. One person operated the backpack electro-fisher while one or two other individuals used dip nets to capture the stunned species. Aquatic species were enumerated, measured to fork length (salmonids) or total length, or snout vent length for amphibians and released back into the units from which they are captured. If stream water temperature was in excess of 70° Fahrenheit (21° Centigrade) the units were snorkeled. All fish and vertebrate species were identified to the lowest possible taxonomic level.

Snorkeling was used to assess species presence at stream segments where the channel was large enough to preclude electro-fishing or where elevated stream temperatures had the potential to adversely impact the health of the animals being sampled. The basic survey unit for snorkeling consisted of a minimum of three pools, however if riffles were deep enough to allow underwater observation these units were sampled. Depending on the channel width, one to four divers were used for the field surveys. The diver(s) entered the survey unit from the downstream end, and waited approximately one-minute before proceeding upstream to observe species. If the water velocity is too excessive for diver(s) to proceed upstream, then the survey unit would be snorkeled by floating downstream. During the survey time, salmonid species were enumerated by age-class according to pre-determined size-age class categories (0 = <70mm, 1+ = 70 – 140mm, 2+ = >140mm). All other fish and vertebrate species observed during the field surveys were identified to the lowest possible taxonomic level, recorded and enumerated.

RESULTS AND DISCUSSIONS

Fish Habitat Assessment

The following tables F-2 and F-3 summarize the 2000 fish habitat assessment. A total of 43 segments, ranging between 0% and 7% slope were evaluated. The habitat parameters used to evaluate individual

stream segments can be found in Table F-2. Each parameter has two values reported: score and rating. The 'score' is the value assigned to the habitat characteristic from the field observations. The 'rating' is the corresponding quality value for calculation of weighted habitat indices (see Table F-1). The ratings were used to calculate indices of habitat quality for each life history stage. A summary of the habitat ratings corresponding to each life history stage can be found in Table F-3.

Table F-2 Summary of Fish Habitat Parameters, with Scores and Corresponding Ratings. Big River Watershed Analysis Unit, 2000.

Segment	**A.** % Pool:Riffle: Flatwater by stream length		**B.** Pool Spacing		**C.** Shelter rating		**D.** % of all pools with residual depth ≥3 ft.		**E.** Spawning gravel quantity(%)		**F.**% Embed-dedness		**G.** Sub-surface fines		**H.** Gravel Quality		**I.** Key LWD + rootwads / 328 ft. with Debris Jams		**J.** % Over-wintering substrate	
	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating
BE1	54:46:0	3	3.3	2	62	2	7	1	>3	3	>50	1	Fair	2	Fair	2	0	1	50	3
BE2	56:44:0	3	6.7	1	83	2	0	1	>3	3	25-50	2	Fair	2	Fair	2	2.4	1	0	1
BE8	37:63:0	2	5.4	2	56	1	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	4.5	2	0	1
BE14	64:36:0	3	4.1	2	43	1	0	1	>3	3	>50	1	Fair	2	Fair	2	2.8	1	20	2
BI1	48:44:8	2	3.3	2	51	1	20	1	1.5-3	2	25-50	2	Fair	2	Fair	2	0	1	0	1
BL1	60:10:30	3	6.3	1	57	2	33	2	>3	3	25-50	2	Fair	2	Good	3	0	1	16	1
BL3	68:11:21	3	6.4	1	72	2	67	3	>3	3	25-50	2	Fair	2	Good	3	0	1	0	1
BL7	44:56:0	2	4.9	2	43	1	0	1	1.5-3	2	>50	1	Poor	1	Fair	2	2.1	1	62	3
BL12	40:60:0	2	6	1	122	3	0	1	1.5-3	2	>50	1	Poor	1	Fair	2	16.9	3	66	3
BM1	58:32:10	3	3.7	2	78	2	20	1	>3	3	25-50	2	Fair	2	Fair	2	0	1	0	1
BM3	78:13:9	3	4.7	2	64	2	50	2	>3	3	<25	3	Fair	2	Good	3	0	1	0	1
BM5	81:19:0	3	5.1	2	93	2	50	2	>3	3	25-50	2	Fair	2	Fair	2	0	1	11	1
BM25	55:45:0	3	2.2	3	63	2	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	1.9	1	0	1
BM26	50:50:0	2	3.3	2	58	1	14	1	>3	3	>50	1	Poor	1	Fair	2	2.6	1	0	1
BM27	61:39:0	3	8.3	1	59	1	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	0.8	1	0	1
BM31	44:56:0	2	4.7	2	71	2	25	2	1.5-3	2	>50	1	Fair	2	Fair	2	0	1	0	1
BM32	43:39:18	1	10.1	1	93	2	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	3.2	1	0	1
BM54	63:37:0	3	4.3	2	79	2	0	1	1.5-3	2	25-50	2	Fair	2	Fair	2	0	1	18	1
BM55	40:60:0	2	7.8	1	48	1	0	1	>3	3	25-50	2	Fair	2	Fair	2	0.7	1	0	1
BM59	61:39:0	3	0	1	36	1	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	0	1	0	1
BM65	53:47:0	3	9.3	1	101	2	14	1	1.5-3	2	25-50	2	Fair	2	Fair	2	3.9	1	38	2
BM76	44:56:0	2	7.4	1	43	1	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	0	1	0	1
BR1	80:10:10	3	5.8	2	29	1	33	2	>3	3	25-50	2	Fair	2	Fair	2	0.9	1	10	1
BR2	63:37:0	3	3.6	2	74	2	50	3	>3	3	25-50	2	Fair	2	Good	3	0.3	1	67	3
BR4	82:18	3	3.2	2	69	2	60	3	>3	3	25-50	2	Fair	2	Fair	2	0	1	33	2
BR5	61:23:16	3	2.6	3	53	1	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	0.6	1	50	1
BR6	58:42:0	3	5.4	2	78	2	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	5	2	13	1

Table F-2 continued. Summary of Fish Habitat Parameters, with Scores and Corresponding Ratings. Big River Watershed Analysis Unit, 2000.

Segment	**A.** % Pool:Riffle: Flatwater by stream length		**B.** Pool Spacing		**C.** Shelter rating		**D.** % of all pools with residual depth ≥3 ft.		**E.** Spawning gravel quantity(%)		**F.**% Embed-dedness		**G.** Sub-surface fines		**H.** Gravel Quality		**I.** Key LWD + rootwads / 328 ft. with Debris Jams		**J.** % Over-wintering substrate	
	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating
BR7	44:56:0	2	3.7	2	83	2	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	10.5	3	0	1
BR29	52:48:0	3	3.1	2	43	3	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	3.3	1	11	1
BS1	56:44:0	3	4.8	2	70	2	20	1	>3	3	>50	1	Fair	2	Fair	2	0.4	1	50	3
BS3	52:36:12	3	6.1	1	70	2	25	2	>3	3	25-50	2	Fair	2	Fair	2	2.6	1	44	3
BS5	53:47:0	2	3.6	2	63	2	0	1	>3	3	>50	1	Fair	2	Fair	2	6.3	2	0	1
BS15	61:39:0	3	2.7	3	69	2	17	1	1.5-3	2	>50	1	Fair	2	Fair	2	5.9	2	50	3
BS23	45:40:15	2	3.4	2	67	2	0	1	>3	3	25-50	2	Fair	2	Fair	2	2.4	1	50	3
BS24	59:41:0	3	2.7	3	68	2	0	1	>3	3	>50	1	Fair	2	Fair	2	5.7	2	0	1
BS49	46:54:0	2	4.4	2	94	2	14	1	1.5-3	3	>50	1	Poor	1	Fair	2	9.9	3	0	1
BT1	34:10:56	2	4.6	2	66	2	14	1	>3	3	25-50	2	Fair	2	Fair	2	0	1	0	1
BT2	48:41:11	2	3.0	2	71	2	30	2	>3	3	25-50	2	Fair	2	Fair	2	0	1	0	1
BT4	60:37:3	3	4.4	2	55	2	16	1	>3	3	25-50	2	Fair	2	Fair	2	0.7	1	0	1
BT4(2)	81:19:0	1	3.5	2	83	2	14	1	1.5-3	2	>50	1	Fair	2	Fair	2	1.3	1	10	1
BT5	50:50:0	2	3.8	2	136	3	0	1	1.5-3	2	>50	1	Poor	1	Fair	2	2.9	1	60	3
BT12	49:51:0	2	5.5	2	41	1	0	1	1.5-3	2	>50	1	Fair	2	Fair	2	1.5	1	11	1
BT26	49:51:0	2	6.6	1	20	1	0	1	1.5-3	2	>50	1	Poor	1	Fair	2	0	1	0	1

Table F-3 Summary of Fish Habitat Ratings for Three Life History Stages. Big River WAU, 2000.

Segment	Slope gradient class (percent)	Spawning habitat score	Spawning habitat rating	Rearing habitat score	Rearing habitat rating	Over-wintering habitat score	Over-wintering habitat rating
BE1	0-3	2.00	Fair	1.70	Fair	2.10	Fair
BE2	0-3	2.25	Fair	1.7	Fair	1.55	Poor
BE8	3-7	1.75	Fair	1.55	Poor	1.55	Poor
BE14	3-7	2.00	Fair	1.55	Poor	1.75	Fair
BI1	0-3	2.00	Fair	1.50	Poor	1.35	Poor
BL1	0-3	2.50	Good	1.85	Fair	1.65	Poor
BL3	0-3	2.50	Good	2.00	Fair	1.75	Fair
BL7	3-7	1.50	Poor	1.35	Poor	1.75	Fair
BL12	3-7	1.50	Poor	1.90	Fair	2.30	Fair
BM1	0-3	2.25	Fair	1.85	Fair	1.70	Fair
BM3	0-3	2.75	Good	2.30	Fair	1.90	Fair
BM5	0-3	2.25	Fair	2.15	Fair	1.90	Fair
BM25	0-3	1.75	Fair	1.85	Fair	1.85	Fair
BM26	0-3	1.75	Fair	1.35	Poor	1.35	Poor
BM27	0-3	1.75	Fair	1.40	Poor	1.40	Poor
BM31	0-3	1.75	Fair	1.60	Poor	1.60	Poor
BM32	3-7	1.75	Fair	1.35	Poor	1.35	Poor
BM54	3-7	2.00	Fair	1.85	Fair	1.70	Fair
BM55	0-3	2.25	Fair	1.35	Poor	1.20	Poor
BM59	3-7	1.75	Fair	1.40	Poor	1.40	Poor
BM65	3-7	2.00	Fair	1.70	Fair	1.75	Fair
BM76	3-7	1.75	Fair	1.20	Fair	1.20	Fair
BR1	0-3	2.25	Fair	1.85	Fair	1.65	Poor
BR2	0-3	2.50	Good	2.15	Fair	2.30	Fair
BR4	0-3	2.25	Fair	2.15	Fair	2.10	Fair
BR5	0-3	1.75	Fair	1.70	Fair	2.10	Fair
BR6	3-7	1.75	Fair	1.90	Fair	1.90	Fair
BR7	3-7	1.75	Fair	1.90	Fair	1.90	Fair
BR29	3-7	1.75	Fair	1.55	Poor	1.55	Poor
BS1	0-3	2.00	Fair	1.70	Fair	2.10	Fair
BS3	0-3	2.25	Fair	1.85	Fair	2.05	Fair
BS5	3-7	2.00	Fair	1.70	Fair	1.70	Fair
BS15	0-3	1.75	Fair	2.05	Fair	2.45	Good
BS23	0-3	2.25	Fair	1.65	Poor	1.90	Fair
BS24	0-3	2.00	Fair	2.05	Fair	2.05	Fair
BS49	3-7	1.50	Poor	1.90	Fair	1.90	Fair
BT1	0-3	2.25	Fair	1.65	Poor	1.50	Poor
BT2	0-3	2.25	Fair	1.80	Fair	1.60	Poor
BT4	0-3	2.25	Fair	1.85	Fair	1.70	Fair
BT4(2)	0-3	1.75	Fair	1.70	Fair	1.70	Fair
BT5	3-7	1.50	Poor	1.65	Poor	2.05	Fair
BT12	3-7	1.75	Fair	1.35	Poor	1.35	Poor
BT26	3-7	1.50	Poor	1.20	Poor	1.20	Poor

The Big River WAU is comprised of 8 planning watersheds, of which 7 were surveyed for fish habitat. The discussion of results is separated into the 7 surveyed planning watersheds of the Big River WAU. Each planning watershed contained 1 to 13 survey segments.

