

DINNER CREEK
STREAM INVENTORY REPORT

INTRODUCTION

A physical fish habitat inventory was completed on Dinner Creek, starting at the confluence with the Eel River, on October 5, 9 & 10, 1990 by Steve Holzerland, and Michele Long, California Conservation Corps (CCC), Technical Advisors. The purpose of this survey was to collect baseline data of the habitat available to anadromous salmonids and determine if stream restoration / enhancement work is warranted. Electrofishing was completed on October 5, 1990 to determine species composition and distribution.

WATERSHED OVERVIEW

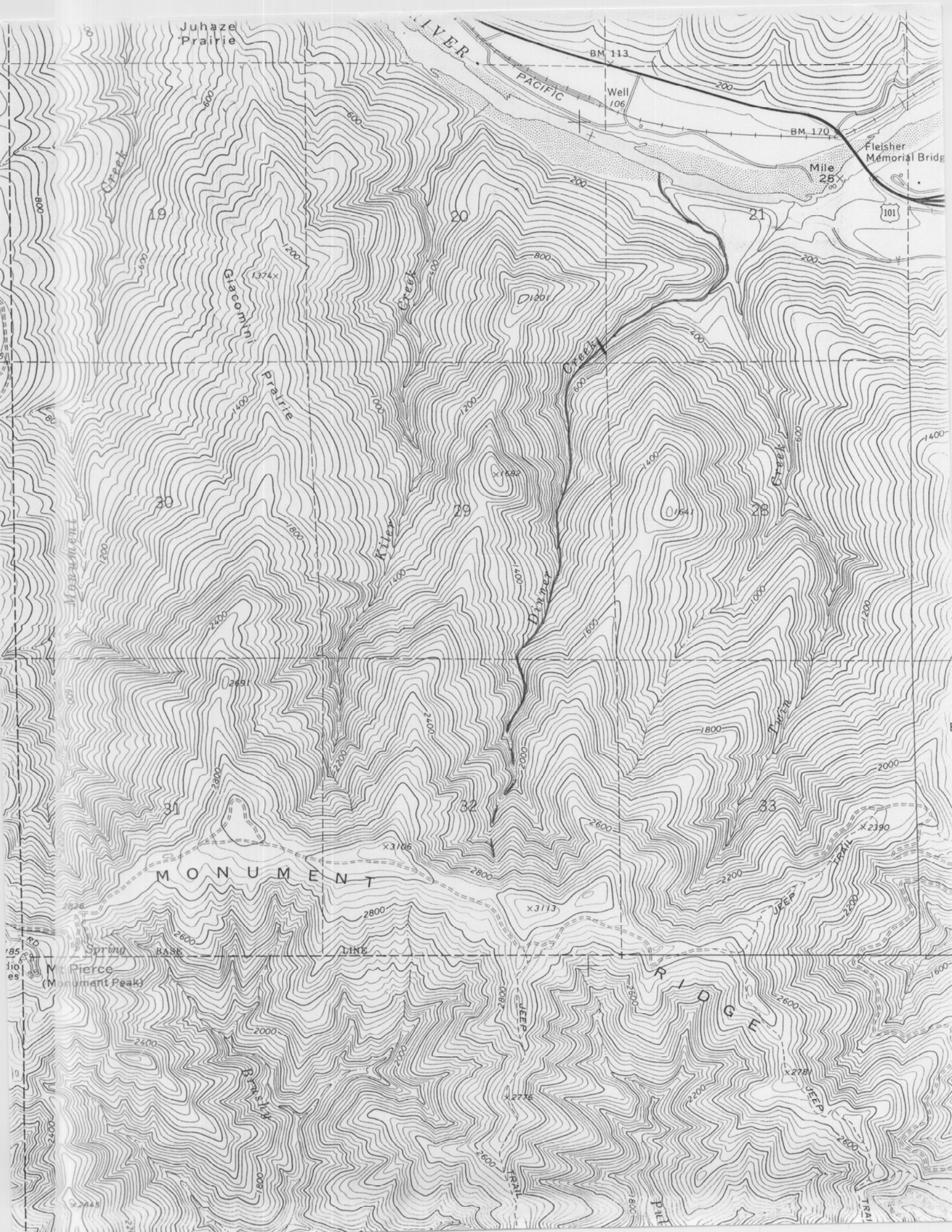
Dinner Creek is a tributary to the Eel River, in Humboldt County, California (Figure 1). The legal description at the confluence of the Eel River is T1N R1E S21. The total length of the stream surveyed was 4883 feet, with 1007 feet of side channel. The total length of blue line stream according the USGS quadrangle is 2.30 miles. The total watershed area is 1.34 square miles. Additional anadromous fish habitat exists above where this survey ends. Dinner Creek is a first order stream.

The watershed is a second growth redwood forest, under the ownership of the Pacific Lumber Company and is managed for timber production. Vehicle access is by taking the Stafford Road exit from Highway 101 and going west to the locked PALCO gate. The road crosses Dinner Creek approximately 1150 feet from the confluence of the Eel River.

METHODS

The survey methodology follows the California Salmonid Stream Habitat Restoration Manual (Flosi and Reynolds). Dinner Creek was habitat typed using the 24 habitat types classification (Mc Cain et al). In preparation). Channel typing was conducted according to the classification system of Rosgen (1985).

The minimum length of measured habitat unit was as long as the mean channel wetted width. Channel measurements were accomplished with range finders and tape measures. Habitat type measurements included mean length, mean width, mean depth, and maximum depth (to the nearest 0.1 foot). Depth of the pool tail crest at each pool habitat unit was measured at the thalweg.



A shelter rating was calculated for each habitat unit by multiplying shelter value and percent cover. A shelter value of 0 (no shelter), 1 (low), 2 (medium), or 3 (high) was given according to the shelter complexity. An estimate on percent cover within each habitat unit was recorded. At each habitat unit 100% of the cover was classified into nine cover types.

The dominant and sub-dominant substrate was estimated using seven size classes of substrate composition and recorded for all habitat units. Embeddedness was optically estimated at the tail out of pool habitat units as 0 - 25% (value 1), 26 - 50% (value 2), 51 - 75% (value 3), 76 - 100% (value 4).

An estimate of the percent canopy was recorded for each habitat unit. The percent right and left bank covered with vegetation, and the dominant vegetation sub-type was estimated.

Time and temperature were recorded at every tenth habitat unit.

RESULTS

* ALL TABLES AND GRAPHS ARE LOCATED IN THE BACK OF THIS REPORT *

Table 1 summarizes the riffle, flatwater, and pool habitat types. By percent occurrence, riffles make up 36.92%, pools make up 23.46%, and flatwater habitat types make up 33.85% (Graph 1). Riffle habitat types make up 35.81% of the percent total length, pools 11.44%, flatwater habitat types make up 37.01% (Graph 2).

