

STATE OF IDAHO
DEPARTMENT OF FISH AND GAME
Joseph C. Greenley, Director

IDAHO SALMON AND STEELHEAD
STATUS REPORT FOR 1977

by
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SPRING CHINOOK

The 1977 upriver spring chinook run of 143,900 fish was a decided improvement over the recent poor runs and was the largest run since 1973 (Fig. 1). Preliminary data indicates a commercial harvest of 9,600 below Bonneville Dam, an Indian commercial harvest of 17,100 and a Columbia River sport catch of 14,800 (Oregon Department of Fish and Wildlife and Washington Department of Fisheries, 1978).

The Corps of Engineers (1978) reported 38,770 spring chinook crossed Lower Granite Dam on the Snake River, which is the last dam encountered by the run prior to reaching Idaho.

Passage conditions on the Columbia River in 1977 were favorable for adult fish and 49% of the fish that crossed The Dalles Dam subsequently reached Ice Harbor Dam (Fig. 2).

The Salmon River drainage redd counts improved over the record low counts of 1976, but were still less than the preceding 5-year average (Table 1).

Idaho's sport fishery was closely regulated and provided an estimated catch of 3,500 chinook, which was among the smallest ever recorded (Appendix, Table 1).

Artificial Propagation

Clearwater River

Nearly 5 million spring chinook were stocked into the Clearwater River system in 1977. This included 933,980 smolts, 1,534,830 fingerlings, 1,457,652 fry, and 1,037,340 eyed eggs (Table 2).

Kooskia National Fish Hatchery received a return of 1,922 adults and 214 jacks, which was the largest return yet for the hatchery. Holding adults for spawning, however, was not successful. Special efforts to improve adult survival will be made at Kooskia NFH in 1978.

Salmon River

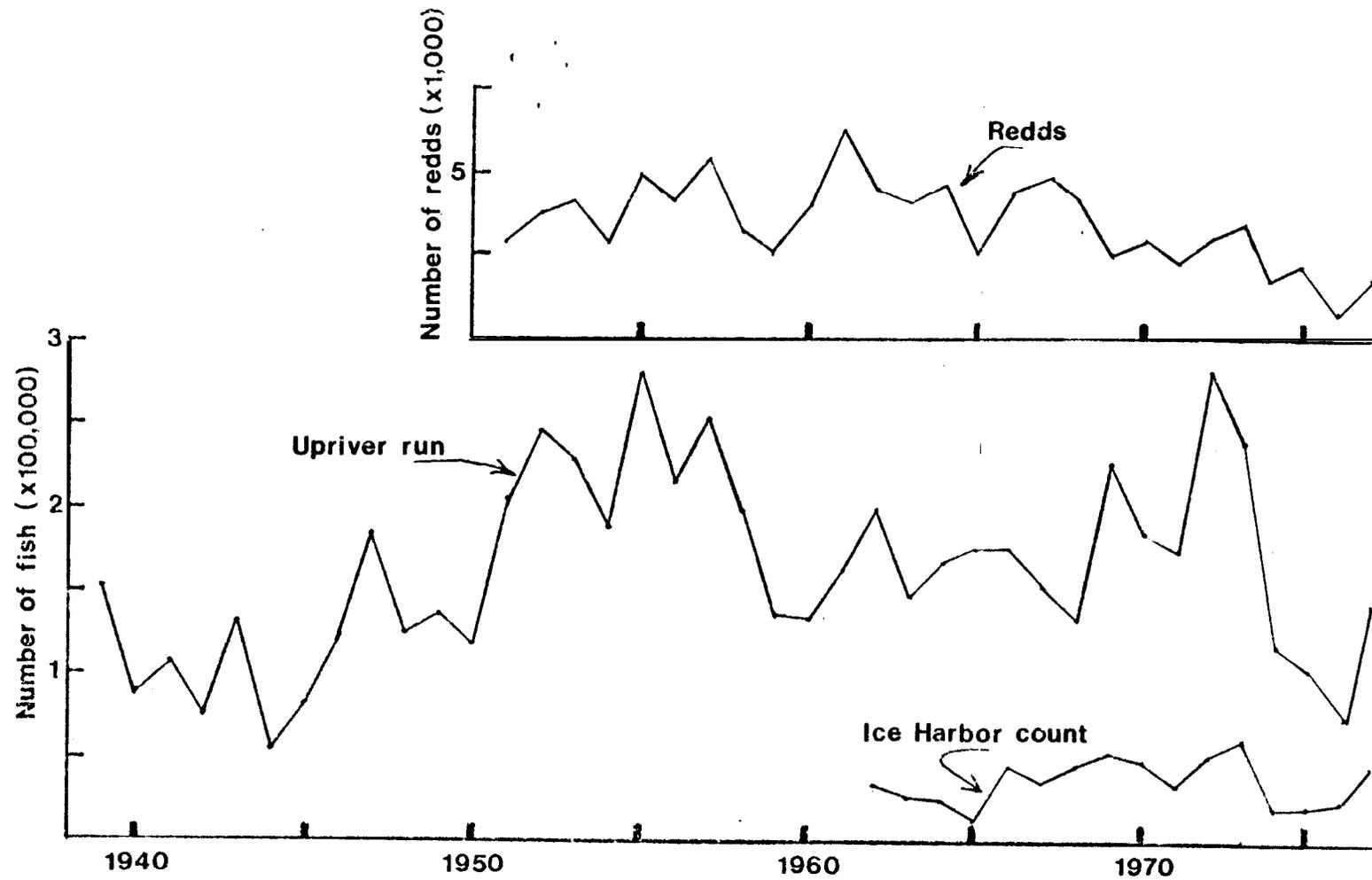
Nearly 4 million spring chinook were stocked into the Salmon River system in 1977. This included 3,020,173 smolts, 536,199 fingerlings, and 248,535 fry (Table 3).

