

STATE OF IDAHO DEPARTMENT OF FISH
AND GAME

Joseph C. Greenley, Director ,

IDAHO SALMON AND STEELHEAD
STATUS REPORT FOR 1974

by

David W. Ortmann

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SPRING CHINOOK

The upriver spring chinook run of 110,700 fish into the Columbia River in 1974 was the smallest since 1945. The Columbia River commercial fishery harvested 8,400 fish, its lowest catch of record. The Indian commercial catch was recorded as 17,500, compared to the 10-year (1964-1973) average of 19,800. Sport anglers below Bonneville Dam took 16,200 fish compared to the 10-year average of 28,000 (Fish Commission of Oregon and Washington Department of Fisheries, 1975). Only 17,300 fish were tallied over Little Goose Dam, much below the goal of 40,000 (Figure 1).

Stream flows were high in the spring of 1974 in the Snake and Columbia rivers. Upstream passage conditions were poor. Nitrogen supersaturation was present.

Fall-back of fish at Bonneville Dam distorted the fish count, which was later adjusted downward from 134,500 to 86,100 (Fish Commission of Oregon and Washington Department of Fisheries, 1975).

Idaho's catch of 1,557 was the lowest of record for any year in which a fishing season has been provided (Appendix I). A count of redds along standard routes in spring chinook spawning areas in the Salmon River drainage was 51% of the preceding 5-year average, and the lowest of record.

The 1974. r u n did not follow the recent upward trend for the Columbia River upriver (above Bonneville Dam) run (Figure 2). Effects of dams on the Columbia and Snake rivers are held responsible for the poor 1974 run (Collins, et. al., 1975).

Spring chinook rehabilitation in the Clearwater drainage was deterred by the small run. An estimated 1,400 adult fish returned to the Clearwater in 1974, compared to 5,000 in 1973 (Hoss, 1975).

ARTIFICIAL PROPAGATION

Clearwater River

Despite the small run, the return of about 300 spring chinook to the South Fork Clearwater drainage in 1974 was an encouraging measure of success of hatching channel operations and smolt release in that drainage.

Through state and federal programs over 2,8 million spring chinook were stocked into the system as eyed eggs or smolts (Table 1).

Incubation facilities for Clearwater stocking were underutilized for 1974 brood year eggs because the eggs were in short supply.

Salmon River

Nearly 4.5 million spring chinook smolts and fry were stocked in the Salmon River system in 1974 (Table 2).