Seventeen of the 24 habitat types were identified. Fifteen units were dry. The physical habitat data is summarized in Table 2. The most frequent habitat types by percent occurrence were low gradient riffles 31.54%, step runs 16.92%, and runs 13.08% (Graph 3).

Table 3 summarizes the pool habitat types. Main channel pools occurred most often at 39.34% and comprised 38.93% of the total length (Graph 4). Scour pools had the highest mean shelter rating at 81.82, backwater pools at 68.67, and main channel pools at 46.88.

Table 4 is a summary of maximum pool depths by pool habitat types. The maximum depth for 58 of the 61 pools was less than 2 feet.

Table 5 is a summary of the dominant substrate by habitat type. Small cobble was the dominant substrate in 46.5% of the units.

Table 6 summarizes mean percent cover by habitat type. The majority of the cover consisted of boulders. Small and large woody debris was lacking as cover in most of the pools.

Dinner Creek is a B6 channel type throughout the survey reach.

Table 2 summarizes mean percent right and left bank cover and mean percent canopy per habitat type. For the entire stream reach surveyed, the mean percent right bank cover was 53.4%. The mean percent left bank cover was 54%. The stream bank composition consisted of 9.6% rock/bedrock, 28.5% coniferous trees (primarily downed trees or logs), 10.6% grasses, 34.7% deciduous trees, 8.0% brush, and 8.6% bare soil. The mean percent canopy was 66.1%.

For the 61 pools the pool tail embeddedness was estimated. 42 of the pool tail outs, or 68.8%, had a value of 4. 26.2% had a value of 3.

Air temperature ranged from 49 to 62 degrees fahrenheit. Water temperature ranged from 44 to 54 degrees fahrenheit.

The following landmarks and possible problem sites were noted. All the distances are approximate and taken from the confluence of Dinner Creek with the Eel River.

- * 518' Erosion right bank.
- * 1151' Bridge crossing.
- * 3767' Tributary enters from the right bank.
- * 3900' Erosion left bank.
- * 4883' End of survey. Not the end of the anadromous salmonid habitat.

ELECTROFISHING RESULTS

Electrofishing was completed on October 5, 1990 by Michele Long and Steve Holzerland (CCC). Two habitat units were sampled. The results are as follows:

The first unit was a plunge pool approximately 325 feet from the confluence of the Eel River. The fish found consisted of 8 steelhead ranging from 50 to 140 mm and one sculpin.

The second unit was a plunge pool approximately 1180 feet from the confluence of the Eel River. A total of 23 steelhead from 40 to 120 mm were found.

RECOMMENDATIONS

- 1) Dinner Creek should be managed as an anadromous, natural production stream.
- 2) Stabilize the bank erosion at 3900' feet from the confluence of the Eel River and the smaller bank erosion sites identified in the survey.

3) Create additional summer rearing habitat for steelhead by developing pool habitat. Pools make up 36.92% of the habitat by percent occurrence and 11.44% of the total length of the stream surveyed. This can be accomplished by converting riffle and flatwater habitat into pool habitat.

4) Increase woody cover in the pools. Cover in the pools is composed of primarily boulders. There is a lack of woody debris to provide cover throughout the stream surveyed.

DINNER CREEK

Drainage: EEL RIVER

Table 1 - SUMMARY OF RIFFLE, FLATWATER, AND POOL HABITAT TYPES Survey Dates: 10/05/90, 10/10/90

Confluence: QUAD: SCOTIA LEGAL DESCRIPTION: T01NR01ES21 LATITUDE: 40°27'21" LONGITUDE: 124°4'41"

UNITS MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURRENCE	MEAN LENGTH (ft.)	TOTAL LENGTH (ft.)	PERCENT LENGTH	MEAN WIDTH (ft.)	MEAN DEPTH (ft.)	MEAN AREA (sq.ft.)	TOTAL AREA (sq.ft.)	MEAN VOLUME (cu.ft.)	TOTAL VOLUME (cu.ft.)	MEAN RESIDUAL POOL VOL (cu.ft.)	MEAN SHELTER RATING
96	RIFFLE	37	22	2133	36	5.9	0.2	123	11787	26	2508	0	34
88	FLATWATER	34	25	2206	37	6.2	0.4	162	14288	63	5587	0	39
61	POOL	23	10	614	10	7.5	0.7	75	4553	62	3769	47	65
15	DRY	6	62	937	16	0.0	0.0	0	0	0	0	0	0
TOTAL UNITS				TOTAL LENGTH (ft.)					TOTAL AREA (sq. ft.)		TOTAL VOL. (cu. ft.)		
260				5890					30628		11864		

DINNER CREEK

Drainage: EEL RIVER

Table 2 - SUMMARY OF HABITAT TYPES AND MEASURED PARAMETERS

Survey Dates: 10/05/90, 10/10/90

Confluence: QUAD: SCOTIA LEGAL DESCRIPTION: T01NR01ES21 LATITUDE: 40°27'21" LONGITUDE: 124°4'41"

UNITS MEASURED	HABITAT TYPE	HABITAT OCCURRENCE	MEAN LENGTH	TOTAL LENGTH	TOTAL LENGTH	MEAN WIDTH	MEAN DEPTH	MEAN DEPTH	MAXIMUM DEPTH	MEAN AREA	TOTAL AREA	MEAN VOLUME	TOTAL VOLUME	MEAN RESIDUAL	POOL VOL	MEAN RATING	VEGETATED	VEGETATED	LT. BANK	MEAN	VEGETATED	CANOPY
#		%	ft.	ft.	%	ft.	ft.	ft.	ft.	sq.ft.	sq.ft.	cu.ft.	cu.ft.	cu.ft.	cu.ft.	%	%	%	%	%	%	%
82	LGR	32	24	1945	33	6	0.2	0.8	0.2	129	10577	27	2175	0	31	0	0	0	0	0	0	68
13	HGR	5	14	184	3	6	0.3	0.6	0.3	92	1193	25	329	0	57	0	0	0	0	0	0	57
1	CAS	0	4	4	0	5	0.2	0.4	0.4	18	18	4	4	0	0	0	0	0	0	0	0	10
10	GLD	4	19	188	3	6	0.4	0.8	0.8	120	1205	57	570	0	15	0	0	0	0	0	0	64
34	RUN	13	16	558	9	6	0.4	0.9	0.9	98	3320	38	1300	0	38	0	0	0	0	0	0	63
44	SRN	17	33	1460	25	7	0.4	1.0	1.0	222	9764	84	3717	0	46	0	0	0	0	0	0	65
24	MCP	9	11	268	5	7	0.7	2.0	2.0	74	1777	53	1266	37	47	0	0	0	0	0	0	67
1	CRP	0	11	11	0	7	0.6	0.9	0.9	76	76	46	46	23	225	0	0	0	0	0	0	65
4	LSL	2	14	57	1	7	0.8	2.0	2.0	105	421	90	360	72	120	0	0	0	0	0	0	58
2	LSR	1	13	25	0	9	1.0	1.7	1.7	105	210	105	209	92	128	0	0	0	0	0	0	90
8	LSBO	3	8	63	1	7	0.7	1.6	1.6	55	439	42	334	32	56	0	0	0	0	0	0	71
7	PLP	3	10	73	1	10	1.1	3.5	3.5	110	771	141	987	121	56	0	0	0	0	0	0	77
3	SCP	1	10	29	0	5	0.3	0.5	0.5	47	140	12	35	10	3	0	0	0	0	0	0	68
6	BPB	2	7	39	1	8	0.6	1.0	1.0	51	305	33	196	15	78	0	0	0	0	0	0	71
1	BPR	0	8	8	0	7	0.7	0.8	0.8	55	55	36	36	36	150	0	0	0	0	0	0	70
4	BPL	2	8	33	1	11	0.9	1.5	1.5	82	327	69	277	54	95	0	0	0	0	0	0	68
1	DPL	0	8	8	0	4	0.8	1.1	1.1	32	32	24	24	11	20	0	0	0	0	0	0	85
15	DRY	6	62	937	16	0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	69