Rapid River Hatchery

The 1977 run that returned to the hatchery totaled 8,181 fish and included 7,744 adults and 437 jacks (Parrish, 1978). The run comprised 21% of the Snake River run as counted at Lower Granite Dam. We were concerned to note that 24% of the returning run carried wounds due to gill nets, gaffs or other causes. The holding pond loss of adults was about 11% which is a relatively low rate and which is a tribute to an effective program for the control of kidney disease.

Decker Flat Rearing Pond

A high incidence of the eye fluke Diplostomum sp. was first noticed in spring



SPRING CHINOOK

Figure 1. Columbia River spring chinook salmon upriver run size, Ice Harbor Dam counts, and Idaho redd count trend.

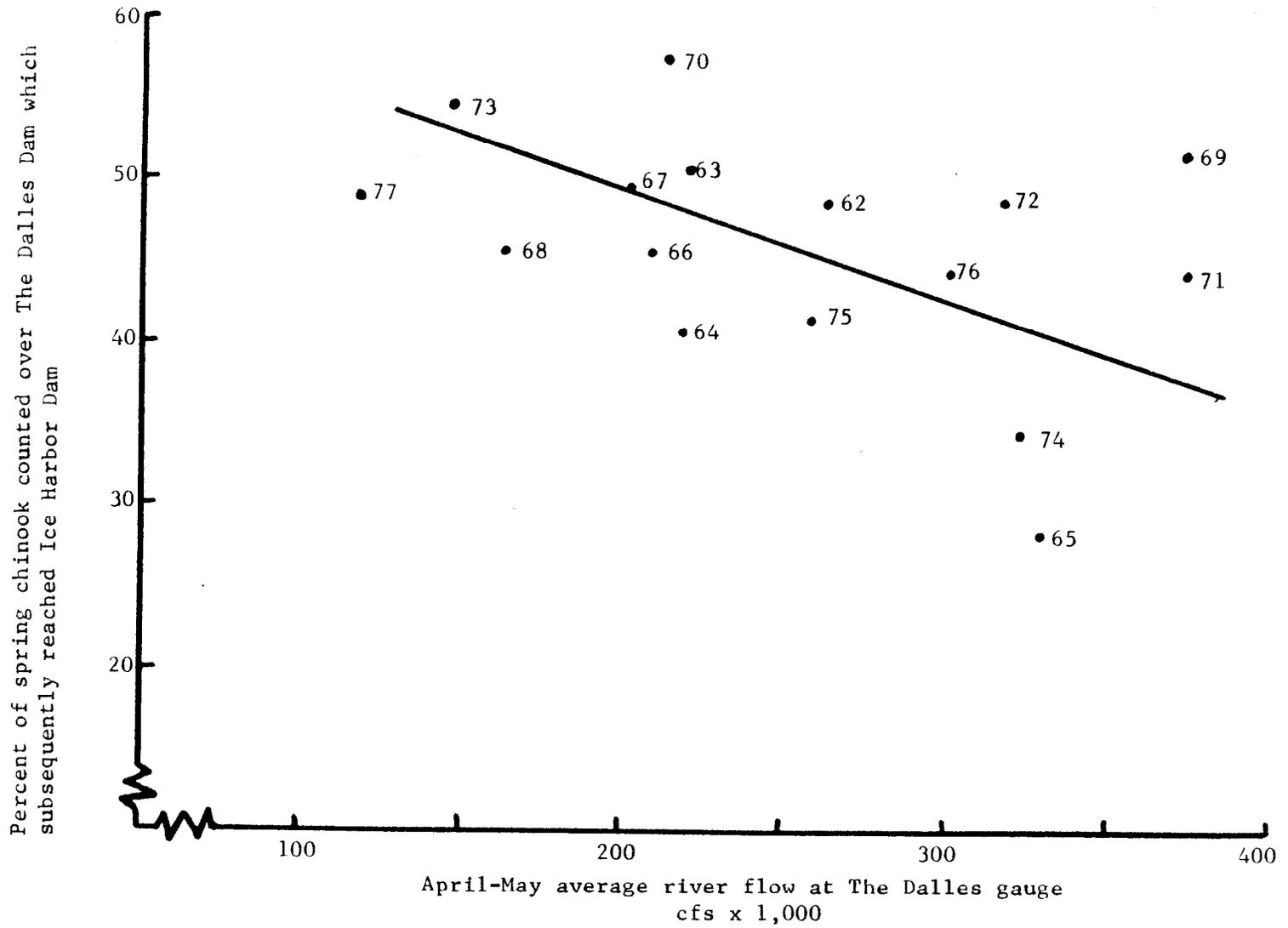


Figure 2. Relationship between Columbia River flow and efficiency of upstream passage of spring chinook

Table 1. Numbers of spring chinook redds counted in Salmon River drainage trend areas, 1967-1977.

Stream	Year										
	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967
Alturas Lake Creek	85	16	60	42	153	143	50	68	41	110	74
Bear Valley Creek	129	76	215	130	387	221	108	334	356	574	445
Elk Creek	86	61	169	108	369	212	173	302	349	483	420
Herd Creek	98	48	11	13	47	28	49	47	43	57	32
Lemhi River	474	241	366	215	485	507	407	371	360	589	804
Marsh Cr. Drainage	98	48	201	210	518	312	281	456	235	466	650