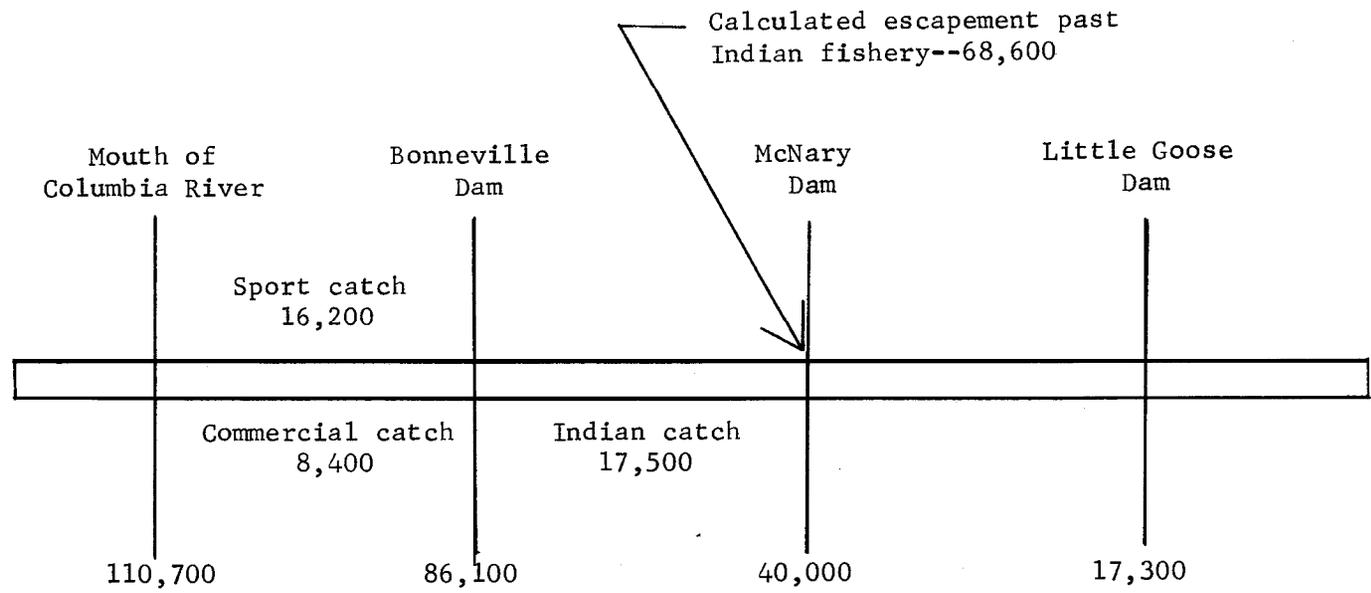


Figure 1. Harvest and escapement levels of 1974 spring chinook run into Columbia River.

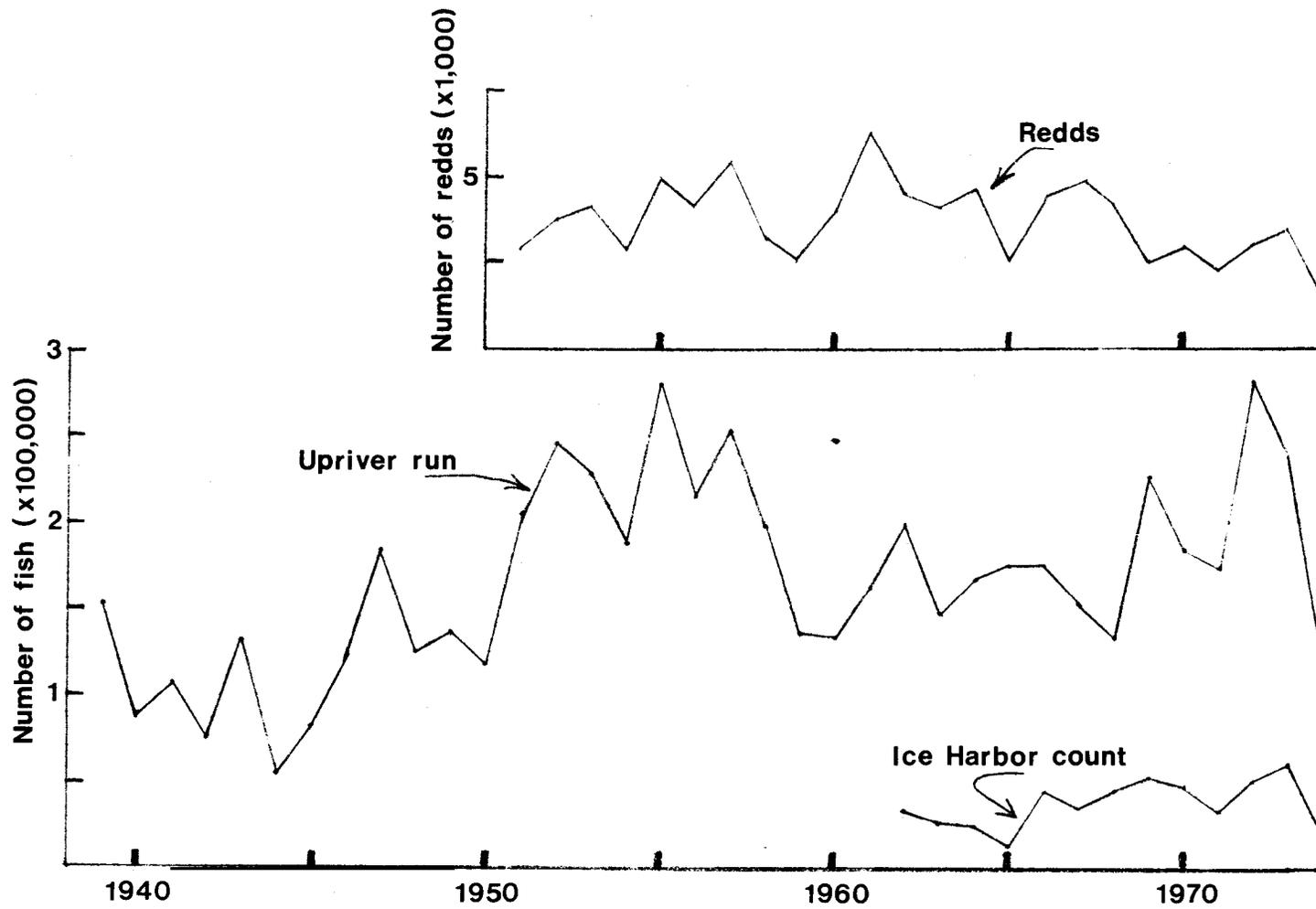


Figure 2. Columbia River spring chinook salmon upriver run size, Ice Harbor Dam counts, and Idaho redd count trend.