East Branch North Fork Big River

The segments surveyed (BE1, BE2, BE8 and BE14) in the East Branch North Fork of Big River planning watershed had slope gradients of 0-7%. Steelhead and coho were present throughout segments BE1 and BE2. Segments BE8 and BE14 did not have salmonids present. Spawning habitat was rated 'Fair' for all segments due to fair to good quantities of spawning gravel but moderate to highly embedded substrates. Summer rearing habitat was rated 'Fair' for segments BE1 and BE2; pool habitat was abundant but there were low amounts of instream cover available to fish. Segments BE8 and BE14 were rated 'Poor' for rearing habitat due to low amounts of instream cover, poor pool depths and low levels of large woody debris. Overwintering habitat was rated 'Fair' for segments BE1 and BE14 due to fair to good quantities of overwintering substrate, which provides shelter to young fish during higher wintertime flows. Segments BE2 and BE8 received 'Poor' overwintering ratings due to low levels of overwintering substrate and poor pool depths. All segments surveyed within the planning watershed had shallow pools, which may be related to the low levels of large woody debris present. Large woody debris was removed from streams within this planning watershed during the 1980's and 1990's.

Lower North Fork Big River

The segments surveyed (BL1, BL3, BL7 and BL12) in the Lower North Fork of Big River planning watershed had slope gradients of 0-7%. Steelhead and coho were present throughout segments BL1 and BL3. Segments BL7 and BL12 did not have salmonids present. Spawning habitat was rated 'Good' for segments BL1 and BL3 due to abundant high quality spawning gravels and moderately embedded substrate. Spawning habitat was rated 'Poor' for segments BL7 and BL12 due to moderate quantities of spawning gravel, highly embedded substrate and high levels of fine sediment. Summer rearing habitat was rated 'Fair' for segments BL1, BL3 and BL12 due to abundant pool habitat, fair to good levels of instream cover and fair to good pool depths. Segment BL7 was rated 'Poor' for rearing habitat since it has poor levels of instream cover, shallow pools and highly embedded substrates. Overwintering habitat ratings were 'Fair' for segments BL7 and BL12 due to good quantities of overwintering substrate. BL3 earned a 'Fair' overwintering rating for having abundant pool habitat with good pool depths. Segment BL1 received 'Poor' ratings for overwintering habitat due to low levels of large woody debris as well as poor quantities of overwintering substrate. The segments surveyed in the smaller tributaries in this planning watershed (BL7 and BL12) had high levels of fine sediment and shallow pools, which may indicate high sediment loads.

Rice Creek

The only segment surveyed (BI1) in the Rice Creek planning watershed had slope gradients of 0-3%. Coho and steelhead were present throughout the segment (Mainstem Big River). Spawning habitat was rated 'Fair' due to low quantities of spawning gravels, moderately embedded substrate and moderate levels of fine sediment. Summer rearing habitat was rated 'Poor' due to low levels of instream cover, poor pool depths and low levels of large woody debris. Overwintering habitat was rated 'Poor' due to low quantities of overwintering substrate as well as the low levels of instream cover, shallow pools and low levels of large woody debris that led to 'Poor' rearing habitat ratings. Shallow pool depths and the poor instream cover suggest a need for large woody debris.

Mettick Creek

There were 13 segments surveyed (BM1, BM3, BM5, BM25, BM26, BM27, BM31, BM32, BM54, BM55, BM59, BM65 and BM76) in the Mettick Creek planning watershed with slope gradients of 0-7%. Coho and steelhead were present throughout segments BM1, BM3, BM5, BM25, BM26, BM27, BM31 and BM32. Steelhead were present throughout segments BM54, BM55, BM59, BM65 and BM76.

Spawning habitat was rated 'Fair' for all segments (except BM3) due to fair quantities of spawning gravel, moderate to high embeddedness and fair levels of fine sediment. Segment BM3 received 'Good' ratings for spawning habitat due to abundant spawning gravels, low embeddedness and good gravel quality. Summer rearing habitat was rated 'Fair' for segments BM1, BM3, BM5, BM25, BM54, BM65 and BM76 due to fair to good percentages of pool habitat, moderate amounts of instream cover and moderately embedded substrates. 'Poor' overwintering ratings were received by segments BM26, BM27, BM31, BM32, BM55 and BM59 because these segments were highly embedded, had poor to fair levels of instream cover and low levels of large woody debris. Overwintering habitat was rated 'Fair' for the same segments which rated 'Fair' for rearing habitat due to the low quantities of overwintering substrate, fair amounts of instream cover and fair to good percentages of pool habitat. 'Poor' overwintering ratings were given to the same segments which rated 'Poor' for rearing conditions, because these segments had no overwintering substrate available to fish, poor instream cover and low levels of large woody debris. This planning watershed had low levels of large woody debris present, which may be the cause of the shallow pool depths. Large woody debris was removed from streams within this planning watershed during the 1980's and 1990's.

Russell Brook

The segments surveyed (BR1, BR2, BR4, BR5, BR6, BR7 and BR29) within the Russell Brook planning watershed had slope gradients of 0-7%. Coho and steelhead were present in the mainstem Big River (segments BR1, BR2 and BR4). Steelhead are present throughout segments BR5, BR6, BR7 and BR29. Spawning habitat was rated 'Fair' for all segments (except BR2) due to fair to good quantities of spawning gravels and fair levels of fine sediment. BR2 received a 'Good' spawning habitat rating due to abundant spawning gravels, moderately embedded substrate and good gravel quality. Summer rearing habitat was rated 'Poor' for segment BR29 due to low levels of large woody debris, highly embedded substrates and poor pool depths. Summer rearing habitat was rated 'Fair' for all other segments due to abundant pool habitat, moderate to high embeddedness and low levels of large woody debris. Overwintering habitat was rated 'Fair' for all segments except BR1 and BR29, which rated 'Poor' due to low quantities of overwintering substrate and low levels of large woody debris. The segments which rated 'Fair' for overwintering habitat had abundant pool habitat but also had low levels of both large woody debris and overwintering substrate. All segments surveyed within the Russell Brook planning watershed (except BR7) had poor levels of large woody debris and poor instream cover available to fish. Large woody debris was removed from streams within this planning watershed during the 1980's and 1990's.

South Daugherty Creek

The segments surveyed (BS1, BS3, BS5, BS15, BS23, BS24 and BS49) within the South Daugherty planning watershed had slope gradients of 0-7%. Coho and steelhead were present throughout segments BS1, BS3 and BS5. Steelhead were present throughout all other segments. Spawning habitat was rated 'Fair' for all segments except BS49, which received a 'Poor' rating due to the highly embedded substrates and high levels of fine sediment. All of the other segments were rated 'Fair' for spawning habitat due to abundant quantities of spawning gravels. Summer rearing habitat was rated 'Poor' for segment BS23 due to poor pool depths and low levels of large woody debris. All other segments were rated 'Fair' for rearing habitat due to fair percentages of pool habitat and poor to fair levels of large woody debris. Overwintering habitat was rated 'Fair' for all segments except BS15, which rated 'Good' due to good quantities of overwintering substrate, fair levels of large woody debris and abundant pool habitat. The other segments, which were rated 'Fair', had shallow pools and less pool habitat. All of the segments surveyed within this planning watershed had poor pool depths, which may be related to the low levels of large woody debris present. Large woody debris was removed from streams within this planning watershed during the 1980's and 1990's.

Two Log Creek

The segments surveyed (BT1, BT2, BT4, BT4(2), BT5, BT12 and BT26) in the Two Log Creek planning watershed had slope gradients of 0-7%. Coho and steelhead were present throughout segments BT1, BT2, BT4 and BT4(2). Steelhead were present throughout segment BT12. Segments BT5 and BT26 had no fish present. Spawning habitat was rated 'Fair' for all segments except BT5 and BT26, which rated 'Poor' due to highly embedded substrates and high levels of fine sediment. The remaining segments (which rated 'Fair') had fair to good quantities of spawning gravel and fair levels of fine sediment. Summer rearing habitat was rated 'Fair' for segments BT2 and BT4 due to moderately embedded substrates and fair to good percentages of pool habitat. Rearing habitat rated 'Poor' for the other segments due to shallow pool depth, highly embedded substrates and poor levels of large woody debris. Overwintering habitat rated 'Fair' for segments BT4 and BT5 due to abundant pool habitat and fair to good instream cover available to fish. All other segments received 'Poor' overwintering habitat ratings due to low quantities overwintering substrate, low levels of large woody debris and shallow pools. All of the segments surveyed within this planning watershed had poor pool depths, which may be related to the low levels of large woody debris present. Large woody debris was removed from streams within this planning watershed during the 1980's and 1990's.

Permeability and Stream Bulk Gravel Samples

Results from permeability and percent fine particles <0.85 mm for the Big River WAU are presented in Table F-4. MRC used the following criteria for evaluating permeability: 0-3000 cm/hr is deficient, 3000-10,000 cm/hr is marginal, and >10,000 cm/hr is on target. The geometric mean permeability observations for the 5 long term stream monitoring segments in the Big River WAU are deficient; Ramon Creek and Daugherty Creek are especially low. These observations are need to be monitored over time. A mean observation, as presented for the segments, provides an index of the segment's condition, however, even with the low mean observations all of the segments have permeability observations in the range of the marginal and on target criteria. This suggests that though the mean observations are low, and of concern, there are some areas of good quality spawning gravels within the segments sampled.

The results from the percent of particles <0.85 mm were slightly more encouraging than the permeability observations. However, some observations of very high percentages of particles <0.85 mm were found. Generally, the survival indices predicted by the bulk gravel samples were not too bad; however there is room of improvement.

Table F-4. Permeability and Percent Fine Sediment <0.85 mm and Associated Survival Indices for Long Term Monitoring Segments of the Big River WAU, 2000.

Segment ID	Stream Name	Geometric Mean Permeability for Segment (cm/hr)	Standard Error Permeability (cm/hr)	Range of Permeability Observations (cm/hr)	Survival Index (Taggart/ McCuddin)	Tappel/Bjorn Steelhead Survival Index	Percent Particles <0.85 mm
BM1	South Fork Big River	2292	648	1-22,101	33%	47-71%	8-13%
BM26	Ramon Creek	48	116	1-5,385	0%	16-55%	10-16%
BT2	Big River	2174	1102	1-47,895	32%	40-71%	7-14%
BE1	East Branch North Fork Big River	1003	311	1-15,549	20%	53-62%	9-11%
BS1	Daugherty Creek	610	77	50-3,685	13%	0-53%	11-22%

Aquatic Species Distribution

Data from six years of fish distribution surveys are located in the appendix. Map F-1 illustrates the known distribution of steelhead trout and coho salmon in the Big River WAU. Map F-1 also shows the potential distribution for coho salmon, chinook salmon and steelhead trout for select watercourses (this potential distribution is our interpretation at this point in time for larger streams, it is highly likely the actual potential distribution is larger).