North Fork Salmon River	31	6	14	18	55	31	53	95	155	145	66
Sulphur Creek	5	14	50	30	78	71	58	93	138	142	134
Upper East Fork	168	75	348	346	665	448	370	468	174	622	614
Upper Salmon River	698	378	509	338	414	748	619	432	313	637	943
Upper Valley Creek	18	n/c	189	127	125	182	89	202	350	330	253
Upper Yankee Fork	6	40	60	54	104	115	57	67	53	234	250
Upper Big Creek	<u>9</u>	<u>22</u>	<u>77</u>	<u>28</u>	<u>96</u>	<u>60</u>	<u>32</u>	<u>68</u>	<u>90</u>	<u>90</u>	<u>67</u>
Totals	1,905	1,025	2,269	1,659	3,496	3,078	2,346	3,003	2,657	4,479	4,752
5-year average		2,305					3,447				

Table 2. Spring chinook stocking summary, Clearwater River drainage, 1977.

Stocking area	Numbers	Size	Rearing facility
Lolo Creek	104,500	fry	Rapid River
Crooked River	1,037,340	eyed eggs	Rapid River
Red River	43,500	smolts	Rapid River
South Fork Clearwater	206,250	smolts	Rapid River
South Fork Clearwater	80,600	fry	Rapid River
Middle Fork Clearwater	500,630	smolts	Kooskia NFH
Middle Fork Clearwater	1,184,865	fingerling	Kooskia NFH
Selway River	304,304	fry	Indian Creek Channel
Whitcap Creek	143,520	fry	Indian Creek Channel
Deep Creek	63,028	fry	Indian Creek Channel
Lochsa River	183,600	smolts	Sandpoint
Brushy Fork	568,100	fry	Mullan
Crooked Fork	193,600	fry	Mullan
Red River	349,965	fingerling	Red River Pond
Total	4,963,802		

Table 3. Spring chinook stocking summary, Salmon River drainage, 1977.