TOTAL	LENGTH	AREA	TOTAL VOL.
UNITS	(ft.)	(sq.ft)	(cu.ft)
260	5890	30628	11864

DINNER CREEK

Drainage: EEL RIVER

Table 3 - SUMMARY OF POOL TYPES

Survey Dates: 10/05/90, 10/10/90

Confluence: QUAD: SCOTIA LEGAL DESCRIPTION: T01NR01ES21 LATITUDE: 40°27'21" LONGITUDE: 124°4'41"

UNITS MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURRENCE	MEAN LENGTH (ft.)	TOTAL LENGTH (ft.)	PERCENT TOTAL LENGTH	MEAN WIDTH (ft.)	MEAN DEPTH (ft.)	MEAN AREA (sq.ft.)	TOTAL AREA (sq.ft.)	MEAN VOLUME (cu.ft.)	TOTAL VOLUME (cu.ft.)	MEAN RESIDUAL POOL VOL. (cu.ft.)	MEAN SHELTER RATING
24	MAIN	39	11	268	44	6.6	0.7	74	1777	53	1266	37	47
22	SCOUR	36	10	229	37	8.2	0.9	87	1917	88	1935	73	82
15	BACKWATER	25	8	117	19	7.7	0.6	57	858	38	567	26	69
TOTAL MEASURED				TOTAL LENGTH (ft.)					TOTAL AREA (sq.ft.)		TOTAL VOL. (cu.ft.)		
61				614					4553		3769		

DINNER CREEK

Drainage: EEL RIVER

Table 4 - SUMMARY OF MAXIMUM POOL DEPTHS BY POOL HABITAT TYPES Survey Dates: 10/05/90, 10/10/90

Confluence: QUAD: SCOTIA LEGAL DESCRIPTION: T01NR01ES21 LATITUDE: 40°27'21" LONGITUDE: 124°4'41"

UNITS MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURRENCE	<1 FOOT		1-2 FT.		2-3 FT.		3-4 FT.		3-4 FT.		>=4 FEET	
			MAXIMUM DEPTH OCCURRENCE	PERCENT OCCURRENCE	MAXIMUM DEPTH OCCURRENCE	PERCENT OCCURRENCE	MAXIMUM DEPTH OCCURRENCE	PERCENT OCCURRENCE	MAXIMUM DEPTH OCCURRENCE	PERCENT OCCURRENCE	MAXIMUM DEPTH OCCURRENCE	PERCENT OCCURRENCE	MAXIMUM DEPTH OCCURRENCE	PERCENT OCCURRENCE
24	MCP	39	15	63	8	33	1	4	0	0	0	0	0	0
1	CRP	2	1	100	0	0	0	0	0	0	0	0	0	0
4	LSL	7	2	50	1	25	1	25	0	0	0	0	0	0
2	LSR	3	0	0	2	100	0	0	0	0	0	0	0	0
8	LSBO	13	3	38	5	63	0	0	0	0	0	0	0	0
7	PLP	11	0	0	6	86	0	0	1	14	0	0	0	0
3	SCP	5	3	100	0	0	0	0	0	0	0	0	0	0
6	BPB	10	5	83	1	17	0	0	0	0	0	0	0	0
1	BPR	2	1	100	0	0	0	0	0	0	0	0	0	0
4	BPL	7	1	25	3	75	0	0	0	0	0	0	0	0
1	DPL	2	0	0	1	100	0	0	0	0	0	0	0	0

TOTAL

UNITS

61

DINNER CREEK

Drainage: EEL RIVER

Table 5 - SUMMARY OF MEAN PERCENT COVER BY HABITAT TYPE

Survey Dates: 10/05/90, 10/10/90

Confluence: QUAD: SCOTIA LEGAL DESCRIPTION: T01NR01ES21 LATITUDE: 40°27'21" LONGITUDE: 124°4'41"

UNITS MEASURED	HABITAT TYPE	MEAN % UNDERCUT BANKS	MEAN % SWD	MEAN % LWD	MEAN % ROOT MASS	MEAN % VEGETATION TERR.	MEAN % AQUATIC VEGETATION	MEAN % WHITE WATER	MEAN % BOULDERS	MEAN % BEDROCK LEDGES
82	LGR	0	2	1	2	15	1	0	56	0
13	HGR	1	3	3	1	11	0	9	65	0
1	CAS	0	0	0	0	0	0	0	0	0
10	GLD	0	12	0	0	10	0	0	78	1
34	RUN	0	4	2	1	11	1	0	77	0
44	SRN	2	4	2	1	16	0	2	72	0
24	MCP	0	9	7	1	7	0	1	75	0
1	CRP	10	40	10	0	10	0	5	25	0
4	LSL	0	20	34	0	3	0	0	44	0
2	LSR	0	23	30	33	0	0	0	15	0
8	LSBo	0	8	2	3	13	0	3	73	0
7	PLP	3	4	41	12	6	3	1	30	0
3	SCP	0	0	0	0	0	0	0	33	0
6	BPB	5	1	12	0	11	0	1	71	0
1	BPR	40	15	0	45	0	0	0	0	0
4	BPL	4	11	48	10	1	0	0	26	0
1	DPL	0	0	0	0	20	0	10	70	0
15	DRY	0	0	0	0	0	0	0	0	0

