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ANNUAL REPORT

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EXPERIMENTAL REARING OF STEELHEAD TROUT AT HAYDEN CREEK REARING PONDS

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By

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Experimental Rearing of Steelhead Trout at
Hayden Creek Rearing Ponds

In late April and early May, 1968, approximately 372,000 (28,600 pounds) 1967 year-class juvenile steelhead trout averaging 164 millimeters total length and 13 per pound were released into the Salmon River system from the Hayden Creek rearing ponds (Figure I). Except for 32,000 Clearwater River stock fish, these steelhead were Snake River stock from Niagara Springs Hatchery. They were placed in the ponds in late December, 1967, at an average size of 87 millimeters total length (81 fish per pound). Length-weight samples, taken monthly, were used to note growth rates and to estimate the pounds of fish in each pond (Figure 2).

The original stocking density of 240,000 fish in the North pond and 132,000 in the South pond was equalized to 186,000 fish per pond in early April when dissolved oxygen and CO_2 levels approached critical levels in the North pond. Indications are that the chemical parameters of the ponds establish a ceiling of approximately 15,000 pounds of fish per pond (approximately 150,000 smolts).

Comparison of size of the steelhead in each pond prior to equilization of numbers in April was as follows:

	SOUTH POND		NORTH POND	
DATE	LENGTH	WEIGHT	LENGTH	WEIGHT
Jan. 1, 1968	87mm	81/lb.	87mm	81/lb.
Jan. 31, 1968	97	52	96	52
Feb. 28, 1968	126	24	130	22
Mar. 31, 1968	143	16	142	17

The difference in density of fish between the two ponds prior to equalization apparently had no effect on growth rates of the two groups.

During the fish year 40,169 pounds of Idaho Open Formula Dry Diet were fed to the steelhead at a cost of $3,313. Average cost per pound of fish was 11.8¢ and the average conversion rate was 1.4 pounds of feed per pound of fish. Mortality in the ponds during the rearing period was negligible.

On April 17, the pond outlet screens were removed and steelhead left the ponds voluntary and were counted (or weighed) through a common trap-collection box. During a two week period an estimated 22,600 fish (1,402 lbs.) left the ponds. The remaining 350,000 fish were flushed from the ponds on May 2 (Table I).

All fish under 160 millimeters total length were classed as subsmolts (Figure 3) and those over 160 millimeters were classed as smolts (Table 2).

Twelve thousand steelhead were marked with a left-ventral fin clip and 11,700 were marked with a left ventral-adipose clip.

As shown in Figures I and 4, the major construction of rearing and holding facilities is now completed. Feed storage, equipment storage and office space will be provided in a prefabricated metal building which will replace the deteriorated frame building. A new road access is needed as are sewage facilities, a dike, fencing, and other minor improvements.

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Table 1. Summary of Steelhead Production Hayden Creek Rearing Ponds 1967-1968.

		SOUTH	NORTH
INPUT:	December 27, 1967	132,000	240,000
	Equalized April 4, 1968:	186,000	186,000
OUTPUT:		COMBINED	
	Voluntary emigration:	22,600	
	Smolts:	8,600 (38%)	
	Subsmolts:	14,000 (62%)	
	Pond release:	349,400	
	Smolts:	178,200 (51%)	
	Subsmolts:	171,200 (49%)	
	Total output:	372,000 (est.)	
	Smolts: (50%)	186,800 (est.)	
	Subsmolts: (50%)	185,200 (est.)	
TOTAL POUNDS FEED USED:		40,169	
FEED COST:		$3,313	
AVERAGE COST PER POUND OF FISH:		11.84	
AVERAGE CONVERSION FACTOR:		1.4	

Table 2. Length frequency distribution of four samples of juvenile steelhead released from the Hayden Creek rearing ponds, May 2, 19680

	Samples measured by 10mm size groupings				
Total Length	n=4I8	96	148	124	Total 786
80-89	3		3	I	7
90	8	3	4		15
					18
					38
					44
					78
					83
					113 Subsmolt
160-169	54	17	16	17	104 Smolt
170	72	II	17	18	118
180	44	4	18	23	89
190	30	9	7	10	56
200	9	2	2	2	15
210	3	I	I	I	6
220	I			I	2
230-239					0
Subtotal, subsmolt					396 (50%)
Subtotal, smolt					390 (50%)
TOTAL					786