Stocking area	Numbers	Size	Rearing facility
East Fork Salmon	100,170	fry	Rapid River
West Fork Yankee Fork	56,700	fry	Rapid River
Rapid River	2,921,172	smolts	Rapid River
Rapid River	450,199	fingerling	Rapid River
Panther Creek	46,305	fry	Mackay
North Fork Salmon	45,360	fry	Mackay
Hayden Creek	99,001	smolts	Hayden Creek Research Station
Hayden Creek	86,000	fingerling	Hayden Creek Research Station
Total	3,804,907		

chinook at Decker Pond in 1975. Control of the host snail by treatment with copper sulphate was attempted, but was ineffective. Until a breakthrough in eye fluke control in an earthen pond situation is discovered, we will not operate the facility for rearing.

Hayden Creek Research Station

An estimated 226 adult spring chinook returned to the Hayden Creek system as a result of the experimental releases from the research station. Investigations in 1977 included evaluation of rearing techniques for releasing chinook in the spring at age 0, fall at age 0, and spring at age I (Anderson, 1978).

Mackay Hatchery

Rearing of 1976 brood year spring chinook continued. This is the first group of spring chinook to be reared at Mackay Hatchery and release was scheduled for the spring of 1978. At the end of October, 1977 there were 1,289,062 of the 1976 brood year fish on hand. Disease, sun burn and overly fast growth were problems that impacted the program.

SUMMER CHINOOK

The 1977 count over Bonneville Dam, at 41,023, was a continuation of the very poor runs occurring since 1973. The count of 8,429 over Lower Granite Dam also continued the poor trend (Fig. 3).

Closures were maintained on all fisheries in the Columbia and Snake Rivers and in Idaho except for treaty Indian ceremonial and subsistence fisheries.

We counted 689 redds in the trend routes of summer chinook spawning areas in the Salmon River drainage. This was a slight improvement over the previous three years, but still considerably below a desirable number.