1 7 0 2 13 1 1 69 0

Drainage: EEL RIVER

Survey Dates: 10/05/90, 10/10/90

LATITUDE: 40°27'21" LONGITUDE: 124°4'41"

[illegible]

Summary of Mean Percent Vegetative Cover for Entire Stream

Mean Percent Canopy	Mean Percent Conifer	Mean Percent Deciduous	Mean Right bank % Cover	Mean Left Bank % Cover
66.12	0.00	0.00	0.00	0.00

Mean Percentage of Dominant Substrate

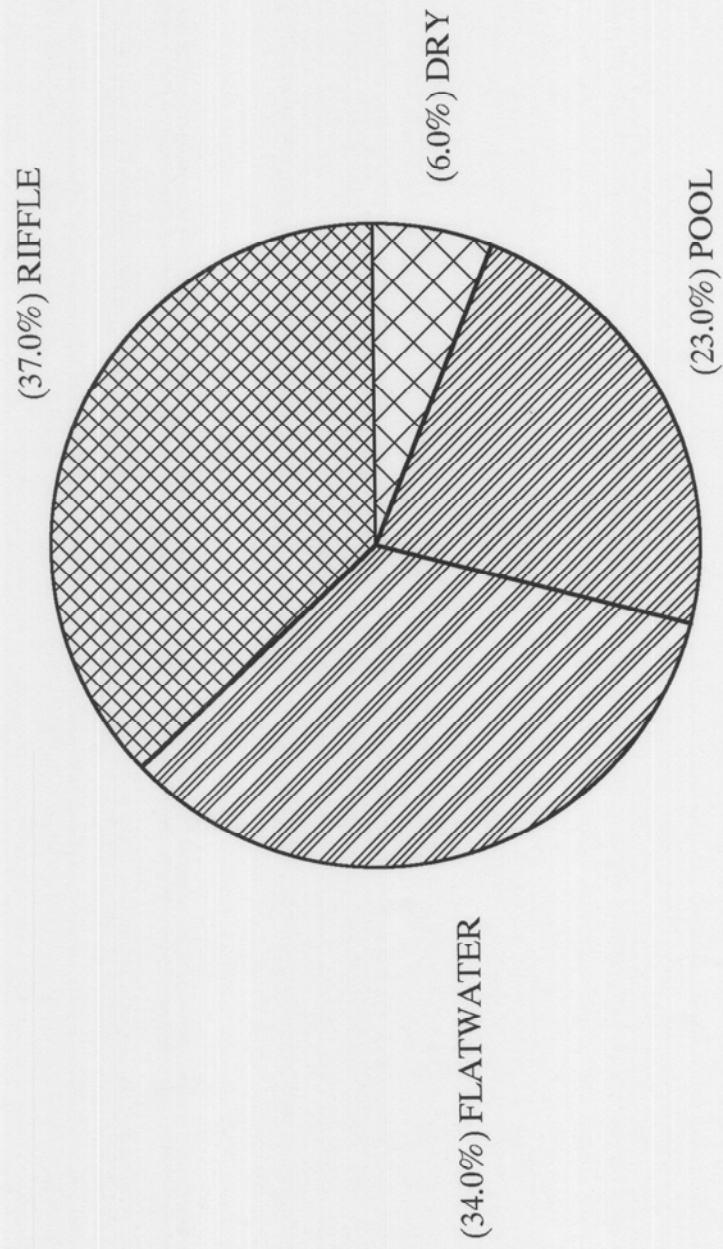
Dominant Class of Substrate	Number Units Right Bank	Number Units Left Bank	Total Mean Percent
Bedrock	0	0	0
Boulder	0	0	0
Cobble/Gravel	0	0	0
Silt/clay	0	0	0

Mean Percentage of Dominant Vegetation

Dominant Class of Vegetation	Number Units Right Bank	Number Units Left Bank	Total Mean Percent
Grass	0	0	0
Brush	0	0	0
Decid. Trees	0	0	0
Conif. Trees	0	0	0
No Vegetation	260	260	100