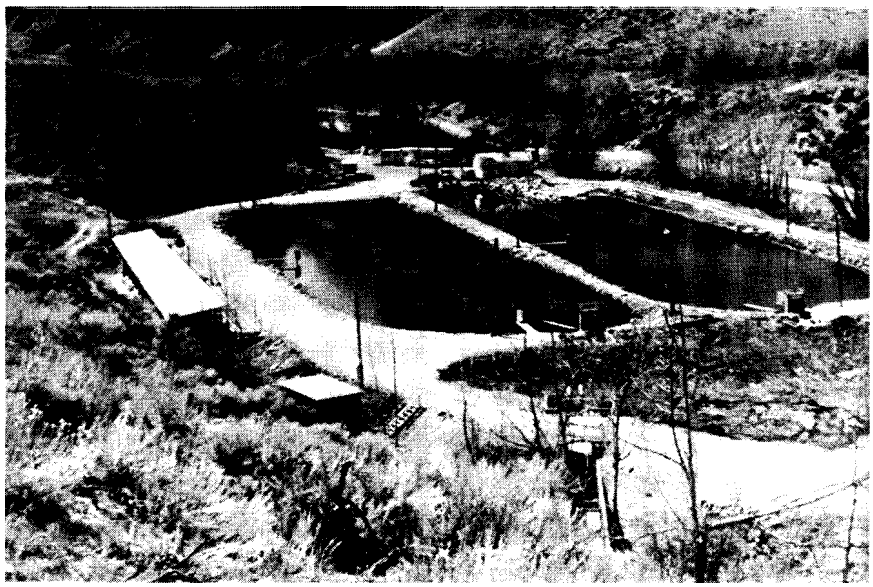

Figure 1. Two 0.6 acre rearing ponds at Hayden Creek will each rear 15,000 pounds of steelhead smolts to release size in a 12-month cycle. The adult holding pond, lower right; egg incubation house, lower left; raceways; and the Hatchery Superintendent's trailer house have been constructed or purchased with Bureau of Commercial Fisheries PL 88-309 project funds. Automatic feeders extend out over the ponds. Air bubles from a perforated tube show in the left pone, however, this method of supplementing oxygen tailed to improve the low oxygen concentration noted i.n the spring.

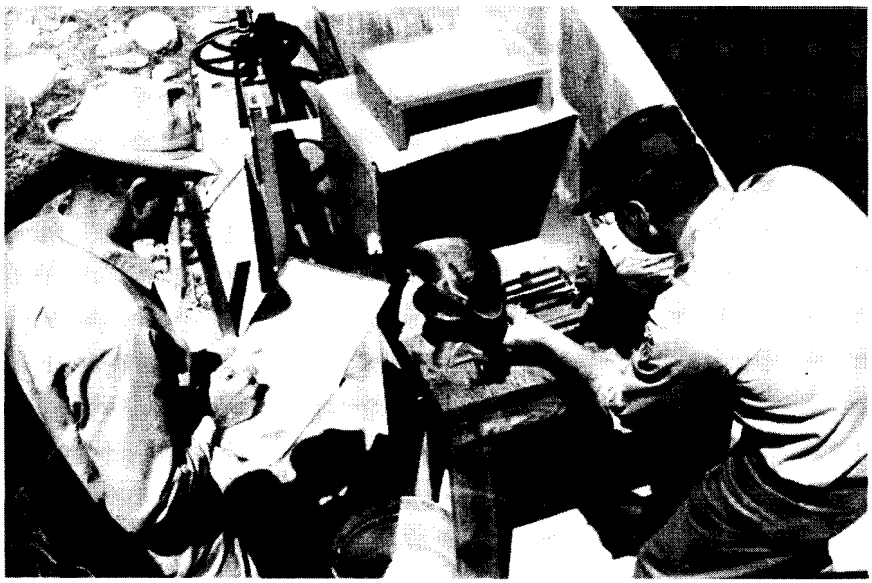

Figure 2. Monthly samples were measured to establish length-weight relationships and growth rates.

Figure 3. Approximately 50 percent of the juvenile steelhead released from the Hayden Creek Rearing Ponds on May 2, 1968, were over 160 mm total length. A few runts, less than 100 mm, which failed to grow and are in poor condition are noted each year.

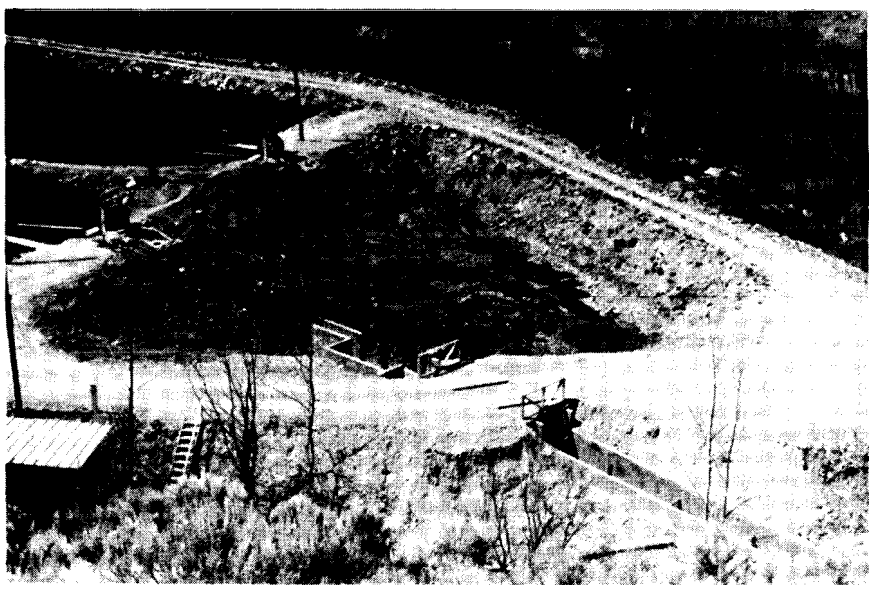

Figure 4. The major construction of rearing and holding facilities at Hayden Creek were completed with the construction of this adult fish ladder and sorting pen. A new access road, feed and equipment storage space, and a new sewer system are scheduled for next year.