Artificial Propagation

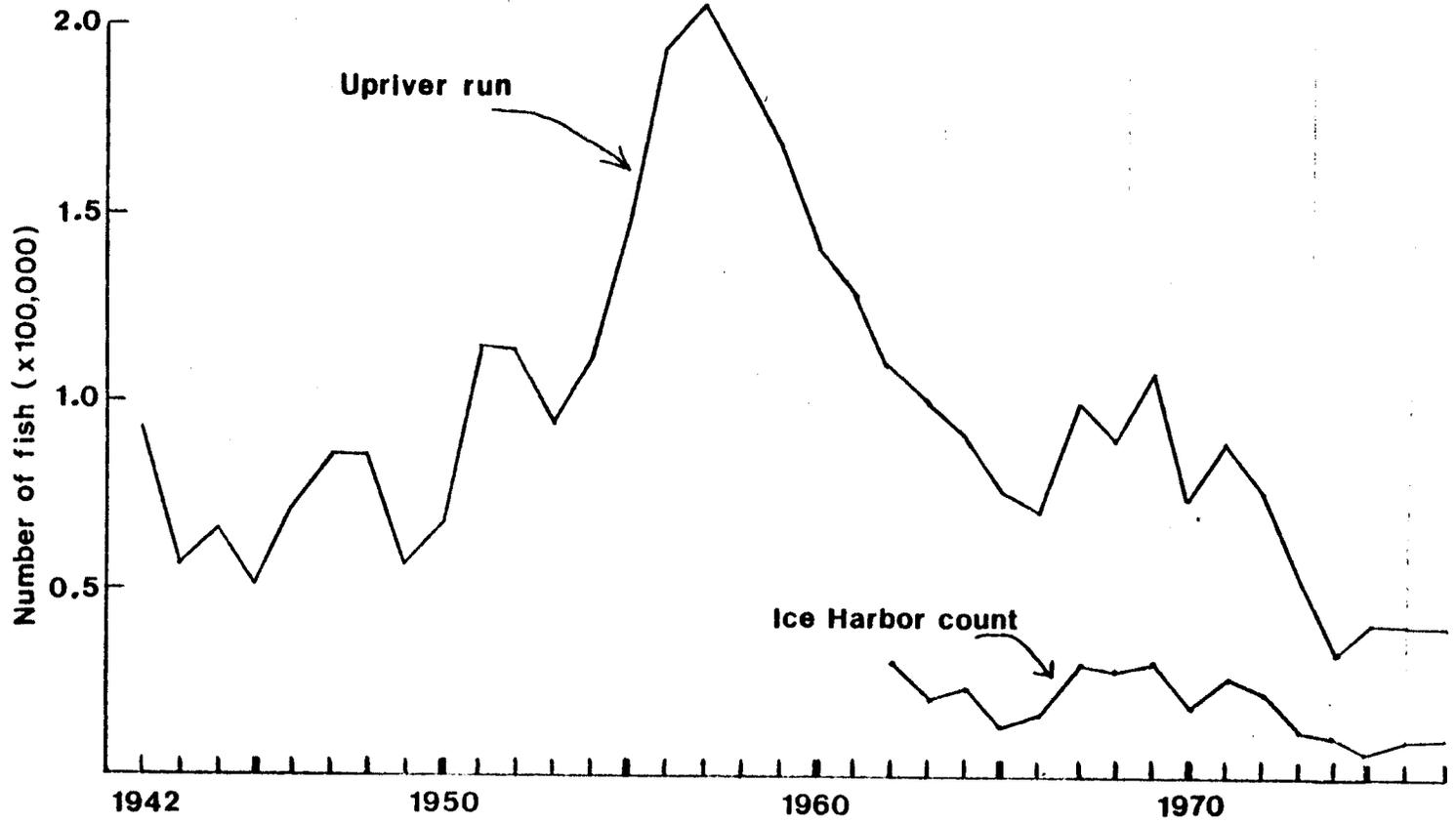
Pahsimeroi River

The Pahsimeroi program consists of pond rearing summer chinook for release in their first spring of life. In May, approximately 234,397 fish were released into the Pahsimeroi River at an average weight of 41 per pound.

A total of 558 chinook were trapped at the Pahsimeroi River facilities. Over 900,000 eggs were taken for the next rearing cycle.

McCall Hatchery

Summer chinook rearing at McCall Hatchery is preliminary to construction of a new hatchery as a component of the Lower Snake River Fish and Wildlife Compensation Plan. The year 1977 marked the fourth effort to obtain brood stock and rear fish to smolt size for release into the South Fork of the Salmon River. In June, National Marine Fisheries Service and IDFG personnel trapped 708 brood fish at Little Goose Dam. These fish were transported to Rapid River Hatchery for holding and spawning. About 600,000 eyed eggs were transferred to McCall



SUMMER CHINOOK

Figure 3. Columbia River summer chinook salmon upriver run size and Ice Harbor Dam counts.

Hatchery in October.

The pre-spawning loss of adults, at 58%, was severe. This should improve when a new spawn-taking station is built on the South Fork.

In April, we stocked 247,445 smolts at 37 per pound in the South Fork. This was the second year of stocking for this program.

SUMMER STEELHEAD (1976-1977 RUN)

The 1976 run into the Columbia River of 122,400 was a definite improvement of the record low run of 1975, however the run was still below average (Fig. 4). The Oregon Department of Fish and Wildlife and Washington Department of Game maintained closed seasons for sport fishing on the Columbia River in 1976. The treaty Indian fishery caught an estimated 8,800 steelhead between Bonneville and McNary dams (Oregon Department of Fish and Wildlife and Washington Department of Fisheries, 1978).

The count of 23,885 steelhead over Ice Harbor Dam was less than required for a normal statewide fishery. Consequently, a more restrictive than normal consumptive fishery was provided on the Salmon River and catch-and-release fishing only was provided on the Clearwater River. The consumptive fishery took an estimated 4,000 fish while 1,996 fish were caught and released on the Clearwater.

Artificial Propagation

Clearwater River

A run of 3,100 adult steelhead returned to Dworshak National Fish Hatchery, which was an improved run over that of the previous two years. In the spring of 1977 the hatchery released 1.9 million smolts into the North Fork of the Clearwater River.

Dworshak NFH also stocked over 3.25 million fry into numerous tributaries of the Clearwater River (Table 4).

Salmon River Niagara-

Pahsimeroi

Over 1.4 million 1976 brood year steelhead smolts were trucked from Niagara Springs Hatchery and released into the Pahsimeroi River in the spring of 1977.

1,504 adult steelhead returned to the Pahsimeroi weir in 1977. The 1976-77 run is estimated to have contributed 1,000 to 1,300 fish to the upper Salmon River fishery (Reingold, 1978).