DINNER CREEK

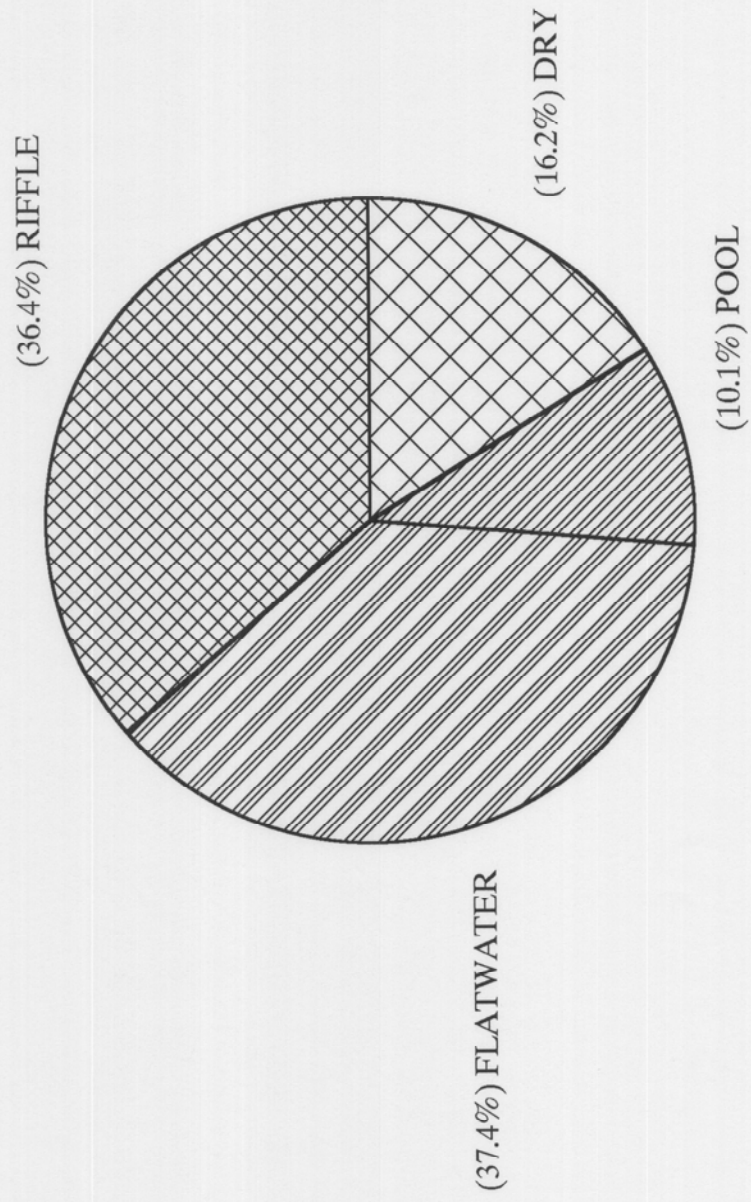
HABITAT TYPES BY PERCENT OCCURRENCE



GRAPH 1

DINNER CREEK

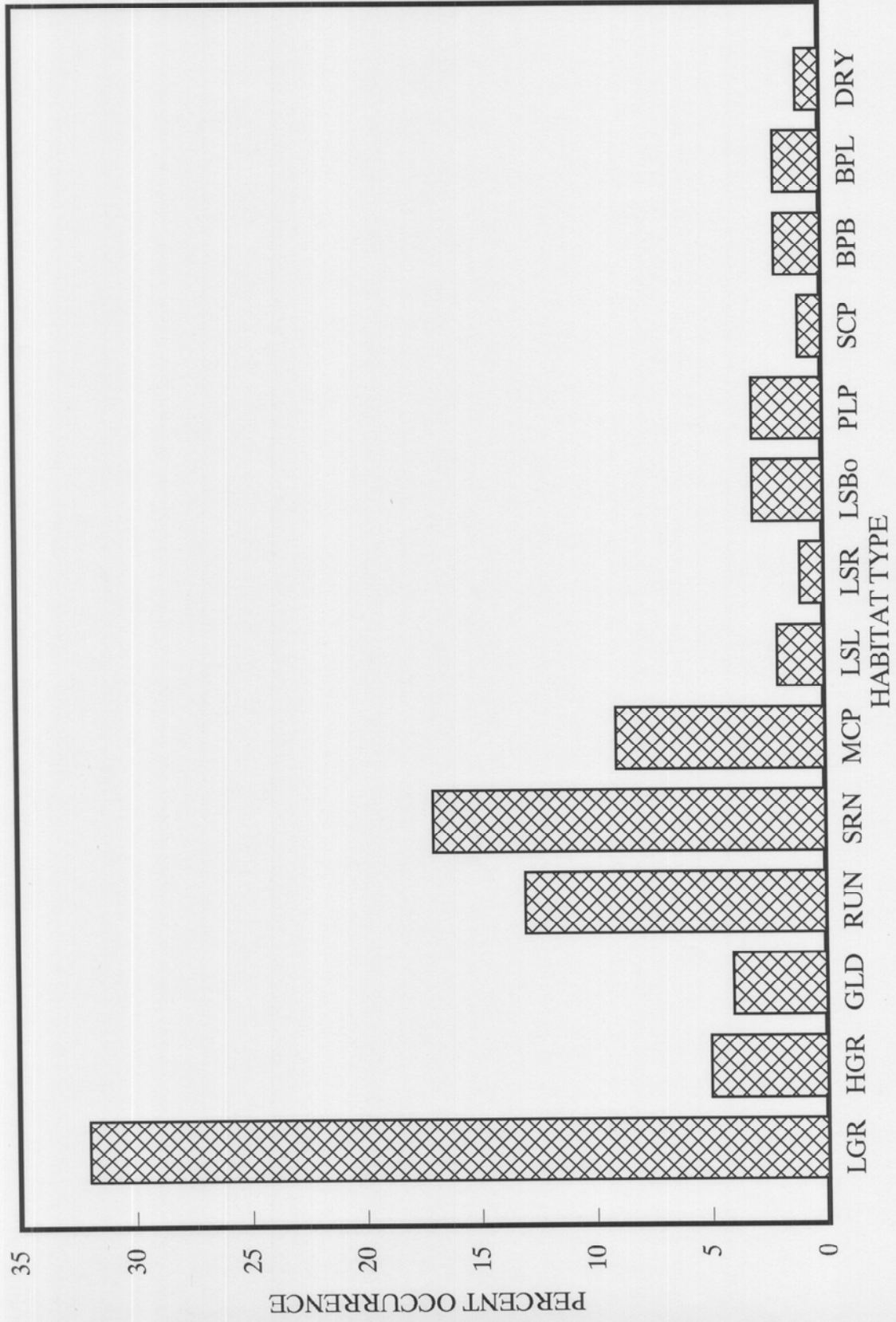
HABITAT TYPES BY PERCENT TOTAL LENGTH



GRAPH 2