LITERATURE CITED

Barnhard, K. and S. McBain. 1994. Standpipe to determine permeability, dissolved oxygen, and vertical particle size distribution in salmonid spawning gravels. Fish Habitat Relationships Tech. Bull. No 15. USDA- Forest Service. Six Rivers National Forest, Eureka, CA. 12p.

Barnhart R.A. 1991. Steelhead *Oncorhynchus mykiss.* The Wildlife Series: Trout. Stackpole Books. Harrisburg, PA. Pp. 324-336.

Bell, M.C. 1973. Fisheries handbook of engineering requirements and biological criteria. Contract DACW57-68-C-0086. Fisheries-Engineering Research Program. U.S. Army Corps of Engineers, North Pacific Division, Portland, Oregon.

Bilby R.E., and J.W. Ward. 1989. Changes in characteristics and function of woody debris with increasing size of streams in Western Washington. Transactions of the American Fisheries Society 118: 368-378.

Bisson P.A., R.E. Bilby, M.D. Bryant, C.A. Dolloff, G.B. Grette, R.A. House, M.L. Murphy, K.V. Koski, and J.R. Sedell. 1987. Large woody debris in forested streams in the Pacific Northwest: past, present, and future. Streamside Management: Forestry and Fishery Interactions, pp. 143-190. Contribution 57. University of Washington Institute of Forest Resources, Seattle.

Bjorn T.C., and D.W. Reiser. 1991. Habitat requirements of salmonids in streams. Influences of forest and rangeland management on salmonid fishes and their habitats. Transactions of the American Fisheries Society 117: 262-273.

Bugert R.M. 1985. Microhabitat selection of juvenile salmonids in response to stream cover alteration and predation. Master's Thesis. University of Idaho, Moscow.

CDFG (California Department of Fish and Game). 1994. Petition of the Board of Forestry to List Coho Salmon (*Oncorhyncus kisutch)* as a Sensitive Species, Prepared by CDFG, Sacramento.

CDFG. 1995. California Stream Restoration Manual. Third Edition. CDFG

Everest F.H., and D.W. Chapman. 1972. Habitat selection and spatial interaction by juvenile Chinook salmon and steelhead trout in two Idaho streams. Journal of the Fisheries Research Board of Canada 29: 91-100.

Everest F.H., G.H. Reeves, J.R. Sedell, J. Wolfe, D. Hohler, and D.A. Heller. 1986. Abundance, behavior, and habitat utilization by coho salmon and steelhead trout in Fish Creek, Oregon, as influenced

by habitat enhancement. Annual Report 1985 Project No. 84-11. U.S. Forest Service for Bonneville Power Administration. Portland, OR.

Faush K.D. 1993 Experimental Analysis of microhabitat selection by juvenile steelhead (*Oncorhynchus mykiss)* and coho salmon (*O. kisutch)* in a British Colombia stream. Canadian Journal of Fisheries and Aquatic Sciences 50(6): 1198-1207.

Flosi G., and F.L. Reynolds. 1994. California stream restoration manual. California Department of Fish and Game.

Fontaine B.L. 1988. An evaluation of the effectiveness of instream structures for steelhead trout rearing habitat in Steamboat Creek basin. Master's Thesis. OSU, Corvallis.

Hartman G.F. 1965. The role of behavior in the ecology and interaction of underyearling coho salmon (*Oncorhynchus kisutch)* and steelhead trout (*Salmo gairdneri)*. Journal of the Fisheries Research Board of Canada 22: 1035-1081.

Jackson W.F. 1991. Big River was Dammed. F.N.M.C. Books. Mendocino, CA.

Jones and Stokes Associates. 1980. The Ecological Characterization of the central and northern coastal region. Volume IV. Ch. 1-16. August, 1980.

Louisiana Pacific. 1996. Louisiana Pacific Watershed Analysis Manual. Louisiana-Pacific Corporation, Forest Resources Division. Calpella, CA.

McCuddin, M.E. 1977. Survival of salmon and trout embryos and fry in gravel-sand mixtures. M.S. Thesis, University of Idaho, Moscow.

The Mendocino County Water Agency, The Coastal Conservancy, The Anderson Valey Land Trust. 1998. The Navarro Watershed Restoration Plan. June, 1998.

Mendocino Redwood Company. 2000. Preliminary results of redd vs. non-redd permeabilities in the Garcia River. Company Report, Fort Bragg, CA.

Montgomery D.R., J.M. Buffington, R.D. Schmidt. 1995. Pool spacing in forest channels. Water Resources Research, 31: 1097-1104.

Needham P.R., and A.C. Taft. 1934 Observations on the spawning steelhead trout. Transactions of the American Fisheries Society 64: 332-338.

Platts W.S., W.F. Megahan, and G.W. Minshall. 1983. Methods for evaluating stream, riparian, and biotic conditions. USDA-Forest Service Gen. Tech. Rep. INT-138.

Roelofs T.D. 1985. Steelhead by the seasons. The News-Review, Roseburg, OR. 31 October. A4, A8.

Shapovalov L. and A.C. Taft. 1954. The life histories of steelhead rainbow trout (*Salmo gairdneri gairdneri)* and silver salmon(*Oncorhynchus kisutch)* with special reference to Waddell Creek, CA, and recommendations regarding their management. Fish Bulletin 98. CDFG.

Shirvell C.S. 1990. Role of instream rootwads as juvenille coho salmon (Oncorhynchus kisutch) and steelhead trout (O.mykiss) cover habitat under varying stream flows. Canadian Journal of Fisheries and Aquatic Sciences 47:852-861.

Stillwater Ecosystems, Watershed and Riverine Sciences. 1998. Chapter 3, Stream Channel Monitoring in Draft report on adoptive management and monitoring, pp.13-36. Louisiana-Pacific.

Stillwater Ecosystem, Watershed and Riverine Sciences. 2000. Personal communication of stream permeability index.

Tagart, J.V. 1976. The survival from egg deposition to emergence of coho salmon in the Clearwater River, Jefferson County, Washington. M.S. Thesis, University of Washigton.

Tappel, P.D. and T.C. Bjorn. 1983. A new method of relating size of spawning gravel to salmonid embryo survival. North American Journal of Fisheries Management 3: 123-135.

Terhune. L. D. B. 1958. The Mark IV groundwater standpipe for measuring seepage through salmon spawning gravel. Fish Res. Bd. Canada, 15(5), pp. 1027-1063.

Washington Forest Practice Board. 1997. Board Manual: Standard Methodology for Conducting Watershed Analysis. Version 4.0. Washington Forest Practice Board, Olympia, WA.

Big River Watershed Analysis Unit

Map F-1
Salmonid Distribution

This map illustrates the distribution of coho salmon, chinook salmon and steelhead trout in the Big River WAU. It is based on distribution surveys conducted by MRC in 2000-2002 and the previous landowner Louisiana-Pacific Corporation in 1994-1996. The potential distribution is our interpretation at this point in time for larger streams; it is highly likely the actual potential distribution is larger.

Salmonid Distribution
- Coho Salmon Distribution
- Potential Coho Salmon Distribution
- Steelhead Distribution
- Potential Steelhead Distribution
- Potential Chinook Salmon Distribution

Habitat Survey Segments

Fish Distribution Sampling Locations

Barriers to Adult Salmonid Upstream Migration
- Gradient
- Waterfall
- Culvert

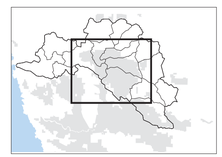
MRC Ownership

Planning Watershed Boundary

Big River Watershed Boundary

Flow Class
- Class I
- Class II
- Class III

Sheet 1



0 1/2 1 Mile

September 2003

Big River Watershed Analysis Unit

Map F-1
Salmonid Distribution

This map illustrates the distribution of coho salmon, chinook salmon and steelhead trout in the Big River WAU. It is based on distribution surveys conducted by MRC in 2000-2002 and the previous landowner Louisiana-Pacific Corporation in 1994-1996. The potential distribution is our interpretation at this point in time for larger streams; it is highly likely the actual potential distribution is larger.

Salmonid Distribution
- Coho Salmon Distribution
- Potential Coho Salmon Distribution
- Steelhead Distribution
- Potential Steelhead Distribution
- Potential Chinook Salmon Distribution

Habitat Survey Segments

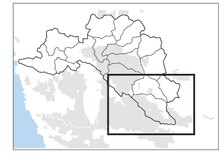
Fish Distribution Sampling Locations

Barriers to Adult Salmonid Upstream Migration
- Gradient
- Waterfall
- Culvert

- MRC Ownership
- Planning Watershed Boundary
- Big River Watershed Boundary

Flow Class
- Class I
- Class II
- Class III

Sheet 2



0 1/2 1 Mile

August 2003

APPENDIX F

Table A52. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
BIG RIVER	74-01	7/12/1994	30	3				NEW PGS STB
BIG RIVER	74-01	6/13/1995	PRESENT					YLF
BIG RIVER	74-01	6/6/1996	PRESENT					STB YLF
BIG RIVER	74-01	6/27/2000	6	7				CNT STB YLF
BIG RIVER	74-01	8/13/2001	20	20	2	1		PR STB
RUSSELL BROOK	74-02	6/29/1994	6	2				AMM PGS
RUSSELL BROOK	74-02	6/20/1995	PRESENT					YLF
RUSSELL BROOK	74-02	6/6/1996	PRESENT	PRESENT	PRESENT			PGS YLF
RUSSELL BROOK	74-02	6/26/2000	32	1				PGS YLF
RUSSELL BROOK	74-02	8/13/2001	6	2				PGS
RUSSELL BROOK	74-02	9/12/2002	4	1		12		
RUSSELL BROOK	74-03	6/29/1994		13				PGS SCP
RUSSELL BROOK	74-03	7/12/1995	PRESENT	PRESENT	PRESENT			PGS RSN SCP YLF
RUSSELL BROOK	74-03	6/24/1996	PRESENT	PRESENT	PRESENT			PGS YLF
RUSSELL BROOK	74-03	6/26/2000	18	2				CNT