Table 1. Spring chinook stocking summary, Clearwater River drainage, 1974.

Stocking area	Number	Size	Rearing facility
Indian Creek Incubation Channel	2,207,00	eyed eggs	Rapid River Hatchery Cowlitz Hatchery (WDF)
Lochsa River Drainage	180,800	smolts	Sandpoint Hatchery
South Fork Clearwater Drainage	117,000	smolts	Rapid River Hatchery
Middle Fork Clearwater River	303,800	smolts	Kooskia NFH
TOTAL	2,808,60 0		

Table 2. Spring chinook stocking summary, Salmon River drainage, 1974.

Stocking area	Number	Size	Rearing facility
Rapid River	2,707,900	smolts	Rapid River Hatchery
Lemhi River	633,000	fry	Rapid River Hatchery
Lemhi River	270,200	fry	Hayden Creek Research Station
Hayden Creek (Lemhi River)	500,700	smolts	Hayden Creek Research Station
Upper Salmon River	380,000	smolts	Decker Flat Rearing Pond
TOTALS	4,491,800		

Rapid River Hatchery

Returning adults to the hatchery comprised 23% of the Little Goose Dam count of spring chinook. The return of 3,995 fish, including 538 jacks, surpassed the goal for the hatchery of 2,700 adults produced for Idaho waters. The Rapid River returns made up 23% of the spring chinook counted at Little Goose Dam. Hatchery personnel estimated that 60% of the fish showed external signs of exposure to high nitrogen supersaturation, and 52% evidenced gill net scars.

Jack salmon were stocked into the Little Salmon River sport fishery.

Efforts to control kidney disease continued under the guidance of Dr. George Klontz, University of Idaho. We lost 322 females and 571 males prior to spawning, which was less severe than losses in 1973.

Smolt to adult survival of 4-year-old fish at 0.06% was the lowest noted at Rapid River Hatchery (Parrish, et. al., 1975).

Nearly 2,708,000 smolts at 17.9 per pound were released into Rapid River in the spring of 1974.

Decker Flat Rearing Pond

In late June, 1974, the rearing pond was stocked with 380,000 spring chinook at 133 per pound. They were released in late September at an average size of 89 mm fork length and 49 per pound.

Spawning ground surveys indicated that 22% of the upper Salmon River spring chinook spawning escapement were of Decker Flat Rearing Pond origin (Reingold, 1974a).

Hayden Creek Research Station

The experimental approach of pond rearing pre-smolts for release in the fall is being investigated at this station. In mid-September, 350,000 chinook at 32 per pound were released into Hayden Creek.

Forty-eight adult chinook returned to the station in July and August. An additional 23 fish that were probably of hatchery origin were seen in nearby Hayden Creek.

Large numbers of high quality chinook smolts have been released in the last 5 years (1970-1974). The numbers released, 83,000 to 350,000, should provide large enough adult returns to evaluate the program by 1977 (Mate, 1974).

SUMMER CHINOOK

The 1974 summer chinook salmon run into the Columbia River, at 34,000 fish, was the smallest run on record for the second consecutive year (Figure 3). Columbia River sport fishing and commercial gill net seasons, both

