

STATE OF IDAHO
Fish and Game Department
John R. Woodworth, Director

Annual Progress Report

INTRODUCTION OF MID-SNAKE RIVER STEELHEAD
INTO THE LEMHI AND PAHSIMERO1 RIVERS DURING 1966
January 1, 1966 to December 31, 1966

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INTRODUCTION OF MID-SNAKE RIVER STEELHEAD
INTO THE LEMHI AND PAHSIMEROI RIVERS DURING 1966

BACKGROUND:

In the spring of 1966, Idaho Power Company released 73,200 steel head smolts in the Lemhi River and 65,500 in the Pahsimeroi River near Salmon, Idaho. These steel head were hatched from eggs collected at Hells Canyon Dam on the Snake River and reared at the Idaho Fish and Game Department fish hatchery at Hagerman, Idaho.

These plants are part of a program designed to relocate mid-Snake River steel head and Chinook salmon runs being blocked by Idaho Power Company dams to the Salmon River drainage.

During the latter part of 1965 and the spring months of 1966 while construction was underway at Niagara Springs, mid-Snake steel head juveniles (of the 1965 brood year) were reared at the Idaho Fish and Game Department's Hagerman Fish Hatchery. These fish were planted in the Lemhi and Pahsimeroi Rivers in the spring of 1966.

Original plans to introduce all mid-Snake steel head into the Lemhi River (because adequate downstream migrant enumeration facilities already exist there) were changed because of the increased use of Lemhi River water for irrigation and recurring periods of draught. This situation adversely affected the downstream migration of salmon and steel head smolts, prevented northward downstream movement and concentrated fish, making them vulnerable to predation, fishing pressure, and stranding.

A decision was made in May, 1966, to transfer the mid-Snake steel head to another Salmon River tributary, the Pahsimeroi River, which is not subject to extreme irrigation demands. In June, 1966, the remaining steel head juveniles from Hagerman Hatchery were introduced into the Pahsimeroi.

FINDINGS:

Lemhi River

Approximately 29,000 mid-Snake steel head juveniles were planted on April 13, 1966, in the Lemhi River approximately 37 miles above its mouth and approximately 4 miles above the Lemhi weir downstream migrant enumeration facilities. These fish average 174 millimeters, total length, at time of release. On April 21 and 22, an additional 43,500 steel head were released in the Lemhi. Some 20,600 of these smolts passed the louver trap between April 14 and 30. The average size of the migrants captured was 186 millimeters total length (Figure 1). Of the total number of 73,200 steel head planted, approximately 26,000 were marked with an adipose-right ventral clip.

The majority of the smolts released appeared to be in poor physical condition. Eroded dorsal and ventral fins were common and split caudal fins were found on every fish observed. Fungus was common on the eroded fins of fish collected at the louver trapping facilities in the weeks following the release. Mark and recapture studies during the 1965 and 1966 indicated that the louver trap was capturing 19.6 percent of the downstream migrant steel head moving past the weir site. Based on this rate, 31,400 of these steel head migrated downstream past the louver trap from April 13, 1966 to December 31, 1966. This indicates that 41,800 steel head, minus an unknown mortality, remained above the trapping system as of December 31 (Table 1).

Approximately five miles above the mouth of the Lemhi River, a downstream migrant trap on fish screen L-5 was operated continually from the first of April until the end of May when the major movement of mid-Snake steel head was passing the louver facilities approximately 30 miles farther upstream. Due to the extreme low water on the Lemhi during this period, the entire flow of the river was diverted into the L-5 trap. During April and May, only 199 mid-Snake steel head