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A53. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
RUSSELL BROOK	74-03	8/9/2001	12	3				PGS PR
RUSSELL BROOK	74-03	9/12/2002	2	1		4		YLF
RUSSELL BROOK	74-04	6/29/1994		10				NEW PGS YLF
RUSSELL BROOK	74-04	7/12/1995	PRESENT	PRESENT				PGS
RUSSELL BROOK	74-04	6/24/1996	PRESENT	PRESENT	PRESENT			PGS YLF
RUSSELL BROOK	74-04	6/28/2000	17	5				PGS YLF
RUSSELL BROOK	74-04	9/12/2002	2	1		4		
RUSSELL BROOK	74-05	6/24/1996	PRESENT	PRESENT	PRESENT			PGS RSN YLF
RUSSELL BROOK	74-05	6/28/2000	28	5				PGS
RUSSELL BROOK	74-05	8/9/2001		5				PGS
RUSSELL BROOK	74-05	9/12/2002	6					NEW PGS YLF
BIG RIVER	74-06	6/29/1994	15	3				PGS
BIG RIVER	74-06	6/14/1995	PRESENT	PRESENT				NEW STB
BIG RIVER	74-06	6/27/2000	56	2				PGS
BIG RIVER	74-06	8/13/2001	15	10				PGS YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A54. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
BIG RIVER	74-06	9/12/2002	12	2		5		YLF
PIG PEN GULCH	74-07	6/30/1994		9				NEW PGS YLF
PIG PEN GULCH	74-07	6/14/1995	PRESENT		PRESENT			
PIG PEN GULCH	74-07	6/24/1996	PRESENT	PRESENT				PGS YLF
PIG PEN GULCH	74-07	6/27/2000						PGS SCP YLF
PIG PEN GULCH	74-07	8/3/2001						PGS PR YLF
PIG PEN GULCH	74-07	9/9/2002						PGS SCP
BIG RIVER	74-08	6/30/1994	36	10				SCP SKR
BIG RIVER	74-08	6/14/1995	PRESENT	PRESENT				NEW
BIG RIVER	74-08	6/6/1996	PRESENT	PRESENT	PRESENT			RSN STB YLF
BIG RIVER	74-08	6/27/2000	27	7				CNT PGS SCP STB
BIG RIVER	74-08	8/3/2001	30	30	5			CNT STB YLF
BIG RIVER	74-08	9/9/2002	17	5				STB YLF
MARTIN CREEK	74-09	6/30/1994	13	18				NEW PGS SCP STB
MARTIN CREEK	74-09	6/14/1995	PRESENT					NEW

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A55. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
MARTIN CREEK	74-09	6/6/1996						RSN STB
MARTIN CREEK	74-09	6/27/2000	14					PGS SCP YLF
MARTIN CREEK	74-09	8/3/2001	9	3	1			AMM CNT PGS PR STB YLF
MARTIN CREEK	74-09	9/9/2002	12	3		4		NEW
BIG RIVER	74-10	6/30/1994	9	12				AMM NEW PGS SCP SKR STB YLF
BIG RIVER	74-10	6/14/1995	PRESENT					NEW STB YLF
BIG RIVER	74-10	6/6/1996	PRESENT	PRESENT	PRESENT			RSN STB YLF
BIG RIVER	74-10	6/27/2000	28	1	2			AMM CNT CR PGS PR SCP STB YLF
BIG RIVER	74-10	8/3/2001	17	4	1			AMM CNT PR STB YLF
BIG RIVER	74-10	9/9/2002	14	3	1	12		NEW YLF
NF BIG RIVER	75-01	7/12/1994	27	4				STB
NF BIG RIVER	75-01	6/12/1995	PRESENT	PRESENT	PRESENT			STB
NF BIG RIVER	75-01	6/7/1996	PRESENT			PRESENT		CNT RSN SCP STB
NF BIG RIVER	75-01	6/30/2000	2	2				CR PGS SCP
NF BIG RIVER	75-01	8/17/2001	25	25	5	8		STB

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A56. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
NF BIG RIVER	75-01	9/9/2002	19		1	2		
STEAM DONKEY GULCH	75-02	6/24/1996						PGS YLF
STEAM DONKEY GULCH	75-02	7/10/2000						PGS
STEAM DONKEY GULCH	75-02	8/1/2001						PGS
NF BIG RIVER	75-03	7/6/1994	14					STB
NF BIG RIVER	75-03	6/9/1995	PRESENT					NEW STB YLF
NF BIG RIVER	75-03	6/7/1996	PRESENT	PRESENT		PRESENT		PGS STB YLF
NF BIG RIVER	75-03	7/10/2000	12	18				
NF BIG RIVER	75-03	8/1/2001	17	4				AMM CR STB
NF BIG RIVER	75-03	9/4/2002	13	4	1	18		STB
DUNLAP GULCH	75-04	6/24/1996						PGS YLF
DUNLAP GULCH	75-04	7/10/2000						PGS
DUNLAP GULCH	75-04	8/1/2001						PGS
DUNLAP GULCH	75-04	9/4/2002						PGS
NF BIG RIVER	75-05	7/6/1994	18	1				PGS SKR YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A57. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
NF BIG RIVER	75-05	6/9/1995	PRESENT					NEW STB
NF BIG RIVER	75-05	6/7/1996	PRESENT	PRESENT	PRESENT	PRESENT		CNT STB YLF
NF BIG RIVER	75-05	7/10/2000	16		1			CNT
NF BIG RIVER	75-05	8/1/2001	14					STB
NF BIG RIVER	75-05	9/4/2002	10	4	1	14		STB YLF
EAST BRANCH NF BIG RIVER	75-06	7/6/1994	29	2				STB
EAST BRANCH NF BIG RIVER	75-06	6/9/1995	PRESENT	PRESENT				NEW STB
EAST BRANCH NF BIG RIVER	75-06	6/24/1996	PRESENT	PRESENT	PRESENT			PGS SCP YLF
EAST BRANCH NF BIG RIVER	75-06	7/10/2000		5				YLF
EAST BRANCH NF BIG RIVER	75-06	8/1/2001	6	1			1	PGS PR
EAST BRANCH NF BIG RIVER	75-06	9/4/2002	7	2		12		STB
EAST BRANCH NF BIG RIVER	75-07	6/30/1994	15	2				PGS STB
QUAIL GULCH	75-08	6/27/1996						PGS
BULL TEAM GULCH	75-09	6/27/1996	PRESENT	PRESENT	PRESENT	PRESENT		PGS
BULL TEAM GULCH	75-09	6/30/2000						PGS

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A58. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
BULL TEAM GULCH	75-09	7/31/2001						PGS
BULL TEAM GULCH	75-09	9/4/2002	1			2	1	
EAST BRANCH NF BIG RIVER	75-10	6/20/1995	PRESENT	PRESENT				PGS STB YLF
EAST BRANCH NF BIG RIVER	75-10	6/24/1996	PRESENT	PRESENT	PRESENT	PRESENT		YLF
EAST BRANCH NF BIG RIVER	75-10	6/30/2000	20	4				PGS YLF
EAST BRANCH NF BIG RIVER	75-10	7/31/2001	4	4	3			PGS PR
EAST BRANCH NF BIG RIVER	75-10	9/4/2002	2			1		PGS YLF
EAST BRANCH NF BIG RIVER	75-11	6/30/1994	28	3				PGS STB
EAST BRANCH NF BIG RIVER	75-11	7/12/1995	PRESENT	PRESENT	PRESENT			PGS YLF
EAST BRANCH NF BIG RIVER	75-11	6/24/1996	PRESENT	PRESENT				LAM PGS SCP YLF
EAST BRANCH NF BIG RIVER	75-11	6/30/2000	22	3				PGS
EAST BRANCH NF BIG RIVER	75-11	7/31/2001	13	6	1			AMM PGS
EAST BRANCH NF BIG RIVER	75-11	9/4/2002	14			22		
FRYKMAN GULCH	75-12	6/30/2000						PGS
FRYKMAN GULCH	75-12	7/31/2001						PGS PR

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A59. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
FRYKMAN GULCH	75-12	9/4/2002		1				
TWO LOG CREEK	76-01	7/6/1994	6	2				PGS STB
TWO LOG CREEK	76-01	7/12/1995	PRESENT	PRESENT	PRESENT	PRESENT		
TWO LOG CREEK	76-01	6/27/1996	PRESENT	PRESENT		PRESENT		PGS SCP YLF
TWO LOG CREEK	76-01	6/29/2000	5			2		PGS PR YLF
TWO LOG CREEK	76-01	8/2/2001	1	1		7	5	PGS STB YLF
TWO LOG CREEK	76-01	9/3/2002	6			19		STB YLF
TWO LOG CREEK	76-02	7/7/1994	1	6				PGS RLF SCP STB YLF
TWO LOG CREEK	76-02	8/2/1995	PRESENT	PRESENT				PGS SCP YLF
TWO LOG CREEK	76-02	6/27/1996						PGS
TWO LOG CREEK	76-02	6/29/2000	9			3		CR PGS PR STB YLF
TWO LOG CREEK	76-02	8/2/2001				5	2	PGS PR
TWO LOG CREEK	76-09	9/3/2002	2			4		
BEAVER POND GULCH	76-08	8/2/2001						PR
BEAVER POND GULCH	76-08	9/3/2002						YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A60. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
BEAVER POND GULCH	76-03	8/16/1995						
BEAVER POND GULCH	76-03	6/27/1996						
BEAVER POND GULCH	76-03	6/29/2000						
BIG RIVER	76-04	7/6/1994	30	1				AMM PGS SCP
BIG RIVER	76-04	6/12/1995	PRESENT	PRESENT	PRESENT			STB YLF
BIG RIVER	76-04	6/27/1996	PRESENT	PRESENT	PRESENT	PRESENT		SCP SKR STB YLF
BIG RIVER	76-04	6/29/2000	1	2		1		CNT SCP YLF
BIG RIVER	76-04	8/2/2001	2	6				PR STB YLF
BIG RIVER	76-04	9/3/2002		10		7		STB YLF
TRAMWAY GULCH	76-05	7/6/1994	32					PGS YLF
TRAMWAY GULCH	76-05	7/12/1995	PRESENT	PRESENT				PGS YLF
TRAMWAY GULCH	76-05	6/27/1996	PRESENT					PGS YLF
TRAMWAY GULCH	76-05	6/29/2000						PGS YLF
TRAMWAY GULCH	76-05	8/2/2001						PGS
TRAMWAY GULCH	76-05	9/3/2002	2			5		YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A61. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
TRAMWAY GULCH	76-06	7/6/1994						PGS
TRAMWAY GULCH	76-06	7/12/1995	PRESENT					PGS
TRAMWAY GULCH	76-06	6/27/1996	PRESENT	PRESENT				PGS YLF
TRAMWAY GULCH	76-06	6/29/2000						PGS YLF
TRAMWAY GULCH	76-06	8/2/2001						PGS
TRAMWAY GULCH	76-06	9/3/2002						PGS
BIG RIVER	76-07	7/12/1994	16	10				AMM NEW PGS STB
BIG RIVER	76-07	6/12/1995	PRESENT	PRESENT	PRESENT			STB YLF
BIG RIVER	76-07	6/7/1996	PRESENT	PRESENT	PRESENT			CNT STB YLF
BIG RIVER	76-07	9/9/2002	18	3				STB YLF
SF BIG RIVER	79-01	7/12/1994	21	7				NEW PGS STB
SF BIG RIVER	79-01	6/13/1995	PRESENT	PRESENT				NEW STB YLF
SF BIG RIVER	79-01	6/7/1996	PRESENT	PRESENT	PRESENT	PRESENT		CNT STB
SF BIG RIVER	79-01	6/27/2000	8	4				CNT LAM PTF STB YLF
SF BIG RIVER	79-01	8/13/2001	15	10				CNT STB YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A62. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
SF BIG RIVER	79-01	9/13/2002	11	5	2	3		STB
NONAME GULCH	79-02	7/12/1995						PGS
NONAME GULCH	79-02	6/25/1996						PGS YLF
NONAME GULCH	79-02	10/4/2000						PGS
NONAME GULCH	79-02	8/9/2001						PGS
RAMON CREEK	79-03	7/7/1994	14	7				AMM PGS
RAMON CREEK	79-03	6/13/1995	PRESENT	PRESENT	PRESENT			NEW STB YLF
RAMON CREEK	79-03	6/5/1996	PRESENT	PRESENT	PRESENT			RSN
RAMON CREEK	79-03	10/4/2000	6					PGS STB
RAMON CREEK	79-03	8/10/2001	6					STB YLF
RAMON CREEK	79-03	9/10/2002	13			11		STB YLF
RAMON CREEK	79-04	7/7/1994	26	12				
RAMON CREEK	79-04	7/12/1995	PRESENT	PRESENT	PRESENT	PRESENT		CNT PGS SCP STB YLF
RAMON CREEK	79-04	6/25/1996	PRESENT	PRESENT		PRESENT		PGS STB YLF
RAMON CREEK	79-04	6/28/2000	31	5				CNT PGS SCP YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A63. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
RAMON CREEK	79-04	8/10/2001	6	2				PR STB YLF
RAMON CREEK	79-04	9/10/2002	23	1		20		STB YLF
NF RAMON CREEK	79-05	7/7/1994	5	9				CR PGS
NF RAMON CREEK	79-05	7/12/1995	PRESENT			PRESENT		PGS
NF RAMON CREEK	79-05	6/25/1996	PRESENT	PRESENT				PGS YLF
NF RAMON CREEK	79-05	6/28/2000	6	3				PGS SCP STB
NF RAMON CREEK	79-05	8/10/2001	5					PR
NF RAMON CREEK	79-05	9/10/2002	14	1		8		
NF RAMON CREEK	79-33	9/10/2002	18					
NF RAMON CREEK	79-06	7/7/1994		16				PGS YLF
NF RAMON CREEK	79-06	7/12/1995	PRESENT	PRESENT	PRESENT			CNT PGS YLF
NF RAMON CREEK	79-06	6/25/1996	PRESENT	PRESENT				PGS YLF
NF RAMON CREEK	79-06	7/10/2000	3		1			PGS YLF
NF RAMON CREEK	79-06	8/10/2001	1	1	1			PGS YLF
RAMON CREEK	79-07	7/7/1994	10	10				PGS SCP