Hayden Creek Research Station

Experiments comparing dry and moist diets, and Skamania and Dworshak fish stocks were performed. Twenty-four steelhead adults returned to the station and an unknown number are thought to have bypassed the trapping facilities and spawned naturally in Hayden Creek. The research provided a release of 222,400 smolts into

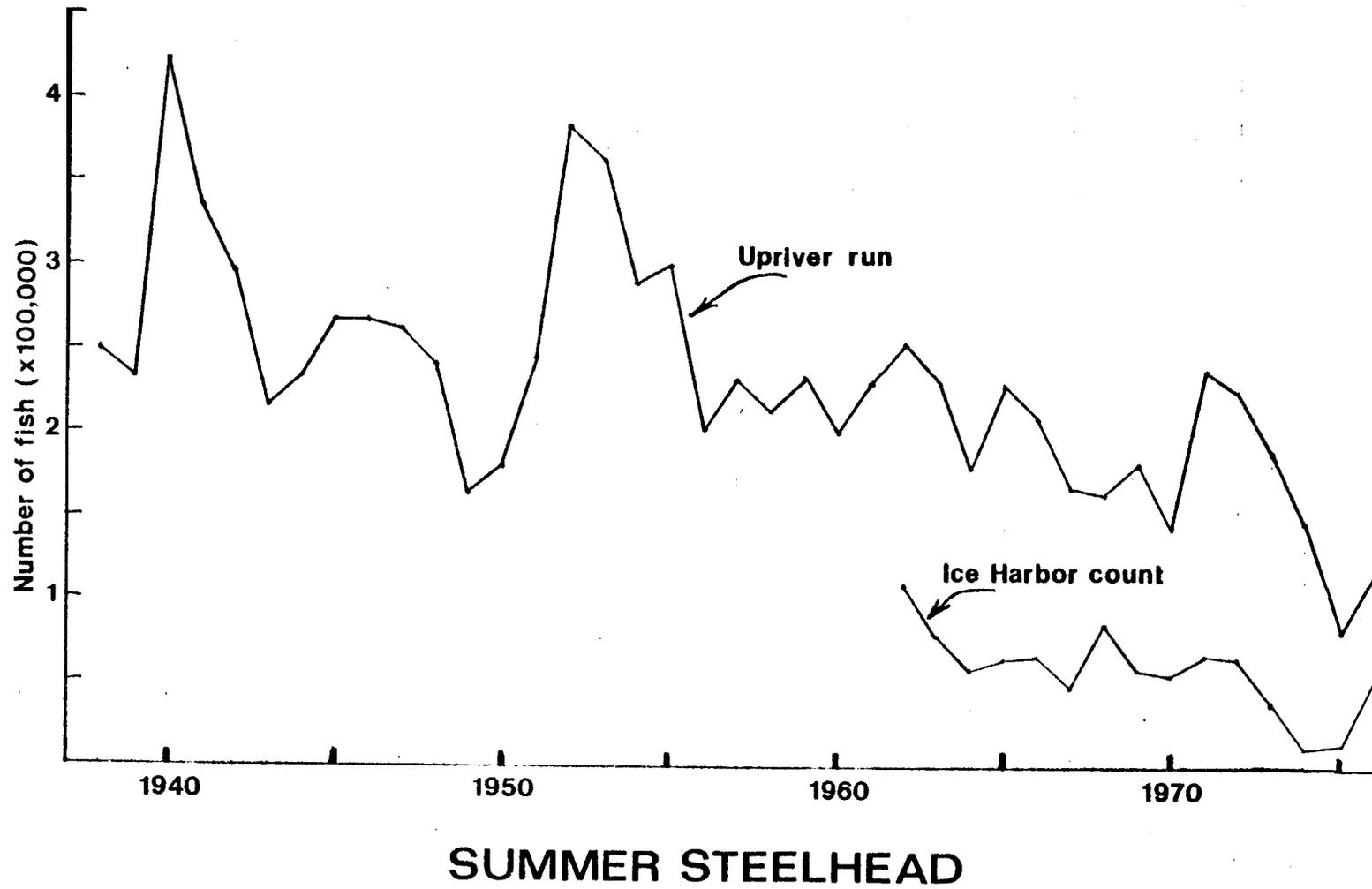


Figure 4. Columbia River summer steelhead upriver run size and Ice Harbor Dam counts.

Table 4. Steelhead stocking summary, Idaho, 1977.