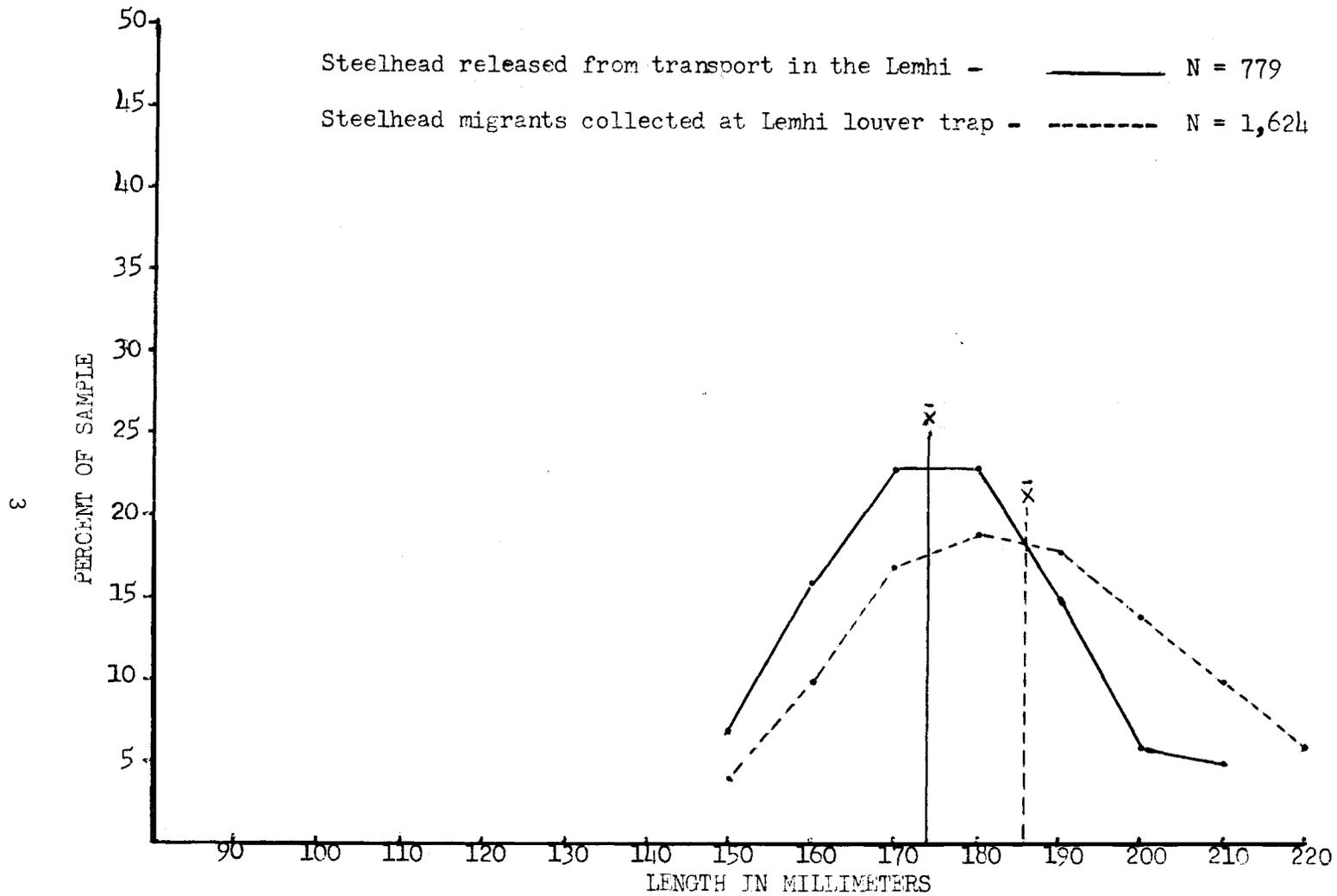


Figure 1. Length frequency distribution of the mid-Snake River steelhead "smolts" released 37 miles above the mouth in the Lemhi River and those measured as they passed the Lemhi louver some four miles below the release site, April, 1966.

Table 1. Number of trap captures and estimates of mid-Snake steelhead smolts passing the Lemhi louver trap facilities, Lemhi River, April 13 to December 31, 1966. Trap capture rate established as 19.6 percent sample.

Inclusive Trapping Period	Numbers Trapped	Estimated Total Migration
April 13-30	4,040	20,600
May	1,054	5,400
June	990	5,000
July	32	200
August	22	150
September	6	30
October	0	0
November	4	20
December	0	0
Totals	6,148	31,400
Total plant: 73,200 Percent of total plant to pass trap: 43%		

were captured at this trap. During this same period, the louver trap catches indicated that 31,400 mid-Snake steelhead smolts had passed that facility.