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A64. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
RAMON CREEK	79-07	7/12/1995	PRESENT	PRESENT				NEW PGS SCP
RAMON CREEK	79-07	6/25/1996	PRESENT	PRESENT				PGS SCP YLF
RAMON CREEK	79-07	6/28/2000	18	2				PGS SCP
RAMON CREEK	79-08	7/12/1995	PRESENT	PRESENT				PGS SCP
RAMON CREEK	79-08	6/25/1996	PRESENT	PRESENT	PRESENT			PGS SCP YLF
RAMON CREEK	79-08	7/10/2000	5	2				CNT PGS SCP YLF
RAMON CREEK	79-08	8/10/2001		2				CNT PR
RAMON CREEK	79-08	9/10/2002	7			11		SCP YLF
METTICK CREEK	79-09	7/8/1994		1				
METTICK CREEK	79-09	6/13/1995	PRESENT					SCP YLF
METTICK CREEK	79-09	6/6/1996	PRESENT	PRESENT	PRESENT			YLF
METTICK CREEK	79-09	6/28/2000	5					PGS
METTICK CREEK	79-09	8/14/2001	5	1				CNT PGS PR
METTICK CREEK	79-09	9/13/2002	3	1				PGS
METTICK CREEK	79-10	7/12/1994		3				SCP

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A65. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
METTICK CREEK	79-10	7/12/1995	PRESENT					PGS SCP
METTICK CREEK	79-10	6/25/1996	PRESENT	PRESENT				PGS SCP YLF
METTICK CREEK	79-10	8/22/2000	1	4				SCP
METTICK CREEK	79-10	8/14/2001		1				PGS PR
SF BIG RIVER	79-11	7/8/1994	20	10				RLF STB YLF
SF BIG RIVER	79-11	6/13/1995	PRESENT		PRESENT			STB
SF BIG RIVER	79-11	6/6/1996	PRESENT	PRESENT				STB YLF
SF BIG RIVER	79-11	6/28/2000	6	11				YLF
SF BIG RIVER	79-11	8/14/2001	2	9				CRY PR STB
ANDERSON GULCH	79-12	7/8/1994		2				
ANDERSON GULCH	79-12	6/13/1995	PRESENT					
ANDERSON GULCH	79-12	6/6/1996		PRESENT	PRESENT			
ANDERSON GULCH	79-12	6/28/2000						CNT PGS
ANDERSON GULCH	79-12	8/14/2001						PGS
ANDERSON GULCH	79-12	9/13/2002						NWP PGS

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A66. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
BOARDMAN GULCH	79-31	6/29/2000	1					PGS
BOARDMAN GULCH	79-31	8/15/2001	6					
BOARDMAN GULCH	79-31	8/1/2002	2	3				PGS
BOARDMAN GULCH	79-13	6/25/1996						PGS YLF
BOARDMAN GULCH	79-13	6/29/2000						PGS
BOARDMAN GULCH	79-13	8/14/2001	1		1			
BOARDMAN GULCH	79-13	8/1/2002						PGS
HALFWAY HOUSE GULCH	79-14	7/1/1996	PRESENT	PRESENT				RSN YLF
HALFWAY HOUSE GULCH	79-14	6/29/2000						
HALFWAY HOUSE GULCH	79-14	8/15/2001						PGS YLF
HALFWAY HOUSE GULCH	79-14	8/1/2002	1	1				PGS
SF BIG RIVER	79-15	7/8/1994	15	5				STB
SF BIG RIVER	79-15	6/20/1995	PRESENT	PRESENT				YLF
SF BIG RIVER	79-15	7/1/1996	PRESENT	PRESENT	PRESENT			CRY STB
SF BIG RIVER	79-15	6/29/2000	13	1				PGS SCP YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A67. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
SF BIG RIVER	79-15	8/15/2001	7	6	1			STB YLF
SF BIG RIVER	79-15	8/1/2002	8	1	1	1	2	CRY STB
DAUGHERTY CREEK	79-16	7/11/1994	16	5				PGS STB
DAUGHERTY CREEK	79-16	6/29/2000	7	2	1			PGS SCP YLF
DAUGHERTY CREEK	79-16	8/23/2001	2	1	2			AMM STB
DAUGHERTY CREEK	79-16	8/27/2002	4	8	3	13		STB YLF
DAUGHERTY CREEK	79-17	6/15/1995	PRESENT	PRESENT	PRESENT			STB YLF
DAUGHERTY CREEK	79-17	6/14/1996	PRESENT	PRESENT	PRESENT	PRESENT		NEW STB
DAUGHERTY CREEK	79-17	10/4/2000	12	2				SCP STB
SODA CREEK	79-18	7/11/1994	2	5				PGS SCP YLF
SODA CREEK	79-18	6/15/1995	PRESENT					
SODA CREEK	79-18	6/14/1996	PRESENT	PRESENT				SCP
SODA CREEK	79-18	6/29/2000	2	3				PGS
SODA CREEK	79-18	8/22/2001		3				PGS
SODA CREEK	79-18	8/27/2002	2					

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A68. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
SODA CREEK	79-19	7/11/1994		17				PGS YLF
SODA CREEK	79-19	7/17/1995	PRESENT	PRESENT	PRESENT			PGS RSN YLF
SODA CREEK	79-19	6/26/1996	PRESENT	PRESENT	PRESENT			PGS RSN YLF
SODA CREEK	79-19	6/30/2000						CNT PGS YLF
SODA CREEK	79-19	8/24/2001	2					CNT
SODA CREEK	79-19	8/27/2002	5					
GATES CREEK	79-20	8/2/1994	22	9	2			PGS STB
GATES CREEK	79-20	6/15/1995	PRESENT	PRESENT	PRESENT			STB
GATES CREEK	79-20	6/14/1996	PRESENT	PRESENT	PRESENT			NEW STB
GATES CREEK	79-20	6/30/2000	8	3				CNT PGS PR STB
GATES CREEK	79-20	8/23/2001	6	2				PGS STB
GATES CREEK	79-20	8/27/2002	12			18		NEW YLF NAL WAGS
GATES CREEK	79-34	8/28/2002	10			12		YLF
GATES CREEK	79-21	8/2/1994	24	18	3			AMM PGS STB
GATES CREEK	79-21	7/17/1995	PRESENT	PRESENT	PRESENT			CNT PGS STB YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A69. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
GATES CREEK	79-21	6/14/1996	PRESENT	PRESENT	PRESENT			NEW STB YLF
GATES CREEK	79-21	6/30/2000	10					PGS STB
GATES CREEK	79-21	8/23/2001	3	1				PGS PR STB
GATES CREEK	79-21	8/28/2002	18					STB YLF
GATES CREEK	79-22	8/2/1994	1		3			NEW PGS SCP
GATES CREEK	79-22	7/17/1995	PRESENT					PGS SCP YLF
GATES CREEK	79-22	6/26/1996	PRESENT	PRESENT				PGS RSN SCP
GATES CREEK	79-22	8/28/2002	22					YLF
TRIB TO GATES CREEK #1	79-32	6/30/2000	2		1			
GATES CREEK	79-23	6/26/1996	PRESENT	PRESENT				PGS RSN SCP YLF
GATES CREEK	79-23	6/30/2000	13					CNT PGS PR
GATES CREEK	79-23	8/23/2001	10	8	1			AMM PGS PR
GATES CREEK	79-23	8/28/2002						PGS SCP
JOHNSON CREEK	79-24	8/2/1994	12	7				PGS SCP
JOHNSON CREEK	79-24	7/17/1995	PRESENT	PRESENT				CNT PGS

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A70. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
JOHNSON CREEK	79-24	6/14/1996	PRESENT	PRESENT	PRESENT			PGS SCP
JOHNSON CREEK	79-24	8/22/2001	1	2				PGS SCP
JOHNSON CREEK	79-24	8/28/2002	8					SCP YLF
JOHNSON CREEK	79-25	8/2/1994						NEW PGS
JOHNSON CREEK	79-25	7/17/1995						PGS
JOHNSON CREEK	79-25	6/26/1996						CNT PGS
JOHNSON CREEK	79-25	7/4/2000						PGS SCP
JOHNSON CREEK	79-25	8/24/2001		1				PR
DAUGHERTY CREEK	79-26	7/11/1994	20	2				PGS SCP STB
DAUGHERTY CREEK	79-26	6/15/1995	PRESENT	PRESENT				STB
DAUGHERTY CREEK	79-26	6/14/1996	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	NEW STB
DAUGHERTY CREEK	79-26	7/4/2000	7	2	1			PGS
DAUGHERTY CREEK	79-26	8/23/2001	3	3				PR STB
DAUGHERTY CREEK	79-26	8/27/2002	7	2		17		STB YLF
SNUFFINS CREEK	79-27	7/11/1994	1	6				PGS SCP