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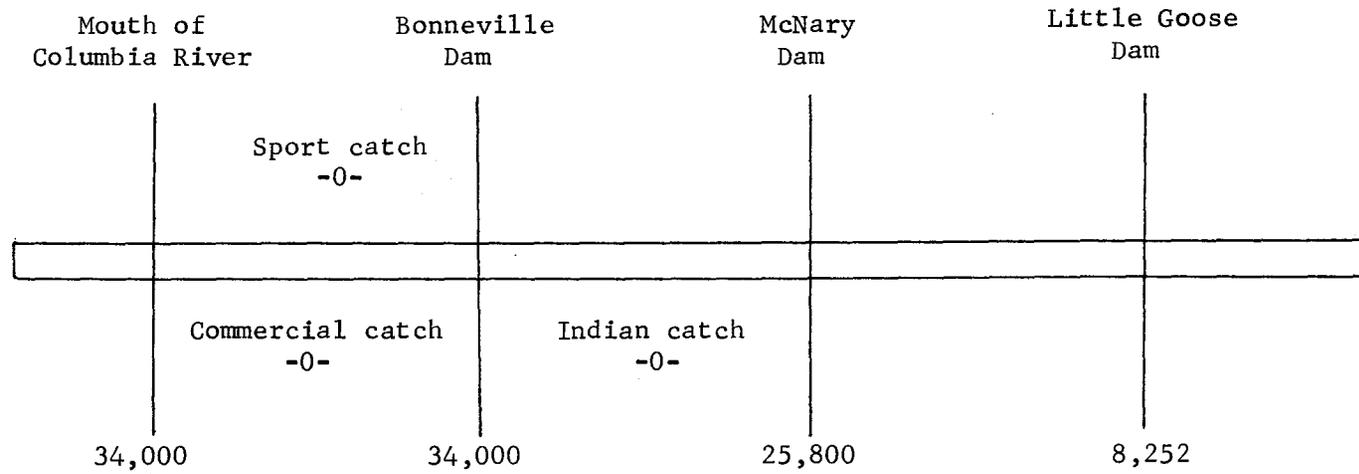


Figure 3. Harvest and escapement levels of 1974 summer chinook run into Columbia River.

Indian and non-Indian, were closed in 1974 (Fish Commission of Oregon and Washington Department of Fisheries, 1975).

The run into the Snake River as determined by the perilously low Ice Harbor Dam count of 10,269 was the lowest on record.

In 1974, as since 1965, fishing for summer chinook was not allowed in Idaho. The redd count for Salmon River drainage trend areas was only 32% of the 1961'to 1970 average.

The summer chinook run has been generally declining since the late 1950's (Figure 4). We hope to see summer chinook respond to ongoing corrective projects at the lower Snake and Columbia River dams. Otherwise, we have no reason to expect improvement.

ARTIFICIAL PROPAGATION

Pahsimeroi River

At the Pahsimeroi station we are trying pond rearing of summer chinook with release in their first spring of life. We released 330,000 fish at 41 per pound in May.

We trapped 155 chinook for egg-taking. We took 220,000 eggs which were eyed at the Pahsimeroi station, then transferred to Mackay Hatchery for early rearing.

South Fork Salmon River

Due to the imperiled status of Snake River summer chinook salmon the Idaho Department of Fish and Game entered into contract with the U.S. Army, Corps of Engineers for artificial propagation of these fish. The project proposal stated that the effort would be ". . . a pilot project . . . and would provide information which could be essential to a successful final lower Snake River compensation plan for summer chinook."

The National Marine Fisheries Service assisted by Idaho Department of Fish and Game personnel trapped 202 male and 384 female summer chinook at Little Goose Dam and transported them to Rapid River Hatchery. 969,372 eyed eggs were later transferred to McCall Hatchery. These will be reared at McCall and Mackay hatcheries for release into the South Fork Salmon River as smolts in the spring of 1977.

SUMMER STEELHEAD (1973-1974 RUN)

A run of 191,500 summer steelhead entered the Columbia River in 1973. The commercial fishery below Bonneville Dam took 22,700 and the Indian commercial fishery above Bonneville Dam took 26,800 fish (Fish Commission of Oregon and Washington Department of Fisheries, 1975). Oregon and Washington sport anglers below Bonneville Dam took an estimated 12,200 fish (Figure 5) (Oregon Wildlife Commission, 1975).