Kray-MeeKin traps were operated in the Lemhi River just above its mouth during the first half of June when the L-5 trap was inoperative due to the necessity of passing adult salmon through the trip gate. Rains raised the Lemhi River during the period the traps were operated. Juvenile chinook salmon were collected in small numbers during this period but no mid-Snake steelhead were captured.

This data indicates that although the steelhead passed the louver facilities, they did not pass L-5 and did not leave the Lemhi River in any significant numbers. L-5 trap was operated from September to December, 1966, and there was no movement of mid-Snake steelhead during this period. It appears that the majority of the 1965 brood year mid-Snake steelhead placed in the Lemhi River in April, 1966 probably never left the Lemhi during 1966,

Pahsimeroi River

On June 9 and 10, 1966, some 65,500 steelhead smolts were transported from Hagerman Fish Hatchery and released in the Pahsimeroi River approximately 15 river miles above its mouth. Approximately 5,000 of these fish were dead upon release from the planting truck. Both dead and live specimens were in poor physical condition. The fish were thin and eroded dorsal and ventral fins were observed on every steelhead inspected. Hagerman Fish Hatchery personnel reported the presence of red throat disease in the fish. Approximately 24,000 of these fish were marked with an adipose-right ventral clip.

The fish were held at the hatchery longer than planned due to the poor water conditions in the Lemhi pending the decision to place them in the Pahsimeroi River.

A downstream migrant trap is located at an irrigation diversion screen approximately 3.6 river miles above the mouth of the Pahsimeroi. Mark-and-recapture studies at this trap in 1965 and 1966 indicated that it was collecting 2.6 percent of the downstream migrant steelhead moving downriver past it. Based on this capture rate, an estimated 48,200 mid-Snake steelhead migrated past the trap from June 11 to December 31, 1966. This indicates that 17,300 steelhead, minus an unknown mortality, remained above the trapping facilities as of December 31 (Table 2).

Two size grades of steelhead were released in the Pahsimeroi on June 9 and 10. The "small" grade averaged 154 millimeters total length. The "large" grade of steelhead averaged 168 millimeters total length. A total of 946 steelhead migrants were measured at the downstream migrant trap approximately eleven river miles downstream from the plant site from June 10 to June 30. These captured smolts averaged 180 millimeters total length (Figure 2). It appears that the steelhead approximately 170 millimeters and larger migrated more readily than the smaller fish.

FACILITIES:

In November and December, 1966, Idaho Power Company commenced construction of two steelhead smolt acclimatization and release ponds near Dowton Lane approximately 14 river miles above the mouth of the Pahsimeroi River. The ponds are approximately 45 feet wide by 500 feet long. The inlet and outlet of each pond is equipped with a removable, water-driven rotary screen. The ponds receive an eight cubic-feet-per-second flow diverted from the Pahsimeroi River through a common ditch and pipeline. Concrete water level control structures are located at each end of the ponds and the outlets can be equipped with fish collection facilities for marking and enumeration projects.

A two-bedroom house with attached double garage, an 11-ton capacity

Table 2. Number of trap captures and estimates of mid-Snake steelhead smolts passing the Burstedt Lane trap, Pahsimeroi River, June 10, to December 31, 1966. Trap capture rate established as 2.6 percent sample.