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A71. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
SNUFFINS CREEK	79-27	7/17/1995	PRESENT	PRESENT				SCP
SNUFFINS CREEK	79-27	6/26/1996	PRESENT	PRESENT				PGS SCP
SNUFFINS CREEK	79-27	7/4/2000			1			SCP
SNUFFINS CREEK	79-27	8/24/2001	2	4				PGS PR YLF
SNUFFINS CREEK	79-27	8/26/2002	1		2	5		PR YLF
SNUFFINS CREEK	79-28	7/11/1994						NEW PGS
SNUFFINS CREEK	79-28	7/18/1995						PGS SCP
SNUFFINS CREEK	79-28	6/26/1996	PRESENT					SCP
SNUFFINS CREEK	79-28	7/4/2000			2			PGS
SNUFFINS CREEK	79-28	8/24/2001	2					PGS
SNUFFINS CREEK	79-28	8/26/2002						CNT PGS
DAUGHERTY CREEK	79-35	8/26/2002	2			5	2	STB YLF
DAUGHERTY CREEK	79-29	7/11/1994	12	5				PGS SCP
DAUGHERTY CREEK	79-29	6/15/1995	PRESENT	PRESENT				SCP
DAUGHERTY CREEK	79-29	6/26/1996	PRESENT	PRESENT	PRESENT			PGS SCP YLF

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table A72. Summary of results for aquatic species surveys within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

STREAM NAME	SITE ID	DATE	STH <70 MM	STH 70-130 MM	STH >130 MM	COH <70 MM	COH 70-130 MM	OTHER SPECIES
DAUGHERTY CREEK	79-29	7/4/2000	16	2	1			PGS SCP
DAUGHERTY CREEK	79-30	6/26/1996	PRESENT	PRESENT				PGS
DAUGHERTY CREEK	79-30	7/4/2000	7	3				PGS
DAUGHERTY CREEK	79-30	9/17/2001	2	1				PR
DAUGHERTY CREEK	79-30	8/26/2002			2			PGS PR

* Species Abbreviations; AMM=Pacific Lamprey Larvae; BLF=Bullfrog; BKS=Black Salamander; BUFO=Western Toad; CDS=Clouded Salamander; CHK=Chinook Salmon; CNT=California Newt; COH=Coho Salmon; CR=Coast Range Sculpin; CRY=Crayfish; LAM=Pacific Lamprey; NAL=Northern Alligator Lizard; NEW=Newt (Unidentified Species); NWP=Western Pond Turtle; PBL=Pacific Brook Lamprey; PGS=Pacific Giant Salamander; PR=Prickly Sculpin; PTF=Pacific Tree Frog; RCH=California Roach; RLF=Red Legged Frog; RSN=Rough Skinned Newt; SCP=Sculpin (Unidentified Species); SKR=Sacramento Sucker; STB=Stickleback; STH=Steelhead Trout; TLF=Olympic Tailed Frog; WAGS=Western Aquatic Garter Snake; YLF=Yellow Legged Frog.

* Blank spaces indicate that no organisms were observed.

*Click here to view physical data.
*Click on a Site ID to view map.

Table B52. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
BIG RIVER	74-01	7/12/1994	D		75		2	2		20	
BIG RIVER	74-01	6/13/1995	D				3	3		14.5	
BIG RIVER	74-01	6/6/1996	D				3	3		19	
BIG RIVER	74-01	6/27/2000	D		125	89:11:0	3	3	9.2	21.4	7.9
BIG RIVER	74-01	8/13/2001	D		142	78:22:0	3	2	7.2	16.9	7.5
RUSSELL BROOK	74-02	6/29/1994	E	5	30		3	1		13	
RUSSELL BROOK	74-02	6/20/1995	D				2	2		12.5	
RUSSELL BROOK	74-02	6/6/1996	D				3	2		17.5	
RUSSELL BROOK	74-02	6/26/2000	D		117	26:74:0	3	3	9.57	17.5	8.0
RUSSELL BROOK	74-02	8/13/2001	E	3	104	50:50:0	3	2	8.95	14.7	7.6
RUSSELL BROOK	74-02	9/12/2002	D		95	100:0:0	3	1	9.98	13.9	7.6
RUSSELL BROOK	74-03	6/29/1994	E	5	45		2	1		22	
RUSSELL BROOK	74-03	7/12/1995	E	3			3	2		15	
RUSSELL BROOK	74-03	6/24/1996	E	5			3	2		15.5	
RUSSELL BROOK	74-03	6/26/2000	D		153	70:30:0	2	3	9.56	15.8	7.3

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B53. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
RUSSELL BROOK	74-03	8/9/2001	E	3	109	41:59:0	3	2	6.93	14.9	6.7
RUSSELL BROOK	74-03	9/12/2002	E	2	100	70:30:0	3	1	8.5	13	6.9
RUSSELL BROOK	74-04	6/29/1994	E	5	230		3	1		17	
RUSSELL BROOK	74-04	7/12/1995	E	4			3	2		14.5	
RUSSELL BROOK	74-04	6/24/1996	E	7			3	2		15	
RUSSELL BROOK	74-04	6/28/2000	E	3	97	66:34:0	3	2	8.7	16	7.6
RUSSELL BROOK	74-04	9/12/2002	E	2	100	60:40:0	3	1	7.9	12.9	6.7
RUSSELL BROOK	74-05	6/24/1996	E	6			3	2		15	
RUSSELL BROOK	74-05	6/28/2000	E	4	88	49:36:15	3	2	8.3	15	7.9
RUSSELL BROOK	74-05	8/9/2001	E	2	91	32:68:0	3	1	7.67	15.5	7.2
RUSSELL BROOK	74-05	9/12/2002	E	2	103	51:49:0	3	1	9.2	11.9	6.5
BIG RIVER	74-06	6/29/1994	E	5	40		3	2		20	
BIG RIVER	74-06	6/14/1995	D				3	3		15	
BIG RIVER	74-06	6/27/2000	D		216	88:13:0	3	2	8.7	20.6	8.2
BIG RIVER	74-06	8/13/2001	E	5	243	86:14:0	3	2	8.55	16.1	7.5

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B54. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
BIG RIVER	74-06	9/12/2002	D		100	100:0:0	3	1	10.68	16.6	7.8
PIG PEN GULCH	74-07	6/30/1994	E	5	60		2	1		17	
PIG PEN GULCH	74-07	6/14/1995	D				3	1		13.5	
PIG PEN GULCH	74-07	6/24/1996	E	5			3	2		13.5	
PIG PEN GULCH	74-07	6/27/2000	E	3	90	49:14:37	3	2	9.8	15.8	8.1
PIG PEN GULCH	74-07	8/3/2001	E	2	90	68:32:0	3	1	6.88	15.5	7.6
PIG PEN GULCH	74-07	9/9/2002	E	2	114	68:32:0	3	1	11.8	11.4	7.2
BIG RIVER	74-08	6/30/1994	E	5	100		2	2		22	
BIG RIVER	74-08	6/14/1995	D				3	3		15	
BIG RIVER	74-08	6/6/1996	D				3	3		18.5	
BIG RIVER	74-08	6/27/2000	E	10	235	9:25:66	3	2	9.7	21.8	8.2
BIG RIVER	74-08	8/3/2001	D		191	63:37:0	3	2	7.45	18.3	7.6
BIG RIVER	74-08	9/9/2002	D		200	100:0:0	3	1	11.39	13.5	7.2
MARTIN CREEK	74-09	6/30/1994	E	5	100		3	2		17	
MARTIN CREEK	74-09	6/14/1995	D				3	3		14	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B55. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
MARTIN CREEK	74-09	6/6/1996	D				3	3		17.5	
MARTIN CREEK	74-09	6/27/2000	E	6	148	34:66:0	3	3	9.78	16.4	7.9
MARTIN CREEK	74-09	8/3/2001	E	6	188	47:53:0	3	1	8.85	16.4	7.4
MARTIN CREEK	74-09	9/9/2002	D		100	100:0:0	3	1	11.03	12.8	7.3
BIG RIVER	74-10	6/30/1994	E	5	118		3	2		16	
BIG RIVER	74-10	6/14/1995	D				3	2		13.5	
BIG RIVER	74-10	6/6/1996	D				3	3		16.5	
BIG RIVER	74-10	6/27/2000	E	12	171	70:30:0	3	2	8.57	16.5	8
BIG RIVER	74-10	8/3/2001	E	4	121	62:38:0	3	2	6.93	16	6.8
BIG RIVER	74-10	9/9/2002	D		110	100:0:0	3	2	9.48	12.5	7.2
NF BIG RIVER	75-01	7/12/1994	D		50		2	2		17.5	
NF BIG RIVER	75-01	6/12/1995	D				3	3		16	
NF BIG RIVER	75-01	6/7/1996	D				3	3		17	
NF BIG RIVER	75-01	6/30/2000	E	6	121	58:42:0	3	2	9.85	19.7	8.2
NF BIG RIVER	75-01	8/17/2001	D		103	52:48:0	3	2	8.35	17.6	7.4

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B56. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
NF BIG RIVER	75-01	9/9/2002	D		250	100:0:0	3	2	13.39	14.8	7.5
STEAM DONKEY GULCH	75-02	6/24/1996	E	2			3	1		13	
STEAM DONKEY GULCH	75-02	7/10/2000	D		110	40:24:36	3	1	9.55	14.4	7.1
STEAM DONKEY GULCH	75-02	8/1/2001	E	4	90	29:71:0	1	1	7.3	13.1	7.5
NF BIG RIVER	75-03	7/6/1994	E	5	98		2	1		16	
NF BIG RIVER	75-03	6/9/1995	D				3	3		14	
NF BIG RIVER	75-03	6/7/1996	D				3	3		18	
NF BIG RIVER	75-03	7/10/2000	D		105	30:0:70	3	2	10.02	18.6	8.1
NF BIG RIVER	75-03	8/1/2001	E	11	289	83:17:0	3	2	9.94	15.2	7.8
NF BIG RIVER	75-03	9/4/2002	D		150	100:0:0	3	1	11.03	15.5	7.7
DUNLAP GULCH	75-04	6/24/1996	E	2			3	0		12	
DUNLAP GULCH	75-04	7/10/2000	D		83	66:34:0	1	1	9.57	14.2	6.6
DUNLAP GULCH	75-04	8/1/2001	E	4	95	72:28:0	1	1	6.85	12.2	7
DUNLAP GULCH	75-04	9/4/2002	E	1	57	100:0:0	3	0	9.6	13.3	7.3
NF BIG RIVER	75-05	7/6/1994	E	5	98		2	1		17	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B57. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
NF BIG RIVER	75-05	6/9/1995	D				3	3		14	
NF BIG RIVER	75-05	6/7/1996	D				3	3		16.5	
NF BIG RIVER	75-05	7/10/2000	D		122	83:17:0	3	2	9.68	18.8	7.9
NF BIG RIVER	75-05	8/1/2001	E	6	132	84:16:0	3	2	8.31	14.4	7.6
NF BIG RIVER	75-05	9/4/2002	D		150	100:0:0	3	1	8.53	17	7.7
EAST BRANCH NF BIG RIVER	75-06	7/6/1994	E	5	108		2	1		14	
EAST BRANCH NF BIG RIVER	75-06	6/9/1995	D				3	3		13.5	
EAST BRANCH NF BIG RIVER	75-06	6/24/1996	E	13			3	3		17	
EAST BRANCH NF BIG RIVER	75-06	7/10/2000	D		149	48:52:0	3	2	9.94	16.2	8.0
EAST BRANCH NF BIG RIVER	75-06	8/1/2001	E	1	173	40:60:0	3	1	9.2	14.7	7.7
EAST BRANCH NF BIG RIVER	75-06	9/4/2002	D		100	100:0:0	3	1	10.55	13.1	7.5
EAST BRANCH NF BIG RIVER	75-07	6/30/1994	E	5	110		2	1		19	
QUAIL GULCH	75-08	6/27/1996	E	2			2	1		14	
BULL TEAM GULCH	75-09	6/27/1996	E	4			2	1		15	
BULL TEAM GULCH	75-09	6/30/2000	E	2	97	20:80:0	3	1	7.85	13.5	7.5