DINNER CREEK

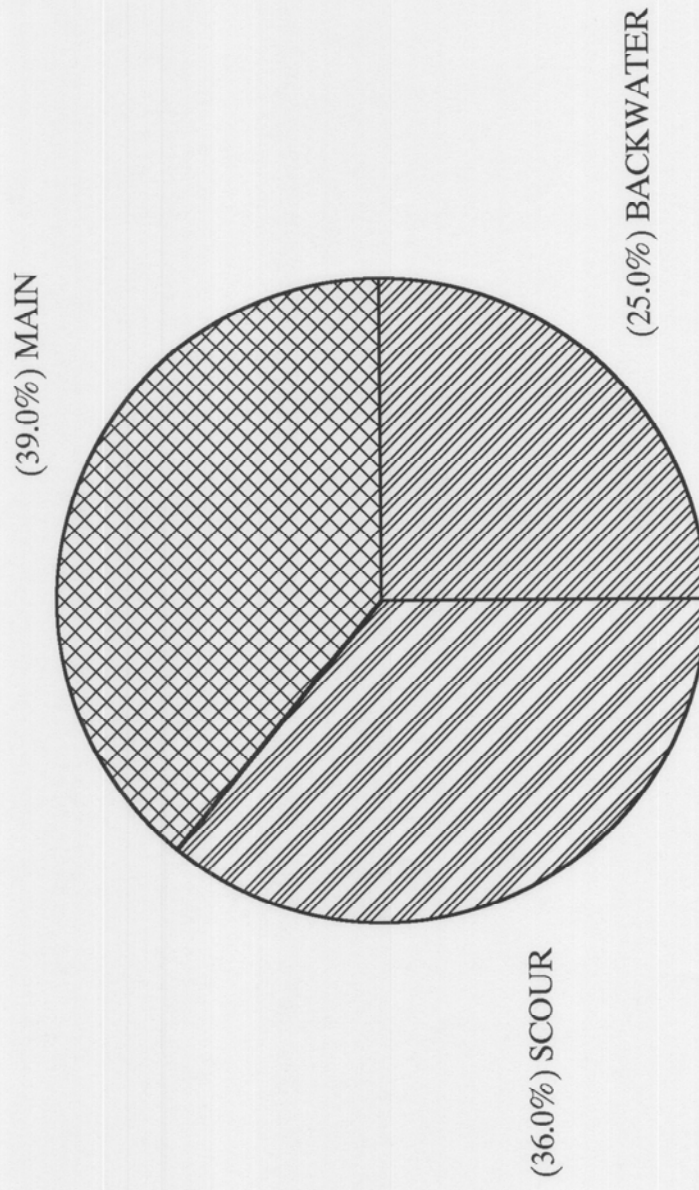
HABITAT TYPES BY PERCENT OCCURRENCE



GRAPH 3

DINNER CREEK

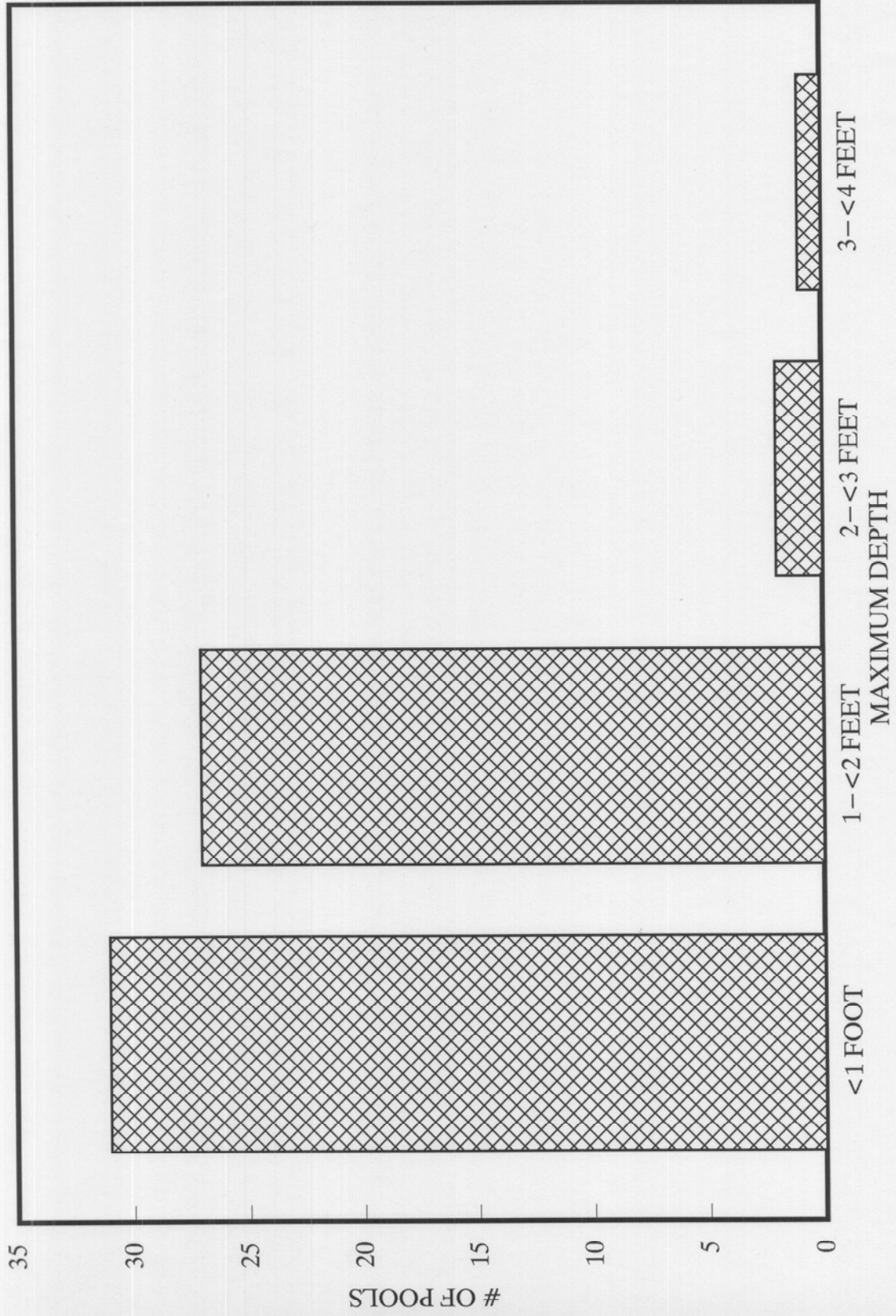
POOL HABITAT TYPES BY PERCENT OCCURRENCE