Stocking area	Numbers	Size	Rearing facility
Snake River	211,510	fingerling	Niagara Springs
Snake River	85,510	fingerling	Hagerman
East Fork Potlatch	356,192	fry	Dworshak NFH
North Fork Clearwater	1,895,101	smolts	Dworshak NFH
Lolo Creek	300,000	fry	Dworshak NFH
Post Office Creek	90,000	fry	Dworshak NFH
Meadow Creek	712,150	fry	Dworshak NFH
Ten Mile Creek	600,000	fry	Dworshak NFH
Spring Creek	300,000	fry	Dworshak NFH
Salmon River	48,100	smolts	Hagerman
East Fork Salmon	100,000	fry	Dworshak NFH
Squaw Creek	50,000	fry	Dworshak NFH
Valley Creek	39,165	smolts	Hagerman
Deadman Creek	180,000	fry	Dworshak NFH
Crooked River	275,000	fry	Dworshak NFH
Red River	275,000	fry	Dworshak NFH
Potlatch Creek	175,000	fry	Dworshak NFH
Panther Creek	50,000	fry	Dworshak NFH
North Fork Salmon	50,000	fry	Dworshak NFH
Hayden Creek	222,404	smolts	Hayden Creek Research Station
Hayden Creek	157,149	fry	Hayden Creek Research Station
Pahsimeroi River	1,448,671	smolts	Niagara Springs
South Fork Salmon	300,000	fry	Dworshak NFH
Johnson Creek	300,000	fry	Dworshak NFH
Total	8,190,952		

Table 5. Summary of coded wire tagged fish released in Idaho, 1976-1977.

<u>Year</u>	<u>Hatchery</u>	<u>Number (x 1,000)</u>	<u>Species</u>
1976	McCall	80	summer chinook
1976	Rapid River	136	spring chinook
1976	Kooskia NFH	129	spring chinook
	Subtotal	345	
1977	McCall	82	summer chinook
1977	Rapid River	255	spring chinook
1977	Kooskia NFH	124	spring chinook
1977	Hayden Creek	100	steel head
1977 (fall)	Hayden Creek	86	spring chinook
1977 (spring)	Hayden Creek	9	spring chinook
1977	Niagara Springs	172	steel head
1977	Pahsimeroi	123	summer chinook
1977	Dworshak NFH	<u>308</u>	steel head
	Subtotal	1,259	
	Total	1,604	

Hayden Creek (Anderson, 1978).

Hagerman Hatchery

A production goal for Hagerman Hatchery to rear 1 million smolts yearly for stocking in the upper Salmon River has been elusive due to short supplies of eggs and in-hatchery losses. To illustrate the problem, on July 1 there were 263,000 (1976 brood year) fish on hand. This was supplemented by 165,000 more fingerlings in September giving a base level of 428,000. However, only 172,775 fingerlings and smolts were stocked.

Snake River

Twenty-two male and 152 female steelhead were trapped at Hells Canyon Dam for spawn-taking. Due to the small number of males 40 more were obtained from Pahsimeroi Hatchery. 591,420 were taken, eyed at Oxbow, and transferred to Niagara Springs Hatchery for rearing (John Siple, inter-department correspondence).

The Snake River below Hells Canyon Dam was stocked with 297,020 fingerling steelhead from Niagara Springs and Hagerman hatcheries (Table 4).

FALL CHINOOK

A small run of 1,924 fall chinook were counted over Lower Granite Dam in 1977. Four of these fish were collected in the Hells Canyon Dam trap and none were used for egg-taking (John Siple, inter-department correspondence).

CODED WIRE TAGGING

Improved fish identification technology in the form of coded wire tagging was first used by Idaho Department of Fish and Game in 1976. We are using this technique on a large quantity of hatchery-reared chinook and steelhead yearly for:

1. Determination of fish distribution and harvest in the Pacific Ocean, Columbia River, and Idaho.
2. Evaluation of hatchery practices.

Through 1977 we had coded wire tagged and released over 1.5 million fish (Table 5). Information for tag recoveries from fisheries in Alaska, British Columbia, Washington, Idaho, Oregon and California will be reported by the Mark Processing Center of the Pacific Marine Fisheries Commission.

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APPENDIX

Table 1. Estimated sport catch of chinook salmon and steelhead, Idaho, 1954 to 1977.