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B58. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
BULL TEAM GULCH	75-09	7/31/2001	E	1	97	20:80:0	1	1		14.3	
BULL TEAM GULCH	75-09	9/4/2002	E	1	36	58:42:0	3	0	7.6	11.3	6.2
EAST BRANCH NF BIG RIVER	75-10	6/20/1995	D				3	2		16.5	
EAST BRANCH NF BIG RIVER	75-10	6/24/1996	E	8			3	2		16.5	
EAST BRANCH NF BIG RIVER	75-10	6/30/2000	E	4	188	64:36:0	3	2	9.4	15.5	8.0
EAST BRANCH NF BIG RIVER	75-10	7/31/2001	E	3	90	73:27:0	3	1		14.2	
EAST BRANCH NF BIG RIVER	75-10	9/4/2002	E		96	64:36:0	3	1	9.5	12.7	6.9
EAST BRANCH NF BIG RIVER	75-11	6/30/1994	E	5	100		2	1		20	
EAST BRANCH NF BIG RIVER	75-11	7/12/1995	E	4			3	2		15.5	
EAST BRANCH NF BIG RIVER	75-11	6/24/1996	E	8			3	2		16	
EAST BRANCH NF BIG RIVER	75-11	6/30/2000	E	5	125	69:31:0	3	2	9.8	15.2	8
EAST BRANCH NF BIG RIVER	75-11	7/31/2001	E	5	104	57:43:0	3	1		18.6	
EAST BRANCH NF BIG RIVER	75-11	9/4/2002	D		100	100:0:0	3	1	9.38	13.7	7.2
FRYKMAN GULCH	75-12	6/30/2000	E	2	82	24:76:0	3	1	9.85	13.2	7.6
FRYKMAN GULCH	75-12	7/31/2001	E	2	94	26:74:0	3	1		13.4	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B59. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
FRYKMAN GULCH	75-12	9/4/2002	E	1	45	33:67:0	3	1	9.5	11.9	6.8
TWO LOG CREEK	76-01	7/6/1994	E	5	65		2	1		17	
TWO LOG CREEK	76-01	7/12/1995	E	4			3	2		16	
TWO LOG CREEK	76-01	6/27/1996	E	7			3	1		14	
TWO LOG CREEK	76-01	6/29/2000	E	6	120	69:31:0	3	1	9.7	16	7.7
TWO LOG CREEK	76-01	8/2/2001	E	6	93	59:41:0	3	2	5.4	13.7	7.0
TWO LOG CREEK	76-01	9/3/2002	D		100	100:0:0	3	1	7.4	13.3	7.1
TWO LOG CREEK	76-02	7/7/1994	E	5	86		2	1		15.5	
TWO LOG CREEK	76-02	8/2/1995	E	4			3	1		18.5	
TWO LOG CREEK	76-02	6/27/1996	E	2			3	1		13	
TWO LOG CREEK	76-02	6/29/2000	E	7	165	48:52:0	3	1	8.53	14.2	7.9
TWO LOG CREEK	76-02	8/2/2001	E	5	116	64:36:0	2	2	6.5	13.1	7.1
TWO LOG CREEK	76-09	9/3/2002	E	2	99	53:47:0	3	1	8.2	12.3	6.5
BEAVER POND GULCH	76-08	8/2/2001	E	2	106	40:60:0	3	1	6.9	13	7.1
BEAVER POND GULCH	76-08	9/3/2002	E		69	54:46:0	3	1	7.44	13.2	6.1

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B60. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
BEAVER POND GULCH	76-03	8/16/1995	E	4			0	1		14.5	
BEAVER POND GULCH	76-03	6/27/1996	E	5			1	1		14	
BEAVER POND GULCH	76-03	6/29/2000	E	3	88	53:47:0	1	0	6.7	16.2	7.1
BIG RIVER	76-04	7/6/1994	E	5	60		2	2		22	
BIG RIVER	76-04	6/12/1995	D				3	3		16	
BIG RIVER	76-04	6/27/1996	D				3	3		18	
BIG RIVER	76-04	6/29/2000	E	7	337	55:45:0	3	3	10	20	8.2
BIG RIVER	76-04	8/2/2001	E	4	166	70:30:0	3	2	6.98	22.8	7.7
BIG RIVER	76-04	9/3/2002	D		450	100:0:0	3	2	6.9	18.4	7.1
TRAMWAY GULCH	76-05	7/6/1994	E	5	175		2	1		14	
TRAMWAY GULCH	76-05	7/12/1995	E	2			3	1		14	
TRAMWAY GULCH	76-05	6/27/1996	E	3			3	1		14	
TRAMWAY GULCH	76-05	6/29/2000	E	156	91	30:70:0	3	1	8.33	13.5	7.9
TRAMWAY GULCH	76-05	8/2/2001	E	1	90	29:71:0	3	1	8.1	14.1	7.5
TRAMWAY GULCH	76-05	9/3/2002	E	2	107	35:65:0	3	0	8.8	14.8	7.5

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B61. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
TRAMWAY GULCH	76-06	7/6/1994	E	3	60			1		14	
TRAMWAY GULCH	76-06	7/12/1995	E	3			2	1		14	
TRAMWAY GULCH	76-06	6/27/1996	E	4			3	1		14	
TRAMWAY GULCH	76-06	6/29/2000	E	3	78	46:54:0	1	1	7.82	12.8	7.2
TRAMWAY GULCH	76-06	8/2/2001	E	3	105	55:45:0	3	1	5.61	12.4	6.7
TRAMWAY GULCH	76-06	9/3/2002	E	3	115	49:30:22	3	1	6.48	13	6.3
BIG RIVER	76-07	7/12/1994	D		120		2	2		18	
BIG RIVER	76-07	6/12/1995	D				3	3		17	
BIG RIVER	76-07	6/7/1996	D				3	3		17.5	
BIG RIVER	76-07	9/9/2002	D		200	100:0:0	3	2	13.01	16.3	7.5
SF BIG RIVER	79-01	7/12/1994	D		135		3	2		19.5	
SF BIG RIVER	79-01	6/13/1995	D				3	3		15	
SF BIG RIVER	79-01	6/7/1996	D				3	3		16	
SF BIG RIVER	79-01	6/27/2000	E	2	442	79:10:11	3	1	9.5	15	7.4
SF BIG RIVER	79-01	8/13/2001	D		220	81:19:0	3	2	6.23	18.6	7.3

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B62. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
SF BIG RIVER	79-01	9/13/2002	D		90	100:0:0	3	1	13.35	13.4	7.5
NONAME GULCH	79-02	7/12/1995	E	2			2	1		14.5	
NONAME GULCH	79-02	6/25/1996	E	2			3	1			
NONAME GULCH	79-02	10/4/2000	E	1	90	34:66:0	3	1	8.7	12	6.4
NONAME GULCH	79-02	8/9/2001	E	2	98	21:79:0	3	1	7	14.8	7
RAMON CREEK	79-03	7/7/1994	E	5	97		2	1		21	
RAMON CREEK	79-03	6/13/1995	D				3	2		16	
RAMON CREEK	79-03	6/5/1996	D				2	2			
RAMON CREEK	79-03	10/4/2000	E	3	99	56:44:0	3	1	11.6	11	6.9
RAMON CREEK	79-03	8/10/2001	E	2	146	58:42:0	3	1	8.03	20	7.5
RAMON CREEK	79-03	9/10/2002	D		100	100:0:0	3	1	10.7	11.6	6.9
RAMON CREEK	79-04	7/7/1994	E	5	74		2	1			
RAMON CREEK	79-04	7/12/1995	E	9			3	2		19	
RAMON CREEK	79-04	6/25/1996	E	8			3	2			
RAMON CREEK	79-04	6/28/2000	E	6	149	59:41:0	3	1	8.6	23.8	7.9

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B63. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
RAMON CREEK	79-04	8/10/2001	E	2	164	44:56:0	3	1	6.4	19.9	7.1
RAMON CREEK	79-04	9/10/2002	D		100	100:0:0	3	1	10.8	12	6.8
NF RAMON CREEK	79-05	7/7/1994	E	5	100		2	1		18	
NF RAMON CREEK	79-05	7/12/1995	E	6			2	1		16.5	
NF RAMON CREEK	79-05	6/25/1996	E	4			3	2			
NF RAMON CREEK	79-05	6/28/2000	E	4	113	36:64:0	3	1	9.8	18.7	8.0
NF RAMON CREEK	79-05	8/10/2001	E	1	106	31:69:0	3	1	7.75	18.8	7.2
NF RAMON CREEK	79-05	9/10/2002	D		90	100:0:0	3	1	10.6	11.1	6.9
NF RAMON CREEK	79-33	9/10/2002	D		90	100:0:0	3	0	10.7	11	6.9
NF RAMON CREEK	79-06	7/7/1994	E	5	181		2	1		20	
NF RAMON CREEK	79-06	7/12/1995	E	8			2	1		16.5	
NF RAMON CREEK	79-06	6/25/1996	E	4			3	2		16	
NF RAMON CREEK	79-06	7/10/2000	E	5	104	36:46:18	3	2	7.95	12.5	7.7
NF RAMON CREEK	79-06	8/10/2001	E	2	144	23:77:0	3	1	6.25	15.7	7
RAMON CREEK	79-07	7/7/1994	E	5	90		2	1		22	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B64. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
RAMON CREEK	79-07	7/12/1995	E	6			3	1		16	
RAMON CREEK	79-07	6/25/1996	E	4			3	2		18.5	
RAMON CREEK	79-07	6/28/2000	E	3	109	33:67:0	3	1	8.5	20.2	8.0
RAMON CREEK	79-08	7/12/1995	E	7			2	1		15	
RAMON CREEK	79-08	6/25/1996	E	10			3	2		16.5	
RAMON CREEK	79-08	7/10/2000	E	2	96	39:61:0	3	2	7.15	14.3	7.6
RAMON CREEK	79-08	8/10/2001	E	2	117	52:48:0	3	1	6.18	15.7	7
RAMON CREEK	79-08	9/10/2002	D		100	100:0:0	3	0	10.8	15.1	7.1
METTICK CREEK	79-09	7/8/1994	D		35		2	1		15.5	
METTICK CREEK	79-09	6/13/1995	D				3	2		12.5	
METTICK CREEK	79-09	6/6/1996	D				2	2		14	
METTICK CREEK	79-09	6/28/2000	D		112	77:23:0	3	2	8.37	16.3	7.9
METTICK CREEK	79-09	8/14/2001	E	3	98	54:46:0	3	1	7.44	14	7.6
METTICK CREEK	79-09	9/13/2002	D		150	100:0:0	3	1	13.8	12.3	7.5
METTICK CREEK	79-10	7/12/1994	V	10	32		2	1		15	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B65. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
METTICK CREEK	79-10	7/12/1995	E	5			2	1		14	
METTICK CREEK	79-10	6/25/1996	E	4			3	2			
METTICK CREEK	79-10	8/22/2000	E	2	113	44:56:0	3	1	9.5	15	7.4
METTICK CREEK	79-10	8/14/2001	E	2	120	33:68:0	3	1	7.6	14.4	7.7
SF BIG RIVER	79-11	7/8/1994	D		60		3	2		23	
SF BIG RIVER	79-11	6/13/1995	D				3	3		15	
SF BIG RIVER	79-11	6/6/1996	D				2	3		17	
SF BIG RIVER	79-11	6/28/2000	D		288	78:11:11	3	3	9.45	21	8.2
SF BIG RIVER	79-11	8/14/2001	E	3	97	81:19:0	3	1	8.8	15.2	7.7
ANDERSON GULCH	79-12	7/8/1994	V	5	35			1		15	
ANDERSON GULCH	79-12	6/13/1995	D				3	2		13	
ANDERSON GULCH	79-12	6/6/1996	D				2	2		14	
ANDERSON GULCH	79-12	6/28/2000	D		154	29:71:0	3	2	9.7	15	7.8
ANDERSON GULCH	79-12	8/14/2001	E	2	116	35:65:0	3	1	7.17	13.8	7.1
ANDERSON GULCH	79-12	9/13/2002	D		100	100:0:0	3	1	14.09	11.7	7.4