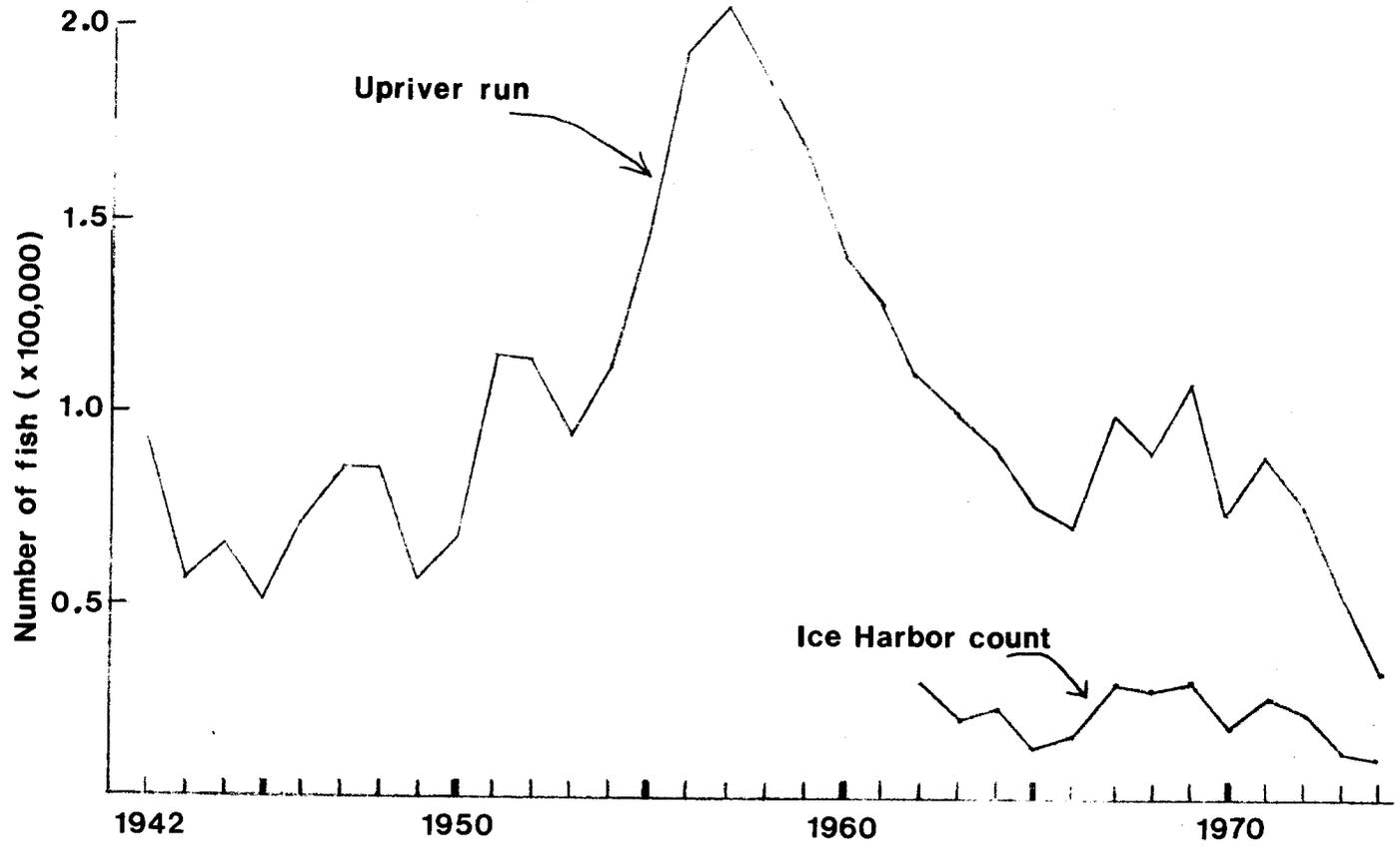


Figure 4. Columbia River summer chinook salmon upriver run size and Ice Harbor Dam counts.

