McLeod 1980

MAY CREEK POPULATION ESTIMATE

On June 18, 1980, portions of May Creek, tributary to Prairie Creek in Redwood National Park, were electrofished to obtain an estimate of the salmonid population. Present were Dave McLeod (DFG Fishery Biologist), Terry Hofstra (RNP Fishery Biologist), and Lisa Ankenbrandt (DFG Seasonal Aid). Four representative stations were sampled to estimate the population in the lower two miles of May Creek, that which will be most affected by a proposed Redwood National Park bypass being designed by Caltrans. Each station was blocked off at the upper and lower ends by stop nets so that fish could not move in or out of the test stations during sampling. A backpack shocker and dip nets were used to capture fish, with two passes made in each station, using the standard two-catch method described in Estimating Population Parameters from Catches Large Relative to the Population (1969) by G.A.F. Seber and E.D. LeCren. Each sample from these test stations was expanded to give an estimate of the total size of the population in each area with a 95% level of confidence, and these data were in turn utilized to determine the total salmonid population in the lower two miles of May Creek on June 18, 1980.

Results

The total estimated salmonid population in the lower two miles of May Creek on June 18, 1980 was 2188. With a level of confidence of at least 95%, the total salmonid population was no lower than 1684 and no higher than 2692. Fish collected in Stations III and IV were probably resident rainbow trout, as possible migration barriers existed between Stations II and III.

Written by: Dave McLeod

STUDY SECTION I

Location: Mouth to 0.25 mile upstream.

Study Station: 79 feet in length. Located directly above Highway 101 bridge.

Fish narcotized and captured:

	Pass I	Pass II
Silver salmon	17	2
Steelhead	2	0
Stickleback	9	5

Estimated population of salmonids in test station with a 95% level of confidence (Seber & LeCren, 1969):

21 salmonids + or - 1

Expansion of study station data on salmonids to cover total study section:

Study section length = 0.25 mile
21 salmonids per 79 linear feet
95% confidence level = 20 to 22 salmonids
Point estimate = 351 salmonids per 0.25 mile
95% confidence level = From 334 to 368 salmonids per 0.25 mile

STUDY SECTION II

Location: Upper limit of Section I to 0.25 mile upstream.

Study Station: 60 feet in length. Located approximately 0.25 mile upstream from the Highway 101 bridge.

Fish narcotized and captured:

	Pass I	Pass II
Silver salmon	4	1
Steelhead	4	0
Coastal cutthroat trout	3	1

Estimated population of salmonids in test station with a 95% level of confidence (Seber & LeCren, 1969):

13 salmonids + or - 2

Expansion of study station data on salmonids to cover total study section:

Study section length = 0.25 mile
13 salmonids per 60 linear feet
95% confidence level = 11 to 15 salmonids
Point estimate = 286 salmonids per 0.25 mile
95% confidence level = From 242 to 330 salmonids per 0.25 mile

STUDY SECTION III

Location: Upper limit of Section II to 0.5 mile upstream.

Study Station: 140 feet in length. Located immediately above old log bridge approximately 0.75 mile upstream from Highway 101 bridge.

Fish narcotized and captured:

	Pass I	Pass II
Steelhead/rainbow trout	22	8

Estimated population of salmonids in test station with a 95% level of confidence (Seber & LeCren, 1969):

35 salmonids + or - 10

Expansion of study station data on salmonids to cover total study section:

Study section length = 0.5 mile
35 salmonids per 140 linear feet
95% confidence level = 25 to 45 salmonids
Point estimate = 660 salmonids per 0.5 mile
95% confidence level = From 471 to 849 salmonids per 0.5 mile

STUDY SECTION IV

Location: Upper limit of Section III to 1.0 mile upstream.

Study Station: 83 feet in length. Located approximately 1.5 miles from the Highway 101 bridge.

Fish narcotized and captured:

	Pass I	Pass II
Steelhead/rainbow trout	10	3

Estimated population of salmonids in test station with a 95% level of confidence (Seber & LeCren, 1969):

14 salmonids + or - 4

Expansion of study station data on salmonids to cover total study section:

Study section length = 1.0 mile
14 salmonids per 83 linear feet
95% confidence level = 10 to 18 salmonids
Point estimate = 891 salmonids per mile
95% confidence level = From 637 to 1145 salmonids per 1.0 mile

Salmonids Collected in May Creek, Humboldt Co.*

Station I

Silver salmon		Steelhead
32	57	78
38	58(4)	116
41	60	
48(2)	62	
51	64	
52(2)	66	
56(2)		

Station II

Silver Salmon		Steelhead		Coastal cutthroat trout	
39	59	55	103	97	124
52	61	62		110	
54		98		120	

Station III

Steelhead/rainbow trout

31	40(2)	57	66
32	50	58(2)	88
33	51	60	100
34	53	62	103
36	54(2)	63	104
38(2)	56(2)	65	142(2)

Station IV

Steelhead/rainbow trout

23	35(4)
30(2)	36
33	98
34(2)	110

* Measurements in mm. (F.L.)

Study Sections and Stations on May Creek