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B66. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
BOARDMAN GULCH	79-31	6/29/2000	E	3	183	43:57:0	3	1	9.1	14.8	8.1
BOARDMAN GULCH	79-31	8/15/2001	E	1	100	55:45:0	3	1	7.15	14	7.2
BOARDMAN GULCH	79-31	8/1/2002	E	2	161	44:32:24	3	1	9.02	17.1	7.6
BOARDMAN GULCH	79-13	6/25/1996	E	3			3	1		14	
BOARDMAN GULCH	79-13	6/29/2000	E	6	141	40:60:0	3	1	7.3	16.4	6.8
BOARDMAN GULCH	79-13	8/14/2001	E	1	106	34:66:0	1	1	3.7	18	6
BOARDMAN GULCH	79-13	8/1/2002	E	2	80	33:61:6	3	1	7.53	15.4	6.5
HALFWAY HOUSE GULCH	79-14	7/1/1996	V	18			3	1		14.5	
HALFWAY HOUSE GULCH	79-14	6/29/2000	E	3	43	65:35:0	3	1	9.25	13.9	7.9
HALFWAY HOUSE GULCH	79-14	8/15/2001	E	2	112	48:52:0	3	1	6.6	14	7.0
HALFWAY HOUSE GULCH	79-14	8/1/2002	E		175	45:55:0	3	1	9.36	16.9	7.8
SF BIG RIVER	79-15	7/8/1994	D		40		2	2		19	
SF BIG RIVER	79-15	6/20/1995	D				3	3		16	
SF BIG RIVER	79-15	7/1/1996	D				3	2		19.5	
SF BIG RIVER	79-15	6/29/2000	E	13	148	70:30:0	3	3	7.46	17.1	7.9

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B67. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
SF BIG RIVER	79-15	8/15/2001	D		157	70:30:0	3	2	7.28	16.9	7.5
SF BIG RIVER	79-15	8/1/2002	E	2	94	60:28:13	3	2	7.03	17.3	7.2
DAUGHERTY CREEK	79-16	7/11/1994	E	5	112		2	1		24	
DAUGHERTY CREEK	79-16	6/29/2000	E	23	302	68:32:0	3	2	8.86	21.2	8.1
DAUGHERTY CREEK	79-16	8/23/2001	E	2	111	84:16:0	3	2	8.08	15.6	7.8
DAUGHERTY CREEK	79-16	8/27/2002	D		100	100:0:0	3	1	9.8	15.8	7.5
DAUGHERTY CREEK	79-17	6/15/1995	D				3	3		13	
DAUGHERTY CREEK	79-17	6/14/1996	D				3	2		15	
DAUGHERTY CREEK	79-17	10/4/2000	E	5	167	66:23:11	3	2		12.4	7.6
SODA CREEK	79-18	7/11/1994	E	5	38		2	1		21	
SODA CREEK	79-18	6/15/1995	D				3	2		12.5	
SODA CREEK	79-18	6/14/1996	D				3	2		14	
SODA CREEK	79-18	6/29/2000	E	10	94	78:22:0	3	2	8.15	18.7	7.9
SODA CREEK	79-18	8/22/2001	E	2	93	31:69:0	3	1	7.78	15.4	7.8
SODA CREEK	79-18	8/27/2002	D		90	100:0:0	3	1	8.4	16.3	7.8

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B68. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
SODA CREEK	79-19	7/11/1994	E	5	83		2	0		22.5	
SODA CREEK	79-19	7/17/1995	E	4			3	1		15.5	
SODA CREEK	79-19	6/26/1996	E	6			3	1		14	
SODA CREEK	79-19	6/30/2000	E	5	92	65:35:0	3	3	7.72	13.2	7.5
SODA CREEK	79-19	8/24/2001	E	1	92	49:51:0	3	1	5.58	14.8	7
SODA CREEK	79-19	8/27/2002	D		95	100:0:0	3	1	8	15.7	7.5
GATES CREEK	79-20	8/2/1994	E	5	79		2	1		18	
GATES CREEK	79-20	6/15/1995	D				3	2		13.5	
GATES CREEK	79-20	6/14/1996	D				3	2		17	
GATES CREEK	79-20	6/30/2000	E	19	170	75:25:0	3	2	8.91	15.6	7.9
GATES CREEK	79-20	8/23/2001	E	2	104	39:61:0	3	1	6.8	15	7
GATES CREEK	79-20	8/27/2002	D		200	100:0:0	3	1	8.6	16.6	7.4
GATES CREEK	79-34	8/28/2002	D		94	100:0:0	3	1	8.9	16.6	7.6
GATES CREEK	79-21	8/2/1994	E	5	90		2	1		17	
GATES CREEK	79-21	7/17/1995	D				3	1		19	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B69. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
GATES CREEK	79-21	6/14/1996	D				3	2		16	
GATES CREEK	79-21	6/30/2000	D		101	65:35:0	3	2	6.69	18.8	7.7
GATES CREEK	79-21	8/23/2001	E	3	101	49:51:0	3	1	6.41	15	7.5
GATES CREEK	79-21	8/28/2002	D		90	100:0:0	3	1	10	17.1	7.9
GATES CREEK	79-22	8/2/1994	E	5	250		2	1		21	
GATES CREEK	79-22	7/17/1995	E	10			3	1		17	
GATES CREEK	79-22	6/26/1996	E	7			3	2		15.5	
GATES CREEK	79-22	8/28/2002	D		125	100:0:0	3	1	7.4	18.9	7.8
TRIB TO GATES CREEK #1	79-32	6/30/2000	E	3	117	50:50:0	3	2	8.74	17.5	8
GATES CREEK	79-23	6/26/1996	E	4						15.5	
GATES CREEK	79-23	6/30/2000	E	6	96	29:71:0	3	2	8.78	17.3	7.9
GATES CREEK	79-23	8/23/2001	E	3	124	48:52:0	3	1	6.73	15.2	7.5
GATES CREEK	79-23	8/28/2002	D		200	100:0:0	3	1	7.4	15.6	7.5
JOHNSON CREEK	79-24	8/2/1994	E	5	65		2	1		19	
JOHNSON CREEK	79-24	7/17/1995	D				3	1		18.5	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B70. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
JOHNSON CREEK	79-24	6/14/1996	D				3	2		15.5	
JOHNSON CREEK	79-24	8/22/2001	E	1	136	24:76:0	3	1	6.4	14.7	7.3
JOHNSON CREEK	79-24	8/28/2002	D		95	100:0:0	3	1	7.6	17.3	7.4
JOHNSON CREEK	79-25	8/2/1994	E	5	125		2	1		18	
JOHNSON CREEK	79-25	7/17/1995	E	2			3	1		17	
JOHNSON CREEK	79-25	6/26/1996	E	4						14.5	
JOHNSON CREEK	79-25	7/4/2000	E	3	97	31:69:0	3	1	8.28	14.6	8
JOHNSON CREEK	79-25	8/24/2001	E	3	91	43:57:0	3	0	8.25	14.7	7.1
DAUGHERTY CREEK	79-26	7/11/1994	E	5	53		2	1		22.5	
DAUGHERTY CREEK	79-26	6/15/1995	D				3	3		13.5	
DAUGHERTY CREEK	79-26	6/14/1996	D				3	3		18	
DAUGHERTY CREEK	79-26	7/4/2000	E	4	98	66:34:0	3	2	8.75	17.9	7.7
DAUGHERTY CREEK	79-26	8/23/2001	E	4	119	72:28:0	3	2	8.6	15.5	7.3
DAUGHERTY CREEK	79-26	8/27/2002	D		95	100:0:0	3	1	8.4	18.2	7.5
SNUFFINS CREEK	79-27	7/11/1994	E	5	80		2	1		17	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B71. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
SNUFFINS CREEK	79-27	7/17/1995	D				3	1		18	
SNUFFINS CREEK	79-27	6/26/1996	E	2			3	1		14	
SNUFFINS CREEK	79-27	7/4/2000	E	3	120	47:19:34	3	1	8.37	17.5	7.8
SNUFFINS CREEK	79-27	8/24/2001	E	2	110	45:55:0	3	1	7.05	16.8	7.5
SNUFFINS CREEK	79-27	8/26/2002	E		97	54:36:10	3	1	10	14.8	7.4
SNUFFINS CREEK	79-28	7/11/1994	E	2	200		2	0		16	
SNUFFINS CREEK	79-28	7/18/1995	E	3			2	1		15	
SNUFFINS CREEK	79-28	6/26/1996	E	5			3	1		13	
SNUFFINS CREEK	79-28	7/4/2000	E	3	129	47:36:18	3	1	8.46	14.6	7.8
SNUFFINS CREEK	79-28	8/24/2001	E	1	108	20:80:0	3	0	2.25	15.1	6.6
SNUFFINS CREEK	79-28	8/26/2002	E		180	33:63:4	3	1	5.03	13.4	6.7
DAUGHERTY CREEK	79-35	8/26/2002	E	2	130	52:32:16	3	1	9.98	14.7	7.5
DAUGHERTY CREEK	79-29	7/11/1994	E	5	100		2	1		16.5	
DAUGHERTY CREEK	79-29	6/15/1995	D				3	2		12.5	
DAUGHERTY CREEK	79-29	6/26/1996	E	6			3	2		14	

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.

Table B72. Summary of site parameters within the Big River watershed, Mendocino Co., California. Refer to Maps 10-13.

Stream Name	SITE ID	DATE	METHOD e=electrofish d=dive v=visual	EFFORT (minutes)	DISTANCE SAMPLED (feet)	POOL:RIFFLE: FLATWATER SAMPLED (%)	VISIBILITY*	FLOW*	DO (mg/l)	TEMP (°C)	pH
DAUGHERTY CREEK	79-29	7/4/2000	E	5	105	57:43:0	2	2	9.45	13.3	7.7
DAUGHERTY CREEK	79-30	6/26/1996	E	2			3	2		14	
DAUGHERTY CREEK	79-30	7/4/2000	E	3	97	37:20:43	3	2	9.15	11.7	7.6
DAUGHERTY CREEK	79-30	9/17/2001	E	2	93	39:61:0	3	1	8	12.4	6.8
DAUGHERTY CREEK	79-30	8/26/2002	E		97	42:58:0	3	1	10.46	14.3	7.3

*Visibility: 1=<1 ft. 2=1-5 ft. 3=>5 ft.

*Flow: 0=Intermittent 1=<1 CFS 2=1-5 CFS 3=>5 CFS

*Blank spaces indicate that no data was collected.

*Click here to view biological data.
*Click on a Site ID to view map.