Year	Chinook salmon catch	Steelhead catch
1954	15,000	12,000
1955	19,000	13,000
1956	21,000	8,000
1957	39,000	20,000
1958	24,000	30,000
1959	20,000	31,000
1960	21,000	30,000
1961	13,000	25,000
1962	12,000	19,000
1963	12,000	26,000
1964	8,000	18,000
1965	SEASON CLOSED	19,500
1966	8,500	20,500
1967	6,500	22,500
1968	10,000	23,000
1969	11,500	15,500
1970	5,500	20,500
1971	3,500	17,500
1972	6,500	13,500
1973	9,500	10,500
1974	1,500	3,000
1975	SEASON CLOSED	SEASON CLOSED
1976	SEASON CLOSED	2,000 ^{1/}
1977	3,500	13,000

^{1/} Catch occurred in fall on 1976-77 run. There was no catch of the 1975-76 run.

Table 2. Anadromous fish stocking in Idaho, 1960-1977.

Year	Description	Spring chinook	Summer chinook	Fall chinook	Coho	Steel head
1977	Fish	7,731,369	481,842	--	--	8,190,952
	Eyed eggs	1,037,340	--	--	--	
	Total	8,768,709	481,842	--	--	
1976	Fish	6,389,000	519,952	--	--	4,281,807
	Eyed eggs	1,400,000	--	--	--	
	Total	7,789,000	519,952	--	--	
1975	Fish	6,425,107	114,560	--	--	3,913,651
	Eyed eggs	--	--	--	--	
	Total	6,425,107	114,560	--	--	
1974	Fish	4,912,600	330,000	--	--	6,627,898
	Eyed eggs	2,207,000	--	--	--	
	Total	7,119,600	330,000	--	--	
1973	Fish	4,725,852	217,100	--	--	12,986,027
	Eyed eggs	3,511,544	--	--	--	
	Total	8,237,396	217,100	--	--	
1972	Fish	5,535,446	231,690	--	--	5,529,973
	Eyed eggs	3,047,372	--	--	--	
	Total	8,582,818	231,690	--	--	
1971	Fish	3,626,790	400,318	--	--	3,617,598
	Eyed eggs	2,423,000	--	--	--	
	Total	6,049,790	400,318	--	--	
1970	Fish	3,618,647	--	--	--	2,473,555
	Eyed eggs	7,578,917	--	--	--	
	Total	11,197,564	--	--	--	
1969	Fish	1,316,063	--	497,298	--	2,076,743
	Eyed eggs	1,704,826	--	--	--	
	Total	3,120,889	--	497,298	--	
1968	Fish	1,652,788	--	255,536	--	2,508,415
	Eyed eggs	3,680,890	--	--	2,000,000	
	Total	5,333,678	--	255,536	2,000,000	
1967	Fish	465,736	--	202,350	--	2,355,263
	Eyed eggs	2,014,460	--	1,548,000	3,066,000	
	Total	2,480,196	--	1,750,350	3,066,000	
1966	Fish	583,883	--	2,061,507	--	142,769
	Eyed eggs	2,029,000	--	1,500,000	3,000,000	
	Total	2,612,883	--	3,561,507	3,000,000	

Table 2 (Cont'd). Anadromous fish stocking in Idaho, 1960-1977.

Year	Description	Spring chinnook	Summer chinnook	Fall chinnook	Coho	Steel head
1965	Fish	--	--	214,720	--	24,291
	Eyed eggs	<u>635,000</u>	<u>--</u>	<u>--</u>	<u>1,180,000</u>	<u>273,973</u>
	Total	635,000	--	214,720	1,180,000	273,973
1964	Fish	--	--	2,282,555	--	--
	Eyed eggs	<u>2,211,000</u>	<u>--</u>	<u>1,000,000</u>	<u>--</u>	<u>390,897</u>
	Total	2,211,000	--	3,282,555	1,000,000	390,897
1963	Fish	--	--	495,540	--	--
	Eyed eggs	<u>1,860,000</u>	<u>--</u>	<u>1,000,000</u>	<u>500,000</u>	<u>484,000</u>
	Total	1,860,000	--	1,495,540	500,000	484,000
1962	Fish	--	--	--	--	--
	Eyed eggs	<u>2,070,000</u>	<u>--</u>	<u>400,000</u>	<u>100,000</u>	<u>102,000</u>
	Total	2,070,000	--	400,000	100,000	102,000
1961	Fish	--	--	--	--	--
	Eyed eggs	<u>1,455,000</u>	<u>--</u>	<u>750,000</u>	<u>--</u>	<u>--</u>
	Total	1,455,000	--	750,000	--	--
1960	Fish	--	--	--	--	--
	Eyed eggs	<u>--</u>	<u>--</u>	<u>535,000</u>	<u>--</u>	<u>--</u>
	Total	--	--	535,000	--	--