GRAPH 4

DINNER CREEK

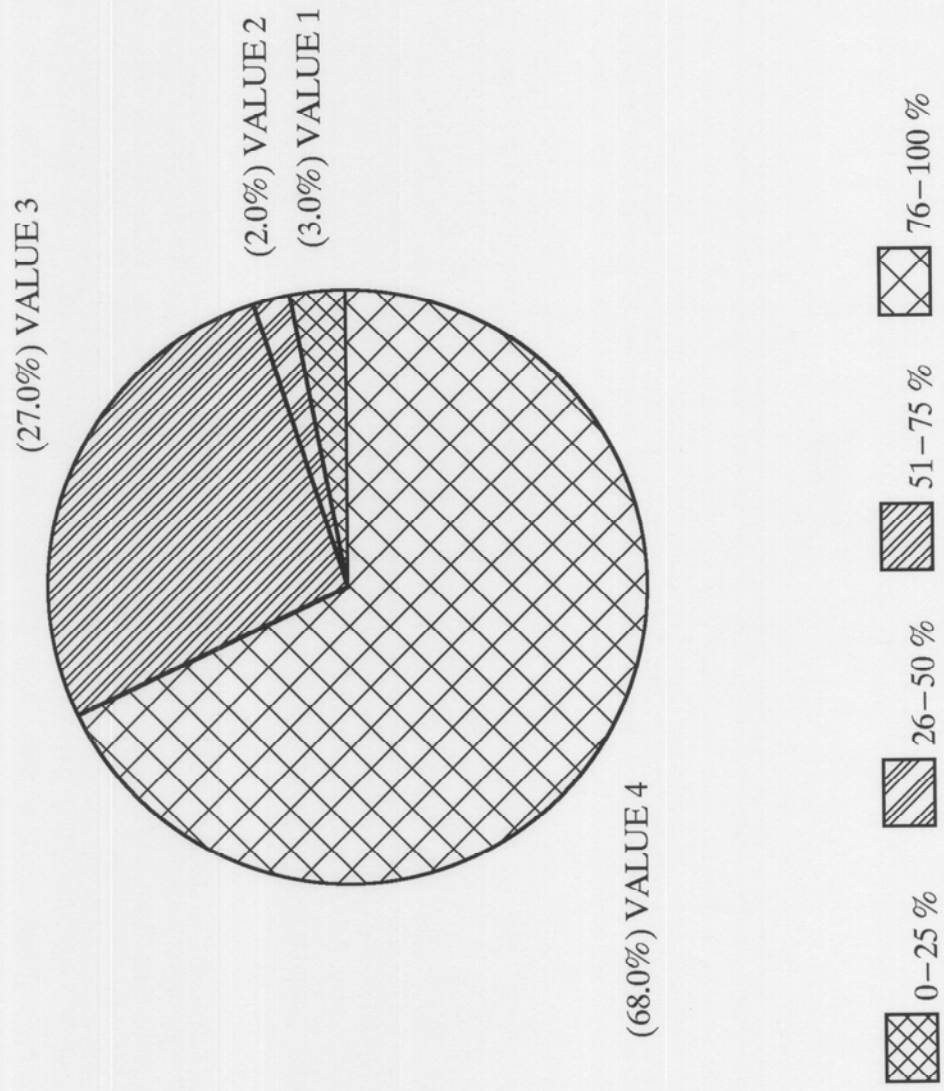
MAXIMUM DEPTH IN POOLS



GRAPH 5

DINNER CREEK

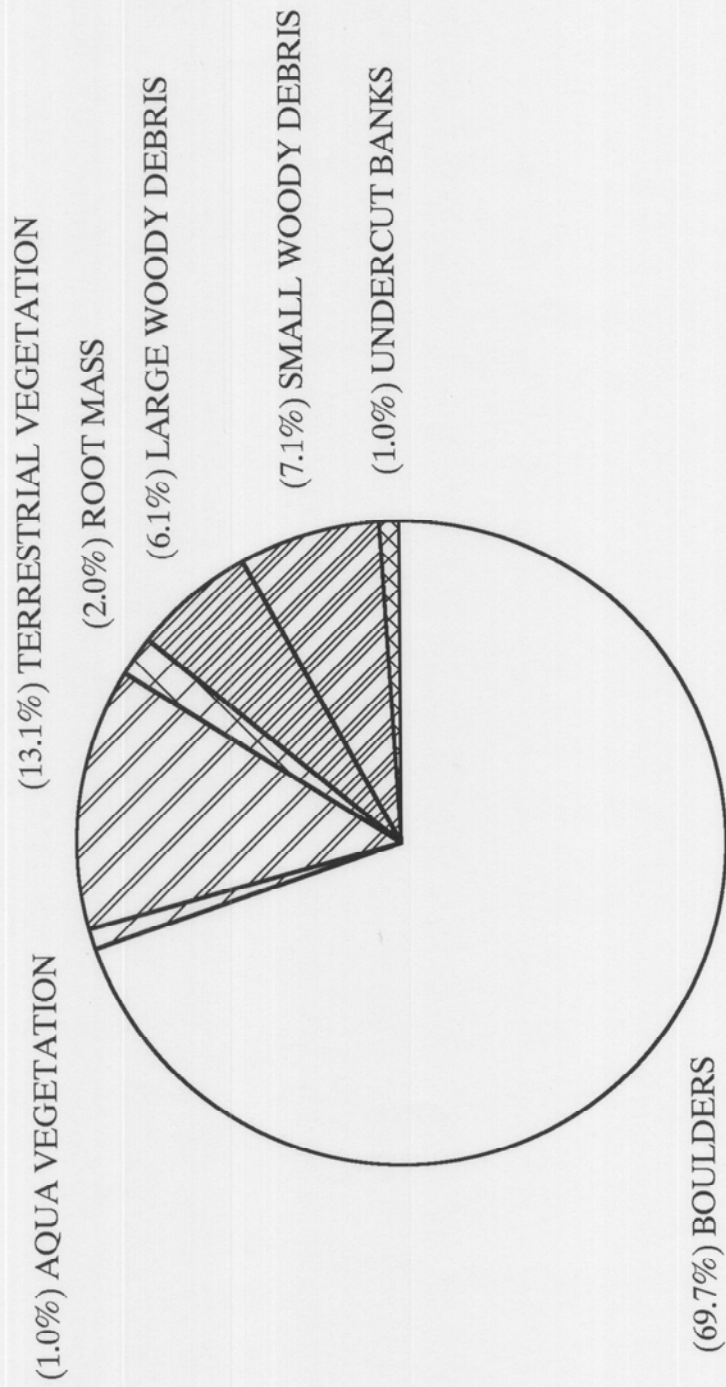
PERCENT EMBEDDEDNESS



GRAPH 6

DINNER CREEK

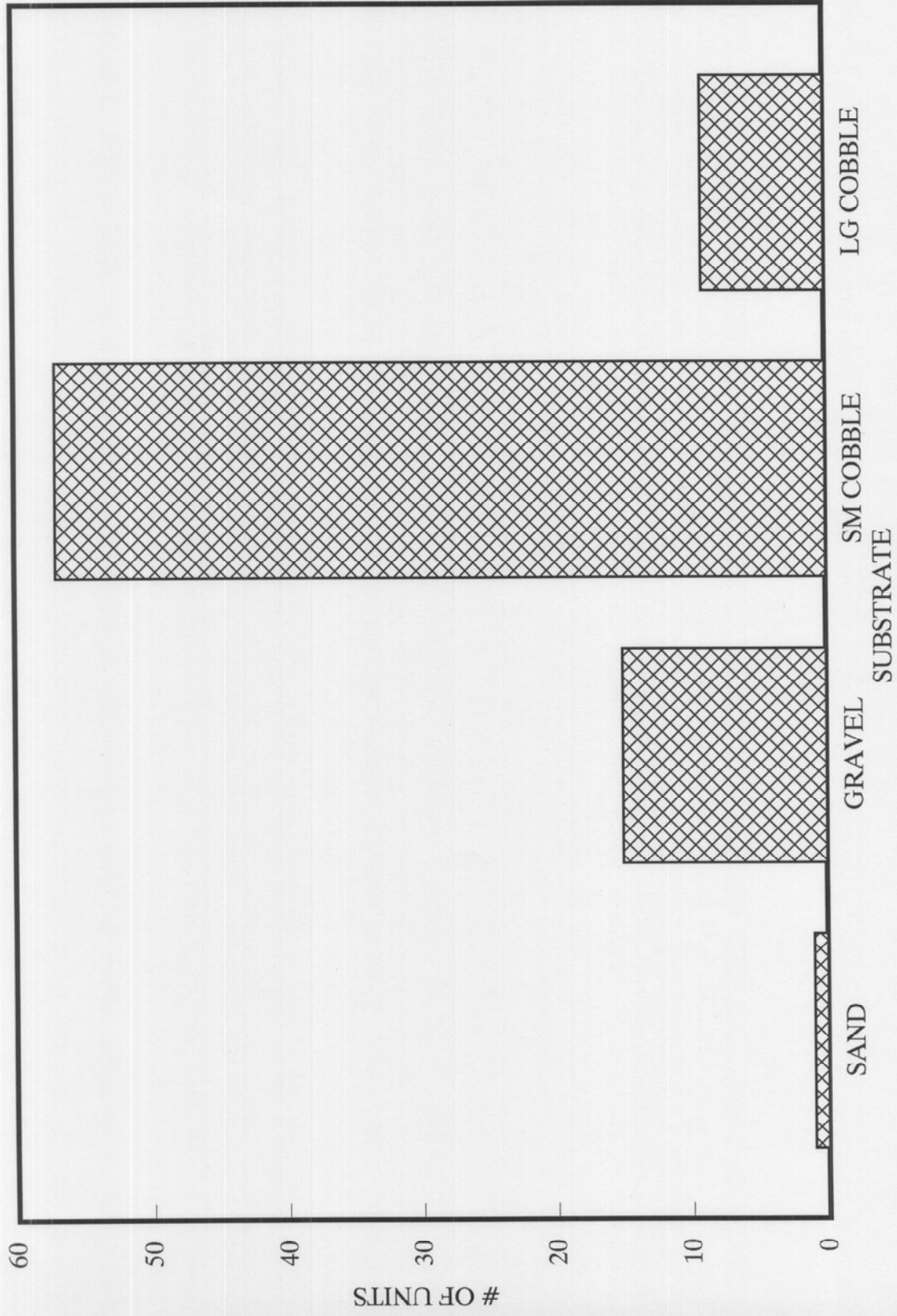
MEAN PERCENT COVER TYPES IN POOLS