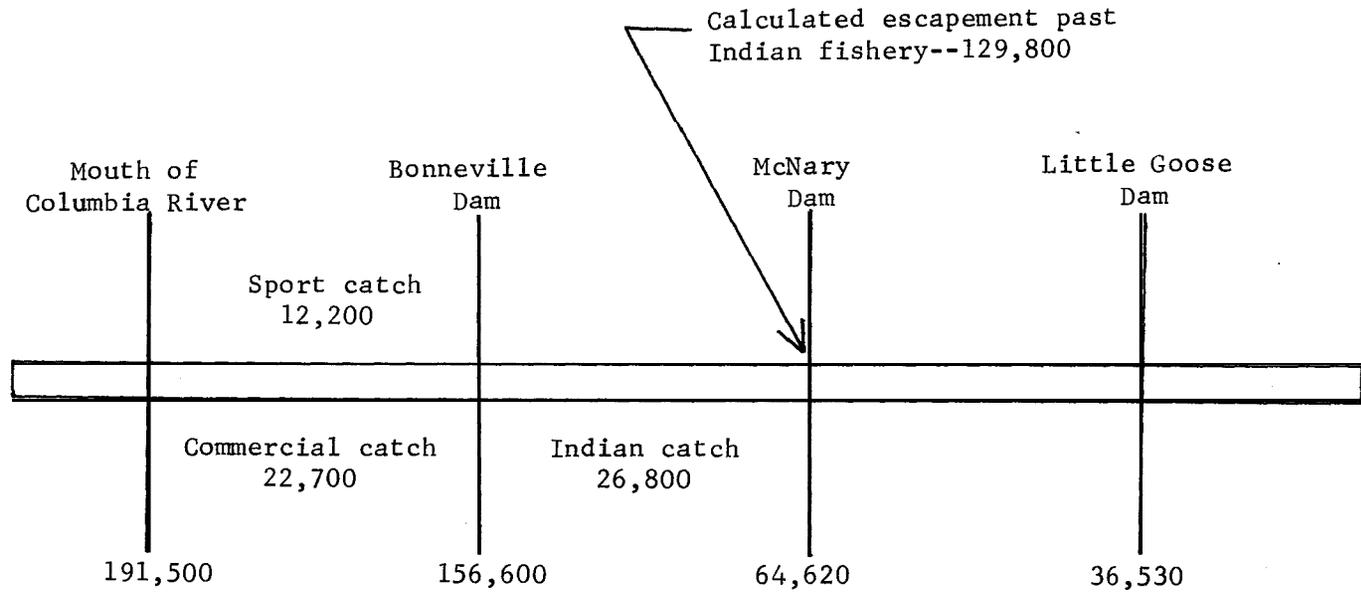


Figure 5. Harvest and escapement levels of 1973 summer steelhead run into Columbia River.

About 37,005 summer steelhead entered the Snake River as evidenced by the count over Ice Harbor Dam. This was the lowest number since counting began at Ice Harbor in 1962 (Figure 6).

The estimated catch of steelhead of the 1973-1974 run in Idaho was 8,128, a probable all-time low.

Steelhead caught by Salmon River anglers who were checked at Shorts Bar, near Riggins, in the fall of 1973 were 19.5% of hatchery origin. Fall-caught steelhead checked at North Fork were 40.4% of hatchery origin (Corley, et. al., 1974). The Niagara Springs-Pahsimeroi River hatchery operation is the main source of these fish.

Catches in the spring of 1974 were noted as 38.8% hatchery origin at Shorts Bar and 56.9% at North Fork (Lindland, et. al., 1975).

Fall-caught steelhead in the Snake River had 49.2% of hatchery origin. These appeared to be mostly Dworshak National Fish Hatchery stock.

In the lower Clearwater River, an estimated 72% of the fish caught in the fall of 1973 were of Dworshak NFH origin. In the spring of 1974 this proportion increased to nearly 100% (Pettit, et.al., 1975).

ARTIFICIAL PROPAGATION

Clearwater River

A run of 7,778 adult steelhead returned to Dworshak National Fish Hatchery, the second largest return since it began operation in 1968. Additionally, over 2,300 steelhead of Dworshak NFH origin were caught by Idaho anglers.

Over 3.25 million 1973 brood year steelhead smolts were released from Dworshak NFH in March, April, and May of 1974. Also, over 800,000 steelhead were released elsewhere in the Clearwater drainage (Table 3).

Salmon River

Niagara - Pahsimeroi

Approximately 1.6 million steelhead smolts were trucked from Niagara Springs Hatchery and released into the Pahsimeroi River in March, April, and May of 1974. These fish were 1973 brood-year Dworshak stock in substitution for 1973 Pahsimeroi stock that was destroyed following an outbreak of infectious pancreatic necrosis (IPN) (Reingold, 1975).

Studies to determine optimum size of fish and timing of release continued. Information to date suggests that smolts should be released by the last week of April.

