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DOWNSTREAM MIGRATION OF SALMONIDS IN THE NAVARRO RIVER,
APRIL THROUGH JUNE 1972

by

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INTRODUCTION

Downstream migrant salmonids were trapped in the Navarro River in the spring of 1972 to gain some insight into their distribution within the river and the timing of their emigrations.

METHODS

Netting sites were located on Rancheria Creek 0.8 km (0.5 miles) below Fish Rock Road Bridge and on Navarro River 0.4 and 3.2 km (0.25 and 2.0 miles) below Dimmik State Park (Figure 1). The Fish Rock Road site was sampled on April 12. The Dimmik site was sampled on June 14, while seven sets were made at the Lower Dimmik site between April 20 and May 26, 1972 (Table 1). Nets were generally fished at night.

The fyke net used has been described by Puckett (1976). The basic net was altered, however, by sewing two wings to the front and thus expanding the mouth from a 0.9 by 1.5 m (3-foot by 5-foot) opening to a 0.9 by 2.7 m (3-foot by 9-foot) opening. Each wing was a panel of 0.9 by 1.5 m (3-foot by 5-foot), 0.6 cm (0.25 inch) stretched mesh. Each panel was anchored in the stream by two metal fence posts.

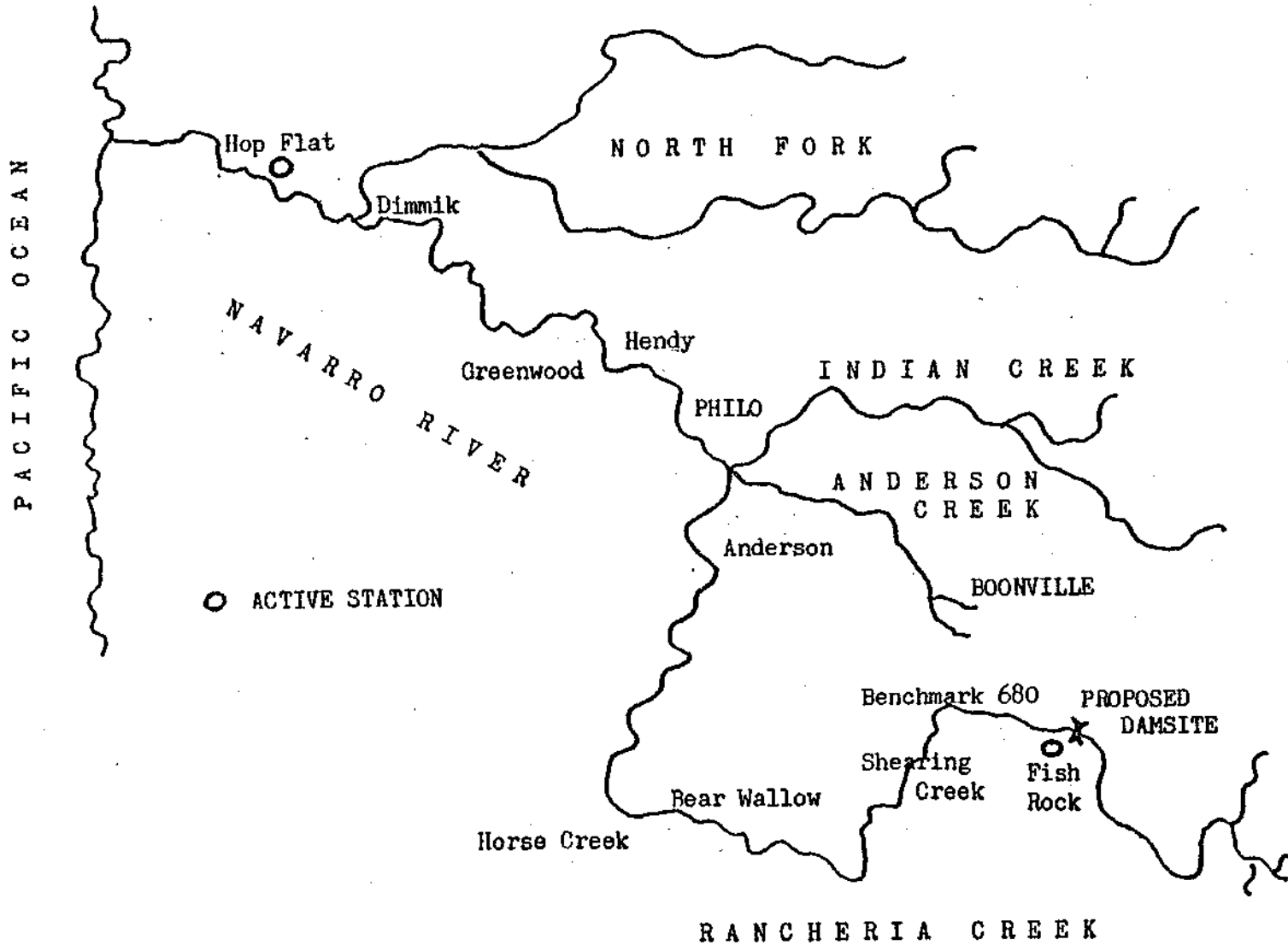


Figure 1. Outmigrant salmon sampling stations on the Navarro River.