GRAPH 7

DINNER CREEK

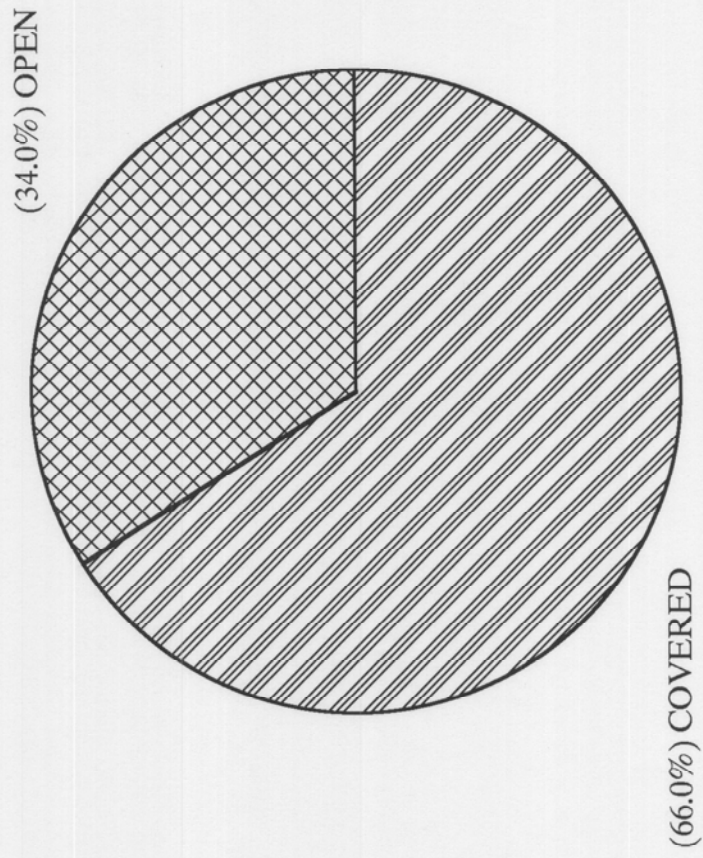
SUBSTRATE COMPOSITION IN LOW GRADIENT RIFFLES



GRAPH 8

DINNER CREEK

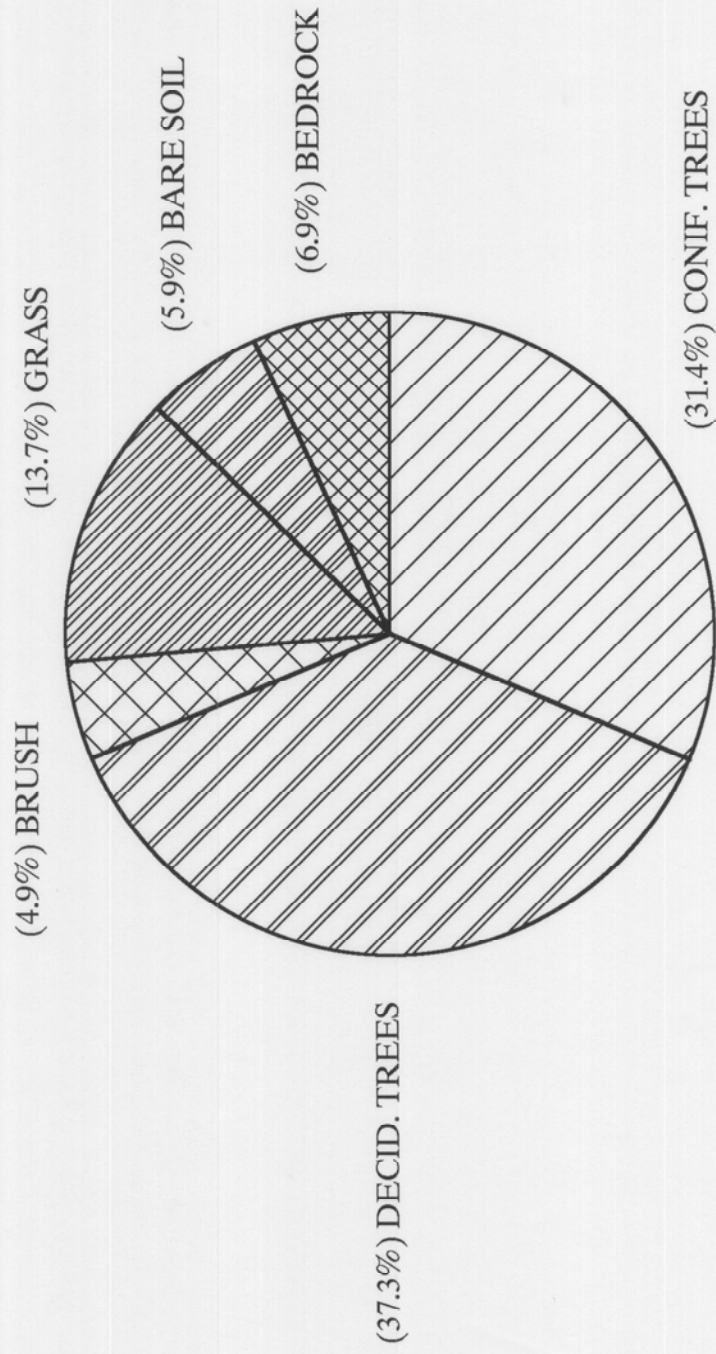
PERCENT CANOPY



GRAPH 9

DINNER CREEK

PERCENT BANK COMPOSITION



GRAPH 10