1,795 adult steelhead, from 1971 and 1972 smolt releases, returned to the Pahsimeroi station in the spring of 1974. Reingold (1975) estimated that anglers on the Salmon River took about 1,405 steelhead of Pahsimeroi origin

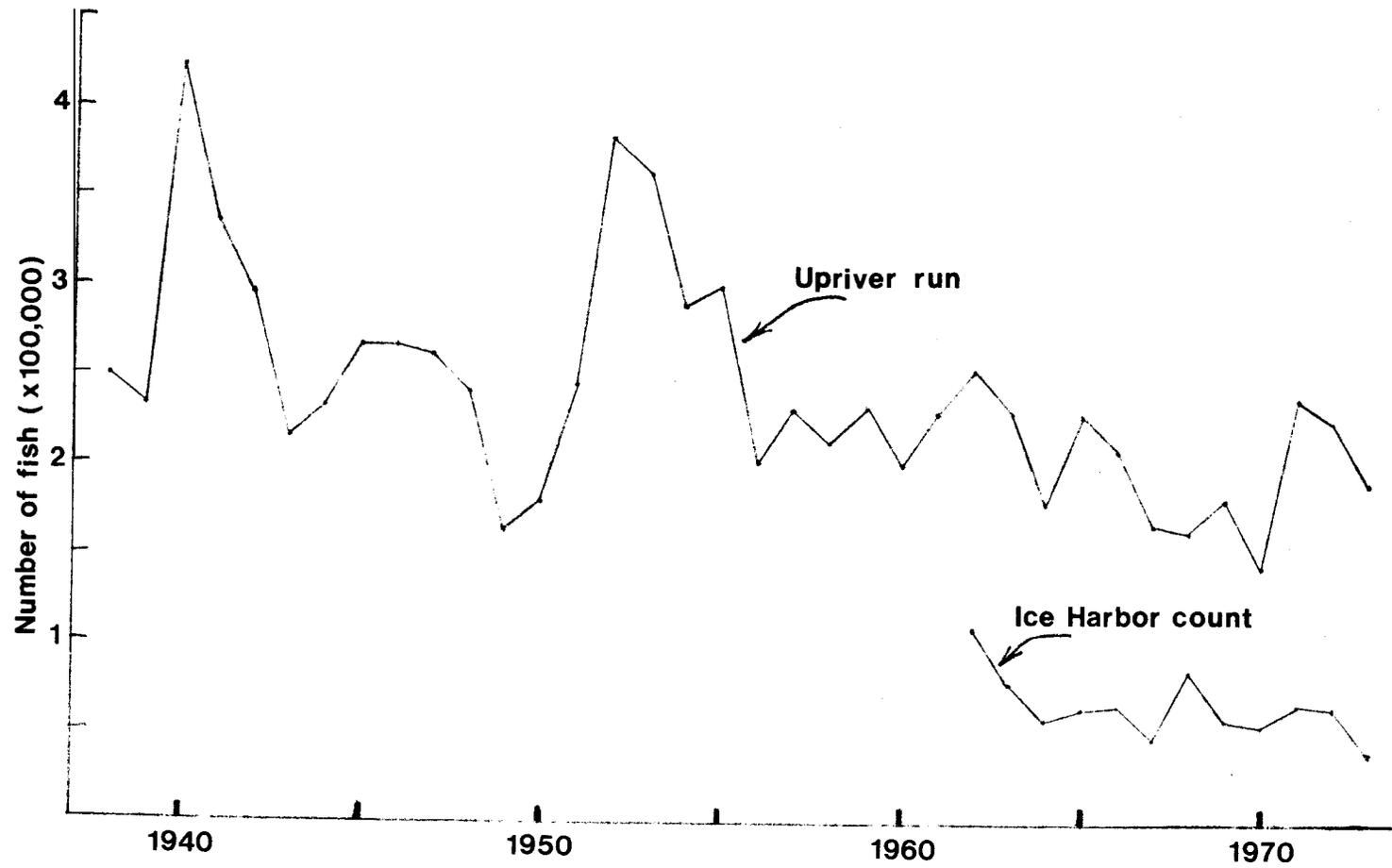


Figure 6. Columbia River summer steelhead upriver run size and Ice Harbor Dam counts.

Table 3. Steelhead stocking summary, Idaho, 1974.