RESULTS

We caught Pacific lamprey (Lampetra tridentata), silver salmon (Oncorhynchus kisutch), Steelhead (Oncorhynchus mykiss), Navarro roach (Hesperoleucus navarroensis), threespine stickleback (Gasterosteus aculeatus), and sculpin (Cottus).

Most silver salmon emigrants caught (100) were taken at the Lower Dimmik site between April 20 and May 10. Few fish were captured from the lower river (Lower Dimmik and Dimmik trap sites) after May 10. These salmon averaged 32 mm (1.25 inches) for length and ranged from 35 mm (1.4 inches) to 70 mm (2.75 inches) fork length. A set on April 12 at the Fish Rock Road trap site produced 28 silver salmon emigrants (Table 1).

Few Steelhead fry (27) were taken in April and May at the Lower Dimmik site. Those few fish (9) that were measured averaged 70 mm (2.75 inches) and ranged from 29 to 137 mm (1.1 to 5.4 inches) fork length. An early April set at the Fish Rock Road site yielded 10 Steelhead. The largest single night's catch came from the Dimmik site on June 14. At that time 35 juvenile Steelhead were captured. These fish averaged 57 mm (2.25 inches) fork length and ranged from 57 to 133 (1.25 to 5.25 inches) fork length.

Navarro roach, threespine stickleback, Pacific lamprey and sculpin were also caught in various fyke net sets. One hundred and sixty-five roach measured an average of 51 mm (2 inches) fork

length and ranged from 25 to 99 mm (1 to 3.9 inches) fork length.

No king salmon were captured in Navarro River or its tributaries.

TABLE 1. NAVARRO River downstream migrant study trapping results: April through June 1972.

Trap Site	Date	Time of Set	Silver	Average	Steelhead Fry	Average
			Salmon Fry	Fork Length (mm)		Fork Length (mm)
Fish Rock Road	4/12	1800-0900	28	-	10	-
Lower Dimmik	4/20	1700-0900	25	-	15	-
Lower Dimmik	4/21	1800-0900	20	-	13	-
Lower Dimmik	5/9	1800-0900	27	38	5	95
Lower Dimmik	5/9	0900-1800	16	39	0	-
Lower Dimmik	5/10	1800-0900	28	38	8	39
Lower Dimmik	5/10	0900-1800	0	3	0	-
Lower Dimmik	5/26	1700-0900	0	-	1	29
Dimmik	6/14	1800-0900	0	54	35	57

DISCUSSION

I found some downstream movement of Steelhead young-of-the-year and yearlings in April, May, and June in Navarro River. These fish ranged from 29 to 137 mm (1.1 to 5.4 inches) fork length. In comparison, the peak in emigrating 2- and 3-year old Steelhead in Waddell Creek takes place from March through April, while yearling Steelhead emigrate from April through June. Steelhead-of-the-year migrate downstream from May through August in Waddell Creek (Shapovalov and Taft, 1954). Spring emigration of Steelhead in the South Fork of Trinity River peaks in April through May (Healey, 1973), while in the Eel River drainage most Steelhead juveniles move downstream from April through August (Day, 1968).

I trapped silver salmon emigrants from April through June, although I caught most fish in April and May. These salmon ranged from 35 to 70 mm (1.4 to 2.75 inches) fork length. Silver salmon smolts in Waddell Creek emigrate from April through July and ranged from 30 to 160 mm (1.2 to 6.3 inches) (Shapovalov and Taft, op cit.).

Need for Further Study

Environmental factors that influence salmonid emigration include: streamflow, temperature, dissolved oxygen concentration, light, food, and the size of fish (Shapovalov and Taft, op cit.). More than one of these components may exercise an overriding influence during salmonid downstream migration. Any of these may be the factor that compels the fish to emigrate; however, one agent may direct downstream movement one time and another at another time. As an example, Puckett (op cit.) determined that freshets coupled with

significant changes in water temperatures coincided with an increase in numbers of emigrating salmonids in Redwood Creek, a tributary to the South Fork Eel River; however, Healey (op cit.) found that increased releases from a dam on Trinity River did not necessarily stimulate emigration.

LITERATURE CITED

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