Inclusive Trapping Period	Numbers Trapped	Estimated Total Migration
June 10-30	951	36,600
July	42	1,600
August	88	3,400
September	43	1,700
October	76	3,000
November	45	1,700
December	5	200
Totals	1,250	48,200

Total Plant: 65,500 Percent of total plant to pass trap: 74%

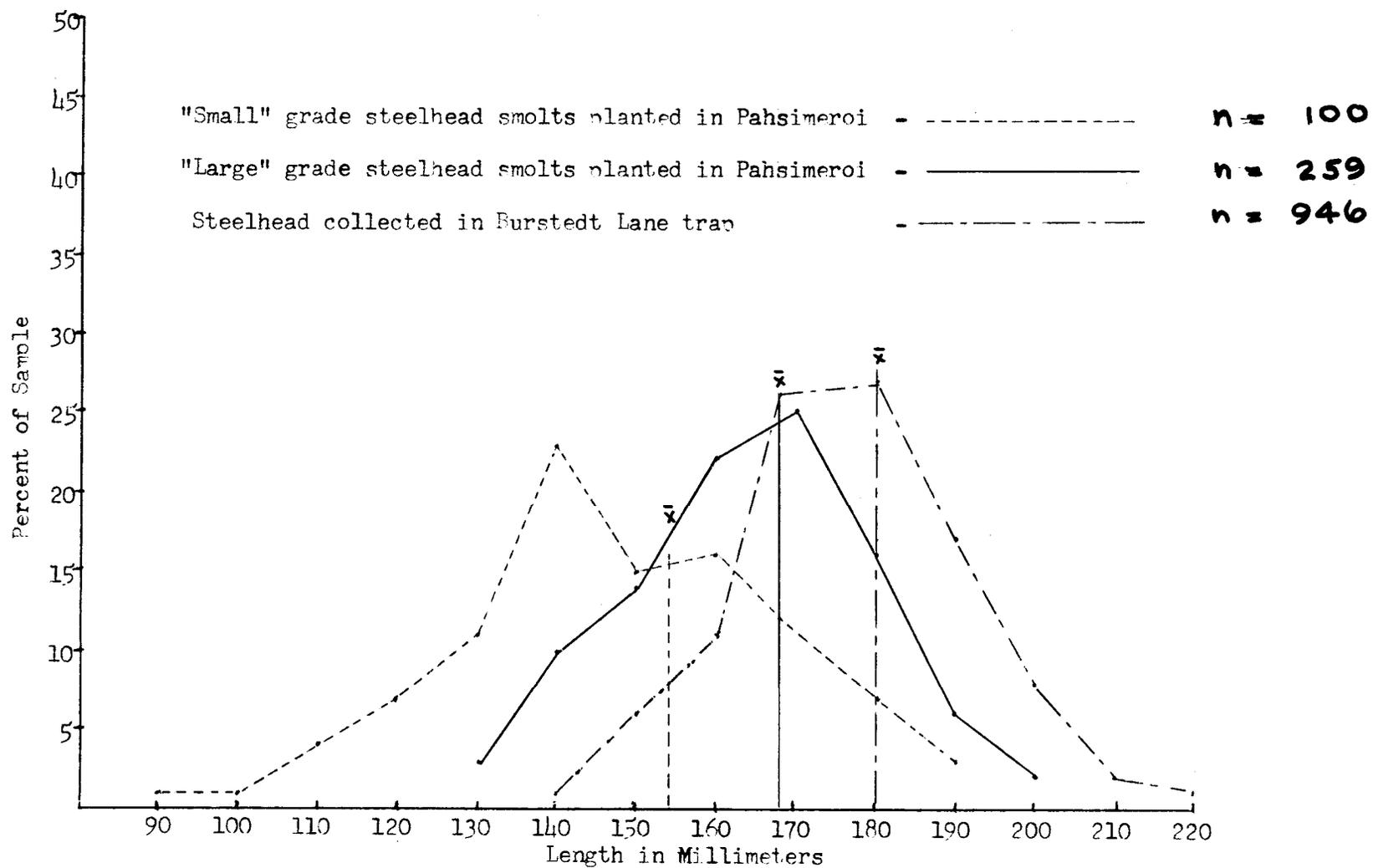


Figure 2. Length frequencies of the two grades of mid-Snake River steelhead smolts released in the Pahsimeroi River and the smolts collected by the Burstedt Land trap. The trap is 11 river miles downstream from the release site. June, 1966.

feed storage bin, and a Sartorius bulk pellet feeder have been provided to facilitate operations at the station.

An adult steelhead trapping and spawning facility will be constructed by Idaho Power Company on the Pahsimeroi River in the near future.