Stocking area	Number	Size	Rearing Facility
Clearwater River	1,128,493	smolts	Dworshak NFH
North Fork Clearwater River	2,128,143	smolts	Dworshak NFH
Lolo Creek	101,995	smolts	Dworshak NFH
Upper Salmon River	182,160	smolts	Niagara Springs
Upper Salmon River	105,510	smolts	Hagerman Hatchery
Valley Creek	90,155	smolts	Hagerman Hatchery
Valley Creek	172,320	smolts	Niagara Springs
Pahsimeroi River	1,607,000	smolts	Niagara Springs
Pahsimeroi River	242,572	smolts	Pahsimeroi
Clearwater Drainage	700,000	fry	Sweetwater
Hayden Creek	89,850	fry	Hayden Creek
Hayden Creek	79,700	smolts	Hayden Creek
TOTAL	6,627,898		

making the run of hatchery origin into the Salmon River total 3,200 fish.

Hayden Creek Research Station

One-year pond rearing of steelhead was investigated with 1974 brood year steelhead. To optimize rearing time we used eggs taken at Dworshak National Fish Hatchery in early April and maintained higher water temperatures in hatching and rearing facilities.

In late April we released 79,700 yearling smolts from the 1973 brood year at 10.3 per pound and 167 mm total length.

Twenty adult steelhead returned to the station in 1974. Three were classed as one-ocean fish and 17 were classed as two-ocean fish (Reingold, 1975).

Supplemental Stocking

The program of stocking steelhead smolts in Salmon River headwaters (upper Salmon River and Valley Creek) began in 1973 and was continued in 1974. Output from Hagerman Hatchery, at 195,665, was greatly below the goal of 1 million fish. The program was aided somewhat by 354,480 smolts from Niagara Springs Hatchery (Table 3).

Snake River

The fish trap below Hells Canyon Dam was operated in the fall of 1973, but, due to high flows, only briefly and ineffectively in the spring of 1974. 126 steelhead were trapped and transported to Oxbow Hatchery where 309,950 eggs were taken (John Siple, inter-department correspondence).

No steelhead were stocked below Hells Canyon Dam in 1974.

FALL CHINOOK

Fifteen fall chinook jacks were trapped at Hells Canyon Dam in 1974. Approximately 1,300 fall chinook were counted over Little Goose Dam.

LITERATURE CITED

- Collins, Gerald B., Wesley J. Ebel, Gerald E. Monan, Howard L. Raymond, and George K. Tanonaka. 1975. The Snake River salmon and steelhead crisis, its relation to dams and the national energy crisis. Natl. Oceanic Atmos. Admin., Natl. Mar. Fish. Serv., Northwest Fish. Center, Seattle, Wash.
- Hoss, Steven A. 1975. Clearwater River development of spring chinook and steelhead stocks. Annual project closing report, July 1, 1974 to June 30, 1975. Columbia River Fisheries Development Program, Project No. 88272402. Idaho Department of Fish and Game, Mimeo.

- Lindland, Ron, Kent Ball, and Tom Welsh. 1975. Check station surveillance of salmon and steelhead fisheries in Idaho. Project F-18-R-21, Job No. 3. Idaho Department of Fish and Game, Mimeo.
- Mate, Steven M. 1974. Experimental rearing of anadromous fish, Lemhi River drainage, Idaho (Hayden Creek Research Station) July 1, 1971 - June 30, 1974. P.L. 88-309, Project 1-57-D, Segment 4. Idaho Department of Fish and Game, Mimeo.
- Oregon Wildlife Commission. 1975. The sport and commercial harvest of recent Columbia River salmon and steelhead runs. Oregon Wildlife Commission, Portland, Oregon, 1973, recopied with 1972 and 1973 addenda, Mimeo.
- Parrish, Evan M., Fenton S. Hays, Rex Starks, and Lawrence R. Wimer. 1975. 1974 report of operations at Rapid River Hatchery; 1974 evaluation of spring chinook salmon emigration, harvest and return to Rapid River Hatchery. Idaho Department of Fish and Game, Mimeo.
- Pettit, Steven W., Will Reid, and John G. Sneva. 1975. Evaluation of game and rough fish populations below Dworshak Dam and relationship to changes in water quality. Project DSS-29-5, Job No. 3. Idaho Department of Fish and Game, Mimeo.
- Reingold, Melvin. 1974. Evaluation of pond rearing fish culture methods; Evaluation of survival of pond reared chinook salmon. Project F-49-R-13, Jobs No. III-a and III-b. Idaho Department of Fish and Game, Mimeo.
- Reingold, Melvin. 1975. Evaluation of transplanting Snake River steelhead trout to the Pahsimeroi River, 1974. Project IPC-26. Idaho Department of Fish and Game, Mimeo.